

MEMORIAL SIMPLIFICADO

DESCRITIVO E DE CÁLCULO

DA CAMARA MUNICIPAL DE VÁRZEA GRANDE – MT

1 – 2



DESCRIÇÃO DO EDIFÍCIO 22

Corte esquemático 22

Localização 22

Perpectivas da estrutura 23

NORMA EM USO 23

SOFTWARE UTILIZADO 23

MATERIAIS 23

Concreto 23

Módulo de elasticidade 24

Aço de armadura passiva 24

Aço de armadura ativa 24

PARÂMETRO DE DURABILIDADE 24

Classe de agressividade 24

Cobrimentos gerais 24

Cobrimentos diferenciados por pavimentos 25

AÇÕES E COMBINAÇÕES 25

Carga vertical 25

Vento 25

Desaprumo global 26

Empuxo 26

Incêndio 26

Cargas adicionais 26

Carregamentos nos pavimentos 26

Resumo de combinações no modelo global 26

Lista de combinações no modelo global 27

MODELO ESTRUTURAL 27

Explicações 27

Modelo estrutural dos pavimentos 27

Modelo estrutural global 28

Critérios de projeto 28

Modelo ELU 28

Modelo ELS 29

Consideração das fundações 29

Modelo 3D 29

Esforços de cálculo 29

ESTABILIDADE GLOBAL 30

Listagem completa dos parâmetros de instabilidade 30

Classificação da estrutura 31

COMPORTAMENTO EM SERVIÇO - ELS 31

Deslocamentos do modelo estrutural global 31

Listagem completa dos deslocamentos do modelo global do edifício 31

PARÂMETROS QUALITATIVOS 32

Esbeltez do edifício 32

Padronização de elementos 32

Densidade de pilares e vãos médios 32

MEMORIAL DE CÁLCULO DAS VIGAS 34

Relatório geral de vigas 34

Legenda 34

BALDRAME 34

V101 34

V102 36

V103 37

V104 37

V105 38

V106 38

V107 38

V108 39

V109 41

V110 41

V111 42

V112 43

V113 44

V114 44

V115 45

V116 45

V117 45

V118 45

V119 46

V120 48

V121 48

V122 49

V123 49

V124 51

V125 51

V126 51

V127 52

V128 52

V129 52

V130 53

V131 54

V132 54

V133 55

V134 55

V135 55

V136 56

V137 56

V138 56

V139 57

V140 58

V141 58

V142 59

V143 59

V144 60

V145 60

V146 60

V147 61

V148 62

V149 62

V150 62

V151 63

V152 64

V153 65

V154 65

V155 66

V156 67

V157 67

V158 68

V159 69

V160 69

V161 70

V162 70

V163 71

V164 72

V165 72

V166 72

V167 74

V168 75

V169 75

V170 75

V171 76

V172 77

V173 77

V174 77

V175 78

V176 78

V177 79

V178 79

V179 80

V180 80

V181 82

V182 82

V183 83

V184 83

V185 83

V186 84

V187 85

V188 86

V189 86

V190 86

V191 87

V192 88

V193 89

V194 90

V195 91

V196 91

V197 91

V198 92

V199 92

V200 92

V201 93

V202 93

V203 93

V204 94

V205 94

V206 95

V207 95

V208 96

V209 96

V210 97

TERREO 97

V201 97

V202 99

V203 100

V204 100

V205 101

V206 101

V207 101

V208 102

V209 102

V210 104

V211 105

V212 105

V213 107

V214 108

V215 108

V216 108

V217 109

V218 109

V219 109

V220 110

V221 112

V222 112

V223 113

V224 113

V225 114

V226 115

V227 115

V228 115

V229 116

V230 116

V231 117

V232 117

V233 118

V234 118

V235 119

V236 120

V237 120

V238 120

V239 120

V240 121

V241 121

V242 122

V243 122

V244 123

V245 124

V246 124

V247 125

V248 126

V249 126

V250 127

V251 127

V252 128

V253 128

V254 129

V255 130

V256 130

V257 130

V258 131

V259 132

V260 132

V261 133

V262 134

V263 134

V264 135

V265 136

V266 136

V267 137

V268 137

V269 137

V270 138

V271 139

V272 140

V273 140

V274 140

V275 141

V276 141

V277 141

V278 142

V279 144

V280 144

V281 144

V282 145

V283 146

V284 146

V285 146

V286 147

V287 147

V288 148

V289 148

V290 149

V291 149

V292 149

V293 150

V294 150

V295 150

V296 152

V297 152

V298 153

V299 153

V300 153

V301 154

V302 155

V303 156

V304 156

V305 156

V306 157

V307 158

V308 159

V309 160

V310 161

V311 161

V312 162

V313 162

V314 162

V315 163

V316 163

V317 163

V318 164

V319 164

V320 165

V321 165

V322 166

V323 166

V324 166

V325 167

COBERTURA 167

V301 167

V302 170

V303 170

V304 171

V305 171

V306 171

V307 172

V308 174

V309 174

V310 175

V311 176

V312 177

V313 177

V314 178

V315 178

V316 178

V317 178

V318 179

V319 179

V320 181

V321 182

V322 183

V323 183

V324 184

V325 184

V326 185

V327 185

V328 186

V329 186

V330 187

V331 187

V332 187

V333 188

V334 188

V335 189

V336 189

V337 190

V338 190

V339 191

V340 192

V341 192

V342 192

V343 193

V344 194

V345 194

V346 195

V347 196

V348 196

V349 197

V350 198

V351 198

V352 199

V353 200

V354 200

V355 200

V356 201

V357 202

V358 202

V359 204

V360 204

V361 204

V362 205

V363 205

V364 206

V365 206

V366 207

V367 207

V368 207

V369 208

V370 208

V371 209

V372 209

V373 211

V374 211

V375 211

V376 212

V377 212

V378 212

V379 214

V380 214

V381 215

V382 216

V383 216

V384 218

V385 218

V386 219

V387 219

V388 219

V389 220

V390 220

V391 220

V392 221

V393 221

V394 222

V395 222

V396 223

RESPALDO 223

V401 223

V402 225

V403 226

V404 226

V405 227

V406 229

V407 229

V408 231

V409 231

V410 231

V411 232

V412 232

V413 234

V414 234

V415 234

V416 236

V417 237

V418 238

V419 239

V420 240

V421 242

V422 242

V423 243

V424 243

V425 243

V426 244

MEMORIAL DE CÁLCULO DOS PILARES 245

Montagem de carregamentos de pilares 245

Legenda 245

P1 245

P10 246

P100 246

P101 247

P102 248

P103 249

P104 250

P105 251

P106 251

P107 252

P108 253

P109 253

P11 254

P110 255

P111 256

P112 257

P113 258

P114 258

P115 258

P116 259

P117 261

P118 261

P119 262

P12 264

P120 265

P121 265

P122 266

P123 267

P124 267

P125 268

P126 268

P127 269

P128 269

P129 270

P13 271

P130 272

P131 273

P132 274

P133 275

P134 276

P135 277

P136 277

P137 277

P138 278

P139 279

P14 279

P140 280

P141 280

P142 281

P143 282

P144 283

P145 284

P146 285

P147 286

P148 286

P149 286

P15 287

P150 288

P151 289

P152 289

P153 290

P154 291

P155 292

P156 293

P157 293

P158 295

P159 295

P16 296

P160 297

P161 298

P162 299

P163 300

P164 301

P165 302

P166 303

P167 304

P168 305

P169 305

P17 305

P170 306

P171 307

P18 307

P19 308

P2 308

P20 309

P21 310

P22 311

P23 312

P24 313

P25 313

P26 314

P27 315

P28 316

P29 316

P3 318

P30 319

P31 320

P32 320

P33 321

P34 322

P35 323

P36 324

P37 324

P38 325

P39 326

P4 326

P40 327

P41 328

P42 329

P43 330

P44 331

P45 332

P46 332

P47 333

P48 334

P49 335

P5 337

P50 338

P51 339

P52 339

P53 340

P54 341

P55 342

P56 343

P57 344

P58 345

P59 346

P6 347

P60 348

P61 349

P62 350

P63 351

P64 352

P65 354

P66 355

P67 355

P68 356

P69 356

P7 357

P70 358

P71 358

P72 359

P73 360

P74 362

P75 363

P76 363

P77 364

P78 365

P79 366

P8 366

P80 367

P81 368

P82 369

P83 370

P84 371

P85 371

P86 372

P87 372

P88 373

P89 374

P9 374

P90 375

P91 376

P92 377

P93 378

P94 379

P95 380

P96 381

P97 381

P98 382

P99 383

Seleção de bitolas de pilares 383

Legenda 383

P1 383

P10 384

P100 384

P101 384

P102 384

P103 384

P104 384

P105 385

P106 385

P107 385

P108 385

P109 385

P11 385

P110 385

P111 386

P112 386

P113 386

P114 386

P115 386

P116 386

P117 387

P118 387

P119 387

P12 387

P120 387

P121 387

P122 388

P123 388

P124 388

P125 388

P126 388

P127 388

P128 388

P129 389

P13 389

P130 389

P131 389

P132 389

P133 389

P134 390

P135 390

P136 390

P137 390

P138 390

P139 390

P14 391

P140 391

P141 391

P142 391

P143 391

P144 391

P145 392

P146 392

P147 392

P148 392

P149 392

P15 392

P150 392

P151 393

P152 393

P153 393

P154 393

P155 393

P156 393

P157 394

P158 394

P159 394

P16 394

P160 394

P161 394

P162 395

P163 395

P164 395

P165 395

P166 395

P167 395

P168 396

P169 396

P17 396

P170 396

P171 396

P18 396

P19 396

P2 397

P20 397

P21 397

P22 397

P23 397

P24 397

P25 398

P26 398

P27 398

P28 398

P29 398

P3 398

P30 399

P31 399

P32 399

P33 399

P34 399

P35 399

P36 400

P37 400

P38 400

P39 400

P4 400

P40 400

P41 400

P42 401

P43 401

P44 401

P45 401

P46 401

P47 401

P48 402

P49 402

P5 402

P50 402

P51 402

P52 402

P53 403

P54 403

P55 403

P56 403

P57 403

P58 403

P59 404

P6 404

P60 404

P61 404

P62 404

P63 404

P64 405

P65 405

P66 405

P67 405

P68 405

P69 405

P7 406

P70 406

P71 406

P72 406

P73 406

P74 406

P75 407

P76 407

P77 407

P78 407

P79 407

P8 407

P80 408

P81 408

P82 408

P83 408

P84 408

P85 408

P86 408

P87 409

P88 409

P89 409

P9 409

P90 409

P91 409

P92 410

P93 410

P94 410

P95 410

P96 410

P97 410

P98 411

P99 411

MEMORIAL DE CÁLCULO DAS FUNDAÇÕES 412

Legenda 412

B1 412

B10 412

B100 413

B101 413

B102 414

B103 414

B104 415

B105 415

B106 416

B107 416

B108 417

B109 417

B11 418

B110 418

B111 419

B112 419

B113 420

B114 420

B115 420

B116 421

B117 421

B118 422

B119 422

B12 423

B120 423

B121 424

B122 424

B123 425

B124 425

B125 426

B126 426

B127 427

B128 427

B129 428

B13 428

B130 429

B131 429

B132 429

B133 430

B134 430

B135 431

B136 431

B137 432

B138 432

B139 433

B14 433

B140 434

B141 434

B142 435

B143 435

B144 436

B145 436

B146 436

B147 437

B148 437

B149 438

B15 438

B150 439

B151 439

B152 440

B153 440

B154 441

B155 441

B156 442

B157 442

B158 443

B159 443

B16 444

B17 444

B18 444

B19 445

B2 445

B20 446

B21 446

B22 447

B23 447

B24 448

B25 448

B26 449

B27 449

B28 450

B29 450

B3 451

B30 451

B31 452

B32 452

B33 453

B34 453

B35 453

B36 454

B37 454

B38 455

B39 455

B4 456

B40 456

B41 457

B42 457

B43 458

B44 458

B45 459

B46 459

B47 460

B48 460

B49 461

B5 461

B50 462

B51 462

B52 462

B53 463

B54 463

B55 464

B56 464

B57 465

B58 465

B59 466

B6 466

B60 467

B61 467

B62 468

B63 468

B64 469

B65 469

B66 470

B67 470

B68 471

B69 471

B7 472

B70 472

B71 472

B72 473

B73 473

B74 474

B75 474

B76 475

B77 475

B78 476

B79 476

B8 477

B80 477

B81 478

B82 478

B83 479

B84 479

B85 480

B86 480

B87 481

B88 481

B89 482

B9 482

B90 482

B91 483

B92 483

B93 484

B94 484

B95 485

B96 485

B97 486

B98 486

B99 487

CRITÉRIOS PROJETO - GERENCIADOS 488

Critérios gerais 488

Ações 488

Análise Estrutural 489

Dimensionamento, detalhamento e desenho 492

FIGURAS COMPLEMENTARES 497

# DESCRIÇÃO DO EDIFÍCIO

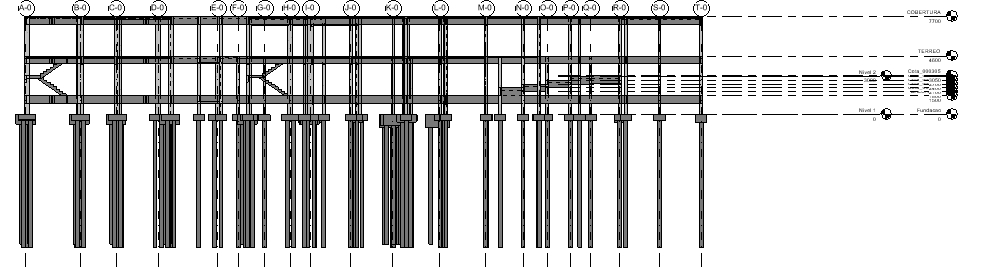
O edifício CAMARA DE VEREADORES DE VARZEA GRANDE é constituído por 4 pavimentos: 0 pavimentos de subsolo; 1 térreo(s); 2 pavimentos intermediários/tipos; 1 pavimentos de cobertura; 0 pavimentos para o ático. A seguir é apresentado um quadro com detalhes de cada um destes pavimentos.

|  |  |  |  |
| --- | --- | --- | --- |
| ***Pavimentos*** | ***Piso a Piso (m)*** | ***Cota (m)*** | ***Área (m2)*** |
| ***RESPALDO*** | 2,75 | 10,45 | 56,94 |
| ***COBERTURA*** | 3,10 | 7,70 | 1425,04 |
| ***TERREO*** | 3,10 | 4,60 | 1440,42 |
| ***BALDRAME*** | 1,50 | 1,50 | 143,21 |
| ***Fundacao*** | 0,00 | 0,00 | 0,00 |
| ***TOTAL*** | --- | --- | 3065,6 |

A altura total do edifício é de 10,4 m.

## Corte esquemático

A seguir é apresentado um corte esquemático do edifício. Nele é possível visualizar as distancias entre pavimento, cotas e nomenclaturas utilizadas:



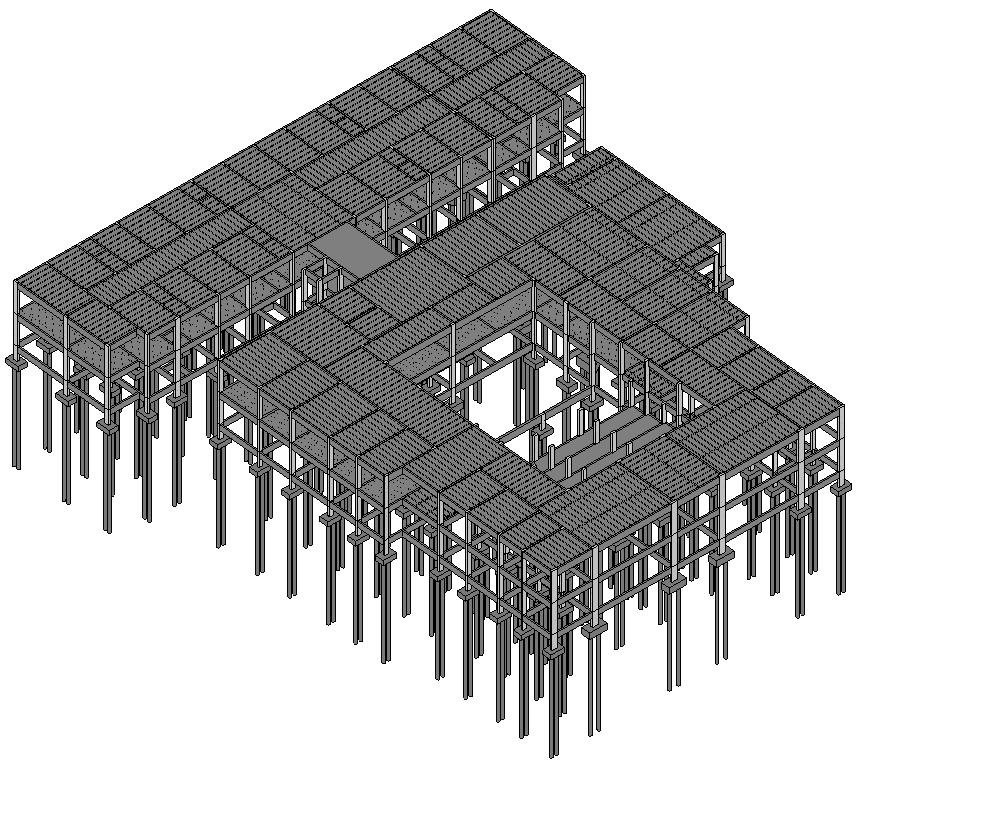
CORTE ESQUEMÁTICO

## 

## Localização

O país onde o edifício está localizado é: Brasil

## Perpectivas da estrutura



PERSPECTIVA DA ESTRUTURA

# NORMA EM USO

Na análise, dimensionamento e detalhamento dos elementos estruturais deste edifício foram utilizadas as prescrições indicadas pela seguinte norma: **NBR-6118:2014**.

# SOFTWARE UTILIZADO

Para a análise estrutural e dimensionamento e detalhamento estrutural foi utilizado o sistema TQS na versão V21.3.69.

# MATERIAIS

## Concreto

A seguir são apresentados os valores de fck, em MPa, utilizados para cada um dos elementos estruturais, para cada um dos pavimentos:

|  |  |  |  |
| --- | --- | --- | --- |
| ***Pavimento*** | ***Lajes*** | ***Vigas*** | ***Fundações*** |
| ***RESPALDO*** | 25 | 25 | 25 |
| ***COBERTURA*** | 25 | 25 | 25 |
| ***TERREO*** | 25 | 25 | 25 |
| ***BALDRAME*** | 25 | 25 | 25 |
| ***Fundacao*** | 25 | 25 | 25 |

|  |  |  |
| --- | --- | --- |
| ***Piso*** | ***Pavimento*** | ***fck do pilar (MPa)*** |
| ***4*** | RESPALDO | 25 |
| ***3*** | COBERTURA | 25 |
| ***2*** | TERREO | 25 |
| ***1*** | BALDRAME | 25 |
| ***0*** | Fundacao | 25 |

## Módulo de elasticidade

O módulo de elasticidade, em tf/m2, utilizado para cada um dos concretos utilizados é listado a seguir:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***AlfaE*** | ***Ecs(GPa)*** | ***Eci*** | ***Gc*** |
| ***C25*** | 1 | 2380000 | 2800000 | 0 |

## Aço de armadura passiva

Foram utilizadas as seguintes características para o aço estrutural utilizado no projeto:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Tipo de barra*** | ***Es(GPa)*** | ***fyk(MPa)*** | ***Massa específica(kg/m3)*** | ***n1*** |
| ***CA-25*** | 210 | 250 | 7.850 | 1,00 |
| ***CA-50*** | 210 | 500 | 7.850 | 2,25 |
| ***CA-60*** | 210 | 600 | 7.850 | 1,40 |

## Aço de armadura ativa

Foram utilizadas as seguintes características para o aço estrutural utilizado no projeto:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Tipo de barra*** | ***Ep(GPa)*** | ***fpyk(MPa)*** | ***fptk(MPa)*** | ***Massa específica(kg/m3)*** | ***n1*** |
| ***CP190-12,7*** | 200 | 175 | 190 | 7.850 | 1,0 |

# PARÂMETRO DE DURABILIDADE

## Classe de agressividade

Para o dimensionamento e detalhamento dos elementos estruturais foi considerada a seguinte Classe de Agressividade Ambiental no projeto: **II - Moderada**.

## Cobrimentos gerais

A definição dos cobrimentos foi feita com base na Classe de Agressividade Ambiental definida anteriormente.

A seguir são apresentados os valores de cobrimento utilizados para os diversos elementos estruturais existentes no projeto:

|  |  |
| --- | --- |
| ***Elemento Estrutural*** | ***Cobrimento (cm)*** |
| ***Lajes convencionais (superior / inferior)*** | 2,5 / 2,5 |
| ***Lajes protendidas (superior / inferior)*** | 3,0 / 3,0 |
| ***Vigas*** | 3,0 |
| ***Pilares*** | 3,0 |
| ***Fundações*** | 3,0 |

## Cobrimentos diferenciados por pavimentos

A seguir são apresentados os valores de cobrimentos diferenciados utilizados nos pavimentos. Caso os valores apresentados sejam zero (0), o valor geral foi utilizado:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Pavimento*** | ***Vigas (cm)*** | ***Laje Inf. (cm)*** | ***Laje Sup. (cm)*** | ***Laje Prot. Inf. (cm)*** | ***Laje Prot. Sup. (cm)*** |
| ***RESPALDO*** | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| ***COBERTURA*** | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| ***TERREO*** | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| ***BALDRAME*** | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| ***Fundacao*** | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |

# AÇÕES E COMBINAÇÕES

## Carga vertical

A seguir são apresentadas as cargas médias utilizadas em cada um dos pavimentos para o dimensionamento da estrutura.

A “carga média” de um pavimento é a razão entre as todas as cargas verticais características (peso-próprio, permanentes ou acidentais) pela área total estimada do pavimento.

|  |  |  |  |
| --- | --- | --- | --- |
| ***Pavimento*** | ***Peso Próprio (tf/m2)*** | ***Permanente (tf/m2)*** | ***Acidental (tf/m2)*** |
| ***RESPALDO*** | 1,11 | 1,56 | 0,02 |
| ***COBERTURA*** | 0,31 | 0,37 | 0,09 |
| ***TERREO*** | 0,43 | 0,20 | 0,24 |
| ***BALDRAME*** | 1,50 | 5,19 | 0,02 |
| ***Fundacao*** | 0,00 | 0,00 | 0,00 |

As cargas apresentadas foram obtidas do modelo dos pavimentos e não apresentam o peso próprio dos pilares.

## Vento

A seguir são apresentados os fatores de cálculo utilizados para definição das ações de vento incidentes sobre a estrutura.

* Velocidade básica (m/s): 0,0;
* Fator topográfico (S1): 0,0;
* Categoria de rugosidade (S2):
* Classe da edificação (S2): A - Maior dimensão horizontal ou vertical < 20m;
* Fator estatístico (S3): 0,00

Na tabela que se segue são apresentados os valores de coeficiente de arrasto, área de projeção do edifício e pressão calculada com os fatores apresentados anteriormente:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Caso*** | ***Ângulo (°)*** | ***Coef. arrasto*** | ***Área (m2)*** | ***Pressão (tf/m2)*** |
| ***5*** | 90 | 1,00 | 435,4 | 0,165 |
| ***6*** | 270 | 1,00 | 435,4 | 0,165 |
| ***7*** | 0 | 1,00 | 476,7 | 0,165 |
| ***8*** | 180 | 1,00 | 476,7 | 0,165 |

## Desaprumo global

Nenhum caso de desaprumo global foi considerado na análise estrutural do edifício.

## Empuxo

Nenhum caso de empuxo foi considerado na análise estrutural do edifício.

## Incêndio

TRRF: 120,0

## Cargas adicionais

Nenhum caso adicional foi considerado na análise estrutural do edifício.

## Carregamentos nos pavimentos

Outros carregamentos considerados nos modelos dos pavimentos são apresentados a seguir:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Pavimento*** | ***Temperatura*** | ***Retração*** | ***Protensão*** | ***Dinâmica*** |
| ***RESPALDO*** | Não | Não | Não | Não |
| ***COBERTURA*** | Não | Não | Não | Não |
| ***TERREO*** | Não | Não | Não | Não |
| ***BALDRAME*** | Não | Não | Não | Não |
| ***Fundacao*** | Não | Não | Não | Não |

## Resumo de combinações no modelo global

No modelo estrutural global foram consideradas as seguintes combinações:

|  |  |  |
| --- | --- | --- |
| ***Tipo*** | ***Descrição*** | ***N. Combinações*** |
| ***ELU1*** | Verificações de estado limite último - Vigas e lajes | 18 |
| ***ELU2*** | Verificações de estado limite último - Pilares e fundações | 18 |
| ***FOGO*** | Verificações em situação de incêndio | 2 |
| ***ELS*** | Verificações de estado limite de serviço | 12 |
| ***COMBFLU*** | Cálculo de fluência (método geral) | 2 |
| ***LAJEPRO*** | Combinações p/ flechas em lajes protendidas | 0 |

## Lista de combinações no modelo global

No modelo estrutural global foram consideradas as seguintes combinações:

ELU1/PERMACID/PP+PERM+ACID

ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT1

ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT2

ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT3

ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT4

ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT1

ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT2

ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT3

ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT4

FOGO/PERMVAR/PP+PERM+0.6ACID

ELS/CFREQ/PP+PERM+0.7ACID

ELS/CFREQ/PP+PERM+0.6ACID+0.3VENT1

ELS/CFREQ/PP+PERM+0.6ACID+0.3VENT2

ELS/CFREQ/PP+PERM+0.6ACID+0.3VENT3

ELS/CFREQ/PP+PERM+0.6ACID+0.3VENT4

ELS/CQPERM/PP+PERM+0.6ACID

COMBFLU/COMBFLU/PP+PERM+0.6ACID

ELU1/PERMACID/PP\_V+PERM\_V+ACID\_V

ELU1/ACIDCOMB/PP\_V+PERM\_V+ACID\_V+0.6VENT1

ELU1/ACIDCOMB/PP\_V+PERM\_V+ACID\_V+0.6VENT2

ELU1/ACIDCOMB/PP\_V+PERM\_V+ACID\_V+0.6VENT3

ELU1/ACIDCOMB/PP\_V+PERM\_V+ACID\_V+0.6VENT4

ELU1/ACIDCOMB/PP\_V+PERM\_V+0.8ACID\_V+VENT1

ELU1/ACIDCOMB/PP\_V+PERM\_V+0.8ACID\_V+VENT2

ELU1/ACIDCOMB/PP\_V+PERM\_V+0.8ACID\_V+VENT3

ELU1/ACIDCOMB/PP\_V+PERM\_V+0.8ACID\_V+VENT4

FOGO/PERMVAR/PP\_V+PERM\_V+0.6ACID\_V

ELS/CFREQ/PP\_V+PERM\_V+0.7ACID\_V

ELS/CFREQ/PP\_V+PERM\_V+0.6ACID\_V+0.3VENT1

ELS/CFREQ/PP\_V+PERM\_V+0.6ACID\_V+0.3VENT2

ELS/CFREQ/PP\_V+PERM\_V+0.6ACID\_V+0.3VENT3

ELS/CFREQ/PP\_V+PERM\_V+0.6ACID\_V+0.3VENT4

ELS/CQPERM/PP\_V+PERM\_V+0.6ACID\_V

COMBFLU/COMBFLU/PP\_V+PERM\_V+0.6ACID\_V

# MODELO ESTRUTURAL

## Explicações

Na análise estrutural do edifício foi utilizado o 'Modelo 6' do sistema TQS. Este modelo consiste em um único modelo de cálculo.

O edifício será modelador por um pórtico espacial único, composto por elementos que simularão as vigas, os pilares e as lajes da estrutura. Desta forma, além das vigas e pilares, as lajes passarão a resistir parte dos esforços gerados pelas cargas horizontais (como o vento), situação esta não flagrada em outros modelos do sistema TQS.

Os efeitos oriundos das ações veticais e horizontais nas vigas, pilares e lajes serão calculados com o pórtico espacial único.

Tratamento especial para vigas de transição e que suportam tirantes pode ter sido considerado e são apontados no item 'Critérios de projeto'. A flexibilização das ligações viga-pilar, a seperação de modelos específicos para análises ELU e ELS e os coeficientes de não-linearidade física também são apontados a seguir.

## Modelo estrutural dos pavimentos

A análise do comportamento estrutural dos pavimentos foi realizada através de modelos de grelha ou pórtico plano. Nestes modelos as lajes foram integralmente consideradas, junto com as vigas e os apoios formados pelos pilares existentes.

A seguir são apresentados o tipo de modelo estrutural utilizado em cada um dos pavimentos:

|  |  |  |
| --- | --- | --- |
| ***Pavimento*** | ***Descrição do Modelo*** | ***Modelo Estrutural*** |
| ***RESPALDO*** | Modelo de lajes planas | Pórtico (6 graus de liberdade) |
| ***COBERTURA*** | Modelo de lajes nervuradas | Pórtico (6 graus de liberdade) |
| ***TERREO*** | Modelo de lajes nervuradas | Pórtico (6 graus de liberdade) |
| ***BALDRAME*** | Modelo de lajes planas | Pórtico (6 graus de liberdade) |
| ***Fundacao*** | Modelo de lajes planas | Pórtico (6 graus de liberdade) |

Para a avaliação das deformações dos pavimentos em serviço, também foram realizadas análises considerando a não-linearidade física, onde através de incrementos de carga, as inércias reais das seções são estimadas considerando as armaduras de projeto e a fissuração nos estádios I, II ou III.

Os esforços obtidos dos modelos estruturais dos pavimentos foram utilizados para o dimensionamento das lajes à flexão e cisalhamento.

Nestes modelos foi utilizado o módulo de elasticidade secante do concreto. A seguir são apresentados os valores utilizados para cada um dos pavimentos:

|  |  |
| --- | --- |
| ***Pavimento*** | ***Módulo de elasticidade adotado (tf/m2)*** |
| ***RESPALDO*** | 2380000 |
| ***COBERTURA*** | 2380000 |
| ***TERREO*** | 2380000 |
| ***BALDRAME*** | 2380000 |
| ***Fundacao*** | 2380000 |

## Modelo estrutural global

No modelo de pórtico foram incluídos todos os elementos principais da estrutura, ou seja, pilares e vigas, além da consideração do diafragma rígido formado nos planos de cada pavimento (lajes). A rigidez à flexão das lajes foi desprezada na análise de esforços horizontais (vento).

Os pórticos espaciais foram modelados com todos os pavimentos do edifício, para a avaliação dos efeitos das ações horizontais e os efeitos de redistribuição de esforços em toda a estrutura devido aos carregamentos verticais.

As cargas verticais atuantes nas vigas e pilares do pórtico foram extraídas de modelos de grelha de cada um dos pavimentos.

Foram utilizados dois modelos de pórtico espacial: um específico para análises de Estado Limite Último - ELU e outro para o Estado Limite de Serviço - ELS. As características de cada um destes modelos são apresentadas a seguir.

## Critérios de projeto

A seguir são apresentadas algumas considerações de projeto utilizadas para a análise estrutura do edifício em questão:

* Flexibilização das ligações viga/pilar : Sim;
* Modelo enrijecido para viga de transição: Sim
* Método para análise de 2ª. Ordem global: GamaZ
* Análise por efeito incremental: Não
* Análise com interação fundação-estrutura: Não

## Modelo ELU

O modelo ELU foi utilizado para obtenção dos esforços necessários para o dimensionamento e detalhamento dos elementos estruturais.

Neste modelo foram utilizados os coeficientes de não linearidade física conforme apresentados na tabela a seguir:

|  |  |
| --- | --- |
| ***Elemento estrutural*** | ***Coef. NLF*** |
| ***Pilares*** | 0,80 |
| ***Vigas*** | 0,40 |
| ***Lajes*** | 0,30 |

O módulo de elasticidade utilizado no modelo foi de secante, de acordo com o fck do elemento estrutural (já apresentado anteriormente).

## Modelo ELS

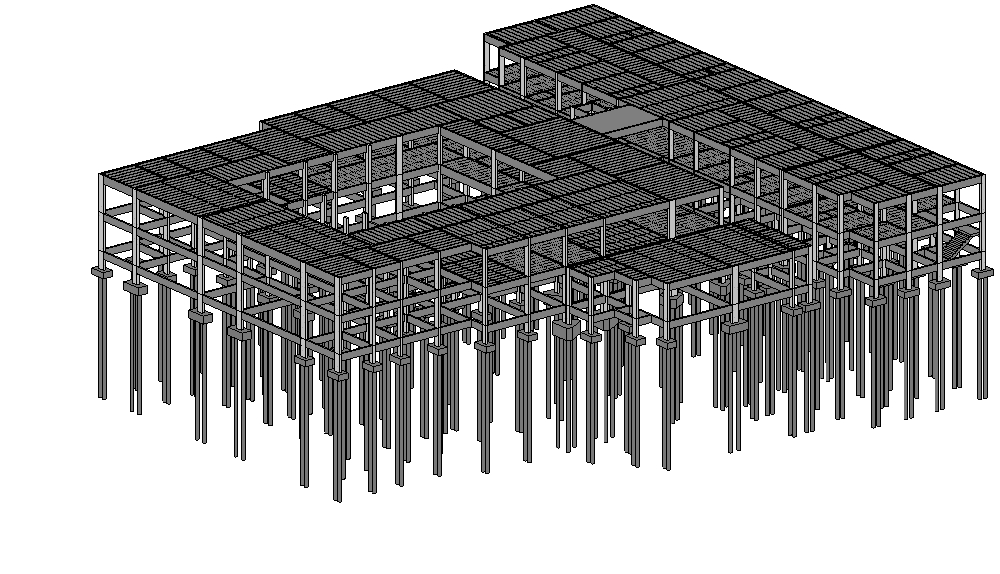
O modelo ELS foi utilizado para análise de deslocamento do edifício.

Neste modelo a inércia utilizada para os elementos estruturais foi a bruta.

## Consideração das fundações

Todas as fundações foram consideradas rigidamente conectadas à base.

## Modelo 3D



MODELO TRIDIMENSIONAL DA ESTRUTURA

## Esforços de cálculo

Os esforços obtidos na análise de pórtico foram utilizados para o dimensionamento dos elementos estruturais.

No dimensionamento das armaduras das vigas é utilizada uma envoltória de esforços solicitantes de todas as combinações pertencentes ao grupo ELU1. Para o dimensionamento de armaduras dos pilares são utilizadas todas as hipóteses de solicitações (combinações do grupo ELU2); neste conjunto de combinações são aplicadas as reduções de sobrecarga, caso o projeto esteja utilizando este artifício.

# ESTABILIDADE GLOBAL

A seguir são apresentados os principais parâmetros de instabilidade obtidos da análise estrutural do edifício.

|  |  |
| --- | --- |
| ***Parâmetro*** | ***Valor*** |
| ***GamaZ*** | 1,10 |
| ***FAVt*** | 1,10 |
| ***Alfa*** | 0,64 |

Na tabela anterior são apresentados somente os valores máximos obtidos para os coeficientes.

GamaZ é o parâmetro para avaliação da estabilidade de uma estrutura. Ele NÃO considera os deslocamentos horizontais provocados pelas cargas verticais (calculado p/ casos de vento), conforme definido no item 15.5.3 da NBR 6118.

FAVt é o fator de amplificação de esforços horizontais que pode considerar os deslocamentos horizontais gerados pelas cargas verticais (calculado p/ combinações ELU com a mesma formulação do GamaZ).

Alfa é o parâmetro de instabilidade de uma estrutura reticulada conforme definido pelo item 15.5.2 da NBR 6118.

## Listagem completa dos parâmetros de instabilidade

A seguir são apresentados a lsitagem completa dos parâmetros de instabilidade para as combinações apresentadas anteriormente:

Parâmetro de estabilidade (GamaZ) para os carregamentos simples de vento

========================================================================

Caso Ang CTot M2 CHor M1 Mig GamaZ Alfa Obs

5 90. 3759.3 31.8 71.8 442.4 56.4 1.101 0.636 B

6 270. 3759.3 31.8 71.8 442.4 56.4 1.101 0.636 B

7 0. 3759.3 31.1 78.6 484.4 56.4 1.089 0.500

8 180. 3759.3 31.1 78.6 484.4 56.4 1.089 0.500

Parâmetro de estabilidade (FAVt ) para combinações de ELU - vigas e lajes

=========================================================================

Caso Ang CTot M2 CHor M1 MultH FAVt Alfa Obs

14 90. 3759.3 19.0 43.1 265.5 1.000 1.100 0.639 B

15 270. 3759.3 19.2 43.1 265.5 1.046 1.101 0.634 B

16 0. 3759.3 18.8 47.2 290.6 1.000 1.089 0.508

17 180. 3759.3 18.6 47.2 290.6 1.000 1.089 0.490

18 90. 3759.3 31.7 71.8 442.4 1.045 1.100 0.638 B

19 270. 3759.3 31.9 71.8 442.4 1.046 1.101 0.635 B

20 0. 3759.3 31.2 78.6 484.4 1.000 1.089 0.505

21 180. 3759.3 31.1 78.6 484.4 1.000 1.089 0.495

25 90. 3759.3 19.0 43.1 265.5 1.045 1.100 0.643 B

26 270. 3759.3 19.2 43.1 265.5 1.046 1.101 0.630 B

27 0. 3759.3 18.8 47.2 290.6 1.000 1.090 0.508

28 180. 3759.3 18.6 47.2 290.6 1.000 1.089 0.490

29 90. 3759.3 31.7 71.8 442.4 1.045 1.100 0.640 B

30 270. 3759.3 31.9 71.8 442.4 1.046 1.101 0.633 B

31 0. 3759.3 31.2 78.6 484.4 1.000 1.089 0.505

32 180. 3759.3 31.0 78.6 484.4 1.000 1.089 0.494

Parâmetro de estabilidade (FAVt ) para combinações de ELU - pilares e fundações

===============================================================================

Caso Ang CTot M2 CHor M1 MultH FAVt Alfa Obs

14 90. 3759.3 19.0 43.1 265.5 1.000 1.100 0.639 B

15 270. 3759.3 19.2 43.1 265.5 1.046 1.101 0.634 B

16 0. 3759.3 18.8 47.2 290.6 1.000 1.089 0.508

17 180. 3759.3 18.6 47.2 290.6 1.000 1.089 0.490

18 90. 3759.3 31.7 71.8 442.4 1.045 1.100 0.638 B

19 270. 3759.3 31.9 71.8 442.4 1.046 1.101 0.635 B

20 0. 3759.3 31.2 78.6 484.4 1.000 1.089 0.505

21 180. 3759.3 31.1 78.6 484.4 1.000 1.089 0.495

25 90. 3759.3 19.0 43.1 265.5 1.045 1.100 0.643 B

26 270. 3759.3 19.2 43.1 265.5 1.046 1.101 0.630 B

27 0. 3759.3 18.8 47.2 290.6 1.000 1.090 0.508

28 180. 3759.3 18.6 47.2 290.6 1.000 1.089 0.490

29 90. 3759.3 31.7 71.8 442.4 1.045 1.100 0.640 B

30 270. 3759.3 31.9 71.8 442.4 1.046 1.101 0.633 B

31 0. 3759.3 31.2 78.6 484.4 1.000 1.089 0.505

32 180. 3759.3 31.0 78.6 484.4 1.000 1.089 0.494

Observações IMPORTANTES

=======================

Observações para os casos com Obs="B":

O parâmetro Alfa deste edifício indica que a estrutura é de

nós móveis.

Para efeito de verificação da capacidade de rotação dos

elementos estruturais, este edifício será considerado indeslocável.

## Classificação da estrutura

Baseado nos valores apresentados acima, a estrutura pode ser avaliada da seguinte forma:

* Parâmetro adotado na análise do edifício (GamaZ): 1,10;
* Tipo da estrutura (Alfa): 0,64.

# COMPORTAMENTO EM SERVIÇO - ELS

## Deslocamentos do modelo estrutural global

Para o edifício em questão os temos os seguintes valores:

* Altura total do edifício - H (m): 10,45;
* Altura entre pisos - Hi (m): 2,75.

## Listagem completa dos deslocamentos do modelo global do edifício

A seguir são apresentados a listagem completa dos parâmetros de instabilidade para as combinações apresentadas anteriormente:

Legenda para a tabela de deslocamentos máximos

==============================================

Legenda Valor

Caso Caso de carregamento de ELS

DeslH Máximo deslocamento horizontal absoluto (cm)

DeslHc Deslocamento horizontal corrigido pela relação Eci/Ecs

Ajuste E Relação entre o módulo de elast. usado e o permitido pela norma

Relat1 Valor relativo à altura total do edifício

Piso Piso de deslocamento máximo relativo

DeslHp Máximo deslocamento horizontal entre pisos (cm)

Relat3 Valor relativo ao pé-direito do pavimento

Obs Observações (A/B/C..). Quando definidas, ver significado a seguir.

Deslocamentos máximos

=====================

Caso DeslH Ajuste E DeslHc Relat1 Obs

5 0.53 0.91 0.48 H/2159.

6 0.53 0.91 0.48 H/2159.

7 0.58 0.91 0.53 H/1980. D

8 0.58 0.91 0.53 H/1980.

Deslocamentos máximos entre pisos

=================================

Caso Piso DeslHp Ajuste E DeslHc Relat3 Obs

5 4 0.14 0.91 0.13 Hi/2096.

6 4 0.14 0.91 0.13 Hi/2096.

7 4 0.24 0.91 0.21 Hi/1284. DE

8 4 0.24 0.91 0.21 Hi/1284.

Observações IMPORTANTES

=======================

Observações para os casos com Obs="D":

Caso de carregamento com deslocamento absoluto máximo

Observações para os casos com Obs="E":

Caso de carregamento com deslocamento relativo máximo

Com os resultados obtidos pela análise estrutural obteve-se os seguintes valores de deslocamentos horizontais do modelo estrutural global:

|  |  |  |
| --- | --- | --- |
| ***Deslocamento*** | ***Valor máximo*** | ***Referência*** |
| ***Topo do edifício (cm)*** | (H / 1980) 0,53 | (H / 1700) 0,61 |
| ***Entre pisos (cm)*** | (Hi / 1284) 0,21 | (Hi / 850) 0,32 |

Os valores de referência utilizados são prescritos pelo NBR 6118 através do item 13.3.

## Análise dinâmica do modelo estrutural global

Para o edifício em questão os temos os seguintes valores:

|  |  |  |  |
| --- | --- | --- | --- |
| ***Caso*** | ***Acelerações X (m/s2)*** | ***Acelerações X (m/s2)*** | ***Percepção humana*** |
| ***5*** | 0,000 | 0,000 | Imperceptível |
| ***6*** | 0,000 | 0,000 | Imperceptível |
| ***7*** | 0,000 | 0,000 | Imperceptível |
| ***8*** | 0,000 | 0,000 | Imperceptível |

A escala de conforto utilizada segue os seguintes passos: Imperceptível - Perceptível - Incômoda - Muito Incômoda - Intolerável.

# PARÂMETROS QUALITATIVOS

## Esbeltez do edifício

A seguir é apresentada a esbeltez do edifício e da torre (caso exista).

|  |  |  |
| --- | --- | --- |
|  | ***Número de pisos*** | ***Esbeltez*** |
| ***Torre Tipo*** | 2 | 0,11 |
| ***Edifício*** | 5 | 0,27 |

Na tabela anterior, 'torre tipo' é a parte do edifício que está acima do primeiro pavimento 'Tipo' ou 'Primeiro', conforme indicado no esquema do edifício.

A esbeltez é a razão da altura pela menor dimensão do edifício.

## Padronização de elementos

A seguir são apresentados os elementos e suas variações para cada um dos pavimentos.

|  |  |  |  |
| --- | --- | --- | --- |
| ***Pavimentos*** | ***Pilares*** | ***Vigas*** | ***Lajes*** |
| ***RESPALDO*** | 89 / 5 | 26 / 1 | 1 / 1 |
| ***COBERTURA*** | 138 / 5 | 96 / 3 | 83 / 1 |
| ***TERREO*** | 165 / 4 | 125 / 4 | 88 / 3 |
| ***BALDRAME*** | 167 / 4 | 110 / 4 | 0 / 0 |
| ***Fundacao*** | 167 / 18 | 0 / 0 | 0 / 0 |

Na tabela anterior são apresentados os números de elementos do pavimento e o número de variações (seções ou espessuras diferentes).

## Densidade de pilares e vãos médios

A seguir é apresentada a densidade de pilares e vãos médios das vigas e lajes.

|  |  |  |  |
| --- | --- | --- | --- |
| ***Pavimentos*** | ***Densidade de pilares (m2)*** | ***Vigas (m)*** | ***Lajes (m)*** |
| ***RESPALDO*** | 0,6 | 3,5 | 1,8 |
| ***COBERTURA*** | 10,3 | 3,6 | 3,1 |
| ***TERREO*** | 8,7 | 3,5 | 2,7 |
| ***BALDRAME*** | 0,9 | 3,5 | 0,0 |
| ***Fundacao*** | 0,0 | 0,0 | 0,0 |

A densidade de pilares é a razão da área do pavimento pelo número de pilares existentes neste pavimento.

**MEMORIAL DE CÁLCULO DAS VIGAS**

A seguir são apresentados os dados e resultados do cálculo/dimensionamento das vigas:

## Relatório geral de vigas

### Legenda

G E O M E T R I A

Eng.E : Engastamento a Esquerda / Eng.D : Engastamento a Direita / Repet : Repeticoes

NAnd : N.de Andares / Red V Ext : Reducao de Cortante no Extremo / Fat.Alt : Fator de Alternancia de Cargas

Cob : Cobrimento / TpS : Tipo da Secao / BCs : Mesa Colaborante Superior

BCi : Mesa Colaborante Inferior / Esp.LS : Espessura Laje Superior / Esp.LI : Espessura Laje Infetior

FSp.Ex : Distancia Face Superior Eixo / FLt.Ex : Distancia Face Lateral ao Eixo / Cob/S : Cobrim/Cobr.superior adicional

C A R G A S

MEsq : Momento Adicional a Esquerda / MDir : Momento Adicional a Direita / Q : Cortante Adicional (valor unico)

A R M A D U R A S - F L E X A O

SRAS : Secao Retangular Armad.Simples / SRAD : Secao Retangular Armad.Dupla / STAS : Secao Te Armadura Simples

STAD : Secao Te Armadura Dupla / x/d : Profund. relativa da Linha Neutra / x/dMx : Profund. relativa da LN Maxima

AsL : Armadura de Compressao / Bit.de Fiss.: Bitola de fissuracao / Asapo : Armadura e/d que chega no extremo

A R M A D U R A S - C I S A L H A M E N T O

MdC : Modelo de Calculo (I ou II) / Ang. : Angulo da biela de compressao / Aswmin : Armad.transv.minima-cisalhamento

Asw[C+T]: Arm.tran.calculada cisalh+torcao / Bit : Bitola selecionada / Esp : Espacamento selecionado

NR : Numero de ramos do estribo / AsTrt : Armadura transversal de Tirante / AsSus : Armadura transversal-Suspensao

A R M A D U R A S - T O R C A O

%dT : % limite de TRd2 para desprezar o M de torcao (Tsd) / he : Espessura do nucleo de torcao

b-nuc : Largura do nucleo / h-nuc : Altura do nucleo

Asw-1R : Armadura de torcao calculada para 1 Ramo de estribo / AswmnNR : Armad.transv.minima-torcao p/NR estribos selecionado

Asl-b : Armadura longitudinal de torcao no lado b / Asl-h : Armadura longitudinal de torcao no lado h

ComDia : Valor da compressao diagonal (cisalhamento+torcao) / AdPla : Capacida/ adaptacao plastica no vao - S[sim] N[nao]

R E A C O E S D E A P O I O

DEPEV : Distancia do eixo do pilar ao eixo efetivo de apoio -viga / Morte : Codigo se pilar morre / segue / vigas

M.I.Mx : Momento Imposto Maximo / M.I.Mn : Momento Imposto Minimo

## BALDRAME

### V101

Viga= 101 V101 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 105 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.59 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 192 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.78 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 128 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 2.00 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 57. 6.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

57.- 239. 5.20 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

239.- 350. 3.94 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 296 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.38 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 4.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 338. 4.77 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

338.- 425. 6.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 236 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 133 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 2.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 103 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.38 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 3.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 4.50 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 300 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.78 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 4.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.77 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

342.- 430. 6.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 236 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=11 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 157 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.618 1.158 0.20 0.00 0 P2 0.00 0.00 2 0 0 0 0 0

2 3.495 3.074 0.20 0.00 0 P3 0.00 0.00 3 0 0 0 0 0

3 6.111 5.946 0.50 0.07 0 P1 0.00 0.00 1 0 0 0 0 0

4 4.092 3.654 0.20 0.00 0 P4 0.00 0.00 4 0 0 0 0 0

5 4.787 4.742 0.20 0.00 0 P5 0.00 0.00 5 0 0 0 0 0

6 6.538 6.376 0.20 0.00 0 P6 0.00 0.00 6 0 0 0 0 0

7 2.722 2.670 0.20 0.00 0 P7 0.00 0.00 7 0 0 0 0 0

8 2.867 2.795 0.20 0.00 0 P8 0.00 0.00 8 0 0 0 0 0

9 5.119 4.920 0.20 0.00 0 P9 0.00 0.00 9 0 0 0 0 0

10 6.576 6.383 0.20 0.00 0 P10 0.00 0.00 10 0 0 0 0 0

11 2.806 2.663 0.20 0.00 0 P11 0.00 0.00 11 0 0 0 0 0

12 1.721 1.448 0.20 0.00 0 P15 0.00 0.00 15 0 0 0 0 0

### V102

Viga= 102 V102 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 190 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.80 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.38 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 198. 3.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

198.- 268. 4.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

268.- 360. 6.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 232 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 3.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 236 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.97

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.806 2.086 0.20 0.00 0 P16 0.00 0.00 16 0 0 0 0 0

2 6.438 6.182 0.20 0.00 0 P12 0.00 0.00 12 0 0 0 0 0

3 3.157 2.625 0.20 0.00 0 P13 0.00 0.00 13 0 0 0 0 0

4 1.890 0.897 0.20 0.00 0 P14 0.00 0.00 14 0 0 0 0 0

### V103

Viga= 103 V103 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.702 0.702 0.15 0.00 2 V156 0.00 0.00 0 0 0 0 0 0

2 0.690 0.689 0.15 0.00 2 V159 0.00 0.00 0 0 0 0 0 0

### V104

Viga= 104 V104 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.688 0.683 0.15 0.00 2 V196 0.00 0.00 0 0 0 0 0 0

2 0.709 0.703 0.15 0.00 2 V200 0.00 0.00 0 0 0 0 0 0

### V105

Viga= 105 V105 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 1.00 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.684 0.681 0.15 0.00 2 V169 0.00 0.00 0 0 0 0 0 0

2 0.711 0.708 0.15 0.00 2 V170 0.00 0.00 0 0 0 0 0 0

### V106

Viga= 106 V106 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.685 0.681 0.15 0.00 2 V182 0.00 0.00 0 0 0 0 0 0

2 0.710 0.707 0.15 0.00 2 V185 0.00 0.00 0 0 0 0 0 0

### V107

Viga= 107 V107 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 157 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.70 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.57 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 3.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 2.12 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 3.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.623 2.168 0.15 0.00 2 V203 0.00 0.00 0 0 0 0 0 0

2 2.673 1.985 0.15 0.00 2 V205 0.00 0.00 0 0 0 0 0 0

### V108

Viga= 108 V108 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 25 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.84 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 172 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.86 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.37 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 5.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 4.25 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

274.- 385. 4.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 189 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.33 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 253 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.70 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 4.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 318. 4.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

318.- 405. 6.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.03 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 228 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 3.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 137 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 2.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 150 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 4.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 268 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.82 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 4.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.88 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

342.- 430. 6.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.03 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 254 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 3.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 135 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.77 36.28 1 45. ERR 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.304 0.311 0.20 0.00 0 P17 0.00 0.00 17 0 0 0 0 0

2 6.545 5.941 0.40 0.02 0 P18 0.00 0.00 18 0 0 0 0 0

3 4.754 4.437 0.20 0.00 0 P19 0.00 0.00 19 0 0 0 0 0

4 4.712 4.391 0.40 0.02 0 P20 0.00 0.00 20 0 0 0 0 0

5 6.388 6.036 0.20 0.00 0 P21 0.00 0.00 21 0 0 0 0 0

6 2.801 2.643 0.40 0.02 0 P22 0.00 0.00 22 0 0 0 0 0

7 2.945 2.770 0.20 0.00 0 P23 0.00 0.00 23 0 0 0 0 0

8 5.171 4.766 0.40 0.02 0 P24 0.00 0.00 24 0 0 0 0 0

9 6.660 6.285 0.20 0.00 0 P25 0.00 0.00 25 0 0 0 0 0

10 2.835 2.575 0.40 0.02 0 P26 0.00 0.00 26 0 0 0 0 0

11 1.842 1.377 0.20 0.00 0 P30 0.00 0.00 30 0 0 0 0 0

### V109

Viga= 109 V109 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 227 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.21 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.52 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.79 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 198. 4.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

198.- 268. 4.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

268.- 360. 6.58 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 150 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.78 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 210 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.76

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.944 1.962 0.20 0.00 0 P31 0.00 0.00 31 0 0 0 0 0

2 6.217 6.061 0.40 0.02 0 P27 0.00 0.00 27 0 0 0 0 0

3 2.973 2.778 0.20 0.00 0 P28 0.00 0.00 28 0 0 0 0 0

4 1.830 1.064 0.20 0.00 0 P29 0.00 0.00 29 0 0 0 0 0

### V110

Viga= 110 V110 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 156 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ ERR | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.57 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.63 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.876 1.519 0.20 0.00 0 P32 0.00 0.00 32 0 0 0 0 0

2 1.703 1.345 0.15 0.00 2 V153 0.00 0.00 0 0 0 0 0 0

### V111

Viga= 111 V111 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 25 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.86 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 172 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.92 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.38 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 5.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 4.33 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

274.- 385. 4.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 325 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.21 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 2.7 tf\* m - Abcis.= 282 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.89 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.79 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.63 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.88

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 5.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 318. 5.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

318.- 385. 6.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.349 0.286 0.20 0.00 0 P35 0.00 0.00 35 0 0 0 0 0

2 6.547 5.940 0.40 0.02 0 P33 0.00 0.00 33 0 0 0 0 0

3 4.638 4.468 0.20 0.00 0 P36 0.00 0.00 36 0 0 0 0 0

4 4.866 4.455 0.40 0.02 0 P37 0.00 0.00 37 0 0 0 0 0

5 4.475 3.441 0.40 0.02 0 P38 0.00 0.00 38 0 0 0 0 0

### V112

Viga= 112 V112 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 25 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.71 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.77 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 268 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.72 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.69 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 4.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.47 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.0

342.- 430. 5.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.03 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 228 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 3.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 135 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.390 0.350 0.20 0.00 0 P39 0.00 0.00 39 0 0 0 0 0

2 5.533 4.835 0.40 0.02 0 P34 0.00 0.00 34 0 0 0 0 0

3 6.311 5.876 0.20 0.00 0 P41 0.00 0.00 41 0 0 0 0 0

4 2.886 2.709 0.40 0.02 0 P40 0.00 0.00 40 0 0 0 0 0

5 1.898 1.297 0.20 0.00 0 P45 0.00 0.00 45 0 0 0 0 0

### V113

Viga= 113 V113 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 2.7 tf\* m - Abcis.= 227 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.31 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.59 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.81 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 196. 4.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

196.- 268. 4.96 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

268.- 360. 6.65 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 150 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 2.03 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.78 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 210 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.91

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.999 1.915 0.20 0.00 0 P46 0.00 0.00 46 0 0 0 0 0

2 6.264 6.113 0.40 0.02 0 P42 0.00 0.00 42 0 0 0 0 0

3 3.039 2.644 0.20 0.00 0 P43 0.00 0.00 43 0 0 0 0 0

4 1.843 1.016 0.20 0.00 0 P44 0.00 0.00 44 0 0 0 0 0

### V114

Viga= 114 V114 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.687 0.682 0.15 0.00 2 V168 0.00 0.00 0 0 0 0 0 0

2 0.709 0.705 0.15 0.00 2 V170 0.00 0.00 0 0 0 0 0 0

### V115

Viga= 115 V115 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.703 0.702 0.15 0.00 2 V155 0.00 0.00 0 0 0 0 0 0

2 0.690 0.688 0.15 0.00 2 V158 0.00 0.00 0 0 0 0 0 0

### V116

Viga= 116 V116 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 67 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.691 0.688 0.15 0.00 2 V195 0.00 0.00 0 0 0 0 0 0

2 0.704 0.701 0.15 0.00 2 V199 0.00 0.00 0 0 0 0 0 0

### V117

Viga= 117 V117 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 156 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.909 1.500 0.20 0.00 0 P47 0.00 0.00 47 0 0 0 0 0

2 1.722 1.313 0.15 0.00 2 V153 0.00 0.00 0 0 0 0 0 0

### V118

Viga= 118 V118 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 182 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.796 1.256 0.15 0.00 2 V202 0.00 0.00 0 0 0 0 0 0

2 1.966 1.426 0.20 0.00 0 P48 0.00 0.00 48 0 0 0 0 0

### V119

Viga= 119 V119 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 0 | M.[-] = 3.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.11 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.87 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 4.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 175 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.46 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 6.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 4.63 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

274.- 385. 4.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 259 | M.[-] = 4.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.92 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 338. 5.53 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

338.- 425. 6.93 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 6.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.7 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 370 | M.[-] = 4.0 tf\* m

[tf,cm]| As = 2.95 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.45 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.47 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 106. 5.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

106.- 520. 3.95 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

520.- 615. 8.46 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 1.4

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 310 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 2.10 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 3.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 4.50 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 300 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.81 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 4.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.63 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.0

342.- 430. 6.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 236 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 157 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.554 0.006 0.20 0.00 0 P49 0.00 0.00 49 0 0 0 0 0

2 6.650 5.859 0.50 0.07 0 P50 0.00 0.00 50 0 0 0 0 0

3 4.782 4.391 0.20 0.00 0 P51 0.00 0.00 51 0 0 0 0 0

4 4.026 3.951 0.20 0.00 0 P52 0.00 0.00 52 0 0 0 0 0

5 8.873 8.544 0.20 0.00 0 P53 0.00 0.00 53 0 0 0 0 0

6 8.314 7.885 0.20 0.00 0 P54 0.00 0.00 54 0 0 0 0 0

7 3.980 3.639 0.20 0.00 0 P55 0.00 0.00 55 0 0 0 0 0

8 6.461 6.199 0.20 0.00 0 P56 0.00 0.00 56 0 0 0 0 0

9 2.882 2.726 0.20 0.00 0 P57 0.00 0.00 57 0 0 0 0 0

10 1.718 1.349 0.20 0.00 0 P60 0.00 0.00 60 0 0 0 0 0

### V120

Viga= 120 V120 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 230 | M.[-] = 4.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.67 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.68 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.98 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 196. 4.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

196.- 268. 5.30 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.2

268.- 360. 7.00 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 295 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 2.52 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.11

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 4.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.132 1.757 0.20 0.00 0 P61 0.00 0.00 61 0 0 0 0 0

2 6.850 6.208 0.50 0.07 0 P58 0.00 0.00 58 0 0 0 0 0

3 1.682 -0.327 0.20 0.00 0 P59 0.00 0.00 59 0 0 0 0 0

### V121

Viga= 121 V121 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.69 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 44 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 249. 3.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.91 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 1.9 tf\* m - Abcis.= 286 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.50 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 157. 4.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

157.- 314. 1.84 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

314.- 471. 3.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.939 0.429 0.20 0.00 0 P66 0.00 0.00 66 0 0 0 0 0

2 5.129 4.864 0.20 0.00 0 P67 0.00 0.00 67 0 0 0 0 0

3 2.279 2.030 0.20 0.00 0 P68 0.00 0.00 68 0 0 0 0 0

### V122

Viga= 122 V122 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.67 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 195 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.48 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 144. 3.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

144.- 287. 1.62 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

287.- 431. 4.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.79 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 164 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 254. 2.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.466 1.991 0.40 0.02 0 P70 0.00 0.00 70 0 0 0 0 0

2 4.493 4.277 0.40 0.02 0 P69 0.00 0.00 69 0 0 0 0 0

3 1.217 0.949 0.15 0.00 2 V193 0.00 0.00 0 0 0 0 0 0

### V123

Viga= 123 V123 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 161 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.50 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 3.94 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 2.43 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 4.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.99 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 253 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 2.16 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 157. 4.56 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

157.- 314. 1.97 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

314.- 471. 3.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 320 | M.[-] = 4.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.90 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 4.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.29 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.5 tf\* m | M.[+] Max= 4.6 tf\* m - Abcis.= 425 | M.[-] = 6.5 tf\* m

[tf,cm]| As = 3.41 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 4.09 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.15 | As = 2.79 -SRAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.18

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 6.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 64. 6.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

64.- 550. 6.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

550.- 709. 8.62 36.28 1 45. 1.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 5.68 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 331 | M.[-] = 3.5 tf\* m

[tf,cm]| As = 3.37 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 2.15 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.15 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 4.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

183.- 365. 1.99 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

365.- 548. 3.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 7.05 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 411 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 2.64 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.01 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.60

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 151. 5.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

151.- 529. 3.08 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

529.- 685. 4.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.811 1.476 0.40 0.02 0 P71 0.00 0.00 71 0 0 0 0 0

2 5.960 5.297 0.50 0.07 0 P72 0.00 0.00 72 0 0 0 0 0

3 2.949 2.878 0.20 0.00 0 P73 0.00 0.00 73 0 0 0 0 0

4 7.218 6.706 0.20 0.00 0 P74 0.00 0.00 74 0 0 0 0 0

5 9.391 9.230 0.20 0.00 0 P75 0.00 0.00 75 0 0 0 0 0

6 6.509 5.983 0.20 0.00 0 P76 0.00 0.00 76 0 0 0 0 0

7 3.081 2.626 0.20 0.00 0 P77 0.00 0.00 77 0 0 0 0 0

### V124

Viga= 124 V124 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 167 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 2.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 207. 1.74 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

207.- 310. 3.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.766 0.967 0.15 0.00 2 V183 0.00 0.00 0 0 0 0 0 0

2 2.492 1.693 0.40 0.02 0 P79 0.00 0.00 79 0 0 0 0 0

### V125

Viga= 125 V125 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 160 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.57 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.95 | | Asapo[+]= 0.85

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 4.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 2.80 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 3.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.137 1.791 0.20 0.00 0 P80 0.00 0.00 80 0 0 0 0 0

2 2.351 1.919 0.20 0.00 0 P81 0.00 0.00 81 0 0 0 0 0

### V126

Viga= 126 V126 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 162 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 1.92 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.01 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.61 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 4.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.05 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 4.47 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.126 1.814 0.40 0.02 0 P82 0.00 0.00 82 0 0 0 0 0

2 3.196 1.884 0.40 0.02 0 P83 0.00 0.00 83 0 0 0 0 0

### V127

Viga= 127 V127 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.68 /B= 0.15 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 2.7 tf\* m - Abcis.= 236 | M.[-] = 6.3 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 3.27 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.57 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.0 | M[+]Min = 231.0 | M[-]Min = 231.0

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 4.01 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

183.- 365. 4.00 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

365.- 548. 7.01 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.05 /B= 0.15 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.5 tf\* m | M.[+] Max= 3.7 tf\* m - Abcis.= 411 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 3.37 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 1.90 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 4.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.0 | M[+]Min = 231.0 | M[-]Min = 231.0

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 171. 6.55 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

171.- 514. 3.84 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

514.- 685. 4.57 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.863 2.364 0.20 0.00 0 P84 0.00 0.00 84 0 0 0 0 0

2 9.360 9.104 0.20 0.00 0 P85 0.00 0.00 85 0 0 0 0 0

3 3.264 2.854 0.20 0.00 0 P87 0.00 0.00 87 0 0 0 0 0

### V128

Viga= 128 V128 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 7.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.9 tf\* m | M.[+] Max= 4.2 tf\* m - Abcis.= 380 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.38 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.95 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.56 -SRAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 6.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 185. 5.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

185.- 555. 2.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

555.- 740. 5.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.095 3.972 0.20 0.00 0 P88 0.00 0.00 88 0 0 0 0 0

2 3.864 3.741 0.20 0.00 0 P86 0.00 0.00 86 0 0 0 0 0

### V129

Viga= 129 V129 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.02 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 168 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 2.34 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 126. 2.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

126.- 251. 2.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

251.- 377. 4.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.83 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.0 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 343 | M.[-] = 5.1 tf\* m

[tf,cm]| As = 3.12 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.22 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.14 | As = 1.45 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.14

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.36 | | Asapo[+]= 0.36

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 6.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.4

102.- 532. 3.57 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

532.- 648. 5.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.41 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 295 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 2.60 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 139. 4.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

139.- 277. 2.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 416. 2.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.563 1.118 0.15 0.00 2 V160 0.00 0.00 0 0 0 0 0 0

2 7.201 6.562 0.40 0.02 0 P89 0.00 0.00 89 0 0 0 0 0

3 6.854 6.432 0.40 0.02 0 P90 0.00 0.00 90 0 0 0 0 0

4 1.700 1.324 0.15 0.00 2 V177 0.00 0.00 0 0 0 0 0 0

### V130

Viga= 130 V130 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 162 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 1.98 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.02 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 4.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.05 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 4.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.159 1.814 0.40 0.02 0 P91 0.00 0.00 91 0 0 0 0 0

2 3.197 1.851 0.40 0.02 0 P92 0.00 0.00 92 0 0 0 0 0

### V131

Viga= 131 V131 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.79 /B= 0.15 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 227 | M.[-] = 8.2 tf\* m

[tf,cm]| As = 1.68 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 4.43 -SRAS- [ 4 B 12.5mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.57 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.16

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.0 | M[+]Min = 231.0 | M[-]Min = 231.0

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 159. 4.73 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

159.- 478. 4.09 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

478.- 638. 6.89 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 8.13 /B= 0.15 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 9.2 tf\* m | M.[+] Max= 6.0 tf\* m - Abcis.= 476 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 4.99 -SRAS- [ 4 B 12.5mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.19 | As = 3.07 -SRAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 7.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.0 | M[+]Min = 231.0 | M[-]Min = 231.0

[cm2 ]| Asapo[+]= 0.77 | | Asapo[+]= 1.02

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 156. 8.16 42.68 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

156.- 625. 5.38 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

625.- 782. 5.84 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.376 2.406 0.40 0.00 0 P93 0.00 0.00 93 0 0 0 0 0

2 10.090 9.619 0.50 0.04 0 P94 0.00 0.00 94 0 0 0 0 0

3 4.174 3.720 0.20 0.00 0 P95 0.00 0.00 95 0 0 0 0 0

### V132

Viga= 132 V132 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 135 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 3.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.7 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 378 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 2.94 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.45 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.36 | | Asapo[+]= 0.95

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 5.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 2.57 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 4.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.336 0.699 0.15 0.00 2 V180 0.00 0.00 0 0 0 0 0 0

2 5.838 5.451 0.40 0.02 0 P96 0.00 0.00 96 0 0 0 0 0

3 3.001 1.996 0.40 0.02 0 P97 0.00 0.00 97 0 0 0 0 0

### V133

Viga= 133 V133 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.71 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 250 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 235. 3.63 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 270 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 111. 3.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

111.- 292. 2.06 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

292.- 425. 3.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.588 1.816 0.40 0.02 0 P98 0.00 0.00 98 0 0 0 0 0

2 3.355 3.004 0.40 0.02 0 P99 0.00 0.00 99 0 0 0 0 0

3 2.837 2.303 0.40 0.02 0 P100 0.00 0.00 100 0 0 0 0 0

### V134

Viga= 134 V134 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 162 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.03 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.06 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 4.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.08 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 4.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.196 1.794 0.40 0.02 0 P101 0.00 0.00 101 0 0 0 0 0

2 3.216 1.815 0.40 0.02 0 P102 0.00 0.00 102 0 0 0 0 0

### V135

Viga= 135 V135 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.50 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 125 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 225. 2.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.841 1.268 0.40 0.02 0 P105 0.00 0.00 105 0 0 0 0 0

2 1.314 0.742 0.15 0.00 2 V198 0.00 0.00 0 0 0 0 0 0

### V136

Viga= 136 V136 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 330 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.73 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 5.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 2.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 4.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.623 2.628 0.40 0.02 0 P106 0.00 0.00 106 0 0 0 0 0

2 3.207 2.213 0.40 0.02 0 P107 0.00 0.00 107 0 0 0 0 0

### V137

Viga= 137 V137 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.71 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 248 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.44 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.92

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 235. 3.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.643 1.657 0.40 0.02 0 P108 0.00 0.00 108 0 0 0 0 0

2 1.137 0.151 0.40 0.02 0 P109 0.00 0.00 109 0 0 0 0 0

### V138

Viga= 138 V138 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 162 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 1.91 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.00 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 4.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.06 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 4.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.141 1.810 0.40 0.02 0 P110 0.00 0.00 110 0 0 0 0 0

2 3.200 1.870 0.40 0.02 0 P111 0.00 0.00 111 0 0 0 0 0

### V139

Viga= 139 V139 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.15 /B= 0.20 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 3.1 tf\* m - Abcis.= 171 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 2.10 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.10 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 2.10 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 308.0 | M[+]Min = 308.0 | M[-]Min = 308.0

[cm2 ]| Asapo[+]= 1.49 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 4.66 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

158.- 317. 2.64 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

317.- 475. 5.53 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.59 /B= 0.20 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 229 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 2.10 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.10 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 2.10 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 308.0 | M[+]Min = 308.0 | M[-]Min = 308.0

[cm2 ]| Asapo[+]= 0.53 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 3.85 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

140.- 280. 1.29 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

280.- 419. 3.88 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.15 /B= 0.20 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 343 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 2.10 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.10 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 2.10 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 308.0 | M[+]Min = 308.0 | M[-]Min = 308.0

[cm2 ]| Asapo[+]= 0.53 | | Asapo[+]= 1.36

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 5.47 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

158.- 317. 2.58 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

317.- 475. 4.51 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.322 2.006 0.40 0.00 0 P112 0.00 0.00 112 0 0 0 0 0

2 6.700 5.173 0.40 0.00 1 P113 0.00 0.00 113 0 0 0 0 0

3 6.675 5.287 0.40 0.00 1 P114 0.00 0.00 114 0 0 0 0 0

4 3.225 2.046 0.40 0.00 0 P115 0.00 0.00 115 0 0 0 0 0

### V140

Viga= 140 V140 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 162 | M.[-] = 4.2 tf\* m

[tf,cm]| As = 2.08 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.63 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.74 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.77 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 108. 5.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

108.- 314. 3.72 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.8

314.- 450. 5.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 311 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 2.14 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 126. 4.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

126.- 251. 2.47 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

251.- 377. 3.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.953 2.758 0.40 0.02 0 P116 0.00 0.00 116 0 0 0 0 0

2 5.993 5.600 0.40 0.02 0 P117 0.00 0.00 117 0 0 0 0 0

3 2.524 1.011 0.40 0.02 0 P118 0.00 0.00 118 0 0 0 0 0

### V141

Viga= 141 V141 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.33 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 55 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.68 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.42 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 4.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.0 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 331 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.42 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.96 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 4.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 2.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 4.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.327 0.478 0.40 0.02 0 P119 0.00 0.00 119 0 0 0 0 0

2 5.670 4.610 0.40 0.02 0 P120 0.00 0.00 120 0 0 0 0 0

3 3.124 2.329 0.40 0.02 0 P121 0.00 0.00 121 0 0 0 0 0

### V142

Viga= 142 V142 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 97 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.90 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.29 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.39 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 4.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.26 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 191 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 3.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 201. 1.51 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

201.- 301. 2.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.443 0.887 0.40 0.02 0 P130 0.00 0.00 130 0 0 0 0 0

2 4.915 3.833 0.40 0.02 0 P131 0.00 0.00 131 0 0 0 0 0

3 1.544 1.065 0.15 0.00 2 V166 0.00 0.00 0 0 0 0 0 0

### V143

Viga= 143 V143 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 135 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 3.56 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.7 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 378 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.93 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.93 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.65 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.74

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 174. 5.56 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

174.- 418. 3.38 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.5

418.- 530. 5.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.376 0.820 0.15 0.00 2 V180 0.00 0.00 0 0 0 0 0 0

2 5.876 5.603 0.40 0.02 0 P132 0.00 0.00 132 0 0 0 0 0

3 3.759 2.831 0.40 0.02 0 P133 0.00 0.00 133 0 0 0 0 0

### V144

Viga= 144 V144 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 96 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.16 | | Asapo[+]= 1.05

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.09 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 4.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.797 1.101 0.40 0.02 0 P142 0.00 0.00 142 0 0 0 0 0

2 2.879 1.182 0.40 0.02 0 P143 0.00 0.00 143 0 0 0 0 0

### V145

Viga= 145 V145 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 289 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.00 | | Asapo[+]= 1.13

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 4.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.08 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 3.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.874 1.214 0.40 0.02 0 P144 0.00 0.00 144 0 0 0 0 0

2 2.766 1.106 0.40 0.02 0 P145 0.00 0.00 145 0 0 0 0 0

### V146

Viga= 146 V146 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.26 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 136 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 1.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 201. 1.56 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

201.- 301. 3.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 303 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.66 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 4.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 1.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 4.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 262 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 266. 1.54 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

266.- 399. 3.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 216 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.69 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.73 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 4.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 1.55 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 4.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 189 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 3.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.380 1.031 0.15 0.00 2 V163 0.00 0.00 0 0 0 0 0 0

2 4.930 4.734 0.40 0.02 0 P150 0.00 0.00 150 0 0 0 0 0

3 4.983 4.723 0.50 0.07 0 P151 0.00 0.00 151 0 0 0 0 0

4 4.978 4.716 0.50 0.07 0 P152 0.00 0.00 152 0 0 0 0 0

5 4.898 4.711 0.40 0.02 0 P153 0.00 0.00 153 0 0 0 0 0

6 1.351 0.995 0.15 0.00 2 V186 0.00 0.00 0 0 0 0 0 0

### V147

Viga= 147 V147 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 128 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.39 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.36 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.91 | | Asapo[+]= 0.91

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 1.87 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 3.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.728 1.265 0.40 0.02 0 P154 0.00 0.00 154 0 0 0 0 0

2 2.714 1.252 0.40 0.02 0 P155 0.00 0.00 155 0 0 0 0 0

### V148

Viga= 148 V148 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 257 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.39 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.87 | | Asapo[+]= 0.95

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 1.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 3.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.744 1.285 0.40 0.02 0 P156 0.00 0.00 156 0 0 0 0 0

2 2.695 1.236 0.40 0.02 0 P157 0.00 0.00 157 0 0 0 0 0

### V149

Viga= 149 V149 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 257 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.41 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.92 | | Asapo[+]= 0.97

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 1.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 3.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.759 1.275 0.40 0.02 0 P158 0.00 0.00 158 0 0 0 0 0

2 2.705 1.220 0.40 0.02 0 P159 0.00 0.00 159 0 0 0 0 0

### V150

Viga= 150 V150 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 257 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.37 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.37 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.93 | | Asapo[+]= 0.95

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 1.89 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 3.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.737 1.251 0.40 0.02 0 P160 0.00 0.00 160 0 0 0 0 0

2 2.729 1.242 0.40 0.02 0 P161 0.00 0.00 161 0 0 0 0 0

### V151

Viga= 151 V151 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.91 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 100 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.28 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.01 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 3.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 2.49 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 4.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.84 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.7 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 404 | M.[-] = 5.6 tf\* m

[tf,cm]| As = 3.54 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 3.46 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.15 | As = 1.76 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 187. 5.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

187.- 561. 2.94 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

561.- 748. 5.94 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 282 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.09 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.04 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 141. 4.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

141.- 283. 1.71 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 424. 4.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.5 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 402 | M.[-] = 5.6 tf\* m

[tf,cm]| As = 3.45 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 3.49 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.15 | As = 1.74 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 186. 5.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

186.- 558. 2.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

558.- 744. 5.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.91 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.8 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 335 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 2.32 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.07

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 4.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 2.54 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 3.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.227 0.849 0.60 0.12 0 P162 0.00 0.00 162 0 0 0 0 0

2 7.087 6.020 0.60 0.12 0 P163 0.00 0.00 163 0 0 0 0 0

3 6.737 6.097 0.60 0.12 0 P164 0.00 0.00 164 0 0 0 0 0

4 6.688 6.051 0.60 0.12 0 P165 0.00 0.00 165 0 0 0 0 0

5 7.094 6.030 0.60 0.12 0 P166 0.00 0.00 166 0 0 0 0 0

6 2.190 0.812 0.60 0.12 0 P167 0.00 0.00 167 0 0 0 0 0

### V152

Viga= 152 V152 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 154 | M.[-] = 3.7 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.24 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.91 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 3.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 2.31 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 4.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.61 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 328 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 2.46 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 175. 5.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

175.- 350. 2.20 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

350.- 525. 4.35 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.662 1.458 0.40 0.02 0 P47 0.00 0.00 47 0 0 0 0 0

2 5.979 5.648 0.40 0.02 0 P32 0.00 0.00 32 0 0 0 0 0

3 3.104 2.222 0.40 0.02 0 P2 0.00 0.00 2 0 0 0 0 0

### V153

Viga= 153 V153 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 104 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 1.75 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.93 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 5.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.8

102.- 241. 2.33 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 380. 4.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 145 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.41 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 90. 4.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

90.- 160. 2.83 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.8

160.- 250. 4.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 278 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.68 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.59 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.86

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.15 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.850 2.513 0.40 0.02 0 P49 0.00 0.00 49 0 0 0 0 0

2 5.137 4.786 0.40 0.02 0 P35 0.00 0.00 35 0 0 0 0 0

3 4.554 4.257 0.40 0.02 0 P17 0.00 0.00 17 0 0 0 0 0

4 2.674 1.364 0.40 0.02 0 P3 0.00 0.00 3 0 0 0 0 0

### V154

Viga= 154 V154 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 78 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.88 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 3.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 182 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 2.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 253 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 3.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 1.29 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 3.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 152 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.31 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 3.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 296 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.73

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 4.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 3.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.853 0.908 0.20 0.00 0 P116 0.00 0.00 116 0 0 0 0 0

2 3.475 3.122 0.20 0.00 0 P110 0.00 0.00 110 0 0 0 0 0

3 4.092 3.920 0.20 0.00 0 P101 0.00 0.00 101 0 0 0 0 0

4 4.077 3.990 0.20 0.00 0 P91 0.00 0.00 91 0 0 0 0 0

5 4.643 4.508 0.20 0.00 0 P82 0.00 0.00 82 0 0 0 0 0

6 2.302 1.667 0.20 0.00 0 P71 0.00 0.00 71 0 0 0 0 0

### V155

Viga= 155 V155 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 183 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.50 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 148. 4.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

148.- 319. 2.56 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

319.- 420. 4.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.088 2.267 0.20 0.00 0 P50 0.00 0.00 50 0 0 0 0 0

2 2.972 2.151 0.20 0.00 0 P33 0.00 0.00 33 0 0 0 0 0

### V156

Viga= 156 V156 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 256 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.50 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 101. 4.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

101.- 274. 2.56 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

274.- 420. 4.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.973 2.150 0.20 0.00 0 P18 0.00 0.00 18 0 0 0 0 0

2 3.089 2.265 0.20 0.00 0 P1 0.00 0.00 1 0 0 0 0 0

### V157

Viga= 157 V157 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 81 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.95 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 2.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 1.75 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 3.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 154 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 2.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 152 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.18 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 2.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 78 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.17 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 243 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.42 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.74 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 2.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.922 0.970 0.20 0.00 0 P162 0.00 0.00 162 0 0 0 0 0

2 3.394 3.132 0.20 0.00 0 P158 0.00 0.00 158 0 0 0 0 0

3 3.404 3.183 0.20 0.00 0 P154 0.00 0.00 154 0 0 0 0 0

4 3.266 2.985 0.20 0.00 0 P142 0.00 0.00 142 0 0 0 0 0

5 4.949 4.337 0.20 0.00 0 P130 0.00 0.00 130 0 0 0 0 0

6 1.723 1.582 0.15 0.00 2 V140 0.00 0.00 0 0 0 0 0 0

### V158

Viga= 158 V158 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.93 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 3.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 327. 2.03 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

327.- 430. 3.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.683 2.680 0.15 0.00 2 V119 0.00 0.00 0 0 0 0 0 0

2 2.598 2.594 0.15 0.00 2 V111 0.00 0.00 0 0 0 0 0 0

### V159

Viga= 159 V159 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.93 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 3.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 278. 2.04 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

278.- 430. 3.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.598 2.593 0.15 0.00 2 V108 0.00 0.00 0 0 0 0 0 0

2 2.684 2.680 0.15 0.00 2 V101 0.00 0.00 0 0 0 0 0 0

### V160

Viga= 160 V160 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 78 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.84 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 3.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 182 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 2.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 181 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 3.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 1.42 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 3.56 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 212 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

170.- 240. 2.57 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.7

240.- 345. 4.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 296 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 4.15 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.96 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 3.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.823 0.909 0.20 0.00 0 P117 0.00 0.00 117 0 0 0 0 0

2 3.540 3.187 0.20 0.00 0 P111 0.00 0.00 111 0 0 0 0 0

3 3.945 3.782 0.20 0.00 0 P102 0.00 0.00 102 0 0 0 0 0

4 4.784 4.584 0.20 0.00 0 P92 0.00 0.00 92 0 0 0 0 0

5 5.550 5.254 0.20 0.00 0 P83 0.00 0.00 83 0 0 0 0 0

6 2.261 1.622 0.20 0.00 0 P72 0.00 0.00 72 0 0 0 0 0

### V161

Viga= 161 V161 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 138 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.71 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.89

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.07 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.930 1.319 0.40 0.02 0 P51 0.00 0.00 51 0 0 0 0 0

2 2.970 1.359 0.40 0.02 0 P36 0.00 0.00 36 0 0 0 0 0

### V162

Viga= 162 V162 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 277 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.78 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.69 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.87 | | Asapo[+]= 0.97

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.989 1.375 0.40 0.02 0 P19 0.00 0.00 19 0 0 0 0 0

2 2.914 1.300 0.40 0.02 0 P4 0.00 0.00 4 0 0 0 0 0

### V163

Viga= 163 V163 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 78 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.83 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 212 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 137. 3.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

137.- 274. 1.44 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

274.- 345. 4.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 110 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 2.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 218 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.88

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 3.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 1.67 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 2.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.709 0.808 0.20 0.00 0 P131 0.00 0.00 131 0 0 0 0 0

2 4.345 3.857 0.20 0.00 0 P143 0.00 0.00 143 0 0 0 0 0

3 4.455 4.186 0.20 0.00 0 P155 0.00 0.00 155 0 0 0 0 0

4 3.286 3.034 0.20 0.00 0 P159 0.00 0.00 159 0 0 0 0 0

5 1.942 1.027 0.20 0.00 0 P163 0.00 0.00 163 0 0 0 0 0

### V164

Viga= 164 V164 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 178 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.71 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.73

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 4.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.93 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 3.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.940 1.843 0.40 0.02 0 P52 0.00 0.00 52 0 0 0 0 0

2 2.570 1.472 0.20 0.00 0 P37 0.00 0.00 37 0 0 0 0 0

### V165

Viga= 165 V165 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 249 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.72 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.72 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.94 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 4.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.567 1.468 0.20 0.00 0 P20 0.00 0.00 20 0 0 0 0 0

2 2.944 1.846 0.40 0.02 0 P5 0.00 0.00 5 0 0 0 0 0

### V166

Viga= 166 V166 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 65 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 240. 2.94 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.83 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 227 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 3.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 236. 1.59 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

236.- 355. 3.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.94 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 75 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.45 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 266. 3.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 190 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 2.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 1.11 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 2.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 1.08 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 108 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 88. 2.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 135 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.91 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 1.90 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 126 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.7

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 150 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 2.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 1.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 13 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 2.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 2.30 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 172 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 210. 2.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.397 0.579 0.20 0.00 0 P89 0.00 0.00 89 0 0 0 0 0

2 3.748 3.655 0.20 0.00 0 P93 0.00 0.00 93 0 0 0 0 0

3 3.784 3.143 0.50 0.07 0 P103 0.00 0.00 103 0 0 0 0 0

4 3.988 2.668 0.20 0.00 0 P112 0.00 0.00 112 0 0 0 0 0

5 3.167 1.381 0.20 0.00 0 P118 0.00 0.00 118 0 0 0 0 0

6 1.958 0.656 0.20 0.00 0 P122 0.00 0.00 122 0 0 0 0 0

7 2.504 2.103 0.20 0.00 0 P126 0.00 0.00 126 0 0 0 0 0

8 3.164 2.860 0.20 0.00 0 P134 0.00 0.00 134 0 0 0 0 0

9 1.486 1.283 0.20 0.00 0 P138 0.00 0.00 138 0 0 0 0 0

10 2.442 2.259 0.20 0.00 0 P146 0.00 0.00 146 0 0 0 0 0

11 1.516 0.524 0.20 0.00 0 P150 0.00 0.00 150 0 0 0 0 0

### V167

Viga= 167 V167 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.21 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 53 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.37 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.18 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 285. 3.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 173 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.37 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 233. 3.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.483 0.670 0.40 0.02 0 P73 0.00 0.00 73 0 0 0 0 0

2 4.431 3.042 0.40 0.02 0 P80 0.00 0.00 80 0 0 0 0 0

3 0.880 0.442 0.15 0.00 2 V129 0.00 0.00 0 0 0 0 0 0

### V168

Viga= 168 V168 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.99 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 3.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 1.00 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

250.- 430. 3.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.637 2.636 0.15 0.00 2 V119 0.00 0.00 0 0 0 0 0 0

2 2.639 2.633 0.15 0.00 2 V111 0.00 0.00 0 0 0 0 0 0

### V169

Viga= 169 V169 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.99 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 3.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 1.00 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

250.- 430. 3.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.637 2.634 0.15 0.00 2 V108 0.00 0.00 0 0 0 0 0 0

2 2.636 2.634 0.15 0.00 2 V101 0.00 0.00 0 0 0 0 0 0

### V170

Viga= 170 V170 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.9 tf\* m - Abcis.= 178 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.69 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.37 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.58 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 4.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 1.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

226.- 400. 4.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.78 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 210 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 3.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 243 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.82 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.72

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 4.63 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.08 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

226.- 380. 4.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.966 2.063 0.40 0.02 0 P53 0.00 0.00 53 0 0 0 0 0

2 4.401 4.260 0.20 0.00 0 P38 0.00 0.00 38 0 0 0 0 0

3 3.968 3.496 0.40 0.02 0 P21 0.00 0.00 21 0 0 0 0 0

4 3.081 1.734 0.40 0.02 0 P6 0.00 0.00 6 0 0 0 0 0

### V171

Viga= 171 V171 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.21 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 80 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.44 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.69 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 285. 3.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 260 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 2.50 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 233. 4.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.526 0.815 0.40 0.02 0 P74 0.00 0.00 74 0 0 0 0 0

2 4.966 3.700 0.40 0.02 0 P81 0.00 0.00 81 0 0 0 0 0

3 0.205 -0.263 0.15 0.00 2 V129 0.00 0.00 0 0 0 0 0 0

### V172

Viga= 172 V172 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.39 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 319 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.20 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 5.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.69

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 155. 5.05 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

155.- 465. 2.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

465.- 620. 4.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.602 3.072 0.20 0.00 0 P164 0.00 0.00 164 0 0 0 0 0

2 3.521 2.991 0.20 0.00 0 P151 0.00 0.00 151 0 0 0 0 0

### V173

Viga= 173 V173 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 249 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.65 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 4.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.568 1.493 0.20 0.00 0 P22 0.00 0.00 22 0 0 0 0 0

2 2.920 1.845 0.40 0.02 0 P7 0.00 0.00 7 0 0 0 0 0

### V174

Viga= 174 V174 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 65 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.89 | | Asapo[+]= 0.89

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 240. 2.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.036 0.699 0.20 0.00 0 P94 0.00 0.00 94 0 0 0 0 0

2 1.982 0.644 0.20 0.00 0 P90 0.00 0.00 90 0 0 0 0 0

### V175

Viga= 175 V175 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.39 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 3.7 tf\* m - Abcis.= 319 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.59 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.37 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.22 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 5.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.69

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 155. 5.05 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

155.- 465. 2.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

465.- 620. 4.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.602 3.079 0.20 0.00 0 P165 0.00 0.00 165 0 0 0 0 0

2 3.514 2.991 0.20 0.00 0 P152 0.00 0.00 152 0 0 0 0 0

### V176

Viga= 176 V176 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 139 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.42 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.76 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.91 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 241 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 3.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 278 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.59 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.41 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.83

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.96 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.62 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.726 1.539 0.40 0.02 0 P54 0.00 0.00 54 0 0 0 0 0

2 3.909 3.647 0.40 0.02 0 P39 0.00 0.00 39 0 0 0 0 0

3 3.755 3.498 0.40 0.02 0 P23 0.00 0.00 23 0 0 0 0 0

4 2.583 1.396 0.40 0.02 0 P8 0.00 0.00 8 0 0 0 0 0

### V177

Viga= 177 V177 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 120 | M.[-] = 5.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 3.17 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.14

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.91 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 3.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 2.74 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 5.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.0 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 274 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 3.79 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.16 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 110. 6.67 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.8

110.- 222. 2.72 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

222.- 333. 1.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.366 1.252 0.40 0.02 0 P75 0.00 0.00 75 0 0 0 0 0

2 7.882 7.229 0.50 0.07 0 P84 0.00 0.00 84 0 0 0 0 0

3 0.938 0.564 0.15 0.00 2 V131 0.00 0.00 0 0 0 0 0 0

### V178

Viga= 178 V178 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 178 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.72 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.73

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 4.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.94 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 3.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.948 1.859 0.40 0.02 0 P55 0.00 0.00 55 0 0 0 0 0

2 2.554 1.465 0.20 0.00 0 P34 0.00 0.00 34 0 0 0 0 0

### V179

Viga= 179 V179 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 249 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.70 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 4.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.563 1.480 0.20 0.00 0 P24 0.00 0.00 24 0 0 0 0 0

2 2.933 1.850 0.40 0.02 0 P9 0.00 0.00 9 0 0 0 0 0

### V180

Viga= 180 V180 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 150 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 111. 2.05 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

111.- 222. 1.72 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

222.- 333. 3.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 277 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.89 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 107. 4.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

107.- 214. 2.46 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

214.- 324. 4.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 76 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 190 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 2.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 1.09 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 2.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 1.08 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 108 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 88. 2.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 135 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 1.90 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 126 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 150 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 2.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 1.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 13 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 2.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 2.30 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 172 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 210. 2.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.459 1.136 0.15 0.00 2 V127 0.00 0.00 0 0 0 0 0 0

2 5.285 4.174 0.40 0.02 0 P95 0.00 0.00 95 0 0 0 0 0

3 4.178 3.645 0.50 0.07 0 P104 0.00 0.00 104 0 0 0 0 0

4 3.893 2.885 0.20 0.00 0 P115 0.00 0.00 115 0 0 0 0 0

5 3.060 1.458 0.20 0.00 0 P119 0.00 0.00 119 0 0 0 0 0

6 1.927 0.726 0.20 0.00 0 P125 0.00 0.00 125 0 0 0 0 0

7 2.347 2.055 0.20 0.00 0 P129 0.00 0.00 129 0 0 0 0 0

8 3.116 2.693 0.20 0.00 0 P137 0.00 0.00 137 0 0 0 0 0

9 1.477 1.264 0.20 0.00 0 P141 0.00 0.00 141 0 0 0 0 0

10 2.442 2.250 0.20 0.00 0 P149 0.00 0.00 149 0 0 0 0 0

11 1.518 0.576 0.20 0.00 0 P153 0.00 0.00 153 0 0 0 0 0

### V181

Viga= 181 V181 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.52 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 143. 3.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

143.- 287. 1.04 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

287.- 430. 3.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.295 2.292 0.15 0.00 2 V119 0.00 0.00 0 0 0 0 0 0

2 2.296 2.292 0.15 0.00 2 V112 0.00 0.00 0 0 0 0 0 0

### V182

Viga= 182 V182 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.99 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 180. 3.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

180.- 251. 1.00 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

251.- 430. 3.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.637 2.634 0.15 0.00 2 V108 0.00 0.00 0 0 0 0 0 0

2 2.637 2.634 0.15 0.00 2 V101 0.00 0.00 0 0 0 0 0 0

### V183

Viga= 183 V183 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.8 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 317 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 2.29 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.99 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 151. 4.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

151.- 372. 4.33 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.8

372.- 440. 5.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.468 2.294 0.50 0.07 0 P85 0.00 0.00 85 0 0 0 0 0

2 3.976 2.810 0.40 0.02 0 P76 0.00 0.00 76 0 0 0 0 0

### V184

Viga= 184 V184 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 138 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.91 | | Asapo[+]= 0.83

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.06 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.15 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.905 1.328 0.40 0.02 0 P56 0.00 0.00 56 0 0 0 0 0

2 2.961 1.384 0.40 0.02 0 P41 0.00 0.00 41 0 0 0 0 0

### V185

Viga= 185 V185 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 242 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.94 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.82 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.83

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 4.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.18 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

226.- 380. 4.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.336 1.755 0.40 0.02 0 P25 0.00 0.00 25 0 0 0 0 0

2 3.243 1.662 0.40 0.02 0 P10 0.00 0.00 10 0 0 0 0 0

### V186

Viga= 186 V186 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 121 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.83 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.81 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 3.62 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 212 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.19 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 2.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 207 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 132. 3.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

132.- 263. 1.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

263.- 395. 3.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 183 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 212 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 137. 3.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

137.- 274. 1.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

274.- 345. 4.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 265 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 2.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 218 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.77

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 3.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 1.56 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 2.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.863 1.180 0.20 0.00 0 P96 0.00 0.00 96 0 0 0 0 0

2 4.312 4.027 0.20 0.00 0 P106 0.00 0.00 106 0 0 0 0 0

3 4.045 3.977 0.20 0.00 0 P120 0.00 0.00 120 0 0 0 0 0

4 3.869 3.681 0.20 0.00 0 P132 0.00 0.00 132 0 0 0 0 0

5 3.668 3.512 0.20 0.00 0 P144 0.00 0.00 144 0 0 0 0 0

6 4.539 4.266 0.20 0.00 0 P156 0.00 0.00 156 0 0 0 0 0

7 3.238 3.005 0.20 0.00 0 P160 0.00 0.00 160 0 0 0 0 0

8 1.911 1.101 0.20 0.00 0 P166 0.00 0.00 166 0 0 0 0 0

### V187

Viga= 187 V187 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.32 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 132 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.41 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 3.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.486 1.778 0.20 0.00 0 P79 0.00 0.00 79 0 0 0 0 0

2 -0.412 -1.120 0.15 0.00 2 V123 0.00 0.00 0 0 0 0 0 0

### V188

Viga= 188 V188 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 178 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.66 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.75

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 4.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 3.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.930 1.842 0.40 0.02 0 P57 0.00 0.00 57 0 0 0 0 0

2 2.571 1.483 0.20 0.00 0 P40 0.00 0.00 40 0 0 0 0 0

### V189

Viga= 189 V189 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 249 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.64 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.74 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.62 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.91 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 4.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.581 1.491 0.20 0.00 0 P26 0.00 0.00 26 0 0 0 0 0

2 2.922 1.832 0.40 0.02 0 P11 0.00 0.00 11 0 0 0 0 0

### V190

Viga= 190 V190 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 109 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.77 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 2.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 1.62 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 3.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 176 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 2.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 121 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.68 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 3.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.17 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 211 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.42 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 3.35 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 1.76 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 1.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.830 1.061 0.20 0.00 0 P167 0.00 0.00 167 0 0 0 0 0

2 3.540 3.292 0.20 0.00 0 P161 0.00 0.00 161 0 0 0 0 0

3 2.827 2.685 0.20 0.00 0 P157 0.00 0.00 157 0 0 0 0 0

4 4.706 4.404 0.20 0.00 0 P145 0.00 0.00 145 0 0 0 0 0

5 1.060 0.883 0.15 0.00 2 V143 0.00 0.00 0 0 0 0 0 0

### V191

Viga= 191 V191 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 174 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.48 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.62 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 169 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 2.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 243 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.53 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.298 1.741 0.40 0.02 0 P60 0.00 0.00 60 0 0 0 0 0

2 3.816 3.720 0.40 0.02 0 P45 0.00 0.00 45 0 0 0 0 0

3 3.801 3.705 0.40 0.02 0 P30 0.00 0.00 30 0 0 0 0 0

4 2.265 1.706 0.40 0.02 0 P15 0.00 0.00 15 0 0 0 0 0

### V192

Viga= 192 V192 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 158 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.32 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 3.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 2.27 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 4.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.43 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.7 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 328 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.93 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.93 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 5.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 2.68 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 4.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 243 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 3.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.70 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 2.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 121 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.51 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 3.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.10 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 273 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.59

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 3.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

130.- 260. 1.79 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

260.- 390. 2.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.654 1.488 0.40 0.02 0 P77 0.00 0.00 77 0 0 0 0 0

2 6.563 5.781 0.65 0.14 0 P87 0.00 0.00 87 0 0 0 0 0

3 5.579 5.441 0.20 0.00 0 P97 0.00 0.00 97 0 0 0 0 0

4 2.995 2.908 0.20 0.00 0 P107 0.00 0.00 107 0 0 0 0 0

5 4.769 4.571 0.20 0.00 0 P121 0.00 0.00 121 0 0 0 0 0

6 2.018 1.504 0.20 0.00 0 P133 0.00 0.00 133 0 0 0 0 0

### V193

Viga= 193 V193 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.41 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 20 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.81 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 205. 4.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 238 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 3.47 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.40 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 3.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 6.43 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.0 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 328 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 2.42 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 4.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 2.41 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 4.56 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 273 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 3.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.96 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.78 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.011 0.283 0.40 0.02 0 P66 0.00 0.00 66 0 0 0 0 0

2 5.406 4.986 0.40 0.02 0 P78 0.00 0.00 78 0 0 0 0 0

3 6.018 5.797 0.65 0.14 0 P88 0.00 0.00 88 0 0 0 0 0

4 5.829 5.754 0.20 0.00 0 P98 0.00 0.00 98 0 0 0 0 0

5 1.268 1.072 0.20 0.00 0 P108 0.00 0.00 108 0 0 0 0 0

### V194

Viga= 194 V194 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 139 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.71 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.09 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.13 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 48 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.36 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 3.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 278 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.64 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.00

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.05 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.670 1.273 0.40 0.02 0 P61 0.00 0.00 61 0 0 0 0 0

2 3.951 3.552 0.40 0.02 0 P46 0.00 0.00 46 0 0 0 0 0

3 3.971 3.571 0.40 0.02 0 P31 0.00 0.00 31 0 0 0 0 0

4 2.731 1.334 0.40 0.02 0 P16 0.00 0.00 16 0 0 0 0 0

### V195

Viga= 195 V195 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.93 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 3.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 327. 2.04 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

327.- 430. 3.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.683 2.679 0.15 0.00 2 V120 0.00 0.00 0 0 0 0 0 0

2 2.598 2.593 0.15 0.00 2 V113 0.00 0.00 0 0 0 0 0 0

### V196

Viga= 196 V196 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.93 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 3.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 278. 2.03 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

278.- 430. 3.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.597 2.591 0.15 0.00 2 V109 0.00 0.00 0 0 0 0 0 0

2 2.681 2.678 0.15 0.00 2 V102 0.00 0.00 0 0 0 0 0 0

### V197

Viga= 197 V197 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 144 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.77

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 2.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.441 -0.234 0.20 0.00 0 P69 0.00 0.00 69 0 0 0 0 0

2 1.863 0.188 0.40 0.02 0 P67 0.00 0.00 67 0 0 0 0 0

### V198

Viga= 198 V198 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 212 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.39 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.60

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 178. 3.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

178.- 248. 2.33 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.6

248.- 345. 3.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.529 2.057 0.20 0.00 0 P109 0.00 0.00 109 0 0 0 0 0

2 2.764 2.232 0.20 0.00 0 P99 0.00 0.00 99 0 0 0 0 0

### V199

Viga= 199 V199 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 183 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.53 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.88 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 146. 4.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

146.- 319. 2.72 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

319.- 420. 4.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.168 2.147 0.20 0.00 0 P58 0.00 0.00 58 0 0 0 0 0

2 3.092 2.072 0.20 0.00 0 P42 0.00 0.00 42 0 0 0 0 0

### V200

Viga= 200 V200 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 249 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.30 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.40 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.00 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 101. 4.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

101.- 272. 2.99 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

272.- 400. 5.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.928 1.483 0.20 0.00 0 P27 0.00 0.00 27 0 0 0 0 0

2 3.639 2.188 0.40 0.02 0 P12 0.00 0.00 12 0 0 0 0 0

### V201

Viga= 201 V201 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.43 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 71 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 125. 1.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.343 0.787 0.20 0.00 0 P105 0.00 0.00 105 0 0 0 0 0

2 0.682 0.127 0.15 0.00 2 V133 0.00 0.00 0 0 0 0 0 0

### V202

Viga= 202 V202 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 104 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 2.06 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.22 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.38 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.39 | | Asapo[+]= 1.03

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 6.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.8

102.- 241. 2.65 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 380. 4.91 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.285 2.303 0.40 0.02 0 P59 0.00 0.00 59 0 0 0 0 0

2 3.509 1.533 0.40 0.02 0 P43 0.00 0.00 43 0 0 0 0 0

### V203

Viga= 203 V203 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.06 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 101 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.21 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.52 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.25 | | Asapo[+]= 0.91

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 112. 7.04 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 1.2

112.- 241. 2.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 370. 5.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.022 2.826 0.50 0.07 0 P28 0.00 0.00 28 0 0 0 0 0

2 3.603 1.711 0.40 0.02 0 P13 0.00 0.00 13 0 0 0 0 0

### V204

Viga= 204 V204 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.38 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 2.7 tf\* m - Abcis.= 271 | M.[-] = 4.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.96 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.61 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.58 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 153. 4.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

153.- 458. 3.04 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

458.- 610. 5.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.48 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.0 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 281 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 2.42 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 173. 4.65 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

173.- 347. 1.82 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

347.- 520. 3.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 1.58 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 158 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.14

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 3.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.934 2.647 0.20 0.00 0 P100 0.00 0.00 100 0 0 0 0 0

2 6.941 6.911 0.65 0.14 0 P86 0.00 0.00 86 0 0 0 0 0

3 5.225 4.103 0.20 0.00 0 P70 0.00 0.00 70 0 0 0 0 0

4 0.163 -1.213 0.40 0.02 0 P68 0.00 0.00 68 0 0 0 0 0

### V205

Viga= 205 V205 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.06 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 26 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.51 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 4.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 0 | M.[-] = 3.9 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.35 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 4.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.06 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.7 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 103 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.91 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.95 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.71 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 4.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 112. 10.04 36.28 1 45. 1.7 1.5 1.7 4.2 0.0 15.0 2 0.0 1.2

112.- 241. 2.87 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 370. 4.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.265 0.282 0.40 0.02 0 P48 0.00 0.00 48 0 0 0 0 0

2 2.545 2.306 0.50 0.07 0 P44 0.00 0.00 44 0 0 0 0 0

3 9.287 7.494 0.50 0.07 0 P29 0.00 0.00 29 0 0 0 0 0

4 3.566 2.227 0.40 0.02 0 P14 0.00 0.00 14 0 0 0 0 0

### V206

Viga= 206 V206 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.00 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 0 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.26 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 1.77 | | Asapo[+]= 1.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.65 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.225 -0.618 0.40 0.05 0 P62 0.00 0.00 62 0 0 0 0 0

2 2.606 -0.237 0.40 0.05 0 P63 0.00 0.00 63 0 0 0 0 0

### V207

Viga= 207 V207 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.00 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 0 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.44 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.19 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 1.90 | | Asapo[+]= 1.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.92 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.259 -0.809 0.40 0.05 0 P64 0.00 0.00 64 0 0 0 0 0

2 2.797 -0.271 0.40 0.05 0 P65 0.00 0.00 65 0 0 0 0 0

### V208

Viga= 208 V208 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.07 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 207 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.79 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 190. 3.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 1.74 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 174 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.64 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 2.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.07 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 155 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 190. 2.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 -0.025 -0.371 0.15 0.00 2 V123 0.00 0.00 0 0 0 0 0 0

2 4.179 3.302 0.20 0.00 0 P65 0.00 0.00 65 0 0 0 0 0

3 2.685 1.763 0.20 0.00 0 P63 0.00 0.00 63 0 0 0 0 0

4 0.474 0.132 0.15 0.00 2 V119 0.00 0.00 0 0 0 0 0 0

### V209

Viga= 209 V209 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.74 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 0 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 1.14 | | Asapo[+]= 1.11

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 2.71 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.898 -0.207 0.20 0.00 0 P64 0.00 0.00 64 0 0 0 0 0

2 1.936 -0.169 0.20 0.00 0 P62 0.00 0.00 62 0 0 0 0 0

### V210

Viga= 210 V210 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.89 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 4.4 tf\* m - Abcis.= 294 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.71 -SRAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 6.5 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 0.90

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 191. 4.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

191.- 382. 1.39 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

382.- 574. 4.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.031 3.028 0.15 0.00 2 V123 0.00 0.00 0 0 0 0 0 0

2 3.040 3.038 0.15 0.00 2 V119 0.00 0.00 0 0 0 0 0 0

## TERREO

### V201

Viga= 201 V201 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 105 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.68 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 243.0 | M[+]Min = 205.8 | M[-]Min = 278.6

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 0.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 192 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 259.5 | M[+]Min = 200.9 | M[-]Min = 259.5

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.78 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 128 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.65 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.65 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.62 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 274.4 | M[+]Min = 204.7 | M[-]Min = 274.4

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 57. 4.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

57.- 239. 4.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

239.- 350. 1.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.3 | M[+]Min = 200.3 | M[-]Min = 257.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.9 tf\* m - Abcis.= 296 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.76 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.4 | M[+]Min = 209.0 | M[-]Min = 292.4

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 2.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 338. 4.13 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

338.- 425. 4.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.3 | M[+]Min = 200.3 | M[-]Min = 257.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 133 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 258.7 | M[+]Min = 200.6 | M[-]Min = 258.7

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 0.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 25 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 255.9 | M[+]Min = 199.9 | M[-]Min = 255.9

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 1.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 4.50 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.9 tf\* m - Abcis.= 300 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 2.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

342.- 430. 4.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.3 | M[+]Min = 200.3 | M[-]Min = 257.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=11 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 183 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.68 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.54 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 278.6 | M[+]Min = 205.8 | M[-]Min = 243.0

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.562 0.378 0.20 0.00 0 P2 0.00 0.00 2 0 0 0 0 0

2 1.224 0.681 0.20 0.00 0 P3 0.00 0.00 3 0 0 0 0 0

3 3.740 3.446 0.50 0.07 0 P1 0.00 0.00 1 0 0 0 0 0

4 1.734 1.248 0.20 0.00 0 P4 0.00 0.00 4 0 0 0 0 0

5 2.347 2.211 0.20 0.00 0 P5 0.00 0.00 5 0 0 0 0 0

6 4.205 3.917 0.20 0.00 0 P6 0.00 0.00 6 0 0 0 0 0

7 0.597 0.556 0.20 0.00 0 P7 0.00 0.00 7 0 0 0 0 0

8 0.786 0.725 0.20 0.00 0 P8 0.00 0.00 8 0 0 0 0 0

9 2.576 2.385 0.20 0.00 0 P9 0.00 0.00 9 0 0 0 0 0

10 4.173 3.926 0.20 0.00 0 P10 0.00 0.00 10 0 0 0 0 0

11 0.714 0.514 0.20 0.00 0 P11 0.00 0.00 11 0 0 0 0 0

12 0.774 0.439 0.20 0.00 0 P15 0.00 0.00 15 0 0 0 0 0

### V202

Viga= 202 V202 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.80 /B= 0.15 /H= 0.60 /BCs= 0.43 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 221 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.81 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.69 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.8 | M[+]Min = 210.8 | M[-]Min = 300.4

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 198. 2.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

198.- 268. 3.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 3.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 310 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 255.9 | M[+]Min = 199.9 | M[-]Min = 255.9

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 1.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 1.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 262 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 0.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.470 0.996 0.20 0.00 0 P16 0.00 0.00 16 0 0 0 0 0

2 3.782 3.425 0.20 0.00 0 P12 0.00 0.00 12 0 0 0 0 0

3 0.563 0.329 0.20 0.00 0 P13 0.00 0.00 13 0 0 0 0 0

4 0.634 0.106 0.20 0.00 0 P14 0.00 0.00 14 0 0 0 0 0

### V203

Viga= 203 V203 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.47 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 157 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.44 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.44 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.07 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 173.8 | M[+]Min = 150.6 | M[-]Min = 173.8

[cm2 ]| Asapo[+]= 0.77 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.34 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.381 0.764 0.20 0.00 0 P13 0.00 0.00 13 0 0 0 0 0

2 2.064 0.443 0.20 0.00 0 P14 0.00 0.00 14 0 0 0 0 0

### V204

Viga= 204 V204 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.226 0.214 0.15 0.00 2 V263 0.00 0.00 0 0 0 0 0 0

2 0.090 0.078 0.15 0.00 2 V266 0.00 0.00 0 0 0 0 0 0

### V205

Viga= 205 V205 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.039 0.003 0.15 0.00 2 V311 0.00 0.00 0 0 0 0 0 0

2 0.301 0.264 0.15 0.00 2 V315 0.00 0.00 0 0 0 0 0 0

### V206

Viga= 206 V206 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.080 0.072 0.15 0.00 2 V281 0.00 0.00 0 0 0 0 0 0

2 0.232 0.224 0.15 0.00 2 V282 0.00 0.00 0 0 0 0 0 0

### V207

Viga= 207 V207 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.090 0.086 0.15 0.00 2 V297 0.00 0.00 0 0 0 0 0 0

2 0.218 0.214 0.15 0.00 2 V300 0.00 0.00 0 0 0 0 0 0

### V208

Viga= 208 V208 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.47 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 157 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.28 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.12 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 1.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 147.0 | M[+]Min = 150.6 | M[-]Min = 147.0

[cm2 ]| Asapo[+]= 0.81 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 5.76 29.78 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 2.55 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 2.98 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.107 2.354 0.15 0.00 2 V318 0.00 0.00 0 0 0 0 0 0

2 2.127 1.014 0.15 0.00 2 V320 0.00 0.00 0 0 0 0 0 0

### V209

Viga= 209 V209 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.00 /B= 0.20 /H= 0.70 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 125 | M.[-] = 3.5 tf\* m

[tf,cm]| As = 2.34 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.84 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.64 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 421.1 | M[+]Min = 387.2 | M[-]Min = 558.5

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 4.75 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.15 /B= 0.20 /H= 0.70 /BCs= 0.70 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 172 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 2.97 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.97 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.70 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 584.4 | M[+]Min = 392.7 | M[-]Min = 584.4

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 128. 7.22 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

128.- 257. 3.85 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

257.- 385. 5.79 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.25 /B= 0.20 /H= 0.70 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 162 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 2.67 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.67 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.57 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 525.9 | M[+]Min = 379.7 | M[-]Min = 525.9

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.85 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.35 /B= 0.20 /H= 0.70 /BCs= 0.72 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 3.1 tf\* m - Abcis.= 253 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 3.04 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.04 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.73 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 597.3 | M[+]Min = 395.3 | M[-]Min = 597.3

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 135. 6.13 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

135.- 270. 2.59 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

270.- 405. 7.69 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.05 /B= 0.20 /H= 0.70 /BCs= 0.57 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 203 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 2.60 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.60 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.54 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 512.8 | M[+]Min = 376.5 | M[-]Min = 512.8

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 3.89 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.30 /B= 0.20 /H= 0.70 /BCs= 0.60 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 137 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 2.68 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.68 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.58 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 529.2 | M[+]Min = 380.5 | M[-]Min = 529.2

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 3.38 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.00 /B= 0.20 /H= 0.70 /BCs= 0.56 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 125 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.58 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.58 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.53 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 509.5 | M[+]Min = 375.7 | M[-]Min = 509.5

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 4.23 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 4.60 /B= 0.20 /H= 0.70 /BCs= 0.75 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 268 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 3.13 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.13 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.76 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 613.4 | M[+]Min = 398.5 | M[-]Min = 613.4

[cm2 ]| Asapo[+]= 0.69 | | Asapo[+]= 0.69

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 143. 6.14 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

143.- 287. 2.39 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

287.- 430. 8.69 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.05 /B= 0.20 /H= 0.70 /BCs= 0.57 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 228 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.60 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.60 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.54 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 512.8 | M[+]Min = 376.5 | M[-]Min = 512.8

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 4.59 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.25 /B= 0.20 /H= 0.70 /BCs= 0.69 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 162 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 2.94 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.36 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.69 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 578.7 | M[+]Min = 391.5 | M[-]Min = 430.4

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.90

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.51 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.259 0.550 0.20 0.00 0 P17 0.00 0.00 17 0 0 0 0 0

2 8.344 7.515 0.40 0.00 0 P18 0.00 0.00 18 0 0 0 0 0

3 6.746 6.034 0.20 0.00 0 P19 0.00 0.00 19 0 0 0 0 0

4 6.640 6.034 0.40 0.00 0 P20 0.00 0.00 20 0 0 0 0 0

5 8.100 7.296 0.20 0.00 0 P21 0.00 0.00 21 0 0 0 0 0

6 3.546 3.088 0.40 0.00 0 P22 0.00 0.00 22 0 0 0 0 0

7 3.638 3.182 0.20 0.00 0 P23 0.00 0.00 23 0 0 0 0 0

8 7.219 6.539 0.40 0.00 0 P24 0.00 0.00 24 0 0 0 0 0

9 9.353 8.462 0.20 0.00 0 P25 0.00 0.00 25 0 0 0 0 0

10 4.105 3.649 0.40 0.00 0 P26 0.00 0.00 26 0 0 0 0 0

11 2.265 1.577 0.20 0.00 0 P30 0.00 0.00 30 0 0 0 0 0

### V210

Viga= 210 V210 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.73 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 227 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 1.74 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.66 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.05 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 289.3 | M[+]Min = 232.9 | M[-]Min = 428.2

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 198. 4.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

198.- 268. 5.49 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 7.29 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 125 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.08 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.01 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.78 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 332.4 | M[+]Min = 217.5 | M[-]Min = 332.4

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 183 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 2.32 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.60 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.92 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 382.0 | M[+]Min = 226.1 | M[-]Min = 266.8

[cm2 ]| Asapo[+]= 0.48 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.980 2.133 0.20 0.00 0 P31 0.00 0.00 31 0 0 0 0 0

2 7.300 6.503 0.40 0.02 0 P27 0.00 0.00 27 0 0 0 0 0

3 4.273 2.985 0.20 0.00 0 P28 0.00 0.00 28 0 0 0 0 0

4 1.993 1.579 0.20 0.00 0 P29 0.00 0.00 29 0 0 0 0 0

### V211

Viga= 211 V211 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.78 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 156 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.10 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 266.1 | M[+]Min = 235.2 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.057 0.895 0.20 0.00 0 P32 0.00 0.00 32 0 0 0 0 0

2 0.991 0.845 0.15 0.00 2 V260 0.00 0.00 0 0 0 0 0 0

### V212

Viga= 212 V212 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.00 /B= 0.20 /H= 0.70 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 125 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 2.34 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.84 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.64 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 421.1 | M[+]Min = 387.2 | M[-]Min = 558.5

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 4.74 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.15 /B= 0.20 /H= 0.70 /BCs= 0.70 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 172 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 2.97 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.97 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.70 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 584.4 | M[+]Min = 392.7 | M[-]Min = 584.4

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 128. 7.10 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

128.- 257. 3.81 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

257.- 385. 5.94 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.25 /B= 0.20 /H= 0.70 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 216 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.67 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.67 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.57 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 525.9 | M[+]Min = 379.7 | M[-]Min = 525.9

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 4.67 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.25 /B= 0.20 /H= 0.70 /BCs= 0.71 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 141 | M.[-] = 9.3 tf\* m

[tf,cm]| As = 3.01 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 4.86 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.71 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 590.8 | M[+]Min = 394.0 | M[-]Min = 590.8

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 128. 3.89 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

128.- 257. 2.76 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

257.- 385. 10.64 57.06 1 45. 0.2 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 6.45 /B= 0.20 /H= 0.70 /BCs= 0.97 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 10.1 tf\* m | M.[+] Max= 7.3 tf\* m - Abcis.= 322 | M.[-] = 8.4 tf\* m

[tf,cm]| As = 5.26 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 4.34 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.14 | As = 3.65 -STAS- [ 3 B 12.5mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 730.5 | M[+]Min = 418.4 | M[-]Min = 730.5

[cm2 ]| Asapo[+]= 0.91 | | Asapo[+]= 0.91

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 12.59 57.06 1 45. 1.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

154.- 461. 7.24 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

461.- 615. 12.17 57.06 1 45. 0.8 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.00 /B= 0.20 /H= 0.70 /BCs= 0.56 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.5 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 300 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 3.84 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 2.58 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.53 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 509.5 | M[+]Min = 375.7 | M[-]Min = 509.5

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 5.92 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 4.60 /B= 0.20 /H= 0.70 /BCs= 0.75 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 3.4 tf\* m - Abcis.= 268 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 3.13 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.13 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.76 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 613.4 | M[+]Min = 398.5 | M[-]Min = 613.4

[cm2 ]| Asapo[+]= 0.69 | | Asapo[+]= 0.69

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 143. 5.70 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

143.- 287. 1.97 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

287.- 430. 9.11 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.05 /B= 0.20 /H= 0.70 /BCs= 0.57 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.9 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 228 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.60 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.60 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.54 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 512.8 | M[+]Min = 376.5 | M[-]Min = 512.8

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 4.81 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.25 /B= 0.20 /H= 0.70 /BCs= 0.69 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 162 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 2.94 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.36 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.69 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 578.7 | M[+]Min = 391.5 | M[-]Min = 430.4

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.90

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.49 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.297 0.530 0.20 0.00 0 P35 0.00 0.00 35 0 0 0 0 0

2 8.224 7.397 0.40 0.00 0 P33 0.00 0.00 33 0 0 0 0 0

3 7.427 6.646 0.20 0.00 0 P36 0.00 0.00 36 0 0 0 0 0

4 4.305 3.765 0.40 0.00 0 P37 0.00 0.00 37 0 0 0 0 0

5 16.488 14.861 0.40 0.00 0 P38 0.00 0.00 38 0 0 0 0 0

6 12.831 11.575 0.20 0.00 0 P39 0.00 0.00 39 0 0 0 0 0

7 4.265 3.714 0.40 0.00 0 P34 0.00 0.00 34 0 0 0 0 0

8 9.798 8.829 0.20 0.00 0 P41 0.00 0.00 41 0 0 0 0 0

9 3.945 3.520 0.40 0.00 0 P40 0.00 0.00 40 0 0 0 0 0

10 2.292 1.605 0.20 0.00 0 P45 0.00 0.00 45 0 0 0 0 0

### V213

Viga= 213 V213 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.90 /B= 0.15 /H= 0.70 /BCs= 0.73 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 227 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 1.92 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.87 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.28 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 376.6 | M[+]Min = 314.2 | M[-]Min = 550.2

[cm2 ]| Asapo[+]= 0.76 | | Asapo[+]= 0.76

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 4.39 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

120.- 240. 4.15 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

240.- 360. 7.46 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.00 /B= 0.15 /H= 0.70 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 150 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 2.20 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.19 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.01 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 431.0 | M[+]Min = 293.0 | M[-]Min = 431.0

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.50

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 4.32 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.70 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 183 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 2.51 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.14 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 491.1 | M[+]Min = 304.6 | M[-]Min = 349.1

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.58 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.135 2.132 0.20 0.00 0 P46 0.00 0.00 46 0 0 0 0 0

2 7.681 6.901 0.40 0.00 0 P42 0.00 0.00 42 0 0 0 0 0

3 4.116 3.099 0.20 0.00 0 P43 0.00 0.00 43 0 0 0 0 0

4 1.721 1.291 0.20 0.00 0 P44 0.00 0.00 44 0 0 0 0 0

### V214

Viga= 214 V214 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.64 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 273.6 | M[+]Min = 209.3 | M[-]Min = 253.2

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.165 0.154 0.15 0.00 2 V280 0.00 0.00 0 0 0 0 0 0

2 0.150 0.139 0.15 0.00 2 V282 0.00 0.00 0 0 0 0 0 0

### V215

Viga= 215 V215 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.087 0.082 0.15 0.00 2 V296 0.00 0.00 0 0 0 0 0 0

2 0.222 0.217 0.15 0.00 2 V299 0.00 0.00 0 0 0 0 0 0

### V216

Viga= 216 V216 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.236 0.224 0.15 0.00 2 V262 0.00 0.00 0 0 0 0 0 0

2 0.080 0.068 0.15 0.00 2 V265 0.00 0.00 0 0 0 0 0 0

### V217

Viga= 217 V217 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.066 0.050 0.15 0.00 2 V310 0.00 0.00 0 0 0 0 0 0

2 0.254 0.238 0.15 0.00 2 V314 0.00 0.00 0 0 0 0 0 0

### V218

Viga= 218 V218 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 130 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.73 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 266.1 | M[+]Min = 213.5 | M[-]Min = 218.4

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 0.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.620 0.402 0.20 0.00 0 P47 0.00 0.00 47 0 0 0 0 0

2 0.666 0.454 0.15 0.00 2 V260 0.00 0.00 0 0 0 0 0 0

### V219

Viga= 219 V219 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 130 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.41 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.73 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 266.1 | M[+]Min = 213.5 | M[-]Min = 194.2

[cm2 ]| Asapo[+]= 0.46 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.749 0.395 0.20 0.00 0 P48 0.00 0.00 48 0 0 0 0 0

2 0.831 0.488 0.15 0.00 2 V317 0.00 0.00 0 0 0 0 0 0

### V220

Viga= 220 V220 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 0 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.61 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.4 | M[+]Min = 203.5 | M[-]Min = 269.5

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 2.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.40 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 140 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.71 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.71 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.65 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 283.8 | M[+]Min = 207.0 | M[-]Min = 283.8

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 4.00 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 3.60 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

274.- 385. 2.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 262 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.3 | M[+]Min = 200.3 | M[-]Min = 257.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 111 | M.[-] = 6.5 tf\* m

[tf,cm]| As = 1.76 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 4.08 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.18

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.4 | M[+]Min = 209.0 | M[-]Min = 292.4

[cm2 ]| Asapo[+]= 1.67 | | Asapo[+]= 0.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 0.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 266. 0.97 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

266.- 338. 6.23 36.28 1 45. 0.0 1.5 1.6 5.0 0.0 22.5 2 0.0 1.6

338.- 425. 6.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 6.35 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.2 tf\* m | M.[+] Max= 6.4 tf\* m - Abcis.= 370 | M.[-] = 9.0 tf\* m

[tf,cm]| As = 4.62 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 5.92 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.20 | As = 3.78 -STAS- [ 3 B 12.5mm ] | AsL= 0.00 ------ x/d =0.26

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 2.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 342.6 | M[+]Min = 219.4 | M[-]Min = 342.6

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.94

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 106. 8.66 36.24 1 45. 1.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

106.- 520. 7.12 36.28 1 45. 0.3 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

520.- 615. 17.86 36.17 1 45. 5.3 1.5 5.3 6.3 0.0 10.0 2 0.0 2.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.3 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 310 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 4.69 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.20 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 255.9 | M[+]Min = 199.9 | M[-]Min = 255.9

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 1.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 4.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 4.50 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 300 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.7 | M[+]Min = 209.3 | M[-]Min = 293.7

[cm2 ]| Asapo[+]= 0.56 | | Asapo[+]= 0.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 1.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.74 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

342.- 430. 5.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 315 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.3 | M[+]Min = 200.3 | M[-]Min = 257.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 183 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.68 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.60 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 278.6 | M[+]Min = 205.8 | M[-]Min = 266.8

[cm2 ]| Asapo[+]= 1.63 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.618 -0.554 0.20 0.00 0 P49 0.00 0.00 49 0 0 0 0 0

2 3.708 3.145 0.50 0.07 0 P50 0.00 0.00 50 0 0 0 0 0

3 2.670 2.117 0.20 0.00 0 P51 0.00 0.00 51 0 0 0 0 0

4 0.613 0.493 0.20 0.00 0 P52 0.00 0.00 52 0 0 0 0 0

5 10.821 9.833 0.20 0.00 0 P53 0.00 0.00 53 0 0 0 0 0

6 15.796 14.861 0.20 0.00 0 P54 0.00 0.00 54 0 0 0 0 0

7 -0.476 -0.723 0.20 0.00 0 P55 0.00 0.00 55 0 0 0 0 0

8 4.705 4.380 0.20 0.00 0 P56 0.00 0.00 56 0 0 0 0 0

9 0.574 0.317 0.20 0.00 0 P57 0.00 0.00 57 0 0 0 0 0

10 0.879 0.423 0.20 0.00 0 P60 0.00 0.00 60 0 0 0 0 0

### V221

Viga= 221 V221 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.44 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 230 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 1.59 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.99 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 261.2 | M[+]Min = 211.4 | M[-]Min = 303.1

[cm2 ]| Asapo[+]= 0.46 | | Asapo[+]= 0.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 196. 2.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

196.- 268. 4.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 4.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 295 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.97 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 269.5 | M[+]Min = 203.5 | M[-]Min = 238.4

[cm2 ]| Asapo[+]= 1.61 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 2.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.925 0.789 0.20 0.00 0 P61 0.00 0.00 61 0 0 0 0 0

2 4.093 3.363 0.50 0.07 0 P58 0.00 0.00 58 0 0 0 0 0

3 0.896 -0.866 0.20 0.00 0 P59 0.00 0.00 59 0 0 0 0 0

### V222

Viga= 222 V222 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.69 /B= 0.15 /H= 0.60 /BCs= 0.35 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 67 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.50 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.50 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 234.6 | M[+]Min = 194.9 | M[-]Min = 234.6

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 249. 1.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.91 /B= 0.15 /H= 0.60 /BCs= 0.52 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 286 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.73 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.41 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 287.4 | M[+]Min = 209.9 | M[-]Min = 196.2

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 157. 1.63 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

157.- 314. 0.71 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

314.- 471. 1.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.346 0.203 0.20 0.00 1 P66 0.00 0.00 66 0 0 0 0 0

2 1.984 1.877 0.20 0.00 1 P67 0.00 0.00 67 0 0 0 0 0

3 0.923 0.848 0.20 0.00 1 P68 0.00 0.00 68 0 0 0 0 0

### V223

Viga= 223 V223 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.79 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 93 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.66 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 213.8 | M[-]Min = 303.2

[cm2 ]| Asapo[+]= 0.55 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 254. 5.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.67 /B= 0.15 /H= 0.60 /BCs= 0.85 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 273 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 2.61 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.61 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.88 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 390.3 | M[+]Min = 230.8 | M[-]Min = 269.9

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 144. 8.00 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

144.- 287. 3.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

287.- 431. 4.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.898 0.777 0.15 0.00 2 V309 0.00 0.00 0 0 0 0 0 0

2 9.405 8.969 0.40 0.02 1 P69 0.00 0.00 69 0 0 0 0 0

3 3.553 3.259 0.40 0.02 1 P70 0.00 0.00 70 0 0 0 0 0

### V224

Viga= 224 V224 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.81 /B= 0.20 /H= 0.70 /BCs= 0.56 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 202 | M.[-] = 6.1 tf\* m

[tf,cm]| As = 2.39 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 3.12 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.53 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 444.7 | M[+]Min = 375.8 | M[-]Min = 509.9

[cm2 ]| Asapo[+]= 0.98 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 5.70 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

147.- 293. 3.55 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

293.- 440. 7.25 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.02 /B= 0.20 /H= 0.70 /BCs= 0.50 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.6 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 421 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 2.46 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.46 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.46 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 477.2 | M[+]Min = 367.4 | M[-]Min = 477.2

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 2.46

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 157. 4.45 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

157.- 314. 2.76 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

314.- 471. 1.63 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.20 /B= 0.20 /H= 0.70 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 0 | M.[-] = 12.8 tf\* m

[tf,cm]| As = 2.10 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 6.86 -SRAS- [ 4 B 16.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 2.10 -SRAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.19

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 3.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 308.0 | M[+]Min = 308.0 | M[-]Min = 308.0

[cm2 ]| Asapo[+]= 2.10 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 7.29 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.29 /B= 0.20 /H= 0.70 /BCs= 0.64 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 14.3 tf\* m | M.[+] Max= 13.3 tf\* m - Abcis.= 425 | M.[-] = 16.5 tf\* m

[tf,cm]| As = 7.72 -SRAS- [ 4 B 16.0mm] | AsL= 0.00 ------ | As = 9.03 -SRAS- [ 3 B 20.0mm]

| AsL= 0.00 ------ x/d =0.21 | As = 6.69 -STAS- [ 4 B 16.0mm ] | AsL= 0.00 ------ x/d =0.25

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 3.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 475.6 | M[+]Min = 369.5 | M[-]Min = 475.6

[cm2 ]| Asapo[+]= 1.67 | | Asapo[+]= 1.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 16.16 56.91 1 45. 2.4 2.1 2.4 5.0 0.0 15.0 2 0.0 0.0

177.- 355. 11.21 56.91 1 45. 0.4 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

355.- 532. 15.94 56.91 1 45. 2.3 2.1 2.3 6.3 0.0 25.0 2 0.0 0.0

532.- 709. 20.22 56.91 1 45. 3.9 2.1 3.9 6.3 0.0 15.0 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 5.68 /B= 0.20 /H= 0.70 /BCs= 0.54 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 14.4 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 378 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 7.77 -SRAS- [ 3 B 20.0mm] | AsL= 0.00 ------ | As = 2.53 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.21 | As = 2.51 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 498.9 | M[+]Min = 373.1 | M[-]Min = 498.9

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 10.13 56.91 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

183.- 365. 6.30 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

365.- 548. 4.50 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 7.05 /B= 0.20 /H= 0.70 /BCs= 0.73 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 470 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 3.06 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 2.24 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.73 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 600.9 | M[+]Min = 396.0 | M[-]Min = 374.8

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 171. 3.36 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

171.- 514. 2.28 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

514.- 685. 4.82 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.067 2.515 0.40 0.00 0 P71 0.00 0.00 71 0 0 0 0 0

2 7.730 6.613 0.50 0.04 0 P72 0.00 0.00 72 0 0 0 0 0

3 -2.553 -3.475 0.20 0.00 0 P73 0.00 0.00 73 0 0 0 0 0

4 16.709 15.231 0.20 0.00 0 P74 0.00 0.00 74 0 0 0 0 0

5 21.592 20.247 0.20 0.00 0 P75 0.00 0.00 75 0 0 0 0 0

6 5.533 5.122 0.20 0.00 0 P76 0.00 0.00 76 0 0 0 0 0

7 3.445 3.044 0.20 0.00 0 P77 0.00 0.00 77 0 0 0 0 0

### V225

Viga= 225 V225 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.20 /B= 0.15 /H= 0.50 /BCs= 0.47 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.17 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 160 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.41 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.97 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 199.0 | M[+]Min = 150.6 | M[-]Min = 173.7

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 1.43 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 1.00 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 1.42 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.976 0.424 0.20 0.00 0 P73 0.00 0.00 73 0 0 0 0 0

2 0.769 0.216 0.20 0.00 0 P74 0.00 0.00 74 0 0 0 0 0

### V226

Viga= 226 V226 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.31 /B= 0.15 /H= 0.60 /BCs= 0.81 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 165 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.94 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.14 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 320.5 | M[+]Min = 237.0 | M[-]Min = 221.2

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 5.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 203. 2.05 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

203.- 305. 3.35 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.841 3.163 0.40 0.02 1 P79 0.00 0.00 79 0 0 0 0 0

2 2.396 1.877 0.15 0.00 2 V298 0.00 0.00 0 0 0 0 0 0

### V227

Viga= 227 V227 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.47 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 160 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.73 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 219.6 | M[+]Min = 214.2 | M[-]Min = 219.6

[cm2 ]| Asapo[+]= 1.02 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 7.27 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 2.82 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 3.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.186 2.619 0.20 0.00 0 P80 0.00 0.00 80 0 0 0 0 0

2 2.265 0.654 0.20 0.00 0 P81 0.00 0.00 81 0 0 0 0 0

### V228

Viga= 228 V228 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.90 /B= 0.20 /H= 0.70 /BCs= 1.18 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.5 tf\* m | M.[+] Max= 6.3 tf\* m - Abcis.= 245 | M.[-] = 6.7 tf\* m

[tf,cm]| As = 2.78 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.41 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.08 | As = 3.28 -STAS- [ 3 B 12.5mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 491.2 | M[+]Min = 432.8 | M[-]Min = 580.1

[cm2 ]| Asapo[+]= 1.57 | | Asapo[+]= 1.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 11.22 57.06 1 45. 0.4 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

150.- 300. 4.73 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

300.- 450. 11.18 57.06 1 45. 0.4 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 8.006 6.275 0.40 0.00 0 P82 0.00 0.00 82 0 0 0 0 0

2 7.985 6.261 0.40 0.00 0 P83 0.00 0.00 83 0 0 0 0 0

### V229

Viga= 229 V229 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.68 /B= 0.20 /H= 0.70 /BCs= 1.05 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 7.7 tf\* m - Abcis.= 236 | M.[-] = 16.5 tf\* m

[tf,cm]| As = 2.33 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 9.02 -SRAS- [ 3 B 20.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 3.82 -STAS- [ 2 B 16.0mm ] | AsL= 0.00 ------ x/d =0.25

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 415.1 | M[+]Min = 424.3 | M[-]Min = 770.8

[cm2 ]| Asapo[+]= 1.36 | | Asapo[+]= 1.27

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 9.69 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

183.- 365. 8.39 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

365.- 548. 17.95 56.91 1 45. 3.1 2.1 3.1 5.0 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.05 /B= 0.20 /H= 0.70 /BCs= 1.26 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 16.9 tf\* m | M.[+] Max= 8.7 tf\* m - Abcis.= 411 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 9.24 -SRAS- [ 3 B 20.0mm] | AsL= 0.00 ------ | As = 2.28 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.25 | As = 4.32 -STAS- [ 4 B 12.5mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 707.0 | M[+]Min = 420.1 | M[-]Min = 398.5

[cm2 ]| Asapo[+]= 1.08 | | Asapo[+]= 1.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 171. 20.12 56.91 1 45. 3.9 2.1 3.9 6.3 0.0 15.0 2 0.0 0.0

171.- 514. 7.85 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

514.- 685. 9.41 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 6.913 6.130 0.20 0.00 0 P84 0.00 0.00 84 0 0 0 0 0

2 27.081 25.000 0.20 0.00 0 P85 0.00 0.00 85 0 0 0 0 0

3 6.725 6.029 0.20 0.00 0 P87 0.00 0.00 87 0 0 0 0 0

### V230

Viga= 230 V230 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 7.60 /B= 0.15 /H= 0.60 /BCs= 1.67 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.8 tf\* m | M.[+] Max= 17.4 tf\* m - Abcis.= 380 | M.[-] = 4.7 tf\* m

[tf,cm]| As = 3.03 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.93 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 10.79 -STAS- [ 4 B 20.0mm ] | AsL= 0.00 ------ x/d =0.13

| Grampos Esq.= 4B 8.0mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 2.3 | Grampos Dir.= 4B 8.0mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 251.1 | M[+]Min = 258.2 | M[-]Min = 251.1

[cm2 ]| Asapo[+]= 3.60 | | Asapo[+]= 3.60

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 185. 14.17 36.03 1 45. 3.6 1.5 3.6 6.3 0.0 15.0 2 0.0 0.0

185.- 555. 8.80 35.87 1 45. 1.1 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

555.- 740. 14.73 36.03 1 45. 3.9 1.5 3.9 6.3 0.0 15.0 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 10.111 9.700 0.20 0.00 1 P88 0.00 0.00 88 0 0 0 0 0

2 10.525 10.094 0.20 0.00 1 P86 0.00 0.00 86 0 0 0 0 0

### V231

Viga= 231 V231 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.04 /B= 0.20 /H= 0.70 /BCs= 0.81 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 101 | M.[-] = 5.4 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 3.28 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.83 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 308.0 | M[+]Min = 403.9 | M[-]Min = 642.4

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.94

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 126. 1.44 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

126.- 251. 2.90 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

251.- 377. 4.99 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.88 /B= 0.20 /H= 0.70 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.3 tf\* m | M.[+] Max= 4.6 tf\* m - Abcis.= 343 | M.[-] = 11.1 tf\* m

[tf,cm]| As = 3.72 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 5.85 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.72 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.16

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 621.0 | M[+]Min = 404.3 | M[-]Min = 621.0

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 162. 10.08 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

162.- 486. 5.47 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

486.- 648. 13.56 57.06 1 45. 1.3 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.43 /B= 0.20 /H= 0.70 /BCs= 0.86 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 10.0 tf\* m | M.[+] Max= 4.8 tf\* m - Abcis.= 258 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 5.22 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 2.21 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.14 | As = 2.60 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.0 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 561.3 | M[+]Min = 391.5 | M[-]Min = 365.0

[cm2 ]| Asapo[+]= 0.65 | | Asapo[+]= 1.02

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 139. 12.89 57.06 1 45. 1.1 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

139.- 277. 6.57 57.06 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

277.- 416. 6.65 57.06 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.025 0.543 0.15 0.00 2 V269 0.00 0.00 0 0 0 0 0 0

2 10.626 9.333 0.40 0.00 0 P89 0.00 0.00 89 0 0 0 0 0

3 18.705 16.913 0.40 0.00 0 P90 0.00 0.00 90 0 0 0 0 0

4 4.753 4.071 0.15 0.00 2 V287 0.00 0.00 0 0 0 0 0 0

### V232

Viga= 232 V232 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.90 /B= 0.15 /H= 0.70 /BCs= 1.13 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.5 tf\* m | M.[+] Max= 5.6 tf\* m - Abcis.= 245 | M.[-] = 6.3 tf\* m

[tf,cm]| As = 2.88 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.30 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.75 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 500.4 | M[+]Min = 337.8 | M[-]Min = 500.4

[cm2 ]| Asapo[+]= 1.46 | | Asapo[+]= 1.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 10.42 42.79 1 45. 1.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 4.29 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 10.32 42.79 1 45. 1.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 7.432 5.846 0.40 0.00 0 P91 0.00 0.00 91 0 0 0 0 0

2 7.375 5.781 0.40 0.00 0 P92 0.00 0.00 92 0 0 0 0 0

### V233

Viga= 233 V233 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.79 /B= 0.15 /H= 0.70 /BCs= 0.66 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 3.1 tf\* m - Abcis.= 284 | M.[-] = 6.8 tf\* m

[tf,cm]| As = 2.15 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 3.58 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.19 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 420.9 | M[+]Min = 307.9 | M[-]Min = 510.4

[cm2 ]| Asapo[+]= 0.74 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 159. 5.30 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

159.- 478. 3.78 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

478.- 638. 6.30 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 8.13 /B= 0.15 /H= 0.70 /BCs= 0.64 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.8 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 408 | M.[-] = 10.3 tf\* m

[tf,cm]| As = 3.03 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 5.58 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.16 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.21

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 499.2 | M[+]Min = 306.0 | M[-]Min = 499.2

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 156. 5.31 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

156.- 625. 5.08 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

625.- 782. 8.59 42.68 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.70 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 10.3 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 314 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 5.58 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 2.51 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.21 | As = 2.14 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 490.7 | M[+]Min = 304.5 | M[-]Min = 490.7

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 7.81 42.79 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.779 2.807 0.40 0.00 0 P93 0.00 0.00 93 0 0 0 0 0

2 7.914 7.055 0.50 0.04 0 P94 0.00 0.00 94 0 0 0 0 0

3 11.697 10.598 0.20 0.00 0 P95 0.00 0.00 95 0 0 0 0 0

4 -0.736 -0.900 0.15 0.00 2 V301 0.00 0.00 0 0 0 0 0 0

### V234

Viga= 234 V234 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 135 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 2.34 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 226.9 | M[-]Min = 386.8

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 2.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 1.00 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.8 tf\* m | M.[+] Max= 3.9 tf\* m - Abcis.= 284 | M.[-] = 5.5 tf\* m

[tf,cm]| As = 4.40 -SRAS- [ 4 B 12.5mm] | AsL= 0.00 ------ | As = 3.43 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.19 | As = 2.31 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 435.3 | M[+]Min = 237.6 | M[-]Min = 349.6

[cm2 ]| Asapo[+]= 0.58 | | Asapo[+]= 1.11

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 8.48 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 3.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 7.93 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.453 -0.192 0.15 0.00 2 V295 0.00 0.00 0 0 0 0 0 0

2 7.487 6.660 0.40 0.02 0 P96 0.00 0.00 96 0 0 0 0 0

3 5.665 4.376 0.40 0.02 0 P97 0.00 0.00 97 0 0 0 0 0

### V235

Viga= 235 V235 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.71 /B= 0.15 /H= 0.60 /BCs= 0.56 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 91 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.72 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.80 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.65 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 286.0 | M[+]Min = 212.9 | M[-]Min = 299.4

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 235. 4.15 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.50 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 231 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.26 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.47 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.68 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 280.3 | M[+]Min = 208.1 | M[-]Min = 219.5

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 111. 6.89 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

111.- 292. 3.46 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

292.- 425. 4.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.196 0.757 0.40 0.02 1 P98 0.00 0.00 98 0 0 0 0 0

2 7.725 7.127 0.40 0.02 1 P99 0.00 0.00 99 0 0 0 0 0

3 3.150 2.939 0.40 0.02 1 P100 0.00 0.00 100 0 0 0 0 0

### V236

Viga= 236 V236 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 1.12 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.8 tf\* m | M.[+] Max= 4.6 tf\* m - Abcis.= 243 | M.[-] = 6.4 tf\* m

[tf,cm]| As = 3.61 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 3.98 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.16 | As = 2.71 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.17

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 387.8 | M[+]Min = 249.4 | M[-]Min = 387.8

[cm2 ]| Asapo[+]= 1.41 | | Asapo[+]= 1.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 10.10 36.28 1 45. 1.7 1.5 1.7 4.2 0.0 15.0 2 0.0 0.0

150.- 300. 4.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 9.87 36.28 1 45. 1.6 1.5 1.6 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 7.201 5.622 0.40 0.02 0 P101 0.00 0.00 101 0 0 0 0 0

2 7.048 5.476 0.40 0.02 0 P102 0.00 0.00 102 0 0 0 0 0

### V237

Viga= 237 V237 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.50 /B= 0.15 /H= 0.60 /BCs= 0.40 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 83 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.54 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.54 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 250.2 | M[+]Min = 199.8 | M[-]Min = 250.2

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 225. 0.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.409 0.234 0.40 0.02 1 P105 0.00 0.00 105 0 0 0 0 0

2 0.399 0.224 0.15 0.00 2 V312 0.00 0.00 0 0 0 0 0 0

### V238

Viga= 238 V238 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.70 /B= 0.15 /H= 0.70 /BCs= 1.29 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.7 tf\* m | M.[+] Max= 7.0 tf\* m - Abcis.= 285 | M.[-] = 7.2 tf\* m

[tf,cm]| As = 4.03 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 3.79 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.15 | As = 3.49 -STAS- [ 3 B 12.5mm ] | AsL= 0.00 ------ x/d =0.14

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 542.4 | M[+]Min = 344.5 | M[-]Min = 542.4

[cm2 ]| Asapo[+]= 1.66 | | Asapo[+]= 1.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 11.86 42.79 1 45. 1.7 1.5 1.7 4.2 0.0 15.0 2 0.0 0.0

177.- 353. 4.05 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 11.75 42.79 1 45. 1.6 1.5 1.6 4.2 0.0 15.0 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 8.463 6.809 0.40 0.00 0 P106 0.00 0.00 106 0 0 0 0 0

2 8.393 6.768 0.40 0.00 0 P107 0.00 0.00 107 0 0 0 0 0

### V239

Viga= 239 V239 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.71 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 225 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.38 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 227.9 | M[+]Min = 201.7 | M[-]Min = 184.4

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 235. 1.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.835 0.433 0.40 0.02 1 P108 0.00 0.00 108 0 0 0 0 0

2 0.477 0.089 0.40 0.02 1 P109 0.00 0.00 109 0 0 0 0 0

### V240

Viga= 240 V240 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 1.12 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.2 tf\* m | M.[+] Max= 3.8 tf\* m - Abcis.= 243 | M.[-] = 5.6 tf\* m

[tf,cm]| As = 3.25 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 3.48 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.14 | As = 2.52 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 387.8 | M[+]Min = 249.4 | M[-]Min = 387.8

[cm2 ]| Asapo[+]= 1.22 | | Asapo[+]= 1.17

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 8.74 36.28 1 45. 1.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 3.49 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 8.35 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 6.236 4.707 0.40 0.02 0 P110 0.00 0.00 110 0 0 0 0 0

2 5.962 4.432 0.40 0.02 0 P111 0.00 0.00 111 0 0 0 0 0

### V241

Viga= 241 V241 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 203 | M.[-] = 5.6 tf\* m

[tf,cm]| As = 2.60 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.50 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.79 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 282.1 | M[+]Min = 218.0 | M[-]Min = 335.4

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 108. 5.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

108.- 314. 4.29 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

314.- 450. 8.25 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.4 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 276 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 2.71 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 2.09 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 1.81 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 365.3 | M[+]Min = 226.5 | M[-]Min = 345.0

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 1.11

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 126. 5.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

126.- 251. 3.16 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

251.- 377. 3.65 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.204 2.915 0.40 0.02 0 P116 0.00 0.00 116 0 0 0 0 0

2 8.631 7.732 0.40 0.02 0 P117 0.00 0.00 117 0 0 0 0 0

3 2.604 0.954 0.40 0.02 0 P118 0.00 0.00 118 0 0 0 0 0

### V242

Viga= 242 V242 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.33 /B= 0.15 /H= 0.60 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 0 | M.[-] = 4.2 tf\* m

[tf,cm]| As = 1.99 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.58 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 328.4 | M[+]Min = 219.3 | M[-]Min = 328.4

[cm2 ]| Asapo[+]= 1.42 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 3.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 1.00 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.3 tf\* m | M.[+] Max= 4.9 tf\* m - Abcis.= 284 | M.[-] = 5.7 tf\* m

[tf,cm]| As = 4.74 -SRAS- [ 4 B 12.5mm] | AsL= 0.00 ------ | As = 3.55 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.21 | As = 2.90 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 435.3 | M[+]Min = 237.6 | M[-]Min = 349.6

[cm2 ]| Asapo[+]= 0.72 | | Asapo[+]= 1.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 10.24 36.22 1 45. 1.8 1.5 1.8 4.2 0.0 15.0 2 0.0 0.0

177.- 353. 3.52 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 9.14 36.28 1 45. 1.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.013 -0.941 0.40 0.02 0 P119 0.00 0.00 119 0 0 0 0 0

2 8.976 7.554 0.40 0.02 0 P120 0.00 0.00 120 0 0 0 0 0

3 6.531 5.521 0.40 0.02 0 P121 0.00 0.00 121 0 0 0 0 0

### V243

Viga= 243 V243 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 171 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 2.12 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.59 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 346.5 | M[+]Min = 221.8 | M[-]Min = 418.0

[cm2 ]| Asapo[+]= 0.93 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 3.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.12 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 5.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.55 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 229 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 2.17 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.17 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 356.4 | M[+]Min = 213.0 | M[-]Min = 356.4

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 4.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

140.- 280. 0.98 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

280.- 419. 3.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 299 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.86 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.0 | M[+]Min = 221.8 | M[-]Min = 293.0

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.93

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 5.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 4.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.776 1.794 0.40 0.02 1 P122 0.00 0.00 122 0 0 0 0 0

2 6.471 5.766 0.40 0.02 1 P123 0.00 0.00 123 0 0 0 0 0

3 6.620 5.900 0.40 0.02 1 P124 0.00 0.00 124 0 0 0 0 0

4 3.036 1.881 0.40 0.02 1 P125 0.00 0.00 125 0 0 0 0 0

### V244

Viga= 244 V244 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 171 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.12 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.59 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 346.5 | M[+]Min = 221.8 | M[-]Min = 418.0

[cm2 ]| Asapo[+]= 1.11 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 4.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.27 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 5.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.55 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 229 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 2.17 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.17 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 356.4 | M[+]Min = 213.0 | M[-]Min = 356.4

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 4.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

140.- 280. 1.15 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

280.- 419. 3.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.8 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 342 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.12 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.0 | M[+]Min = 221.8 | M[-]Min = 346.5

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 1.18

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 6.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.35 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 4.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.885 1.720 0.40 0.02 0 P126 0.00 0.00 126 0 0 0 0 0

2 6.722 5.830 0.40 0.02 1 P127 0.00 0.00 127 0 0 0 0 0

3 6.720 5.812 0.40 0.02 1 P128 0.00 0.00 128 0 0 0 0 0

4 3.222 1.806 0.40 0.02 0 P129 0.00 0.00 129 0 0 0 0 0

### V245

Viga= 245 V245 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.44 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 97 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.96 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 252.8 | M[+]Min = 203.4 | M[-]Min = 262.5

[cm2 ]| Asapo[+]= 1.32 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 3.14 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.40 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 4.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.26 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 164 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 248.3 | M[+]Min = 199.2 | M[-]Min = 187.4

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 3.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 201. 1.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

201.- 301. 1.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.237 0.542 0.40 0.02 0 P130 0.00 0.00 130 0 0 0 0 0

2 4.651 3.567 0.40 0.02 0 P131 0.00 0.00 131 0 0 0 0 0

3 1.252 0.668 0.15 0.00 2 V278 0.00 0.00 0 0 0 0 0 0

### V246

Viga= 246 V246 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 189 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 198.9 | M[-]Min = 247.4

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 1.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 331 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.50 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.06 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 305.0 | M[+]Min = 214.2 | M[-]Min = 260.8

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 174. 4.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

174.- 418. 2.78 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

418.- 530. 4.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.558 -0.088 0.15 0.00 2 V295 0.00 0.00 0 0 0 0 0 0

2 4.007 3.578 0.40 0.02 0 P132 0.00 0.00 132 0 0 0 0 0

3 3.216 2.181 0.40 0.02 0 P133 0.00 0.00 133 0 0 0 0 0

### V247

Viga= 247 V247 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 171 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 1.86 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.59 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.0 | M[+]Min = 221.8 | M[-]Min = 418.0

[cm2 ]| Asapo[+]= 1.00 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 3.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.15 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 4.94 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.55 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 267 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 2.17 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.17 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 356.4 | M[+]Min = 213.0 | M[-]Min = 356.4

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 3.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

140.- 280. 1.19 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

280.- 419. 3.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 342 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.86 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.0 | M[+]Min = 221.8 | M[-]Min = 293.0

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 1.14

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 5.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.30 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 3.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.484 1.611 0.40 0.02 1 P134 0.00 0.00 134 0 0 0 0 0

2 5.975 5.417 0.40 0.02 1 P135 0.00 0.00 135 0 0 0 0 0

3 5.982 5.396 0.40 0.02 1 P136 0.00 0.00 136 0 0 0 0 0

4 2.668 1.660 0.40 0.02 1 P137 0.00 0.00 137 0 0 0 0 0

### V248

Viga= 248 V248 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 171 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 1.86 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.59 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.0 | M[+]Min = 221.8 | M[-]Min = 418.0

[cm2 ]| Asapo[+]= 1.34 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 3.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.27 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 5.15 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.55 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 267 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 2.17 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.17 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 356.4 | M[+]Min = 213.0 | M[-]Min = 356.4

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 3.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

140.- 280. 1.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

280.- 419. 3.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 342 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.86 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.0 | M[+]Min = 221.8 | M[-]Min = 293.0

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 1.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 5.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.43 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 3.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.231 1.325 0.40 0.02 0 P138 0.00 0.00 138 0 0 0 0 0

2 6.035 5.405 0.40 0.02 1 P139 0.00 0.00 139 0 0 0 0 0

3 6.047 5.368 0.40 0.02 1 P140 0.00 0.00 140 0 0 0 0 0

4 2.440 1.360 0.40 0.02 0 P141 0.00 0.00 141 0 0 0 0 0

### V249

Viga= 249 V249 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 0 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.10 | | Asapo[+]= 0.98

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 1.33 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.127 -0.385 0.40 0.02 0 P142 0.00 0.00 142 0 0 0 0 0

2 1.254 -0.258 0.40 0.02 0 P143 0.00 0.00 143 0 0 0 0 0

### V250

Viga= 250 V250 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 386 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.87 | | Asapo[+]= 1.12

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 1.37 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.284 -0.190 0.40 0.02 0 P144 0.00 0.00 144 0 0 0 0 0

2 1.058 -0.415 0.40 0.02 0 P145 0.00 0.00 145 0 0 0 0 0

### V251

Viga= 251 V251 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 2.7 tf\* m - Abcis.= 213 | M.[-] = 3.7 tf\* m

[tf,cm]| As = 1.86 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.59 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.0 | M[+]Min = 221.8 | M[-]Min = 418.0

[cm2 ]| Asapo[+]= 0.84 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 4.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.54 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 6.14 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.55 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 267 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 2.27 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.17 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 356.4 | M[+]Min = 213.0 | M[-]Min = 356.4

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 5.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

140.- 280. 1.76 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

280.- 419. 4.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 299 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.86 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.0 | M[+]Min = 221.8 | M[-]Min = 293.0

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.88

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 6.83 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.44 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 4.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.876 2.077 0.40 0.02 1 P146 0.00 0.00 146 0 0 0 0 0

2 7.932 7.218 0.40 0.02 1 P147 0.00 0.00 147 0 0 0 0 0

3 7.707 7.099 0.40 0.02 1 P148 0.00 0.00 148 0 0 0 0 0

4 3.100 2.051 0.40 0.02 1 P149 0.00 0.00 149 0 0 0 0 0

### V252

Viga= 252 V252 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 86 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 1.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 0.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 1.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 0 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 1.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 266. 0.91 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

266.- 399. 1.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 431 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.63

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 1.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 0.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 1.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.898 0.144 0.40 0.02 0 P150 0.00 0.00 150 0 0 0 0 0

2 1.233 0.998 0.50 0.07 0 P151 0.00 0.00 151 0 0 0 0 0

3 1.234 1.000 0.50 0.07 0 P152 0.00 0.00 152 0 0 0 0 0

4 0.904 0.148 0.40 0.02 0 P153 0.00 0.00 153 0 0 0 0 0

### V253

Viga= 253 V253 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 215 | M.[-] = 4.2 tf\* m

[tf,cm]| As = 2.13 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.62 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 348.0 | M[+]Min = 221.8 | M[-]Min = 418.0

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 3.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.36 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 6.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.41 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 262 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 2.13 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.13 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.13 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 349.3 | M[+]Min = 211.9 | M[-]Min = 349.3

[cm2 ]| Asapo[+]= 0.53 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 4.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 266. 1.86 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

266.- 399. 4.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.3 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 302 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 2.67 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.13 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.50 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.0 | M[+]Min = 221.8 | M[-]Min = 348.0

[cm2 ]| Asapo[+]= 0.62 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 6.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.25 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 3.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.502 1.897 0.40 0.02 0 P150 0.00 0.00 150 0 0 0 0 0

2 6.953 6.223 0.50 0.07 0 P151 0.00 0.00 151 0 0 0 0 0

3 7.331 6.758 0.50 0.07 0 P152 0.00 0.00 152 0 0 0 0 0

4 2.614 2.067 0.40 0.02 0 P153 0.00 0.00 153 0 0 0 0 0

### V254

Viga= 254 V254 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 386 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.58 | | Asapo[+]= 0.65

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.944 -0.042 0.40 0.02 0 P154 0.00 0.00 154 0 0 0 0 0

2 0.911 -0.076 0.40 0.02 0 P155 0.00 0.00 155 0 0 0 0 0

### V255

Viga= 255 V255 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 0 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.65 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.89 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.913 -0.073 0.40 0.02 0 P156 0.00 0.00 156 0 0 0 0 0

2 0.941 -0.044 0.40 0.02 0 P157 0.00 0.00 157 0 0 0 0 0

### V256

Viga= 256 V256 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 386 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.58 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.87 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.925 -0.042 0.40 0.02 0 P158 0.00 0.00 158 0 0 0 0 0

2 0.910 -0.056 0.40 0.02 0 P159 0.00 0.00 159 0 0 0 0 0

### V257

Viga= 257 V257 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 386 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.60 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.88 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.934 -0.037 0.40 0.02 0 P160 0.00 0.00 160 0 0 0 0 0

2 0.906 -0.066 0.40 0.02 0 P161 0.00 0.00 161 0 0 0 0 0

### V258

Viga= 258 V258 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.91 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 403 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 1.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 1.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 1.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 335 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 186. 1.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

186.- 558. 0.79 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

558.- 744. 1.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 40 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 141. 1.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

141.- 283. 0.77 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 424. 1.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.84 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 336 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 187. 1.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

187.- 561. 0.78 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

561.- 748. 1.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.91 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 0 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 1.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 1.07 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 1.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.028 -0.057 0.60 0.12 0 P167 0.00 0.00 167 0 0 0 0 0

2 1.671 0.846 0.60 0.12 0 P166 0.00 0.00 166 0 0 0 0 0

3 1.646 1.148 0.60 0.12 0 P165 0.00 0.00 165 0 0 0 0 0

4 1.668 1.167 0.60 0.12 0 P164 0.00 0.00 164 0 0 0 0 0

5 1.646 0.818 0.60 0.12 0 P163 0.00 0.00 163 0 0 0 0 0

6 1.068 -0.017 0.60 0.12 0 P162 0.00 0.00 162 0 0 0 0 0

### V259

Viga= 259 V259 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.50 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 192 | M.[-] = 3.9 tf\* m

[tf,cm]| As = 1.66 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.40 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 276.5 | M[+]Min = 216.4 | M[-]Min = 327.2

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 3.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 2.45 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 4.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.61 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.5 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 328 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.83 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.06 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 1.85 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 359.8 | M[+]Min = 222.5 | M[-]Min = 298.8

[cm2 ]| Asapo[+]= 0.46 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 175. 5.65 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

175.- 350. 2.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

350.- 525. 4.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.780 1.805 0.40 0.02 0 P47 0.00 0.00 47 0 0 0 0 0

2 7.042 6.391 0.40 0.02 0 P32 0.00 0.00 32 0 0 0 0 0

3 3.446 2.657 0.40 0.02 0 P2 0.00 0.00 2 0 0 0 0 0

### V260

Viga= 260 V260 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 209 | M.[-] = 4.3 tf\* m

[tf,cm]| As = 2.21 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.68 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 266.4 | M[+]Min = 213.4 | M[-]Min = 312.4

[cm2 ]| Asapo[+]= 0.88 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 6.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.3

102.- 241. 3.54 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 380. 8.63 36.28 1 45. 1.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.49 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 290 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.97 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.97 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 326.1 | M[+]Min = 216.2 | M[-]Min = 326.1

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 90. 3.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

90.- 160. 2.28 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.4

160.- 250. 3.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.5 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 243 | M.[-] = 3.7 tf\* m

[tf,cm]| As = 2.77 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.26 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.10 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 445.6 | M[+]Min = 235.1 | M[-]Min = 358.6

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 1.01

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 8.59 36.28 1 45. 1.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 3.13 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 7.21 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.506 3.347 0.40 0.02 0 P49 0.00 0.00 49 0 0 0 0 0

2 7.746 6.766 0.40 0.02 0 P35 0.00 0.00 35 0 0 0 0 0

3 7.736 6.815 0.40 0.02 0 P17 0.00 0.00 17 0 0 0 0 0

4 5.148 3.905 0.40 0.02 0 P3 0.00 0.00 3 0 0 0 0 0

### V261

Viga= 261 V261 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.48 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 148 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.64 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.95 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.75 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 272.4 | M[+]Min = 215.4 | M[-]Min = 321.9

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.47 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 243 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 270.9 | M[+]Min = 203.8 | M[-]Min = 270.9

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.41 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 253 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.74 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.74 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.66 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 289.7 | M[+]Min = 208.4 | M[-]Min = 289.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 1.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 0.83 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 1.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 260 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 256.6 | M[+]Min = 200.1 | M[-]Min = 256.6

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 1.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 260 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.67 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.67 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 277.8 | M[+]Min = 205.6 | M[-]Min = 277.8

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 1.35 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.049 0.555 0.20 0.00 0 P71 0.00 0.00 71 0 0 0 0 0

2 1.958 1.803 0.20 0.00 0 P82 0.00 0.00 82 0 0 0 0 0

3 1.567 1.448 0.20 0.00 0 P91 0.00 0.00 91 0 0 0 0 0

4 1.613 1.432 0.20 0.00 0 P101 0.00 0.00 101 0 0 0 0 0

5 1.155 0.887 0.20 0.00 0 P110 0.00 0.00 110 0 0 0 0 0

6 0.865 0.124 0.20 0.00 0 P116 0.00 0.00 116 0 0 0 0 0

### V262

Viga= 262 V262 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 220 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.83 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.41 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 304.1 | M[+]Min = 246.3 | M[-]Min = 304.1

[cm2 ]| Asapo[+]= 0.80 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 148. 5.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

148.- 319. 3.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

319.- 420. 5.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.890 3.288 0.20 0.00 0 P50 0.00 0.00 50 0 0 0 0 0

2 3.840 3.234 0.20 0.00 0 P33 0.00 0.00 33 0 0 0 0 0

### V263

Viga= 263 V263 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 220 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.83 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.41 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 304.1 | M[+]Min = 246.3 | M[-]Min = 304.1

[cm2 ]| Asapo[+]= 0.80 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 101. 5.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

101.- 274. 3.09 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

274.- 420. 5.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.831 3.215 0.20 0.00 0 P18 0.00 0.00 18 0 0 0 0 0

2 3.913 3.292 0.20 0.00 0 P1 0.00 0.00 1 0 0 0 0 0

### V264

Viga= 264 V264 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 0 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.63 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 0.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.73 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 242 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 0.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 273 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 0.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.50 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 0.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 0 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.17 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 278 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 270.0 | M[+]Min = 205.4 | M[-]Min = 192.2

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 1.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 0.81 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 0.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.695 -0.039 0.20 0.00 0 P162 0.00 0.00 162 0 0 0 0 0

2 0.771 0.584 0.20 0.00 0 P158 0.00 0.00 158 0 0 0 0 0

3 0.867 0.688 0.20 0.00 0 P154 0.00 0.00 154 0 0 0 0 0

4 0.571 0.345 0.20 0.00 0 P142 0.00 0.00 142 0 0 0 0 0

5 1.787 1.292 0.20 0.00 0 P130 0.00 0.00 130 0 0 0 0 0

6 0.530 0.410 0.15 0.00 2 V241 0.00 0.00 0 0 0 0 0 0

### V265

Viga= 265 V265 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.42 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 221 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.41 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.4 | M[+]Min = 246.4 | M[-]Min = 238.4

[cm2 ]| Asapo[+]= 0.80 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 4.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 324. 2.40 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

324.- 425. 4.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.060 2.845 0.15 0.00 2 V220 0.00 0.00 0 0 0 0 0 0

2 3.223 2.997 0.20 0.00 2 V212 0.00 0.00 0 0 0 0 0 0

### V266

Viga= 266 V266 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.42 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.7 tf\* m - Abcis.= 221 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.41 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.4 | M[+]Min = 246.4 | M[-]Min = 238.4

[cm2 ]| Asapo[+]= 0.80 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 4.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 324. 2.42 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

324.- 425. 4.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.066 2.845 0.15 0.00 2 V201 0.00 0.00 0 0 0 0 0 0

2 3.237 3.007 0.20 0.00 2 V209 0.00 0.00 0 0 0 0 0 0

### V267

Viga= 267 V267 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.8 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 208 | M.[-] = 4.0 tf\* m

[tf,cm]| As = 2.30 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.45 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.35 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 357.8 | M[+]Min = 244.5 | M[-]Min = 357.8

[cm2 ]| Asapo[+]= 0.98 | | Asapo[+]= 1.02

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 7.02 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 3.65 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 7.30 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.007 3.633 0.40 0.02 0 P51 0.00 0.00 51 0 0 0 0 0

2 5.217 3.780 0.40 0.02 0 P36 0.00 0.00 36 0 0 0 0 0

### V268

Viga= 268 V268 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.0 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 242 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 2.43 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.29 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.35 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 357.8 | M[+]Min = 244.5 | M[-]Min = 357.8

[cm2 ]| Asapo[+]= 1.02 | | Asapo[+]= 0.97

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 7.28 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 3.62 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 6.96 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.190 3.795 0.40 0.02 0 P19 0.00 0.00 19 0 0 0 0 0

2 4.973 3.602 0.40 0.02 0 P4 0.00 0.00 4 0 0 0 0 0

### V269

Viga= 269 V269 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.82 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 3.5 tf\* m - Abcis.= 185 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 1.84 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.89 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.15 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 305.6 | M[+]Min = 237.3 | M[-]Min = 463.5

[cm2 ]| Asapo[+]= 0.72 | | Asapo[+]= 0.72

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 5.14 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 4.13 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 8.16 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 365 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.22 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.88 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 367.2 | M[+]Min = 223.7 | M[-]Min = 367.2

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 105. 4.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

105.- 181. 2.51 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.7 0.4

181.- 345. 4.14 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.67 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 217 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 2.45 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.45 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.98 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 403.0 | M[+]Min = 229.3 | M[-]Min = 403.0

[cm2 ]| Asapo[+]= 0.49 | | Asapo[+]= 0.49

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 6.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 2.78 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 5.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 182 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 2.05 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.06 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.80 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 340.0 | M[+]Min = 218.9 | M[-]Min = 340.0

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 4.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 182 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 2.31 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.60 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.91 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 380.4 | M[+]Min = 225.9 | M[-]Min = 266.1

[cm2 ]| Asapo[+]= 0.48 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 4.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.669 3.094 0.20 0.00 0 P72 0.00 0.00 72 0 0 0 0 0

2 8.701 7.804 0.20 0.00 0 P83 0.00 0.00 83 0 0 0 0 0

3 7.171 6.445 0.20 0.00 0 P92 0.00 0.00 92 0 0 0 0 0

4 7.317 6.646 0.20 0.00 0 P102 0.00 0.00 102 0 0 0 0 0

5 6.268 5.605 0.20 0.00 0 P111 0.00 0.00 111 0 0 0 0 0

6 2.037 1.397 0.20 0.00 0 P117 0.00 0.00 117 0 0 0 0 0

### V270

Viga= 270 V270 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 0 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.53 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 0.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.68 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 265 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 0.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 121 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 0.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.42 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 0.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 315 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 0.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.624 -0.001 0.20 0.00 0 P163 0.00 0.00 163 0 0 0 0 0

2 0.808 0.662 0.20 0.00 0 P159 0.00 0.00 159 0 0 0 0 0

3 0.801 0.578 0.20 0.00 0 P155 0.00 0.00 155 0 0 0 0 0

4 0.943 0.598 0.20 0.00 0 P143 0.00 0.00 143 0 0 0 0 0

5 0.685 0.029 0.20 0.00 0 P131 0.00 0.00 131 0 0 0 0 0

### V271

Viga= 271 V271 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.4 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 214 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.71 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.81 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 363.0 | M[+]Min = 245.4 | M[-]Min = 300.6

[cm2 ]| Asapo[+]= 1.15 | | Asapo[+]= 0.90

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 8.21 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 3.04 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.47 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.855 4.821 0.40 0.02 0 P52 0.00 0.00 52 0 0 0 0 0

2 4.620 3.718 0.20 0.00 0 P37 0.00 0.00 37 0 0 0 0 0

### V272

Viga= 272 V272 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 214 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 1.81 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.74 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 300.6 | M[+]Min = 245.4 | M[-]Min = 363.0

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 1.16

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 3.07 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 8.27 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.573 3.671 0.20 0.00 0 P20 0.00 0.00 20 0 0 0 0 0

2 5.908 4.860 0.40 0.02 0 P5 0.00 0.00 5 0 0 0 0 0

### V273

Viga= 273 V273 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.30 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 57 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.81 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.04 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 281.3 | M[+]Min = 208.8 | M[-]Min = 228.0

[cm2 ]| Asapo[+]= 0.60 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 210. 1.78 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.879 0.250 0.20 0.00 0 P150 0.00 0.00 150 0 0 0 0 0

2 1.269 0.418 0.20 0.00 1 P146 0.00 0.00 146 0 0 0 0 0

### V274

Viga= 274 V274 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.90 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 190 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.73 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.92 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.3 | M[+]Min = 204.4 | M[-]Min = 284.6

[cm2 ]| Asapo[+]= 0.48 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 1.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.454 -0.465 0.20 0.00 1 P134 0.00 0.00 134 0 0 0 0 0

2 0.764 -0.200 0.20 0.00 0 P126 0.00 0.00 126 0 0 0 0 0

### V275

Viga= 275 V275 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

\* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

Diagrama M[-] nao usual. Verificar apoios com M[-] Max.

\* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 0 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.80 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.89 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 279.1 | M[+]Min = 203.2 | M[-]Min = 237.6

[cm2 ]| Asapo[+]= 0.55 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 -0.169 -1.004 0.20 0.00 0 P126 0.00 0.00 126 0 0 0 0 0

2 0.826 -0.132 0.20 0.00 1 P122 0.00 0.00 122 0 0 0 0 0

### V276

Viga= 276 V276 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.60 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 0 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.83 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.59 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.83 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 285.7 | M[+]Min = 200.7 | M[-]Min = 230.4

[cm2 ]| Asapo[+]= 0.60 | | Asapo[+]= 0.46

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 1.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.805 -0.352 0.20 0.00 0 P138 0.00 0.00 138 0 0 0 0 0

2 0.915 -0.377 0.20 0.00 1 P146 0.00 0.00 146 0 0 0 0 0

### V277

Viga= 277 V277 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 180 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.71 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.89 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.89 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 258.7 | M[+]Min = 203.2 | M[-]Min = 298.8

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.764 -0.329 0.20 0.00 1 P134 0.00 0.00 134 0 0 0 0 0

2 0.204 -0.744 0.20 0.00 0 P138 0.00 0.00 138 0 0 0 0 0

### V278

Viga= 278 V278 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.60 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 86 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.98 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.10 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 327.6 | M[+]Min = 220.1 | M[-]Min = 346.5

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 240. 4.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.83 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 227 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 1.66 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.90 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 275.6 | M[+]Min = 205.0 | M[-]Min = 275.6

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 4.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 236. 2.34 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

236.- 355. 4.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.94 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 100 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.84 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 251.4 | M[+]Min = 198.6 | M[-]Min = 251.4

[cm2 ]| Asapo[+]= 1.56 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 266. 4.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.35 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 163 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.59 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.59 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.59 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 260.6 | M[+]Min = 201.1 | M[-]Min = 260.6

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 4.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 1.44 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 2.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 1.08 /B= 0.15 /H= 0.60 /BCs= 0.21 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 108 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.40 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.40 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 2.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 190.7 | M[+]Min = 178.9 | M[-]Min = 190.7

[cm2 ]| Asapo[+]= 0.35 | | Asapo[+]= 1.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 88. 2.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.26 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 180 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.43 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 204.6 | M[+]Min = 184.4 | M[-]Min = 204.6

[cm2 ]| Asapo[+]= 0.36 | | Asapo[+]= 1.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 1.90 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 110 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 1.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 180 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 1.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 0 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 1.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 2.30 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 230 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 210. 1.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.892 0.479 0.20 0.00 0 P89 0.00 0.00 89 0 0 0 0 0

2 6.281 5.378 0.20 0.00 0 P93 0.00 0.00 93 0 0 0 0 0

3 5.550 4.692 0.50 0.07 0 P103 0.00 0.00 103 0 0 0 0 0

4 5.903 4.308 0.20 0.00 0 P112 0.00 0.00 112 0 0 0 0 0

5 3.329 1.413 0.20 0.00 0 P118 0.00 0.00 118 0 0 0 0 0

6 1.181 -0.903 0.20 0.00 1 P122 0.00 0.00 122 0 0 0 0 0

7 1.229 0.645 0.20 0.00 0 P126 0.00 0.00 126 0 0 0 0 0

8 1.869 1.038 0.20 0.00 1 P134 0.00 0.00 134 0 0 0 0 0

9 0.003 -0.426 0.20 0.00 0 P138 0.00 0.00 138 0 0 0 0 0

10 1.151 0.709 0.20 0.00 1 P146 0.00 0.00 146 0 0 0 0 0

11 0.507 -0.402 0.20 0.00 0 P150 0.00 0.00 150 0 0 0 0 0

### V279

Viga= 279 V279 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.21 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 107 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.69 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 269.2 | M[+]Min = 206.3 | M[-]Min = 280.6

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 285. 5.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.61 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 153 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 2.10 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 347.2 | M[+]Min = 220.2 | M[-]Min = 210.8

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 233. 5.15 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.518 0.966 0.40 0.02 0 P73 0.00 0.00 73 0 0 0 0 0

2 3.190 2.409 0.40 0.02 0 P80 0.00 0.00 80 0 0 0 0 0

3 1.970 1.340 0.20 0.00 2 V231 0.00 0.00 0 0 0 0 0 0

### V280

Viga= 280 V280 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.42 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 4.5 tf\* m - Abcis.= 221 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.64 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 246.4 | M[-]Min = 238.4

[cm2 ]| Asapo[+]= 0.88 | | Asapo[+]= 0.88

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 4.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 1.51 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

250.- 425. 5.14 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.537 3.267 0.15 0.00 2 V220 0.00 0.00 0 0 0 0 0 0

2 3.671 3.394 0.20 0.00 2 V212 0.00 0.00 0 0 0 0 0 0

### V281

Viga= 281 V281 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.42 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 4.2 tf\* m - Abcis.= 221 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.45 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.4 | M[+]Min = 246.4 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 175. 4.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

175.- 246. 1.28 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

246.- 425. 4.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.488 3.249 0.20 0.00 2 V209 0.00 0.00 0 0 0 0 0 0

2 3.335 3.092 0.15 0.00 2 V201 0.00 0.00 0 0 0 0 0 0

### V282

Viga= 282 V282 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.79 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 214 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 2.63 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.82 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.12 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 423.5 | M[+]Min = 236.1 | M[-]Min = 453.0

[cm2 ]| Asapo[+]= 0.53 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 3.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 1.40 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

226.- 400. 3.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.78 /B= 0.15 /H= 0.60 /BCs= 0.48 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 280 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.94 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.94 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.75 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 321.9 | M[+]Min = 215.4 | M[-]Min = 321.9

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 1.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 243 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.77 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.18 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.10 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 445.6 | M[+]Min = 235.1 | M[-]Min = 358.6

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.79

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 6.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.31 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

226.- 380. 5.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.645 1.911 0.40 0.02 0 P53 0.00 0.00 53 0 0 0 0 0

2 2.525 2.269 0.20 0.00 0 P38 0.00 0.00 38 0 0 0 0 0

3 4.697 4.019 0.40 0.02 0 P21 0.00 0.00 21 0 0 0 0 0

4 4.028 2.819 0.40 0.02 0 P6 0.00 0.00 6 0 0 0 0 0

### V283

Viga= 283 V283 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.21 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 0 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 247.1 | M[+]Min = 198.8 | M[-]Min = 247.1

[cm2 ]| Asapo[+]= 1.11 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 285. 2.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.61 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 219 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.85 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 294.6 | M[+]Min = 211.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 233. 3.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.227 -0.552 0.40 0.02 0 P74 0.00 0.00 74 0 0 0 0 0

2 2.658 1.139 0.40 0.02 0 P81 0.00 0.00 81 0 0 0 0 0

3 0.397 -0.122 0.20 0.00 2 V231 0.00 0.00 0 0 0 0 0 0

### V284

Viga= 284 V284 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 214 | M.[-] = 4.2 tf\* m

[tf,cm]| As = 1.81 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.59 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 300.6 | M[+]Min = 245.4 | M[-]Min = 363.0

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 1.11

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.92 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 7.97 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.599 3.687 0.20 0.00 0 P22 0.00 0.00 22 0 0 0 0 0

2 5.694 4.674 0.40 0.02 0 P7 0.00 0.00 7 0 0 0 0 0

### V285

Viga= 285 V285 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.60 /B= 0.15 /H= 0.60 /BCs= 0.67 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 21 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.98 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.22 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.97 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 327.6 | M[+]Min = 229.2 | M[-]Min = 365.3

[cm2 ]| Asapo[+]= 0.49 | | Asapo[+]= 0.49

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 240. 1.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.760 0.056 0.20 0.00 0 P94 0.00 0.00 94 0 0 0 0 0

2 0.988 0.282 0.20 0.00 0 P90 0.00 0.00 90 0 0 0 0 0

### V286

Viga= 286 V286 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 209 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.77 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.10 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 417.9 | M[+]Min = 235.1 | M[-]Min = 445.6

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.78 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.49 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.49 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 0 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.97 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.97 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 326.1 | M[+]Min = 216.2 | M[-]Min = 326.1

[cm2 ]| Asapo[+]= 1.76 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 2.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.3 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 243 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 2.77 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.18 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.10 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 445.6 | M[+]Min = 235.1 | M[-]Min = 358.6

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.95

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 7.89 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 3.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 6.81 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.411 2.386 0.40 0.02 0 P54 0.00 0.00 54 0 0 0 0 0

2 3.416 2.895 0.40 0.02 0 P39 0.00 0.00 39 0 0 0 0 0

3 6.365 5.618 0.40 0.02 0 P23 0.00 0.00 23 0 0 0 0 0

4 4.861 3.726 0.40 0.02 0 P8 0.00 0.00 8 0 0 0 0 0

### V287

Viga= 287 V287 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 0.86 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 120 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 1.95 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.77 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.89 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 323.2 | M[+]Min = 231.4 | M[-]Min = 394.4

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 3.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 1.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 4.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.58 /B= 0.15 /H= 0.60 /BCs= 0.69 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.8 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 152 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 3.03 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.75 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 340.2 | M[+]Min = 221.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 116. 7.98 36.28 1 45. 0.7 1.5 2.0 4.2 0.0 12.5 2 3.3 2.0

116.- 225. 1.10 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

225.- 333. 1.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.153 1.111 0.40 0.02 0 P75 0.00 0.00 75 0 0 0 0 0

2 8.750 7.766 0.50 0.07 0 P84 0.00 0.00 84 0 0 0 0 0

3 1.102 0.700 0.15 0.00 2 V233 0.00 0.00 0 0 0 0 0 0

### V288

Viga= 288 V288 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.4 tf\* m | M.[+] Max= 4.1 tf\* m - Abcis.= 214 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.76 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.81 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.41 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 363.0 | M[+]Min = 245.4 | M[-]Min = 300.6

[cm2 ]| Asapo[+]= 1.18 | | Asapo[+]= 0.91

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 8.40 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 3.13 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.995 4.952 0.40 0.02 0 P55 0.00 0.00 55 0 0 0 0 0

2 4.640 3.727 0.20 0.00 0 P34 0.00 0.00 34 0 0 0 0 0

### V289

Viga= 289 V289 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 214 | M.[-] = 4.3 tf\* m

[tf,cm]| As = 1.81 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.69 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 300.6 | M[+]Min = 245.4 | M[-]Min = 363.0

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 1.15

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 3.02 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 8.23 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.577 3.675 0.20 0.00 0 P24 0.00 0.00 24 0 0 0 0 0

2 5.879 4.847 0.40 0.02 0 P9 0.00 0.00 9 0 0 0 0 0

### V290

Viga= 290 V290 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.30 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 76 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.04 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 255.2 | M[+]Min = 208.8 | M[-]Min = 228.0

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 210. 1.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.995 0.405 0.20 0.00 0 P153 0.00 0.00 153 0 0 0 0 0

2 1.283 0.446 0.20 0.00 1 P149 0.00 0.00 149 0 0 0 0 0

### V291

Viga= 291 V291 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.60 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 40 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.75 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.83 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 267.8 | M[+]Min = 200.7 | M[-]Min = 210.8

[cm2 ]| Asapo[+]= 0.59 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 2.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.949 -0.098 0.20 0.00 0 P141 0.00 0.00 141 0 0 0 0 0

2 1.521 0.302 0.20 0.00 1 P149 0.00 0.00 149 0 0 0 0 0

### V292

Viga= 292 V292 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 180 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.89 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.89 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 237.6 | M[+]Min = 203.2 | M[-]Min = 298.8

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.817 -0.206 0.20 0.00 1 P137 0.00 0.00 137 0 0 0 0 0

2 0.322 -0.577 0.20 0.00 0 P141 0.00 0.00 141 0 0 0 0 0

### V293

Viga= 293 V293 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.90 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 31 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.73 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.64 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.92 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.3 | M[+]Min = 204.4 | M[-]Min = 241.2

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.48

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 1.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.886 -0.068 0.20 0.00 0 P129 0.00 0.00 129 0 0 0 0 0

2 0.646 -0.274 0.20 0.00 1 P137 0.00 0.00 137 0 0 0 0 0

### V294

Viga= 294 V294 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 135 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.89 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.8 | M[+]Min = 203.2 | M[-]Min = 237.6

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 2.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.908 -0.031 0.20 0.00 1 P125 0.00 0.00 125 0 0 0 0 0

2 0.345 -0.477 0.20 0.00 0 P129 0.00 0.00 129 0 0 0 0 0

### V295

Viga= 295 V295 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.60 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 91 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 282.6 | M[+]Min = 209.4 | M[-]Min = 293.9

[cm2 ]| Asapo[+]= 1.17 | | Asapo[+]= 1.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 107. 3.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

107.- 214. 2.46 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

214.- 325. 3.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.2

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 101 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 252.8 | M[+]Min = 199.0 | M[-]Min = 252.8

[cm2 ]| Asapo[+]= 1.56 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 4.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.35 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 163 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.59 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.59 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.59 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 260.6 | M[+]Min = 201.1 | M[-]Min = 260.6

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 3.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 1.21 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 2.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 1.08 /B= 0.15 /H= 0.60 /BCs= 0.21 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 108 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.40 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.40 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 2.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 190.7 | M[+]Min = 178.9 | M[-]Min = 190.7

[cm2 ]| Asapo[+]= 0.35 | | Asapo[+]= 1.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 88. 1.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.26 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 60 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.43 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 204.6 | M[+]Min = 184.4 | M[-]Min = 204.6

[cm2 ]| Asapo[+]= 0.36 | | Asapo[+]= 1.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 1.90 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 47 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 1.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.3

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 1.80 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 180 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 160. 1.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 1.60 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 0 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 140. 1.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 2.30 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 230 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 210. 1.14 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.467 0.591 0.40 0.02 0 P95 0.00 0.00 95 0 0 0 0 0

2 4.050 3.252 0.50 0.07 0 P104 0.00 0.00 104 0 0 0 0 0

3 5.049 3.836 0.20 0.00 0 P115 0.00 0.00 115 0 0 0 0 0

4 3.167 1.600 0.20 0.00 0 P119 0.00 0.00 119 0 0 0 0 0

5 1.290 -0.399 0.20 0.00 1 P125 0.00 0.00 125 0 0 0 0 0

6 1.457 0.952 0.20 0.00 0 P129 0.00 0.00 129 0 0 0 0 0

7 1.374 0.498 0.20 0.00 1 P137 0.00 0.00 137 0 0 0 0 0

8 0.078 -0.309 0.20 0.00 0 P141 0.00 0.00 141 0 0 0 0 0

9 1.079 0.688 0.20 0.00 1 P149 0.00 0.00 149 0 0 0 0 0

10 0.497 -0.298 0.20 0.00 0 P153 0.00 0.00 153 0 0 0 0 0

### V296

Viga= 296 V296 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.42 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 4.2 tf\* m - Abcis.= 221 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.45 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.06

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 246.4 | M[-]Min = 238.4

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 4.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 1.39 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

250.- 425. 4.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.343 3.109 0.15 0.00 2 V220 0.00 0.00 0 0 0 0 0 0

2 3.496 3.260 0.20 0.00 2 V212 0.00 0.00 0 0 0 0 0 0

### V297

Viga= 297 V297 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.42 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 4.2 tf\* m - Abcis.= 221 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.47 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.4 | M[+]Min = 246.4 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 175. 4.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

175.- 246. 1.42 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

246.- 425. 4.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.508 3.271 0.20 0.00 2 V209 0.00 0.00 0 0 0 0 0 0

2 3.351 3.115 0.15 0.00 2 V201 0.00 0.00 0 0 0 0 0 0

### V298

Viga= 298 V298 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 1.10 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 119 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 2.33 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.80 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.49 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 383.5 | M[+]Min = 248.7 | M[-]Min = 450.0

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 68. 5.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

68.- 289. 4.83 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.1

289.- 440. 4.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.734 2.565 0.40 0.02 0 P76 0.00 0.00 76 0 0 0 0 0

2 3.350 2.106 0.50 0.07 0 P85 0.00 0.00 85 0 0 0 0 0

### V299

Viga= 299 V299 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 208 | M.[-] = 3.5 tf\* m

[tf,cm]| As = 2.17 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.35 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 357.8 | M[+]Min = 244.5 | M[-]Min = 357.8

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.84

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 5.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.35 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

226.- 380. 6.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.171 2.909 0.40 0.02 0 P56 0.00 0.00 56 0 0 0 0 0

2 4.316 3.040 0.40 0.02 0 P41 0.00 0.00 41 0 0 0 0 0

### V300

Viga= 300 V300 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 242 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 2.18 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.35 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 357.8 | M[+]Min = 244.5 | M[-]Min = 357.8

[cm2 ]| Asapo[+]= 0.85 | | Asapo[+]= 0.81

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 6.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.37 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

226.- 380. 5.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.331 3.048 0.40 0.02 0 P25 0.00 0.00 25 0 0 0 0 0

2 4.141 2.876 0.40 0.02 0 P10 0.00 0.00 10 0 0 0 0 0

### V301

Viga= 301 V301 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 27 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 0.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.55 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 0.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 242 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 0.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 273 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 0.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.43 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 0.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 0 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.35 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.15 /B= 0.15 /H= 0.60 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 172 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.98 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.98 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 327.9 | M[+]Min = 219.2 | M[-]Min = 327.9

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 132. 2.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

132.- 263. 1.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

263.- 395. 3.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 212 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.23 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.88 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 367.2 | M[+]Min = 223.7 | M[-]Min = 367.2

[cm2 ]| Asapo[+]= 0.47 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 4.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 2.14 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 3.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 30 | M.[-] = 8.7 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 5.66 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.88 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.25

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 367.2 | M[+]Min = 223.7 | M[-]Min = 367.2

[cm2 ]| Asapo[+]= 1.88 | | Asapo[+]= 0.47

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 5.07 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 6.95 36.17 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 6.35 /B= 0.15 /H= 0.60 /BCs= 1.10 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 10.1 tf\* m | M.[+] Max= 7.8 tf\* m - Abcis.= 370 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 6.87 -SRAS- [ 4 B 16.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.30 | As = 4.62 -STAS- [ 4 B 12.5mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 466.3 | M[+]Min = 241.7 | M[-]Min = 237.8

[cm2 ]| Asapo[+]= 1.16 | | Asapo[+]= 1.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 13.48 36.17 1 45. 3.3 1.5 3.3 6.3 0.0 17.5 2 0.0 0.0

120.- 463. 9.06 36.24 1 45. 1.2 1.5 1.5 5.0 0.0 25.0 2 0.5 0.3

463.- 615. 7.05 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.579 0.091 0.20 0.00 0 P166 0.00 0.00 166 0 0 0 0 0

2 0.789 0.636 0.20 0.00 0 P160 0.00 0.00 160 0 0 0 0 0

3 0.820 0.639 0.20 0.00 0 P156 0.00 0.00 156 0 0 0 0 0

4 0.617 0.491 0.20 0.00 0 P144 0.00 0.00 144 0 0 0 0 0

5 2.159 1.999 0.20 0.00 0 P132 0.00 0.00 132 0 0 0 0 0

6 5.149 4.792 0.20 0.00 0 P120 0.00 0.00 120 0 0 0 0 0

7 3.365 2.961 0.20 0.00 0 P106 0.00 0.00 106 0 0 0 0 0

8 14.583 13.162 0.20 0.00 0 P96 0.00 0.00 96 0 0 0 0 0

9 5.037 4.607 0.20 0.00 2 V229 0.00 0.00 0 0 0 0 0 0

### V302

Viga= 302 V302 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.30 /B= 0.15 /H= 0.60 /BCs= 0.41 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

\* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

Diagrama M[-] nao usual. Verificar apoios com M[-] Max.

\* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 130 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.74 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.66 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 289.3 | M[+]Min = 208.3 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 110. 6.79 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 -4.022 -4.843 0.20 0.00 1 P79 0.00 0.00 79 0 0 0 0 0

2 -1.670 -1.986 0.20 0.00 2 V224 0.00 0.00 0 0 0 0 0 0

### V303

Viga= 303 V303 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.3 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 214 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 2.67 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 1.81 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 363.0 | M[+]Min = 245.4 | M[-]Min = 300.6

[cm2 ]| Asapo[+]= 1.16 | | Asapo[+]= 0.90

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 8.31 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 3.03 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.925 4.953 0.40 0.02 0 P57 0.00 0.00 57 0 0 0 0 0

2 4.602 3.748 0.20 0.00 0 P40 0.00 0.00 40 0 0 0 0 0

### V304

Viga= 304 V304 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 4.1 tf\* m - Abcis.= 214 | M.[-] = 4.3 tf\* m

[tf,cm]| As = 1.81 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.65 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 300.6 | M[+]Min = 245.4 | M[-]Min = 363.0

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 1.16

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.47 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 3.02 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 8.29 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.613 3.756 0.20 0.00 0 P26 0.00 0.00 26 0 0 0 0 0

2 5.922 4.949 0.40 0.02 0 P11 0.00 0.00 11 0 0 0 0 0

### V305

Viga= 305 V305 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 54 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 0.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.52 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 0.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 242 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 1.35

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 0.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 30 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 0.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.63 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.17 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 317 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.34 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 0.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 0.52 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 0.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.625 0.116 0.20 0.00 0 P167 0.00 0.00 167 0 0 0 0 0

2 0.828 0.653 0.20 0.00 0 P161 0.00 0.00 161 0 0 0 0 0

3 0.569 0.386 0.20 0.00 0 P157 0.00 0.00 157 0 0 0 0 0

4 1.248 0.983 0.20 0.00 0 P145 0.00 0.00 145 0 0 0 0 0

5 0.232 0.098 0.15 0.00 2 V246 0.00 0.00 0 0 0 0 0 0

### V306

Viga= 306 V306 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 209 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.89 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 266.4 | M[+]Min = 213.4 | M[-]Min = 312.4

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.73 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 290 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 249.4 | M[+]Min = 198.1 | M[-]Min = 249.4

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 1.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 209 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.89 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.60 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 312.4 | M[+]Min = 213.4 | M[-]Min = 266.4

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.49

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.91 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.69 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.553 2.065 0.40 0.02 0 P60 0.00 0.00 60 0 0 0 0 0

2 3.093 2.749 0.40 0.02 0 P45 0.00 0.00 45 0 0 0 0 0

3 3.086 2.747 0.40 0.02 0 P30 0.00 0.00 30 0 0 0 0 0

4 2.524 2.034 0.40 0.02 0 P15 0.00 0.00 15 0 0 0 0 0

### V307

Viga= 307 V307 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 139 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.79 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.89 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 297.6 | M[+]Min = 213.4 | M[-]Min = 312.4

[cm2 ]| Asapo[+]= 0.92 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.34 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 0 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 249.4 | M[+]Min = 198.1 | M[-]Min = 249.4

[cm2 ]| Asapo[+]= 1.56 | | Asapo[+]= 1.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 2.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 278 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.89 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.79 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 312.4 | M[+]Min = 213.4 | M[-]Min = 297.6

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.85

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.21 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.729 1.322 0.40 0.02 0 P61 0.00 0.00 61 0 0 0 0 0

2 2.848 2.193 0.40 0.02 0 P46 0.00 0.00 46 0 0 0 0 0

3 2.986 2.300 0.40 0.02 0 P31 0.00 0.00 31 0 0 0 0 0

4 2.733 1.302 0.40 0.02 0 P16 0.00 0.00 16 0 0 0 0 0

### V308

Viga= 308 V308 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.50 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 0 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 1.68 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.73 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 279.3 | M[+]Min = 216.4 | M[-]Min = 327.2

[cm2 ]| Asapo[+]= 1.28 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 2.35 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 3.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.43 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.5 tf\* m | M.[+] Max= 4.7 tf\* m - Abcis.= 328 | M.[-] = 5.3 tf\* m

[tf,cm]| As = 4.87 -SRAS- [ 4 B 12.5mm] | AsL= 0.00 ------ | As = 3.31 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.21 | As = 2.80 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.14

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.9 | M[+]Min = 211.3 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 8.28 36.19 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 5.42 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 7.58 36.28 1 45. 0.5 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.0 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 365 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 2.46 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 270.9 | M[+]Min = 203.8 | M[-]Min = 270.9

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 1.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 2.35 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 60 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 270.9 | M[+]Min = 203.8 | M[-]Min = 270.9

[cm2 ]| Asapo[+]= 1.61 | | Asapo[+]= 0.54

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 0.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.96 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.10 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 273 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 268.2 | M[+]Min = 204.9 | M[-]Min = 257.4

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 1.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

130.- 260. 0.61 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

260.- 390. 1.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.277 -0.004 0.40 0.02 0 P77 0.00 0.00 77 0 0 0 0 0

2 8.098 6.866 0.65 0.14 0 P87 0.00 0.00 87 0 0 0 0 0

3 7.343 6.590 0.20 0.00 0 P97 0.00 0.00 97 0 0 0 0 0

4 -0.179 -0.372 0.20 0.00 0 P107 0.00 0.00 107 0 0 0 0 0

5 1.933 1.799 0.20 0.00 0 P121 0.00 0.00 121 0 0 0 0 0

6 0.719 0.429 0.20 0.00 0 P133 0.00 0.00 133 0 0 0 0 0

### V309

Viga= 309 V309 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.41 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 0 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 0.22 -SRAS- [ 2 B 6.3mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 192.7 | M[-]Min = 227.9

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.50

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 205. 2.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.4

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.43 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 238 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 258.4 | M[+]Min = 202.2 | M[-]Min = 258.4

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 0.96 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.04 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.56 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 6.43 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 328 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.76 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.9 | M[+]Min = 211.3 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 1.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 1.39 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 1.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 243 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 257.5 | M[+]Min = 201.9 | M[-]Min = 189.4

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.35 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.138 0.016 0.40 0.02 1 P66 0.00 0.00 66 0 0 0 0 0

2 2.029 1.829 0.40 0.02 1 P78 0.00 0.00 78 0 0 0 0 0

3 2.284 2.118 0.65 0.14 1 P88 0.00 0.00 88 0 0 0 0 0

4 3.100 2.998 0.20 0.00 1 P98 0.00 0.00 98 0 0 0 0 0

5 0.959 0.910 0.20 0.00 1 P108 0.00 0.00 108 0 0 0 0 0

### V310

Viga= 310 V310 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.7 tf\* m - Abcis.= 222 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.42 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.8 | M[+]Min = 246.6 | M[-]Min = 238.8

[cm2 ]| Asapo[+]= 0.81 | | Asapo[+]= 0.81

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 4.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 327. 2.23 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

327.- 430. 4.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.158 2.919 0.15 0.00 2 V221 0.00 0.00 0 0 0 0 0 0

2 3.172 2.948 0.15 0.00 2 V213 0.00 0.00 0 0 0 0 0 0

### V311

Viga= 311 V311 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 222 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.42 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.8 | M[+]Min = 246.6 | M[-]Min = 238.8

[cm2 ]| Asapo[+]= 0.81 | | Asapo[+]= 0.81

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 4.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 327. 2.32 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

327.- 430. 4.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.995 2.740 0.15 0.00 2 V202 0.00 0.00 0 0 0 0 0 0

2 3.129 2.873 0.15 0.00 2 V210 0.00 0.00 0 0 0 0 0 0

### V312

Viga= 312 V312 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.52 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 182 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.40 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.44 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.62 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 189.4 | M[+]Min = 209.7 | M[-]Min = 209.0

[cm2 ]| Asapo[+]= 0.54 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 178. 1.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

178.- 248. 1.60 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

248.- 345. 2.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.422 1.278 0.20 0.00 1 P109 0.00 0.00 109 0 0 0 0 0

2 1.750 1.565 0.20 0.00 1 P99 0.00 0.00 99 0 0 0 0 0

### V313

Viga= 313 V313 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.58 /B= 0.15 /H= 0.60 /BCs= 0.47 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 0 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.59 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 270.9 | M[+]Min = 205.7 | M[-]Min = 270.9

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 0.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.182 -0.402 0.40 0.02 1 P67 0.00 0.00 67 0 0 0 0 0

2 0.601 0.030 0.20 0.00 1 P69 0.00 0.00 69 0 0 0 0 0

### V314

Viga= 314 V314 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 220 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.83 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.41 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 304.1 | M[+]Min = 246.3 | M[-]Min = 304.1

[cm2 ]| Asapo[+]= 0.79 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 146. 5.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

146.- 319. 3.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

319.- 420. 5.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.050 3.295 0.20 0.00 0 P58 0.00 0.00 58 0 0 0 0 0

2 4.029 3.275 0.20 0.00 0 P42 0.00 0.00 42 0 0 0 0 0

### V315

Viga= 315 V315 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 214 | M.[-] = 4.3 tf\* m

[tf,cm]| As = 1.81 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.68 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.38 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 300.6 | M[+]Min = 245.4 | M[-]Min = 363.0

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 0.96

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 101. 5.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

101.- 272. 2.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

272.- 400. 6.90 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.839 2.786 0.20 0.00 0 P27 0.00 0.00 27 0 0 0 0 0

2 4.928 3.686 0.40 0.02 0 P12 0.00 0.00 12 0 0 0 0 0

### V316

Viga= 316 V316 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.43 /B= 0.15 /H= 0.60 /BCs= 0.29 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 142 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.46 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.7 | M[+]Min = 188.5 | M[-]Min = 215.7

[cm2 ]| Asapo[+]= 0.36 | | Asapo[+]= 0.36

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 125. 0.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.125 -0.009 0.20 0.00 1 P105 0.00 0.00 105 0 0 0 0 0

2 0.329 0.195 0.15 0.00 2 V235 0.00 0.00 0 0 0 0 0 0

### V317

Viga= 317 V317 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 208 | M.[-] = 4.7 tf\* m

[tf,cm]| As = 2.48 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 2.92 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.85 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 265.9 | M[+]Min = 222.1 | M[-]Min = 265.9

[cm2 ]| Asapo[+]= 0.97 | | Asapo[+]= 1.09

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 6.91 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.4

102.- 241. 4.12 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 380. 7.81 36.28 1 45. 0.6 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.932 3.305 0.40 0.02 0 P59 0.00 0.00 59 0 0 0 0 0

2 5.582 3.868 0.40 0.02 0 P43 0.00 0.00 43 0 0 0 0 0

### V318

Viga= 318 V318 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.06 /B= 0.15 /H= 0.60 /BCs= 0.56 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.2 tf\* m | M.[+] Max= 3.1 tf\* m - Abcis.= 101 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 3.20 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 2.31 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.14 | As = 1.84 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.6 | M[+]Min = 221.3 | M[-]Min = 294.0

[cm2 ]| Asapo[+]= 1.55 | | Asapo[+]= 0.77

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 112. 11.06 36.28 1 45. 2.1 1.5 2.1 4.2 0.0 12.5 2 0.0 1.6

112.- 241. 3.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 370. 5.50 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 7.886 4.673 0.50 0.07 0 P28 0.00 0.00 28 0 0 0 0 0

2 3.928 2.560 0.40 0.02 0 P13 0.00 0.00 13 0 0 0 0 0

### V319

Viga= 319 V319 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.58 /B= 0.15 /H= 0.60 /BCs= 0.27 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 0 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 0.22 -SRAS- [ 2 B 6.3mm] | AsL= 0.00 ------ | As = 1.44 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.44 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 185.7 | M[-]Min = 208.0

[cm2 ]| Asapo[+]= 0.85 | | Asapo[+]= 0.48

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 1.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.48 /B= 0.15 /H= 0.60 /BCs= 0.48 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 328 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.65 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.65 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.60 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 274.9 | M[+]Min = 206.7 | M[-]Min = 274.9

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 173. 1.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

173.- 347. 1.24 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

347.- 520. 2.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 6.38 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 380 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.94 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 321.8 | M[+]Min = 217.9 | M[-]Min = 204.9

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 153. 2.63 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

153.- 458. 1.29 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

458.- 610. 1.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 -0.417 -0.928 0.40 0.02 1 P68 0.00 0.00 68 0 0 0 0 0

2 2.353 2.020 0.20 0.00 1 P70 0.00 0.00 70 0 0 0 0 0

3 3.355 3.222 0.65 0.14 1 P86 0.00 0.00 86 0 0 0 0 0

4 1.230 1.102 0.20 0.00 1 P100 0.00 0.00 100 0 0 0 0 0

### V320

Viga= 320 V320 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.06 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 78 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.66 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 242.5 | M[+]Min = 205.0 | M[-]Min = 275.6

[cm2 ]| Asapo[+]= 1.06 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.08 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 0 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 249.4 | M[+]Min = 198.1 | M[-]Min = 249.4

[cm2 ]| Asapo[+]= 1.56 | | Asapo[+]= 1.56

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 2.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.06 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 103 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.53 | | Asapo[+]= 0.46

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 3.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 1.45 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 1.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.138 0.695 0.40 0.02 0 P48 0.00 0.00 48 0 0 0 0 0

2 2.539 2.191 0.50 0.07 0 P44 0.00 0.00 44 0 0 0 0 0

3 3.418 2.143 0.50 0.07 0 P29 0.00 0.00 29 0 0 0 0 0

4 1.354 0.277 0.40 0.02 0 P14 0.00 0.00 14 0 0 0 0 0

### V321

Viga= 321 V321 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.74 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 0 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.65

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 1.17 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.809 -0.509 0.20 0.00 0 P64 0.00 0.00 64 0 0 0 0 0

2 0.836 -0.482 0.20 0.00 0 P62 0.00 0.00 62 0 0 0 0 0

### V322

Viga= 322 V322 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.00 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 0 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.23 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 1.86 | | Asapo[+]= 0.31

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.11 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.482 -1.843 0.40 0.05 0 P62 0.00 0.00 62 0 0 0 0 0

2 2.219 -0.106 0.40 0.05 0 P63 0.00 0.00 63 0 0 0 0 0

### V323

Viga= 323 V323 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.00 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 0 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.69 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.26 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 3.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 1.89 | | Asapo[+]= 0.65

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.08 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.763 -1.822 0.40 0.05 0 P64 0.00 0.00 64 0 0 0 0 0

2 2.198 -0.387 0.40 0.05 0 P65 0.00 0.00 65 0 0 0 0 0

### V324

Viga= 324 V324 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.10 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 209 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 1.82 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.72 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 284.0 | M[+]Min = 200.3 | M[-]Min = 284.0

[cm2 ]| Asapo[+]= 0.46 | | Asapo[+]= 0.46

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 190. 4.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 1.74 /B= 0.15 /H= 0.60 /BCs= 0.25 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.7 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 174 | M.[-] = 5.2 tf\* m

[tf,cm]| As = 2.22 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 3.22 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.66 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.14

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 247.8 | M[+]Min = 192.5 | M[-]Min = 247.8

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 2.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.07 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 207 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 3.76 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 1.82 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.16 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 282.7 | M[+]Min = 200.1 | M[-]Min = 282.7

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 190. 6.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 -0.217 -0.632 0.20 0.00 2 V224 0.00 0.00 0 0 0 0 0 0

2 3.358 3.090 0.20 0.00 0 P65 0.00 0.00 65 0 0 0 0 0

3 6.615 6.001 0.20 0.00 0 P63 0.00 0.00 63 0 0 0 0 0

4 -0.766 -1.182 0.15 0.00 2 V220 0.00 0.00 0 0 0 0 0 0

### V325

Viga= 325 V325 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.91 /B= 0.15 /H= 0.60 /BCs= 0.74 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 8.6 tf\* m - Abcis.= 295 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.65 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.65 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 5.18 -STAS- [ 3 B 16.0mm ] | AsL= 0.00 ------ x/d =0.06

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 2.5 | Grampos Dir.= 2B 8.0mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 243.7 | M[+]Min = 234.3 | M[-]Min = 243.7

[cm2 ]| Asapo[+]= 1.73 | | Asapo[+]= 1.73

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 191. 8.43 36.04 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

191.- 382. 3.35 36.04 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

382.- 574. 8.00 36.04 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 6.016 5.818 0.20 0.00 2 V224 0.00 0.00 0 0 0 0 0 0

2 5.717 5.533 0.15 0.00 2 V220 0.00 0.00 0 0 0 0 0 0

## COBERTURA

### V301

Viga= 301 V301 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 131 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 203.7 | M[+]Min = 198.4 | M[-]Min = 245.6

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 165 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.50 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.50 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 232.1 | M[+]Min = 194.1 | M[-]Min = 232.1

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.00 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.78 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 128 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.52 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 242.6 | M[+]Min = 197.5 | M[-]Min = 242.6

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 57. 5.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

57.- 239. 4.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

239.- 350. 2.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.6 | M[+]Min = 193.6 | M[-]Min = 230.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 296 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 255.4 | M[+]Min = 201.3 | M[-]Min = 255.4

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 3.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 338. 4.55 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

338.- 425. 5.40 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.6 | M[+]Min = 193.6 | M[-]Min = 230.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 160 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.5 | M[+]Min = 193.9 | M[-]Min = 231.5

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 1.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 310 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 229.6 | M[+]Min = 193.3 | M[-]Min = 229.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 2.00 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 4.50 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 300 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 256.3 | M[+]Min = 201.6 | M[-]Min = 256.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 3.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.57 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

342.- 430. 5.41 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.6 | M[+]Min = 193.6 | M[-]Min = 230.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=11 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 183 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 245.6 | M[+]Min = 198.4 | M[-]Min = 203.7

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.901 0.773 0.20 0.00 0 P2 0.00 0.00 2 0 0 0 0 0

2 2.048 1.768 0.20 0.00 0 P3 0.00 0.00 3 0 0 0 0 0

3 4.913 4.717 0.50 0.07 0 P1 0.00 0.00 1 0 0 0 0 0

4 2.682 2.440 0.20 0.00 0 P4 0.00 0.00 4 0 0 0 0 0

5 3.362 3.313 0.20 0.00 0 P5 0.00 0.00 5 0 0 0 0 0

6 5.357 5.238 0.20 0.00 0 P6 0.00 0.00 6 0 0 0 0 0

7 1.420 1.391 0.20 0.00 0 P7 0.00 0.00 7 0 0 0 0 0

8 1.612 1.578 0.20 0.00 0 P8 0.00 0.00 8 0 0 0 0 0

9 3.606 3.527 0.20 0.00 0 P9 0.00 0.00 9 0 0 0 0 0

10 5.369 5.277 0.20 0.00 0 P10 0.00 0.00 10 0 0 0 0 0

11 1.484 1.394 0.20 0.00 0 P11 0.00 0.00 11 0 0 0 0 0

12 1.058 0.878 0.20 0.00 0 P15 0.00 0.00 15 0 0 0 0 0

### V302

Viga= 302 V302 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.80 /B= 0.15 /H= 0.60 /BCs= 0.43 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 221 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.45 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.56 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 210.6 | M[+]Min = 203.0 | M[-]Min = 261.1

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 198. 2.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

198.- 268. 4.19 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 5.07 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 258 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 229.6 | M[+]Min = 193.3 | M[-]Min = 229.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 2.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 210 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 245.6 | M[+]Min = 198.4 | M[-]Min = 203.7

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.46

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.023 1.649 0.20 0.00 0 P16 0.00 0.00 16 0 0 0 0 0

2 4.992 4.818 0.20 0.00 0 P12 0.00 0.00 12 0 0 0 0 0

3 1.635 1.463 0.20 0.00 0 P13 0.00 0.00 13 0 0 0 0 0

4 1.092 0.678 0.20 0.00 0 P14 0.00 0.00 14 0 0 0 0 0

### V303

Viga= 303 V303 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 78 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.45 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.38 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 213.3 | M[+]Min = 201.6 | M[-]Min = 184.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.481 0.472 0.15 0.00 2 V348 0.00 0.00 0 0 0 0 0 0

2 0.366 0.357 0.15 0.00 2 V351 0.00 0.00 0 0 0 0 0 0

### V304

Viga= 304 V304 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 56 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.38 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 184.3 | M[+]Min = 201.6 | M[-]Min = 227.7

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.345 0.314 0.15 0.00 2 V386 0.00 0.00 0 0 0 0 0 0

2 0.525 0.494 0.15 0.00 2 V388 0.00 0.00 0 0 0 0 0 0

### V305

Viga= 305 V305 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 56 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.42 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 198.8 | M[+]Min = 201.6 | M[-]Min = 213.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.369 0.364 0.15 0.00 2 V361 0.00 0.00 0 0 0 0 0 0

2 0.474 0.469 0.15 0.00 2 V362 0.00 0.00 0 0 0 0 0 0

### V306

Viga= 306 V306 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 56 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.42 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 198.8 | M[+]Min = 201.6 | M[-]Min = 213.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.366 0.362 0.15 0.00 2 V374 0.00 0.00 0 0 0 0 0 0

2 0.476 0.472 0.15 0.00 2 V377 0.00 0.00 0 0 0 0 0 0

### V307

Viga= 307 V307 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.60 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 75 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.88 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.69 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 202.0 | M[+]Min = 215.8 | M[-]Min = 312.0

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 172 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.98 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.98 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 327.1 | M[+]Min = 219.1 | M[-]Min = 327.1

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 6.56 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 4.76 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

274.- 385. 4.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 325 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.4 | M[+]Min = 211.4 | M[-]Min = 293.4

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.90 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.33 /B= 0.15 /H= 0.60 /BCs= 0.67 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 289 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 2.02 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.02 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.74 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 334.6 | M[+]Min = 220.6 | M[-]Min = 334.6

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 5.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 318. 5.28 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

318.- 405. 6.72 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.03 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 254 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.72 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.72 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.62 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 285.9 | M[+]Min = 209.6 | M[-]Min = 285.9

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 2.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.28 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 165 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.78 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.78 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.65 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 295.3 | M[+]Min = 211.9 | M[-]Min = 295.3

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 2.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 300 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.71 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.71 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.62 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 284.0 | M[+]Min = 209.1 | M[-]Min = 284.0

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 4.58 /B= 0.15 /H= 0.60 /BCs= 0.70 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 306 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 2.08 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.08 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 343.9 | M[+]Min = 222.4 | M[-]Min = 343.9

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 5.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 5.83 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

342.- 430. 7.47 36.28 1 45. 0.5 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.03 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 305 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.79 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.72 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.62 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 285.9 | M[+]Min = 209.6 | M[-]Min = 285.9

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 3.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 162 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.96 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 323.7 | M[+]Min = 218.3 | M[-]Min = 204.7

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.830 0.579 0.20 0.00 1 P17 0.00 0.00 17 0 0 0 0 0

2 7.139 6.856 0.40 0.02 1 P18 0.00 0.00 18 0 0 0 0 0

3 5.419 5.214 0.20 0.00 1 P19 0.00 0.00 19 0 0 0 0 0

4 5.242 5.051 0.40 0.02 1 P20 0.00 0.00 20 0 0 0 0 0

5 6.575 6.319 0.20 0.00 1 P21 0.00 0.00 21 0 0 0 0 0

6 2.381 2.251 0.40 0.02 1 P22 0.00 0.00 22 0 0 0 0 0

7 2.433 2.333 0.20 0.00 1 P23 0.00 0.00 23 0 0 0 0 0

8 5.830 5.607 0.40 0.02 1 P24 0.00 0.00 24 0 0 0 0 0

9 7.899 7.606 0.20 0.00 1 P25 0.00 0.00 25 0 0 0 0 0

10 2.963 2.825 0.40 0.02 1 P26 0.00 0.00 26 0 0 0 0 0

11 1.662 1.421 0.20 0.00 1 P30 0.00 0.00 30 0 0 0 0 0

### V308

Viga= 308 V308 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.73 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 227 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 1.45 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.20 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.79 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 211.7 | M[+]Min = 224.4 | M[-]Min = 353.9

[cm2 ]| Asapo[+]= 0.60 | | Asapo[+]= 0.60

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 198. 3.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

198.- 268. 5.24 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 7.01 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 300 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.97 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.71 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.62 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 284.0 | M[+]Min = 209.1 | M[-]Min = 284.0

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.62 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.6 tf\* m - Abcis.= 210 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.93 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 320.0 | M[+]Min = 217.5 | M[-]Min = 270.6

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 1.09

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.38 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.837 2.286 0.20 0.00 1 P31 0.00 0.00 31 0 0 0 0 0

2 7.113 6.755 0.40 0.02 1 P27 0.00 0.00 27 0 0 0 0 0

3 3.153 2.825 0.20 0.00 1 P28 0.00 0.00 28 0 0 0 0 0

4 1.894 0.996 0.20 0.00 0 P29 0.00 0.00 29 0 0 0 0 0

### V309

Viga= 309 V309 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.78 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 130 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 269.8 | M[+]Min = 226.8 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.181 0.878 0.20 0.00 0 P32 0.00 0.00 32 0 0 0 0 0

2 1.063 0.759 0.15 0.00 2 V345 0.00 0.00 0 0 0 0 0 0

### V310

Viga= 310 V310 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.60 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 50 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.88 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.69 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 202.0 | M[+]Min = 215.8 | M[-]Min = 312.0

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.63 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 172 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.98 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.98 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 327.1 | M[+]Min = 219.1 | M[-]Min = 327.1

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 6.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 4.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

274.- 385. 4.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 325 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.4 | M[+]Min = 211.4 | M[-]Min = 293.4

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.21 /B= 0.15 /H= 0.60 /BCs= 0.78 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 282 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 2.24 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 369.1 | M[+]Min = 227.2 | M[-]Min = 260.1

[cm2 ]| Asapo[+]= 0.46 | | Asapo[+]= 0.89

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 4.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 318. 5.05 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.3

318.- 385. 6.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.882 0.605 0.20 0.00 1 P35 0.00 0.00 35 0 0 0 0 0

2 7.016 6.738 0.40 0.02 1 P33 0.00 0.00 33 0 0 0 0 0

3 5.331 5.133 0.20 0.00 1 P36 0.00 0.00 36 0 0 0 0 0

4 4.996 4.712 0.40 0.02 1 P37 0.00 0.00 37 0 0 0 0 0

5 4.545 4.150 0.40 0.02 1 P38 0.00 0.00 38 0 0 0 0 0

### V311

Viga= 311 V311 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.60 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 100 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.50 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.88 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.69 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 234.1 | M[+]Min = 215.8 | M[-]Min = 312.0

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.58 /B= 0.15 /H= 0.60 /BCs= 0.70 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 2.7 tf\* m - Abcis.= 306 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.08 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.08 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 343.9 | M[+]Min = 222.4 | M[-]Min = 343.9

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 5.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 5.64 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

342.- 430. 7.29 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.03 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 305 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.74 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.72 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.62 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 285.9 | M[+]Min = 209.6 | M[-]Min = 285.9

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 275. 3.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 162 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.96 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 323.7 | M[+]Min = 218.3 | M[-]Min = 204.7

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.021 0.735 0.20 0.00 1 P39 0.00 0.00 39 0 0 0 0 0

2 5.880 5.593 0.40 0.02 1 P34 0.00 0.00 34 0 0 0 0 0

3 7.693 7.391 0.20 0.00 1 P41 0.00 0.00 41 0 0 0 0 0

4 2.916 2.775 0.40 0.02 1 P40 0.00 0.00 40 0 0 0 0 0

5 1.716 1.464 0.20 0.00 1 P45 0.00 0.00 45 0 0 0 0 0

### V312

Viga= 312 V312 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.73 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 227 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 1.45 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.16 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.79 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 211.7 | M[+]Min = 224.4 | M[-]Min = 353.9

[cm2 ]| Asapo[+]= 0.60 | | Asapo[+]= 0.60

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 196. 3.99 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

196.- 268. 5.14 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 6.93 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 300 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.95 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.71 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.62 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 284.0 | M[+]Min = 209.1 | M[-]Min = 284.0

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 210 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.93 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 320.0 | M[+]Min = 217.5 | M[-]Min = 270.6

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.98

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.848 2.334 0.20 0.00 1 P46 0.00 0.00 46 0 0 0 0 0

2 7.061 6.748 0.40 0.02 1 P42 0.00 0.00 42 0 0 0 0 0

3 3.011 2.684 0.20 0.00 1 P43 0.00 0.00 43 0 0 0 0 0

4 1.987 1.227 0.20 0.00 0 P44 0.00 0.00 44 0 0 0 0 0

### V313

Viga= 313 V313 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 135 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 256.3 | M[+]Min = 201.6 | M[-]Min = 256.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 1.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.122 0.098 0.15 0.00 2 V360 0.00 0.00 0 0 0 0 0 0

2 0.740 0.716 0.15 0.00 2 V362 0.00 0.00 0 0 0 0 0 0

### V314

Viga= 314 V314 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 56 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.42 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 198.8 | M[+]Min = 201.6 | M[-]Min = 213.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.367 0.362 0.15 0.00 2 V373 0.00 0.00 0 0 0 0 0 0

2 0.476 0.472 0.15 0.00 2 V376 0.00 0.00 0 0 0 0 0 0

### V315

Viga= 315 V315 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 78 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.42 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 227.7 | M[+]Min = 201.6 | M[-]Min = 198.8

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.491 0.482 0.15 0.00 2 V347 0.00 0.00 0 0 0 0 0 0

2 0.356 0.347 0.15 0.00 2 V350 0.00 0.00 0 0 0 0 0 0

### V316

Viga= 316 V316 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.35 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 56 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.38 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 184.3 | M[+]Min = 201.6 | M[-]Min = 213.3

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 0.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.354 0.339 0.15 0.00 2 V385 0.00 0.00 0 0 0 0 0 0

2 0.499 0.485 0.15 0.00 2 V387 0.00 0.00 0 0 0 0 0 0

### V317

Viga= 317 V317 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 182 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.43 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.47 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 203.4 | M[+]Min = 205.4 | M[-]Min = 220.1

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.208 0.752 0.20 0.00 0 P47 0.00 0.00 47 0 0 0 0 0

2 1.188 0.733 0.15 0.00 2 V345 0.00 0.00 0 0 0 0 0 0

### V318

Viga= 318 V318 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 130 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.47 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 220.1 | M[+]Min = 205.4 | M[-]Min = 220.1

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.294 0.669 0.15 0.00 2 V389 0.00 0.00 0 0 0 0 0 0

2 1.272 0.647 0.20 0.00 0 P48 0.00 0.00 48 0 0 0 0 0

### V319

Viga= 319 V319 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 0 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.42 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 201.5 | M[+]Min = 196.4 | M[-]Min = 239.2

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.50

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 2.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.13 /B= 0.15 /H= 0.60 /BCs= 0.40 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 140 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.54 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.54 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 249.3 | M[+]Min = 199.5 | M[-]Min = 249.3

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 92. 5.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

92.- 274. 4.02 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

274.- 385. 3.27 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.6 | M[+]Min = 193.6 | M[-]Min = 230.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 222 | M.[-] = 4.5 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.81 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 255.4 | M[+]Min = 201.3 | M[-]Min = 255.4

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 2.49 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 338. 5.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

338.- 425. 6.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 6.35 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.7 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 370 | M.[-] = 4.9 tf\* m

[tf,cm]| As = 2.93 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 3.03 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.94 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 291.4 | M[+]Min = 210.9 | M[-]Min = 291.4

[cm2 ]| Asapo[+]= 0.48 | | Asapo[+]= 0.48

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 106. 5.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

106.- 506. 4.28 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

506.- 615. 9.50 36.28 1 45. 1.4 1.5 1.5 4.2 0.0 17.5 2 0.0 1.5

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.10 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.8 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 310 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 2.34 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 229.6 | M[+]Min = 193.3 | M[-]Min = 229.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 2.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 4.50 /B= 0.15 /H= 0.60 /BCs= 0.42 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 300 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.63 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 256.3 | M[+]Min = 201.6 | M[-]Min = 256.3

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 136. 2.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

136.- 342. 4.95 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.5

342.- 430. 5.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.6 | M[+]Min = 193.6 | M[-]Min = 230.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 183 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 245.6 | M[+]Min = 198.4 | M[-]Min = 203.7

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.599 0.007 0.20 0.00 0 P49 0.00 0.00 49 0 0 0 0 0

2 5.021 4.728 0.50 0.07 0 P50 0.00 0.00 50 0 0 0 0 0

3 3.390 3.145 0.20 0.00 0 P51 0.00 0.00 51 0 0 0 0 0

4 2.623 2.518 0.20 0.00 0 P52 0.00 0.00 52 0 0 0 0 0

5 8.097 7.627 0.20 0.00 0 P53 0.00 0.00 53 0 0 0 0 0

6 8.735 8.407 0.20 0.00 0 P54 0.00 0.00 54 0 0 0 0 0

7 2.142 1.985 0.20 0.00 0 P55 0.00 0.00 55 0 0 0 0 0

8 5.712 5.551 0.20 0.00 0 P56 0.00 0.00 56 0 0 0 0 0

9 1.410 1.275 0.20 0.00 0 P57 0.00 0.00 57 0 0 0 0 0

10 1.127 0.887 0.20 0.00 0 P60 0.00 0.00 60 0 0 0 0 0

### V320

Viga= 320 V320 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.88 /B= 0.15 /H= 0.60 /BCs= 0.44 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 230 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 1.45 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.93 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 212.2 | M[+]Min = 203.5 | M[-]Min = 263.0

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 196. 3.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

196.- 268. 4.43 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 1.4

268.- 360. 5.47 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 295 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 239.2 | M[+]Min = 196.4 | M[-]Min = 217.3

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 2.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.260 1.529 0.20 0.00 0 P61 0.00 0.00 61 0 0 0 0 0

2 5.214 4.839 0.50 0.07 0 P58 0.00 0.00 58 0 0 0 0 0

3 0.759 -0.290 0.20 0.00 0 P59 0.00 0.00 59 0 0 0 0 0

### V321

Viga= 321 V321 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 0.51 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 2.0 tf\* m - Abcis.= 201 | M.[-] = 4.3 tf\* m

[tf,cm]| As = 1.64 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.68 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.62 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 247.3 | M[+]Min = 209.0 | M[-]Min = 283.8

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 4.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 2.54 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 5.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.99 /B= 0.15 /H= 0.60 /BCs= 0.45 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 295 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.75 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.59 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 265.7 | M[+]Min = 204.2 | M[-]Min = 265.7

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 1.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 157. 3.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

157.- 314. 1.67 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

314.- 471. 1.78 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 0 | M.[-] = 8.0 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 5.18 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.23

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.5 | M[+]Min = 193.9 | M[-]Min = 231.5

[cm2 ]| Asapo[+]= 1.49 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 5.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.29 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 9.7 tf\* m | M.[+] Max= 8.9 tf\* m - Abcis.= 425 | M.[-] = 11.2 tf\* m

[tf,cm]| As = 6.56 -SRAS- [ 4 B 16.0mm] | AsL= 0.00 ------ | As = 7.74 -SRAS- [ 4 B 16.0mm]

| AsL= 0.00 ------ x/d =0.29 | As = 5.35 -STAS- [ 3 B 16.0mm ] | AsL= 0.00 ------ x/d =0.34

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.1 | M[+]Min = 215.1 | M[-]Min = 309.1

[cm2 ]| Asapo[+]= 1.34 | | Asapo[+]= 1.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 64. 10.38 36.17 1 45. 1.8 1.5 1.8 4.2 0.0 15.0 2 0.0 0.0

64.- 134. 10.33 36.28 1 45. 1.8 1.5 1.8 5.0 0.0 20.0 2 0.0 0.9

134.- 464. 9.49 36.17 1 45. 1.4 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

464.- 534. 10.04 36.17 1 45. 1.7 1.5 1.7 5.0 0.0 22.5 2 0.0 1.6

534.- 709. 14.44 36.06 1 45. 3.7 1.5 3.7 6.3 0.0 15.0 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 5.68 /B= 0.15 /H= 0.60 /BCs= 0.49 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 9.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 567 | M.[-] = 5.8 tf\* m

[tf,cm]| As = 5.87 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 3.65 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.26 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.16

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 278.7 | M[+]Min = 207.7 | M[-]Min = 278.7

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 7.29 36.17 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

183.- 365. 3.24 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

365.- 548. 6.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 7.05 /B= 0.15 /H= 0.60 /BCs= 0.68 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 7.2 tf\* m | M.[+] Max= 6.2 tf\* m - Abcis.= 411 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 4.67 -SRAS- [ 4 B 12.5mm] | AsL= 0.00 ------ | As = 1.72 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.21 | As = 3.66 -STAS- [ 3 B 12.5mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 337.4 | M[+]Min = 221.2 | M[-]Min = 207.7

[cm2 ]| Asapo[+]= 0.92 | | Asapo[+]= 1.22

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 171. 9.08 36.24 1 45. 1.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

171.- 514. 5.23 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

514.- 685. 7.66 36.28 1 45. 0.6 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.436 2.578 0.40 0.02 0 P71 0.00 0.00 71 0 0 0 0 0

2 5.989 5.476 0.50 0.07 0 P72 0.00 0.00 72 0 0 0 0 0

3 -0.441 -0.846 0.20 0.00 0 P73 0.00 0.00 73 0 0 0 0 0

4 11.195 10.494 0.20 0.00 0 P74 0.00 0.00 74 0 0 0 0 0

5 15.465 14.987 0.20 0.00 0 P75 0.00 0.00 75 0 0 0 0 0

6 10.713 10.382 0.20 0.00 0 P76 0.00 0.00 76 0 0 0 0 0

7 5.473 5.207 0.20 0.00 0 P77 0.00 0.00 77 0 0 0 0 0

### V322

Viga= 322 V322 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.20 /B= 0.15 /H= 0.60 /BCs= 0.79 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 186 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.83 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.3 | M[+]Min = 227.6 | M[-]Min = 238.3

[cm2 ]| Asapo[+]= 0.61 | | Asapo[+]= 0.61

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 1.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 0.68 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 1.60 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.169 0.844 0.20 0.00 1 P80 0.00 0.00 80 0 0 0 0 0

2 1.143 0.818 0.20 0.00 1 P81 0.00 0.00 81 0 0 0 0 0

### V323

Viga= 323 V323 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 1.12 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.8 tf\* m | M.[+] Max= 4.1 tf\* m - Abcis.= 243 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 3.02 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.72 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.13 | As = 2.42 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 324.2 | M[+]Min = 242.4 | M[-]Min = 324.2

[cm2 ]| Asapo[+]= 1.18 | | Asapo[+]= 1.16

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 8.43 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 3.19 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 8.28 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 6.013 4.911 0.40 0.02 0 P82 0.00 0.00 82 0 0 0 0 0

2 5.911 4.808 0.40 0.02 1 P83 0.00 0.00 83 0 0 0 0 0

### V324

Viga= 324 V324 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.68 /B= 0.20 /H= 0.75 /BCs= 1.05 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.38 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 5.4 tf\* m - Abcis.= 189 | M.[-] = 15.3 tf\* m

[tf,cm]| As = 2.39 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 7.63 -SRAS- [ 4 B 16.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 2.89 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.20

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 432.5 | M[+]Min = 462.8 | M[-]Min = 703.6

[cm2 ]| Asapo[+]= 1.04 | | Asapo[+]= 0.96

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 7.46 61.40 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

183.- 365. 8.84 61.40 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

365.- 548. 14.27 61.24 1 45. 1.2 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.05 /B= 0.20 /H= 0.75 /BCs= 1.26 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.38 /FLt.Ex= 0.10 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 15.8 tf\* m | M.[+] Max= 9.2 tf\* m - Abcis.= 411 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 7.92 -SRAS- [ 4 B 16.0mm] | AsL= 0.00 ------ | As = 2.43 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.20 | As = 4.24 -STAS- [ 4 B 12.5mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 5 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 786.2 | M[+]Min = 478.5 | M[-]Min = 451.4

[cm2 ]| Asapo[+]= 1.06 | | Asapo[+]= 1.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 171. 20.46 61.24 1 45. 3.5 2.1 3.5 6.3 0.0 17.5 2 0.0 0.0

171.- 514. 6.82 61.40 1 45. 0.0 2.1 2.1 6.3 0.0 30.0 2 0.0 0.0

514.- 685. 9.75 61.40 1 45. 0.0 2.1 2.1 4.2 0.0 12.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.319 5.046 0.20 0.00 1 P84 0.00 0.00 84 0 0 0 0 0

2 24.720 23.729 0.20 0.00 1 P85 0.00 0.00 85 0 0 0 0 0

3 6.964 6.435 0.20 0.00 0 P87 0.00 0.00 87 0 0 0 0 0

### V325

Viga= 325 V325 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.04 /B= 0.15 /H= 0.70 /BCs= 0.76 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 67 | M.[-] = 4.4 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 2.36 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.03 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 231.0 | M[+]Min = 302.3 | M[-]Min = 461.2

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 126. 0.96 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

126.- 251. 2.12 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

251.- 377. 3.46 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.88 /B= 0.15 /H= 0.70 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.6 tf\* m | M.[+] Max= 3.9 tf\* m - Abcis.= 343 | M.[-] = 9.0 tf\* m

[tf,cm]| As = 2.94 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 4.86 -SRAS- [ 4 B 12.5mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.19 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.18

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 541.9 | M[+]Min = 317.0 | M[-]Min = 541.9

[cm2 ]| Asapo[+]= 0.55 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 162. 8.45 42.79 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

162.- 486. 4.84 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

486.- 648. 11.09 42.68 1 45. 1.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.43 /B= 0.15 /H= 0.70 /BCs= 0.81 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 8.2 tf\* m | M.[+] Max= 3.4 tf\* m - Abcis.= 295 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 4.41 -SRAS- [ 4 B 12.5mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.16 | As = 2.07 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.7 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 482.9 | M[+]Min = 306.6 | M[-]Min = 287.9

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.86

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 139. 9.93 42.79 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

139.- 277. 5.24 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 416. 5.79 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.463 0.193 0.15 0.00 2 V352 0.00 0.00 0 0 0 0 0 0

2 8.395 7.940 0.40 0.00 1 P89 0.00 0.00 89 0 0 0 0 0

3 14.908 14.195 0.40 0.00 1 P90 0.00 0.00 90 0 0 0 0 0

4 4.135 3.809 0.15 0.00 2 V369 0.00 0.00 0 0 0 0 0 0

### V326

Viga= 326 V326 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 1.12 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.5 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 243 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 2.79 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.51 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.32 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 324.2 | M[+]Min = 242.4 | M[-]Min = 273.4

[cm2 ]| Asapo[+]= 1.12 | | Asapo[+]= 1.11

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 8.04 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.99 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 7.92 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.733 4.694 0.40 0.02 0 P91 0.00 0.00 91 0 0 0 0 0

2 5.654 4.614 0.40 0.02 1 P92 0.00 0.00 92 0 0 0 0 0

### V327

Viga= 327 V327 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.79 /B= 0.15 /H= 0.70 /BCs= 0.66 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 2.8 tf\* m - Abcis.= 227 | M.[-] = 7.8 tf\* m

[tf,cm]| As = 1.75 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 4.10 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.96 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 318.4 | M[+]Min = 294.5 | M[-]Min = 424.8

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.49

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 159. 5.03 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

159.- 478. 4.07 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

478.- 638. 6.77 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 8.13 /B= 0.15 /H= 0.70 /BCs= 0.76 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 8.8 tf\* m | M.[+] Max= 5.6 tf\* m - Abcis.= 476 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 4.70 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 1.68 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.17 | As = 2.77 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 462.4 | M[+]Min = 302.6 | M[-]Min = 283.5

[cm2 ]| Asapo[+]= 0.69 | | Asapo[+]= 0.92

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 191. 7.65 42.71 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

191.- 623. 4.64 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

623.- 782. 6.25 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.590 2.885 0.40 0.00 0 P93 0.00 0.00 93 0 0 0 0 0

2 9.891 9.418 0.50 0.04 0 P94 0.00 0.00 94 0 0 0 0 0

3 4.461 4.161 0.20 0.00 0 P95 0.00 0.00 95 0 0 0 0 0

### V328

Viga= 328 V328 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 108 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.95 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 218.3 | M[-]Min = 323.5

[cm2 ]| Asapo[+]= 0.57 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 2.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 1.00 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.3 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 284 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 2.70 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.32 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 435.3 | M[+]Min = 237.6 | M[-]Min = 349.6

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 4.98 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 3.21 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 5.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.637 0.361 0.15 0.00 2 V372 0.00 0.00 0 0 0 0 0 0

2 4.903 4.173 0.40 0.02 1 P96 0.00 0.00 96 0 0 0 0 0

3 3.643 2.593 0.40 0.02 0 P97 0.00 0.00 97 0 0 0 0 0

### V329

Viga= 329 V329 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 1.12 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.3 tf\* m | M.[+] Max= 3.8 tf\* m - Abcis.= 243 | M.[-] = 4.0 tf\* m

[tf,cm]| As = 2.69 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.42 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.12 | As = 2.20 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 324.2 | M[+]Min = 242.4 | M[-]Min = 324.2

[cm2 ]| Asapo[+]= 1.09 | | Asapo[+]= 1.06

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 7.83 36.28 1 45. 0.6 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.94 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 7.60 36.28 1 45. 0.5 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.586 4.653 0.40 0.02 0 P101 0.00 0.00 101 0 0 0 0 0

2 5.430 4.490 0.40 0.02 1 P102 0.00 0.00 102 0 0 0 0 0

### V330

Viga= 330 V330 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 1.28 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 2.9 tf\* m - Abcis.= 235 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 2.16 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.50 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.09 | As = 2.20 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 349.0 | M[+]Min = 247.9 | M[-]Min = 349.0

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.79

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 4.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 3.07 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 5.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.400 2.433 0.40 0.02 1 P106 0.00 0.00 106 0 0 0 0 0

2 4.040 2.980 0.40 0.02 0 P107 0.00 0.00 107 0 0 0 0 0

### V331

Viga= 331 V331 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.86 /B= 0.15 /H= 0.60 /BCs= 1.12 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.2 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 202 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 2.59 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.20 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.08 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 324.2 | M[+]Min = 242.4 | M[-]Min = 324.2

[cm2 ]| Asapo[+]= 0.98 | | Asapo[+]= 0.93

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 6.98 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 2.72 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 6.64 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.982 3.889 0.40 0.02 0 P110 0.00 0.00 110 0 0 0 0 0

2 4.741 3.617 0.40 0.02 1 P111 0.00 0.00 111 0 0 0 0 0

### V332

Viga= 332 V332 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.90 /B= 0.15 /H= 0.70 /BCs= 0.52 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 6.2 tf\* m - Abcis.= 204 | M.[-] = 6.3 tf\* m

[tf,cm]| As = 1.70 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 3.29 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.06 | As = 3.11 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 2.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.9 | M[+]Min = 281.3 | M[-]Min = 371.6

[cm2 ]| Asapo[+]= 1.38 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 150. 6.93 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

150.- 300. 5.31 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

300.- 450. 10.19 42.79 1 45. 1.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.17 /B= 0.15 /H= 0.70 /BCs= 0.78 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.6 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 312 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 2.89 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 1.99 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.04 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 468.2 | M[+]Min = 303.7 | M[-]Min = 390.2

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 1.65

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 126. 6.35 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

126.- 251. 3.78 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

251.- 377. 3.53 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.946 4.278 0.40 0.00 0 P116 0.00 0.00 116 0 0 0 0 0

2 10.929 9.613 0.40 0.00 1 P117 0.00 0.00 117 0 0 0 0 0

3 2.518 1.073 0.40 0.00 0 P118 0.00 0.00 118 0 0 0 0 0

### V333

Viga= 333 V333 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.33 /B= 0.15 /H= 0.60 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 0 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.99 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.99 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 328.4 | M[+]Min = 219.3 | M[-]Min = 328.4

[cm2 ]| Asapo[+]= 1.33 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 3.11 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 1.00 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.8 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 284 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 2.70 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.12 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 435.3 | M[+]Min = 237.6 | M[-]Min = 349.6

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 4.79 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 353. 3.03 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

353.- 530. 5.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.226 -0.119 0.40 0.02 0 P119 0.00 0.00 119 0 0 0 0 0

2 5.012 4.214 0.40 0.02 1 P120 0.00 0.00 120 0 0 0 0 0

3 3.579 2.947 0.40 0.02 0 P121 0.00 0.00 121 0 0 0 0 0

### V334

Viga= 334 V334 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.73 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 129 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 1.77 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.47 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.78 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.6 | M[+]Min = 224.2 | M[-]Min = 353.0

[cm2 ]| Asapo[+]= 1.03 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 5.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 3.33 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 6.91 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.26 /B= 0.15 /H= 0.60 /BCs= 0.64 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 218 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.96 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 325.2 | M[+]Min = 218.6 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 4.65 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 201. 2.35 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

201.- 301. 2.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.154 2.821 0.40 0.02 0 P130 0.00 0.00 130 0 0 0 0 0

2 7.840 6.767 0.40 0.02 1 P131 0.00 0.00 131 0 0 0 0 0

3 1.588 1.292 0.15 0.00 2 V358 0.00 0.00 0 0 0 0 0 0

### V335

Viga= 335 V335 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 54 | M.[-] = 4.7 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 2.87 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.12

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 218.3 | M[-]Min = 323.5

[cm2 ]| Asapo[+]= 0.57 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 3.52 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.66 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.9 tf\* m | M.[+] Max= 5.1 tf\* m - Abcis.= 378 | M.[-] = 3.0 tf\* m

[tf,cm]| As = 3.70 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 1.78 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.16 | As = 3.02 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 305.0 | M[+]Min = 214.2 | M[-]Min = 230.7

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 1.05

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 174. 7.77 36.28 1 45. 0.6 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

174.- 418. 4.68 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.4

418.- 530. 5.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.356 -0.473 0.15 0.00 2 V372 0.00 0.00 0 0 0 0 0 0

2 7.714 5.878 0.40 0.02 1 P132 0.00 0.00 132 0 0 0 0 0

3 4.110 3.214 0.40 0.02 0 P133 0.00 0.00 133 0 0 0 0 0

### V336

Viga= 336 V336 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.92 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 160 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.76 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.9 | M[+]Min = 234.2 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.82

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 5.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.63 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 5.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.195 3.096 0.40 0.02 0 P142 0.00 0.00 142 0 0 0 0 0

2 4.165 3.061 0.40 0.02 1 P143 0.00 0.00 143 0 0 0 0 0

### V337

Viga= 337 V337 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.92 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 225 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 252.3 | M[+]Min = 234.2 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.86 | | Asapo[+]= 0.80

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 6.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.77 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 5.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.396 3.350 0.40 0.02 1 P144 0.00 0.00 144 0 0 0 0 0

2 4.088 3.060 0.40 0.02 0 P145 0.00 0.00 145 0 0 0 0 0

### V338

Viga= 338 V338 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.26 /B= 0.15 /H= 0.60 /BCs= 0.64 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 109 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 2.17 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 218.6 | M[-]Min = 325.2

[cm2 ]| Asapo[+]= 0.57 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 2.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 201. 2.50 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

201.- 301. 6.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.9 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 260 | M.[-] = 4.1 tf\* m

[tf,cm]| As = 3.05 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.47 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 267.9 | M[+]Min = 204.9 | M[-]Min = 267.9

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 8.38 36.28 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 2.47 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 6.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.41 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.6 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 262 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.59 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 253.5 | M[+]Min = 200.8 | M[-]Min = 253.5

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 2.84 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 266. 1.56 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

266.- 399. 2.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 5.11 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 260 | M.[-] = 4.9 tf\* m

[tf,cm]| As = 2.47 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 3.04 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.13

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 267.9 | M[+]Min = 204.9 | M[-]Min = 267.9

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 6.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 3.06 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 8.12 36.28 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.23 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 216 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 2.14 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 323.5 | M[+]Min = 218.3 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 297. 6.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.484 1.197 0.15 0.00 2 V355 0.00 0.00 0 0 0 0 0 0

2 10.136 9.641 0.40 0.02 0 P150 0.00 0.00 150 0 0 0 0 0

3 5.861 5.482 0.50 0.07 0 P151 0.00 0.00 151 0 0 0 0 0

4 5.938 5.554 0.50 0.07 0 P152 0.00 0.00 152 0 0 0 0 0

5 10.069 9.581 0.40 0.02 0 P153 0.00 0.00 153 0 0 0 0 0

6 1.443 1.153 0.15 0.00 2 V378 0.00 0.00 0 0 0 0 0 0

### V339

Viga= 339 V339 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.92 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 193 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.76 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.54 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.9 | M[+]Min = 234.2 | M[-]Min = 252.3

[cm2 ]| Asapo[+]= 0.76 | | Asapo[+]= 0.74

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 5.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.28 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 5.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.885 3.172 0.40 0.02 0 P154 0.00 0.00 154 0 0 0 0 0

2 3.801 3.088 0.40 0.02 1 P155 0.00 0.00 155 0 0 0 0 0

### V340

Viga= 340 V340 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.92 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 193 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 252.3 | M[+]Min = 234.2 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.76 | | Asapo[+]= 0.74

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 5.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.28 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 5.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.887 3.161 0.40 0.02 1 P156 0.00 0.00 156 0 0 0 0 0

2 3.790 3.068 0.40 0.02 0 P157 0.00 0.00 157 0 0 0 0 0

### V341

Viga= 341 V341 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.92 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 193 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.76 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.54 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.9 | M[+]Min = 234.2 | M[-]Min = 252.3

[cm2 ]| Asapo[+]= 0.74 | | Asapo[+]= 0.72

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 5.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 5.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.799 3.171 0.40 0.02 0 P158 0.00 0.00 158 0 0 0 0 0

2 3.655 3.030 0.40 0.02 1 P159 0.00 0.00 159 0 0 0 0 0

### V342

Viga= 342 V342 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.86 /B= 0.15 /H= 0.60 /BCs= 0.92 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 193 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.54 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.76 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.93 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 252.3 | M[+]Min = 234.2 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.73

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 5.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 2.14 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 5.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.747 3.111 0.40 0.02 1 P160 0.00 0.00 160 0 0 0 0 0

2 3.730 3.092 0.40 0.02 0 P161 0.00 0.00 161 0 0 0 0 0

### V343

Viga= 343 V343 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.97 /B= 0.15 /H= 0.70 /BCs= 0.45 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 101 | M.[-] = 5.0 tf\* m

[tf,cm]| As = 1.73 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.55 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.80 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.1 | M[+]Min = 273.8 | M[-]Min = 345.2

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 2.72 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 2.97 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 5.37 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.90 /B= 0.15 /H= 0.70 /BCs= 0.62 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 10.6 tf\* m | M.[+] Max= 6.3 tf\* m - Abcis.= 404 | M.[-] = 10.1 tf\* m

[tf,cm]| As = 5.77 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 5.49 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.21 | As = 3.16 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.20

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 411.8 | M[+]Min = 291.5 | M[-]Min = 411.8

[cm2 ]| Asapo[+]= 0.79 | | Asapo[+]= 0.79

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 187. 11.18 42.68 1 45. 1.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

187.- 561. 5.94 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

561.- 748. 10.70 42.68 1 45. 1.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.66 /B= 0.15 /H= 0.70 /BCs= 0.43 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 484 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 1.78 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 1.78 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.78 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 338.3 | M[+]Min = 271.7 | M[-]Min = 338.3

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 141. 2.99 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

141.- 283. 1.48 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 424. 3.02 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.87 /B= 0.15 /H= 0.70 /BCs= 0.62 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 10.1 tf\* m | M.[+] Max= 6.3 tf\* m - Abcis.= 402 | M.[-] = 10.4 tf\* m

[tf,cm]| As = 5.46 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 5.68 -SRAS- [ 3 B 16.0mm]

| AsL= 0.00 ------ x/d =0.20 | As = 3.12 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.21

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 410.9 | M[+]Min = 291.3 | M[-]Min = 410.9

[cm2 ]| Asapo[+]= 0.78 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 186. 10.98 42.68 1 45. 1.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

186.- 558. 5.87 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

558.- 744. 11.09 42.68 1 45. 1.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.97 /B= 0.15 /H= 0.70 /BCs= 0.45 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 5.0 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 304 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 2.57 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 1.73 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.80 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 345.2 | M[+]Min = 273.8 | M[-]Min = 309.1

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 5.36 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 3.06 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 2.69 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.940 1.156 0.60 0.09 0 P162 0.00 0.00 162 0 0 0 0 0

2 11.470 10.669 0.60 0.09 0 P163 0.00 0.00 163 0 0 0 0 0

3 9.435 8.927 0.60 0.09 0 P164 0.00 0.00 164 0 0 0 0 0

4 9.647 9.141 0.60 0.09 0 P165 0.00 0.00 165 0 0 0 0 0

5 11.405 10.608 0.60 0.09 0 P166 0.00 0.00 166 0 0 0 0 0

6 1.922 1.138 0.60 0.09 0 P167 0.00 0.00 167 0 0 0 0 0

### V344

Viga= 344 V344 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.50 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 192 | M.[-] = 3.5 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.09 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 244.1 | M[+]Min = 208.1 | M[-]Min = 280.3

[cm2 ]| Asapo[+]= 0.55 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 3.91 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 2.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 4.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.61 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 328 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 2.47 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.67 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 303.8 | M[+]Min = 213.9 | M[-]Min = 260.0

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.64

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 175. 5.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

175.- 350. 1.97 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

350.- 525. 4.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.790 2.172 0.40 0.02 0 P47 0.00 0.00 47 0 0 0 0 0

2 6.738 6.432 0.40 0.02 0 P32 0.00 0.00 32 0 0 0 0 0

3 3.292 2.812 0.40 0.02 0 P2 0.00 0.00 2 0 0 0 0 0

### V345

Viga= 345 V345 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 4.2 tf\* m - Abcis.= 139 | M.[-] = 3.9 tf\* m

[tf,cm]| As = 1.65 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.36 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.49 -STAS- [ 2 B 12.5mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 214.7 | M[+]Min = 205.3 | M[-]Min = 269.6

[cm2 ]| Asapo[+]= 1.48 | | Asapo[+]= 0.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 6.68 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.5

102.- 241. 3.61 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 380. 7.64 36.28 1 45. 0.6 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.49 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 290 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.82 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.68 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 279.5 | M[+]Min = 207.9 | M[-]Min = 279.5

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 90. 3.44 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

90.- 160. 1.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.5

160.- 250. 3.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 243 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 366.8 | M[+]Min = 226.7 | M[-]Min = 303.0

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.96

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 6.85 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.70 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 5.74 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.766 4.335 0.40 0.02 0 P49 0.00 0.00 49 0 0 0 0 0

2 7.378 6.081 0.40 0.02 1 P35 0.00 0.00 35 0 0 0 0 0

3 6.546 5.943 0.40 0.02 1 P17 0.00 0.00 17 0 0 0 0 0

4 4.097 3.102 0.40 0.02 0 P3 0.00 0.00 3 0 0 0 0 0

### V346

Viga= 346 V346 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 104 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 220.1 | M[+]Min = 198.2 | M[-]Min = 245.0

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 1.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 104 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.1 | M[+]Min = 193.5 | M[-]Min = 230.1

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 1.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.41 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 217 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.55 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.55 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 253.5 | M[+]Min = 200.8 | M[-]Min = 253.5

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.39

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 2.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 0.75 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 2.04 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 152 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 240.1 | M[+]Min = 196.7 | M[-]Min = 240.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.74 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.48 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 296 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.66 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.60 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 276.5 | M[+]Min = 207.1 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 2.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.11 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.064 0.603 0.20 0.00 0 P116 0.00 0.00 116 0 0 0 0 0

2 2.066 1.898 0.20 0.00 0 P110 0.00 0.00 110 0 0 0 0 0

3 2.464 2.367 0.20 0.00 0 P101 0.00 0.00 101 0 0 0 0 0

4 2.477 2.416 0.20 0.00 0 P91 0.00 0.00 91 0 0 0 0 0

5 2.785 2.714 0.20 0.00 0 P82 0.00 0.00 82 0 0 0 0 0

6 1.343 1.028 0.20 0.00 0 P71 0.00 0.00 71 0 0 0 0 0

### V347

Viga= 347 V347 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 3.5 tf\* m - Abcis.= 220 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.03 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.7 | M[+]Min = 238.9 | M[-]Min = 217.0

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 148. 5.19 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

148.- 319. 2.55 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

319.- 420. 4.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.703 3.401 0.20 0.00 0 P50 0.00 0.00 50 0 0 0 0 0

2 3.438 3.142 0.20 0.00 1 P33 0.00 0.00 33 0 0 0 0 0

### V348

Viga= 348 V348 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 3.4 tf\* m - Abcis.= 220 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.01 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.0 | M[+]Min = 238.9 | M[-]Min = 263.7

[cm2 ]| Asapo[+]= 0.68 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 101. 4.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

101.- 274. 2.52 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

274.- 420. 5.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.481 3.192 0.20 0.00 1 P18 0.00 0.00 18 0 0 0 0 0

2 3.645 3.357 0.20 0.00 0 P1 0.00 0.00 1 0 0 0 0 0

### V349

Viga= 349 V349 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.40 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 109 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 222.5 | M[+]Min = 199.3 | M[-]Min = 248.6

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 1.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 1.00 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 154 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.47 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.47 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 221.0 | M[+]Min = 190.4 | M[-]Min = 221.0

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 1.46 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 212 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 240.1 | M[+]Min = 196.7 | M[-]Min = 240.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.70 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.78 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.34 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 105 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.49 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.49 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.49 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 230.6 | M[+]Min = 193.6 | M[-]Min = 230.6

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 2.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.17 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 243 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.40 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 270.0 | M[+]Min = 205.4 | M[-]Min = 192.2

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 2.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 1.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 1.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.099 0.624 0.20 0.00 0 P162 0.00 0.00 162 0 0 0 0 0

2 2.056 1.914 0.20 0.00 0 P158 0.00 0.00 158 0 0 0 0 0

3 2.054 1.904 0.20 0.00 0 P154 0.00 0.00 154 0 0 0 0 0

4 2.038 1.753 0.20 0.00 0 P142 0.00 0.00 142 0 0 0 0 0

5 3.018 2.516 0.20 0.00 0 P130 0.00 0.00 130 0 0 0 0 0

6 1.184 0.865 0.15 0.00 2 V332 0.00 0.00 0 0 0 0 0 0

### V350

Viga= 350 V350 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 222 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.12 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 4.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 327. 2.23 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

327.- 430. 4.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.067 2.983 0.15 0.00 2 V319 0.00 0.00 0 0 0 0 0 0

2 3.061 2.977 0.15 0.00 2 V310 0.00 0.00 0 0 0 0 0 0

### V351

Viga= 351 V351 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 3.7 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.14 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 4.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 278. 2.27 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

278.- 430. 4.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.091 3.006 0.15 0.00 2 V307 0.00 0.00 0 0 0 0 0 0

2 3.069 2.987 0.15 0.00 2 V301 0.00 0.00 0 0 0 0 0 0

### V352

Viga= 352 V352 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 130 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.93 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 236.7 | M[+]Min = 217.3 | M[-]Min = 318.8

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 3.72 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.12 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 130 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 1.74 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.74 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 289.5 | M[+]Min = 210.5 | M[-]Min = 289.5

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 3.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.60 /BCs= 0.67 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 217 | M.[-] = 2.0 tf\* m

[tf,cm]| As = 2.03 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.03 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.74 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 335.3 | M[+]Min = 220.7 | M[-]Min = 335.3

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 4.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 1.69 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 4.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 152 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.87 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.68 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.2 | M[+]Min = 215.1 | M[-]Min = 309.2

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.62 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

170.- 240. 1.69 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.3 0.2

240.- 345. 3.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 0.82 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 2.6 tf\* m - Abcis.= 259 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 2.31 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.85 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 380.2 | M[+]Min = 229.1 | M[-]Min = 264.8

[cm2 ]| Asapo[+]= 0.46 | | Asapo[+]= 0.69

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 5.58 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 2.86 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 4.34 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.915 1.619 0.20 0.00 1 P117 0.00 0.00 117 0 0 0 0 0

2 4.675 4.444 0.20 0.00 1 P111 0.00 0.00 111 0 0 0 0 0

3 5.247 5.059 0.20 0.00 1 P102 0.00 0.00 102 0 0 0 0 0

4 5.574 5.324 0.20 0.00 1 P92 0.00 0.00 92 0 0 0 0 0

5 6.732 6.221 0.20 0.00 1 P83 0.00 0.00 83 0 0 0 0 0

6 3.100 2.602 0.20 0.00 0 P72 0.00 0.00 72 0 0 0 0 0

### V353

Viga= 353 V353 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 208 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.82 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.97 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 302.3 | M[+]Min = 236.9 | M[-]Min = 258.7

[cm2 ]| Asapo[+]= 0.82 | | Asapo[+]= 0.79

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 5.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.08 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 5.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.176 3.391 0.40 0.02 0 P51 0.00 0.00 51 0 0 0 0 0

2 4.049 3.260 0.40 0.02 1 P36 0.00 0.00 36 0 0 0 0 0

### V354

Viga= 354 V354 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 208 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.82 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.97 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 258.7 | M[+]Min = 236.9 | M[-]Min = 302.3

[cm2 ]| Asapo[+]= 0.80 | | Asapo[+]= 0.81

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 5.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 5.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.073 3.294 0.40 0.02 1 P19 0.00 0.00 19 0 0 0 0 0

2 4.122 3.345 0.40 0.02 0 P4 0.00 0.00 4 0 0 0 0 0

### V355

Viga= 355 V355 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.62 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 105 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.93 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 237.3 | M[+]Min = 217.5 | M[-]Min = 320.0

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 212 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.87 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.68 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.2 | M[+]Min = 215.1 | M[-]Min = 309.2

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 137. 3.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

137.- 274. 1.42 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

274.- 345. 4.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.7

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.47 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 265 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.59 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 271.5 | M[+]Min = 205.8 | M[-]Min = 271.5

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 2.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.64 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 218 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.97 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.86 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 325.8 | M[+]Min = 218.8 | M[-]Min = 308.8

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 3.05 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.99 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.531 1.252 0.20 0.00 1 P131 0.00 0.00 131 0 0 0 0 0

2 5.138 4.909 0.20 0.00 1 P143 0.00 0.00 143 0 0 0 0 0

3 4.507 4.249 0.20 0.00 1 P155 0.00 0.00 155 0 0 0 0 0

4 3.024 2.376 0.20 0.00 1 P159 0.00 0.00 159 0 0 0 0 0

5 1.330 0.629 0.20 0.00 0 P163 0.00 0.00 163 0 0 0 0 0

### V356

Viga= 356 V356 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 214 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 2.03 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 306.1 | M[+]Min = 237.9 | M[-]Min = 215.8

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.71 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.60 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 5.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.788 4.236 0.40 0.02 0 P52 0.00 0.00 52 0 0 0 0 0

2 3.589 3.096 0.20 0.00 1 P37 0.00 0.00 37 0 0 0 0 0

### V357

Viga= 357 V357 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 214 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.09 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.8 | M[+]Min = 237.9 | M[-]Min = 306.1

[cm2 ]| Asapo[+]= 0.72 | | Asapo[+]= 0.94

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 5.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.59 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.71 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.697 3.205 0.20 0.00 1 P20 0.00 0.00 20 0 0 0 0 0

2 4.791 4.246 0.40 0.02 0 P5 0.00 0.00 5 0 0 0 0 0

### V358

Viga= 358 V358 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.60 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 86 | M.[-] = 1.5 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.77 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 225.6 | M[+]Min = 211.6 | M[-]Min = 294.2

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 240. 3.05 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.83 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 227 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.52 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 243.5 | M[+]Min = 197.7 | M[-]Min = 243.5

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 4.00 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 236. 1.74 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

236.- 355. 4.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.94 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 125 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 226.5 | M[+]Min = 192.3 | M[-]Min = 226.5

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 266. 3.73 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.35 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 190 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.50 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.50 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 232.9 | M[+]Min = 194.4 | M[-]Min = 232.9

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 3.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 1.25 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 2.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 288 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 225.4 | M[+]Min = 191.9 | M[-]Min = 225.4

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 268. 1.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.70 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 123 | M.[-] = 2.2 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.52 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 241.1 | M[+]Min = 197.0 | M[-]Min = 241.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 80. 3.42 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

80.- 150. 2.64 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.7

150.- 350. 3.93 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.90 /B= 0.15 /H= 0.60 /BCs= 0.44 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 227 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.5 | M[+]Min = 203.6 | M[-]Min = 211.7

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 3.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 1.76 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 3.01 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.204 0.963 0.20 0.00 1 P89 0.00 0.00 89 0 0 0 0 0

2 4.833 4.350 0.20 0.00 0 P93 0.00 0.00 93 0 0 0 0 0

3 4.772 4.365 0.50 0.07 0 P103 0.00 0.00 103 0 0 0 0 0

4 4.922 4.103 0.20 0.00 0 P112 0.00 0.00 112 0 0 0 0 0

5 2.931 2.612 0.20 0.00 0 P118 0.00 0.00 118 0 0 0 0 0

6 3.563 3.134 0.20 0.00 0 P126 0.00 0.00 126 0 0 0 0 0

7 5.432 5.235 0.20 0.00 0 P138 0.00 0.00 138 0 0 0 0 0

8 2.147 1.876 0.20 0.00 0 P150 0.00 0.00 150 0 0 0 0 0

### V359

Viga= 359 V359 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.21 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 107 | M.[-] = 3.8 tf\* m

[tf,cm]| As = 1.64 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.30 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 273.1 | M[+]Min = 218.1 | M[-]Min = 322.8

[cm2 ]| Asapo[+]= 1.48 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 285. 6.71 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.58 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 173 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.88 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.42 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.5 | M[+]Min = 211.4 | M[-]Min = 197.8

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 233. 5.45 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.741 2.037 0.40 0.02 0 P73 0.00 0.00 73 0 0 0 0 0

2 8.284 6.833 0.40 0.02 1 P80 0.00 0.00 80 0 0 0 0 0

3 1.772 1.507 0.15 0.00 2 V325 0.00 0.00 0 0 0 0 0 0

### V360

Viga= 360 V360 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.4 tf\* m - Abcis.= 222 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.02 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.67 | | Asapo[+]= 0.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 4.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 0.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.1

250.- 430. 4.03 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.005 2.909 0.15 0.00 2 V319 0.00 0.00 0 0 0 0 0 0

2 2.878 2.794 0.15 0.00 2 V310 0.00 0.00 0 0 0 0 0 0

### V361

Viga= 361 V361 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.36 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.79 | | Asapo[+]= 0.79

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 4.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 1.21 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

250.- 430. 4.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.326 3.233 0.15 0.00 2 V307 0.00 0.00 0 0 0 0 0 0

2 3.266 3.170 0.15 0.00 2 V301 0.00 0.00 0 0 0 0 0 0

### V362

Viga= 362 V362 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 0.79 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.3 tf\* m | M.[+] Max= 3.4 tf\* m - Abcis.= 214 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 2.02 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.26 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.98 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 306.1 | M[+]Min = 227.7 | M[-]Min = 372.3

[cm2 ]| Asapo[+]= 0.94 | | Asapo[+]= 0.49

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 6.74 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.32 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.3

226.- 400. 8.07 36.28 1 45. 0.7 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.78 /B= 0.15 /H= 0.60 /BCs= 0.48 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 280 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.93 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.66 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.60 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 276.4 | M[+]Min = 207.1 | M[-]Min = 276.4

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 4.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.9 tf\* m | M.[+] Max= 2.1 tf\* m - Abcis.= 243 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 366.8 | M[+]Min = 226.7 | M[-]Min = 303.0

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 5.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 2.01 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

226.- 380. 5.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.807 4.266 0.40 0.02 0 P53 0.00 0.00 53 0 0 0 0 0

2 8.583 8.082 0.20 0.00 1 P38 0.00 0.00 38 0 0 0 0 0

3 5.067 4.482 0.40 0.02 1 P21 0.00 0.00 21 0 0 0 0 0

4 3.632 2.885 0.40 0.02 0 P6 0.00 0.00 6 0 0 0 0 0

### V363

Viga= 363 V363 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.21 /B= 0.15 /H= 0.60 /BCs= 0.63 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 53 | M.[-] = 3.3 tf\* m

[tf,cm]| As = 1.95 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.01 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.71 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 322.8 | M[+]Min = 218.1 | M[-]Min = 322.8

[cm2 ]| Asapo[+]= 0.88 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 285. 4.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.58 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 238 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 2.19 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.64 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 293.5 | M[+]Min = 211.4 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 233. 4.17 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.776 0.500 0.40 0.02 0 P74 0.00 0.00 74 0 0 0 0 0

2 5.757 4.657 0.40 0.02 1 P81 0.00 0.00 81 0 0 0 0 0

3 0.361 0.086 0.15 0.00 2 V325 0.00 0.00 0 0 0 0 0 0

### V364

Viga= 364 V364 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.39 /B= 0.15 /H= 0.60 /BCs= 1.43 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 8.3 tf\* m - Abcis.= 319 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.63 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.58 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 4.87 -STAS- [ 4 B 12.5mm ] | AsL= 0.00 ------ x/d =0.07

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.3 | M[+]Min = 252.2 | M[-]Min = 238.3

[cm2 ]| Asapo[+]= 1.62 | | Asapo[+]= 1.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 155. 8.18 36.27 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

155.- 465. 4.88 36.17 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

465.- 620. 8.29 36.27 1 45. 0.9 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.836 5.362 0.20 0.00 0 P164 0.00 0.00 164 0 0 0 0 0

2 5.922 5.423 0.20 0.00 0 P151 0.00 0.00 151 0 0 0 0 0

### V365

Viga= 365 V365 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 214 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.94 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.8 | M[+]Min = 237.9 | M[-]Min = 306.1

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.92

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 5.24 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.46 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.54 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.736 3.208 0.20 0.00 1 P22 0.00 0.00 22 0 0 0 0 0

2 4.675 4.114 0.40 0.02 0 P7 0.00 0.00 7 0 0 0 0 0

### V366

Viga= 366 V366 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.60 /B= 0.15 /H= 0.60 /BCs= 0.67 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 65 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 2.03 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.55 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.74 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 334.7 | M[+]Min = 220.6 | M[-]Min = 253.2

[cm2 ]| Asapo[+]= 0.59 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 240. 1.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.135 0.408 0.20 0.00 0 P94 0.00 0.00 94 0 0 0 0 0

2 1.207 0.479 0.20 0.00 1 P90 0.00 0.00 90 0 0 0 0 0

### V367

Viga= 367 V367 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.39 /B= 0.15 /H= 0.60 /BCs= 1.43 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 8.3 tf\* m - Abcis.= 319 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.65 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.60 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 4.86 -STAS- [ 4 B 12.5mm ] | AsL= 0.00 ------ x/d =0.07

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 238.3 | M[+]Min = 252.2 | M[-]Min = 238.3

[cm2 ]| Asapo[+]= 1.62 | | Asapo[+]= 1.62

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 155. 8.17 36.27 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

155.- 465. 4.93 36.17 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

465.- 620. 8.27 36.27 1 45. 0.8 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.826 5.328 0.20 0.00 0 P165 0.00 0.00 165 0 0 0 0 0

2 5.907 5.384 0.20 0.00 0 P152 0.00 0.00 152 0 0 0 0 0

### V368

Viga= 368 V368 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 3.0 tf\* m - Abcis.= 209 | M.[-] = 4.0 tf\* m

[tf,cm]| As = 2.09 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.45 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 303.0 | M[+]Min = 226.7 | M[-]Min = 366.8

[cm2 ]| Asapo[+]= 0.98 | | Asapo[+]= 0.45

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 7.03 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 3.03 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 9.10 36.28 1 45. 1.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.49 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 290 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.79 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.68 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 279.5 | M[+]Min = 207.9 | M[-]Min = 279.5

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 3.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.77 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.2 tf\* m | M.[+] Max= 2.4 tf\* m - Abcis.= 243 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 2.23 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.83 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.10 | As = 1.82 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 366.8 | M[+]Min = 226.7 | M[-]Min = 303.0

[cm2 ]| Asapo[+]= 0.45 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 6.43 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 2.39 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 5.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.013 4.269 0.40 0.02 0 P54 0.00 0.00 54 0 0 0 0 0

2 8.795 8.332 0.40 0.02 1 P39 0.00 0.00 39 0 0 0 0 0

3 5.915 5.535 0.40 0.02 1 P23 0.00 0.00 23 0 0 0 0 0

4 3.965 3.225 0.40 0.02 0 P8 0.00 0.00 8 0 0 0 0 0

### V369

Viga= 369 V369 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.81 /B= 0.15 /H= 0.70 /BCs= 0.87 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.9 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 40 | M.[-] = 5.6 tf\* m

[tf,cm]| As = 2.62 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.89 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.10 | As = 2.12 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 503.8 | M[+]Min = 310.5 | M[-]Min = 503.8

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 1.80 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 2.61 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 4.21 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.62 /B= 0.15 /H= 0.70 /BCs= 0.69 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.35 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.8 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 274 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 3.54 -SRAS- [ 3 B 12.5mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.13 | As = 1.98 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 4 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 437.3 | M[+]Min = 297.3 | M[-]Min = 231.0

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 116. 8.71 42.79 1 45. 0.4 1.5 1.6 4.2 0.0 15.0 2 0.0 1.6

116.- 224. 1.85 42.79 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

224.- 333. 0.73 42.79 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.285 0.202 0.40 0.00 0 P75 0.00 0.00 75 0 0 0 0 0

2 8.739 7.899 0.50 0.04 1 P84 0.00 0.00 84 0 0 0 0 0

3 0.525 0.301 0.15 0.00 2 V327 0.00 0.00 0 0 0 0 0 0

### V370

Viga= 370 V370 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 3.1 tf\* m - Abcis.= 214 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 2.09 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 306.1 | M[+]Min = 237.9 | M[-]Min = 215.8

[cm2 ]| Asapo[+]= 0.93 | | Asapo[+]= 0.68

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.63 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.54 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 4.85 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.729 4.156 0.40 0.02 0 P55 0.00 0.00 55 0 0 0 0 0

2 3.464 2.976 0.20 0.00 1 P34 0.00 0.00 34 0 0 0 0 0

### V371

Viga= 371 V371 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 214 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.08 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.8 | M[+]Min = 237.9 | M[-]Min = 306.1

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.94

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 5.21 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.57 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.70 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.717 3.201 0.20 0.00 1 P24 0.00 0.00 24 0 0 0 0 0

2 4.788 4.226 0.40 0.02 0 P9 0.00 0.00 9 0 0 0 0 0

### V372

Viga= 372 V372 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.61 /B= 0.15 /H= 0.60 /BCs= 0.69 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 151 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.07 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.76 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 247.5 | M[+]Min = 222.0 | M[-]Min = 341.4

[cm2 ]| Asapo[+]= 0.44 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 111. 2.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

111.- 222. 1.49 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

222.- 333. 3.33 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.60 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 246 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 239.3 | M[+]Min = 196.4 | M[-]Min = 239.3

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 107. 3.89 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

107.- 214. 1.98 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

214.- 324. 3.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.3

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.98 /B= 0.15 /H= 0.60 /BCs= 0.33 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.8 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 101 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 227.4 | M[+]Min = 192.6 | M[-]Min = 227.4

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 2.86 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.35 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 163 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.50 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.50 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.3 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 232.9 | M[+]Min = 194.4 | M[-]Min = 232.9

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 2.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 0.87 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 2.68 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 2.88 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 144 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 225.4 | M[+]Min = 191.9 | M[-]Min = 225.4

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 268. 2.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.70 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 185 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.52 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 241.1 | M[+]Min = 197.0 | M[-]Min = 241.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 80. 3.12 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

80.- 150. 1.52 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

150.- 350. 3.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.90 /B= 0.15 /H= 0.60 /BCs= 0.44 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 227 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.57 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.5 | M[+]Min = 203.6 | M[-]Min = 211.7

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 3.67 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 1.62 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 3.13 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.688 1.431 0.20 0.00 2 V324 0.00 0.00 0 0 0 0 0 0

2 4.831 4.010 0.40 0.02 0 P95 0.00 0.00 95 0 0 0 0 0

3 3.898 3.564 0.50 0.07 0 P104 0.00 0.00 104 0 0 0 0 0

4 3.746 2.992 0.20 0.00 0 P115 0.00 0.00 115 0 0 0 0 0

5 3.555 3.201 0.20 0.00 0 P119 0.00 0.00 119 0 0 0 0 0

6 3.944 3.114 0.20 0.00 0 P129 0.00 0.00 129 0 0 0 0 0

7 5.010 4.622 0.20 0.00 0 P141 0.00 0.00 141 0 0 0 0 0

8 2.235 1.944 0.20 0.00 0 P153 0.00 0.00 153 0 0 0 0 0

### V373

Viga= 373 V373 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 222 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.35 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.78 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 179. 4.70 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

179.- 250. 1.14 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

250.- 430. 4.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.355 3.256 0.15 0.00 2 V319 0.00 0.00 0 0 0 0 0 0

2 3.331 3.241 0.15 0.00 2 V311 0.00 0.00 0 0 0 0 0 0

### V374

Viga= 374 V374 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.34 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.78 | | Asapo[+]= 0.78

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 180. 4.77 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

180.- 251. 1.09 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

251.- 430. 4.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.404 3.310 0.15 0.00 2 V307 0.00 0.00 0 0 0 0 0 0

2 3.267 3.173 0.15 0.00 2 V301 0.00 0.00 0 0 0 0 0 0

### V375

Viga= 375 V375 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.76 /B= 0.15 /H= 0.60 /BCs= 1.10 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 0.8 tf\* m - Abcis.= 357 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 2.60 -SRAS- [ 4 B 10.0mm] | AsL= 0.00 ------ | As = 2.60 -SRAS- [ 4 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 2.06 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 418.5 | M[+]Min = 241.7 | M[-]Min = 418.5

[cm2 ]| Asapo[+]= 0.52 | | Asapo[+]= 0.57

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 2.94 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 1.50 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 2.69 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.097 1.036 0.50 0.07 1 P85 0.00 0.00 85 0 0 0 0 0

2 1.920 0.859 0.40 0.02 0 P76 0.00 0.00 76 0 0 0 0 0

### V376

Viga= 376 V376 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.7 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 208 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.82 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.82 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.97 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 302.3 | M[+]Min = 236.9 | M[-]Min = 302.3

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 5.23 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 1.78 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

226.- 380. 5.10 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.731 2.975 0.40 0.02 0 P56 0.00 0.00 56 0 0 0 0 0

2 3.646 2.897 0.40 0.02 1 P41 0.00 0.00 41 0 0 0 0 0

### V377

Viga= 377 V377 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.98 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 2.2 tf\* m - Abcis.= 208 | M.[-] = 2.7 tf\* m

[tf,cm]| As = 1.82 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.82 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.97 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 302.3 | M[+]Min = 236.9 | M[-]Min = 302.3

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.74

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 5.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 226. 1.82 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

226.- 380. 5.29 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.627 2.879 0.40 0.02 1 P25 0.00 0.00 25 0 0 0 0 0

2 3.776 3.018 0.40 0.02 0 P10 0.00 0.00 10 0 0 0 0 0

### V378

Viga= 378 V378 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.35 /B= 0.15 /H= 0.60 /BCs= 1.10 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 8.5 tf\* m - Abcis.= 264 | M.[-] = 10.2 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 6.99 -SRAS- [ 4 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 5.01 -STAS- [ 4 B 12.5mm ] | AsL= 0.00 ------ x/d =0.31

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 237.8 | M[+]Min = 241.7 | M[-]Min = 466.3

[cm2 ]| Asapo[+]= 1.67 | | Asapo[+]= 1.67

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 8.86 36.20 1 45. 1.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 7.71 36.17 1 45. 0.6 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 12.94 36.17 1 45. 3.0 1.5 3.0 5.0 0.0 12.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 9.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 273 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 6.18 -SRAS- [ 3 B 16.0mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.27 | As = 1.68 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.2 | M[+]Min = 215.1 | M[-]Min = 309.2

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 9.03 36.17 1 45. 1.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 5.19 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 2.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 152 | M.[-] = 4.0 tf\* m

[tf,cm]| As = 1.87 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 2.43 -SRAS- [ 2 B 12.5mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.68 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.2 | M[+]Min = 215.1 | M[-]Min = 309.2

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 4.81 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 3.26 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 6.85 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.15 /B= 0.15 /H= 0.60 /BCs= 0.65 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.0 tf\* m | M.[+] Max= 2.5 tf\* m - Abcis.= 207 | M.[-] = 2.6 tf\* m

[tf,cm]| As = 2.45 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.98 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 327.9 | M[+]Min = 219.2 | M[-]Min = 327.9

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 132. 7.34 36.28 1 45. 0.4 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

132.- 263. 3.14 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

263.- 395. 6.30 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.15 /B= 0.15 /H= 0.60 /BCs= 0.53 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 315 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.75 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.75 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.63 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 290.4 | M[+]Min = 210.7 | M[-]Min = 290.4

[cm2 ]| Asapo[+]= 0.41 | | Asapo[+]= 0.41

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 3.18 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.59 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 1.1 tf\* m - Abcis.= 182 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.87 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.87 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.68 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 309.2 | M[+]Min = 215.1 | M[-]Min = 309.2

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 137. 3.36 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

137.- 274. 1.68 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

274.- 345. 4.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.7

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.47 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 265 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.62 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.62 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.59 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 271.5 | M[+]Min = 205.8 | M[-]Min = 271.5

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 2.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.64 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 218 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.97 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.65 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.72 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 325.8 | M[+]Min = 218.8 | M[-]Min = 274.5

[cm2 ]| Asapo[+]= 0.43 | | Asapo[+]= 0.66

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 2.92 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.87 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 6.319 6.074 0.20 0.00 2 V324 0.00 0.00 0 0 0 0 0 0

2 15.680 15.017 0.20 0.00 1 P96 0.00 0.00 96 0 0 0 0 0

3 5.371 5.006 0.20 0.00 1 P106 0.00 0.00 106 0 0 0 0 0

4 10.105 9.624 0.20 0.00 1 P120 0.00 0.00 120 0 0 0 0 0

5 6.719 6.423 0.20 0.00 1 P132 0.00 0.00 132 0 0 0 0 0

6 4.039 3.879 0.20 0.00 1 P144 0.00 0.00 144 0 0 0 0 0

7 4.718 4.435 0.20 0.00 1 P156 0.00 0.00 156 0 0 0 0 0

8 2.907 2.317 0.20 0.00 1 P160 0.00 0.00 160 0 0 0 0 0

9 1.303 0.711 0.20 0.00 0 P166 0.00 0.00 166 0 0 0 0 0

### V379

Viga= 379 V379 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.4 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 214 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 2.04 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 306.1 | M[+]Min = 237.9 | M[-]Min = 215.8

[cm2 ]| Asapo[+]= 0.96 | | Asapo[+]= 0.71

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 6.84 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.59 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 5.09 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.878 4.349 0.40 0.02 0 P57 0.00 0.00 57 0 0 0 0 0

2 3.638 3.180 0.20 0.00 1 P40 0.00 0.00 40 0 0 0 0 0

### V380

Viga= 380 V380 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 3.3 tf\* m - Abcis.= 214 | M.[-] = 3.4 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.03 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.8 | M[+]Min = 237.9 | M[-]Min = 306.1

[cm2 ]| Asapo[+]= 0.73 | | Asapo[+]= 0.94

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 5.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 2.56 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 6.76 36.28 1 45. 0.1 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.743 3.261 0.20 0.00 1 P26 0.00 0.00 26 0 0 0 0 0

2 4.827 4.305 0.40 0.02 0 P11 0.00 0.00 11 0 0 0 0 0

### V381

Viga= 381 V381 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.60 /BCs= 0.40 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 109 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.53 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 222.5 | M[+]Min = 199.3 | M[-]Min = 248.6

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 1.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.85 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.82 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 176 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.47 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.47 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 221.0 | M[+]Min = 190.4 | M[-]Min = 221.0

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 1.51 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 182 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 240.1 | M[+]Min = 196.7 | M[-]Min = 240.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 1.19 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 2.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.17 /B= 0.15 /H= 0.60 /BCs= 0.39 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.2 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 211 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.53 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.39 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.53 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 246.2 | M[+]Min = 198.6 | M[-]Min = 186.9

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.51

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 2.48 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 1.53 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 1.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.054 0.731 0.20 0.00 0 P167 0.00 0.00 167 0 0 0 0 0

2 2.151 1.999 0.20 0.00 0 P161 0.00 0.00 161 0 0 0 0 0

3 1.832 1.358 0.20 0.00 0 P157 0.00 0.00 157 0 0 0 0 0

4 3.372 2.451 0.20 0.00 0 P145 0.00 0.00 145 0 0 0 0 0

5 0.913 0.398 0.15 0.00 2 V335 0.00 0.00 0 0 0 0 0 0

### V382

Viga= 382 V382 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 174 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.61 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 237.0 | M[+]Min = 205.3 | M[-]Min = 269.6

[cm2 ]| Asapo[+]= 0.51 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.66 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.47 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.02 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 290 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 225.0 | M[+]Min = 191.8 | M[-]Min = 225.0

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 1.54 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.0 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 243 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 269.6 | M[+]Min = 205.3 | M[-]Min = 237.0

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.50

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.08 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.50 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.59 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.611 2.159 0.40 0.02 0 P60 0.00 0.00 60 0 0 0 0 0

2 3.617 3.402 0.40 0.02 1 P45 0.00 0.00 45 0 0 0 0 0

3 3.753 3.492 0.40 0.02 1 P30 0.00 0.00 30 0 0 0 0 0

4 2.566 2.113 0.40 0.02 0 P15 0.00 0.00 15 0 0 0 0 0

### V383

Viga= 383 V383 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.61 /B= 0.15 /H= 0.60 /BCs= 0.50 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 79 | M.[-] = 3.6 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.16 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.61 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 220.8 | M[+]Min = 208.1 | M[-]Min = 280.3

[cm2 ]| Asapo[+]= 0.83 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.64 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 1.95 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 3.39 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.43 /B= 0.15 /H= 0.60 /BCs= 0.54 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.2 tf\* m | M.[+] Max= 4.0 tf\* m - Abcis.= 328 | M.[-] = 5.1 tf\* m

[tf,cm]| As = 3.89 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 3.16 -SRAS- [ 3 B 12.5mm]

| AsL= 0.00 ------ x/d =0.17 | As = 2.32 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.14

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 292.9 | M[+]Min = 211.3 | M[-]Min = 292.9

[cm2 ]| Asapo[+]= 0.58 | | Asapo[+]= 0.58

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 7.49 36.28 1 45. 0.5 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 4.16 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 7.00 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 4.1 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 243 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 2.50 -SRAS- [ 2 B 12.5mm] | AsL= 0.00 ------ | As = 1.51 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.11 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 240.1 | M[+]Min = 196.7 | M[-]Min = 240.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 4.80 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 2.46 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 2.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.60 /BCs= 0.37 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 152 | M.[-] = 2.9 tf\* m

[tf,cm]| As = 1.51 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.72 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.51 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 240.1 | M[+]Min = 196.7 | M[-]Min = 240.1

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 2.76 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 2.14 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 4.28 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.10 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.8 tf\* m | M.[+] Max= 1.9 tf\* m - Abcis.= 239 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.67 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.45 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 268.2 | M[+]Min = 204.9 | M[-]Min = 213.8

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.53

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 4.91 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

130.- 260. 2.34 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

260.- 390. 3.32 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.173 0.476 0.40 0.02 0 P77 0.00 0.00 77 0 0 0 0 0

2 7.394 6.867 0.65 0.14 0 P87 0.00 0.00 87 0 0 0 0 0

3 8.379 8.008 0.20 0.00 0 P97 0.00 0.00 97 0 0 0 0 0

4 3.522 3.331 0.20 0.00 0 P107 0.00 0.00 107 0 0 0 0 0

5 6.498 6.230 0.20 0.00 0 P121 0.00 0.00 121 0 0 0 0 0

6 2.375 2.158 0.20 0.00 0 P133 0.00 0.00 133 0 0 0 0 0

### V384

Viga= 384 V384 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.5 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 139 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.56 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.61 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 259.1 | M[+]Min = 205.3 | M[-]Min = 269.6

[cm2 ]| Asapo[+]= 0.90 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 3.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.88 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 4.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 290 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 225.0 | M[+]Min = 191.8 | M[-]Min = 225.0

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 1.87 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.46 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.7 tf\* m - Abcis.= 278 | M.[-] = 2.5 tf\* m

[tf,cm]| As = 1.61 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.56 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 269.6 | M[+]Min = 205.3 | M[-]Min = 259.1

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.87

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 127. 4.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

127.- 253. 1.87 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

253.- 380. 3.83 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.732 1.579 0.40 0.02 0 P61 0.00 0.00 61 0 0 0 0 0

2 3.501 3.072 0.40 0.02 1 P46 0.00 0.00 46 0 0 0 0 0

3 3.575 3.164 0.40 0.02 1 P31 0.00 0.00 31 0 0 0 0 0

4 2.733 1.586 0.40 0.02 0 P16 0.00 0.00 16 0 0 0 0 0

### V385

Viga= 385 V385 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 222 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 2.10 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 152. 4.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

152.- 327. 2.23 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

327.- 430. 4.26 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.036 2.946 0.15 0.00 2 V320 0.00 0.00 0 0 0 0 0 0

2 3.040 2.952 0.15 0.00 2 V312 0.00 0.00 0 0 0 0 0 0

### V386

Viga= 386 V386 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.45 /B= 0.15 /H= 0.60 /BCs= 1.04 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 222 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 0.00 -SRAS- [ 0 B 6.3mm]

| AsL= 0.00 ------ x/d =0.06 | As = 2.09 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.00

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 217.6 | M[+]Min = 239.3 | M[-]Min = 217.6

[cm2 ]| Asapo[+]= 0.70 | | Asapo[+]= 0.70

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 4.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 278. 2.23 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

278.- 430. 4.20 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.030 2.921 0.15 0.00 2 V308 0.00 0.00 0 0 0 0 0 0

2 2.999 2.884 0.15 0.00 2 V302 0.00 0.00 0 0 0 0 0 0

### V387

Viga= 387 V387 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.40 /B= 0.15 /H= 0.60 /BCs= 1.03 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.6 tf\* m | M.[+] Max= 3.6 tf\* m - Abcis.= 220 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.46 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 2.08 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 263.7 | M[+]Min = 238.9 | M[-]Min = 217.0

[cm2 ]| Asapo[+]= 0.75 | | Asapo[+]= 0.69

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 146. 5.37 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

146.- 319. 2.64 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

319.- 420. 4.95 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.830 3.371 0.20 0.00 0 P58 0.00 0.00 58 0 0 0 0 0

2 3.537 3.074 0.20 0.00 1 P42 0.00 0.00 42 0 0 0 0 0

### V388

Viga= 388 V388 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.28 /B= 0.15 /H= 0.60 /BCs= 1.01 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 3.2 tf\* m - Abcis.= 214 | M.[-] = 3.9 tf\* m

[tf,cm]| As = 1.46 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.36 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.99 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.10

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.7 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 215.8 | M[+]Min = 237.9 | M[-]Min = 306.1

[cm2 ]| Asapo[+]= 0.66 | | Asapo[+]= 0.86

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 101. 4.75 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

101.- 272. 2.90 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.2

272.- 400. 6.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.386 2.522 0.20 0.00 1 P27 0.00 0.00 27 0 0 0 0 0

2 4.397 3.428 0.40 0.02 0 P12 0.00 0.00 12 0 0 0 0 0

### V389

Viga= 389 V389 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.16 /B= 0.15 /H= 0.60 /BCs= 0.57 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 5.1 tf\* m - Abcis.= 138 | M.[-] = 3.1 tf\* m

[tf,cm]| As = 1.88 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.85 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 2.99 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.9 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 236.6 | M[+]Min = 213.6 | M[-]Min = 236.6

[cm2 ]| Asapo[+]= 1.76 | | Asapo[+]= 1.12

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 7.47 36.28 1 45. 0.5 1.5 1.5 4.2 0.0 17.5 2 0.0 0.6

102.- 241. 3.17 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

241.- 380. 7.16 36.28 1 45. 0.3 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 5.332 4.626 0.40 0.02 0 P59 0.00 0.00 59 0 0 0 0 0

2 5.113 3.440 0.40 0.02 1 P43 0.00 0.00 43 0 0 0 0 0

### V390

Viga= 390 V390 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.06 /B= 0.15 /H= 0.60 /BCs= 0.96 /BCi= 0.00 /TpS= 2 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.5 tf\* m | M.[+] Max= 2.3 tf\* m - Abcis.= 236 | M.[-] = 3.2 tf\* m

[tf,cm]| As = 2.14 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.96 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.96 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.08

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 0.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 299.2 | M[+]Min = 236.0 | M[-]Min = 299.2

[cm2 ]| Asapo[+]= 0.95 | | Asapo[+]= 0.86

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 6.78 36.28 1 45. 0.2 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 2.66 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 6.16 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 4.833 3.380 0.50 0.07 1 P28 0.00 0.00 28 0 0 0 0 0

2 4.403 2.985 0.40 0.02 0 P13 0.00 0.00 13 0 0 0 0 0

### V391

Viga= 391 V391 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.06 /B= 0.15 /H= 0.60 /BCs= 0.38 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.2 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 104 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.47 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.52 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.52 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 220.2 | M[+]Min = 197.7 | M[-]Min = 243.5

[cm2 ]| Asapo[+]= 0.56 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 3.53 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.86 /B= 0.15 /H= 0.60 /BCs= 0.32 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 24 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.48 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.48 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.48 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.4 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 225.0 | M[+]Min = 191.8 | M[-]Min = 225.0

[cm2 ]| Asapo[+]= 1.48 | | Asapo[+]= 0.37

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 2.55 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.06 /B= 0.15 /H= 0.60 /BCs= 0.45 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.05 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 240 | M.[-] = 1.8 tf\* m

[tf,cm]| As = 1.60 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.50 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.0 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 267.3 | M[+]Min = 204.7 | M[-]Min = 236.2

[cm2 ]| Asapo[+]= 0.39 | | Asapo[+]= 0.50

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 4.22 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 1.58 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 3.57 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 2.136 1.236 0.40 0.02 0 P48 0.00 0.00 48 0 0 0 0 0

2 2.852 2.649 0.50 0.07 0 P44 0.00 0.00 44 0 0 0 0 0

3 4.169 3.678 0.50 0.07 0 P29 0.00 0.00 29 0 0 0 0 0

4 2.551 1.946 0.40 0.02 0 P14 0.00 0.00 14 0 0 0 0 0

### V392

Viga= 392 V392 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.74 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 174 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.44

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 1.25 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.893 0.038 0.20 0.00 0 P64 0.00 0.00 64 0 0 0 0 0

2 0.806 -0.049 0.20 0.00 0 P62 0.00 0.00 62 0 0 0 0 0

### V393

Viga= 393 V393 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.06 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 0 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.09 | | Asapo[+]= 0.52

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 2.71 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.917 -0.934 0.40 0.02 0 P62 0.00 0.00 62 0 0 0 0 0

2 1.933 0.083 0.40 0.02 0 P63 0.00 0.00 63 0 0 0 0 0

### V394

Viga= 394 V394 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.07 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.15 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 207 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 0.00 -SRAS- [ 0 B 6.3mm] | AsL= 0.00 ------ | As = 1.70 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.00 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 200.5 | M[-]Min = 273.6

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 190. 2.88 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 1.74 /B= 0.15 /H= 0.60 /BCs= 0.25 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.15 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 174 | M.[-] = 5.6 tf\* m

[tf,cm]| As = 1.58 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 3.46 -SRAS- [ 2 B 16.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.58 -STAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.15

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.8 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 240.8 | M[+]Min = 192.6 | M[-]Min = 240.8

[cm2 ]| Asapo[+]= 0.40 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 4.31 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 2.07 /B= 0.15 /H= 0.60 /BCs= 0.31 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.15 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 6.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 207 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 3.97 -SRAS- [ 2 B 16.0mm] | AsL= 0.00 ------ | As = 1.70 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.17 | As = 1.70 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 273.6 | M[+]Min = 200.5 | M[-]Min = 273.6

[cm2 ]| Asapo[+]= 0.42 | | Asapo[+]= 0.42

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 190. 5.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 -0.025 -0.423 0.15 0.00 2 V319 0.00 0.00 0 0 0 0 0 0

2 0.358 0.005 0.20 0.00 0 P63 0.00 0.00 63 0 0 0 0 0

3 6.504 6.212 0.20 0.00 0 P65 0.00 0.00 65 0 0 0 0 0

4 -1.878 -2.273 0.15 0.00 2 V321 0.00 0.00 0 0 0 0 0 0

### V395

Viga= 395 V395 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.06 /B= 0.15 /H= 0.60 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 1.4 tf\* m - Abcis.= 0 | M.[-] = 2.1 tf\* m

[tf,cm]| As = 1.35 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.35 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.35 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 169.7 | M[+]Min = 169.7 | M[-]Min = 169.7

[cm2 ]| Asapo[+]= 1.23 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 3.06 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.869 -1.185 0.40 0.02 0 P64 0.00 0.00 64 0 0 0 0 0

2 2.184 0.130 0.40 0.02 0 P65 0.00 0.00 65 0 0 0 0 0

### V396

Viga= 396 V396 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.89 /B= 0.15 /H= 0.60 /BCs= 0.74 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.15 /Esp.LI= 0.00 FSp.Ex= 0.30 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 5.4 tf\* m - Abcis.= 294 | M.[-] = 0.0 tf\* m

[tf,cm]| As = 1.57 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.57 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 3.15 -STAS- [ 4 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| Grampos Esq.= 1B 6.3mm x/dMx=0.45 | Arm.Lat.=[2 X 3 B 6.3mm] - LN= 1.5 | Grampos Dir.= 1B 6.3mm x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 236.6 | M[+]Min = 234.8 | M[-]Min = 236.6

[cm2 ]| Asapo[+]= 1.05 | | Asapo[+]= 1.05

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 191. 4.97 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

191.- 382. 2.08 36.28 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

382.- 574. 4.61 36.28 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 3.543 3.477 0.15 0.00 2 V321 0.00 0.00 0 0 0 0 0 0

2 3.294 3.225 0.15 0.00 2 V319 0.00 0.00 0 0 0 0 0 0

## RESPALDO

### V401

Viga= 401 V401 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 131 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.19 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.20 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 192 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.12 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.75 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 192 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.28 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.44 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.24 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 131 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 222 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.40 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 0.47 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.42 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 183 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.11 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 3.20 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 160 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 1.04 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.10 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 129 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 1.12 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 4.50 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 225 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 143. 1.43 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

143.- 287. 0.47 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

287.- 430. 1.43 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=10 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 157 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao=11 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 183 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.16 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.605 0.561 0.20 0.00 1 P2 0.00 0.00 2 0 0 0 0 0

2 1.590 1.489 0.20 0.00 1 P3 0.00 0.00 3 0 0 0 0 0

3 1.628 1.512 0.50 0.10 1 P1 0.00 0.00 1 0 0 0 0 0

4 1.526 1.437 0.20 0.00 1 P4 0.00 0.00 4 0 0 0 0 0

5 1.767 1.737 0.20 0.00 1 P5 0.00 0.00 5 0 0 0 0 0

6 1.788 1.770 0.20 0.00 1 P6 0.00 0.00 6 0 0 0 0 0

7 1.356 1.341 0.20 0.00 1 P7 0.00 0.00 7 0 0 0 0 0

8 1.342 1.316 0.20 0.00 1 P8 0.00 0.00 8 0 0 0 0 0

9 1.796 1.778 0.20 0.00 1 P9 0.00 0.00 9 0 0 0 0 0

10 1.780 1.772 0.20 0.00 1 P10 0.00 0.00 10 0 0 0 0 0

11 1.462 1.418 0.20 0.00 1 P11 0.00 0.00 11 0 0 0 0 0

12 0.651 0.581 0.20 0.00 1 P15 0.00 0.00 15 0 0 0 0 0

### V402

Viga= 402 V402 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.80 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 158 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 1.12 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

120.- 240. 0.62 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

240.- 360. 1.44 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.10 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 180 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 1.11 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 183 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.23 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.802 0.677 0.20 0.00 1 P16 0.00 0.00 16 0 0 0 0 0

2 1.711 1.674 0.20 0.00 1 P12 0.00 0.00 12 0 0 0 0 0

3 1.494 1.457 0.20 0.00 1 P13 0.00 0.00 13 0 0 0 0 0

4 0.661 0.531 0.20 0.00 1 P14 0.00 0.00 14 0 0 0 0 0

### V403

Viga= 403 V403 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.95 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 196 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.34

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 1.16 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.825 0.542 0.20 0.00 1 P47 0.00 0.00 47 0 0 0 0 0

2 0.779 0.496 0.40 0.05 1 P170 0.00 0.00 170 0 0 0 0 0

### V404

Viga= 404 V404 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.95 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 98 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.37 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 1.17 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.822 0.485 0.40 0.05 1 P171 0.00 0.00 171 0 0 0 0 0

2 0.837 0.500 0.20 0.00 1 P48 0.00 0.00 48 0 0 0 0 0

### V405

Viga= 405 V405 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.85 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.1 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 122 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 1.28 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.10 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 209 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 128. 1.38 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

128.- 257. 0.48 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

257.- 385. 1.35 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 157 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.02 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 4.45 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 185 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.15 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 0.73 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.68 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 6.35 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 317 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 2.04 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 1.01 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 1.97 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.10 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 310 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 290. 1.23 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 7 /L= 4.50 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 225 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 143. 1.40 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

143.- 287. 0.51 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

287.- 430. 1.48 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 8 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 157 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.10 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 9 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 183 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.16 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.537 0.378 0.20 0.00 1 P49 0.00 0.00 49 0 0 0 0 0

2 1.784 1.702 0.50 0.10 1 P50 0.00 0.00 50 0 0 0 0 0

3 1.661 1.590 0.20 0.00 1 P51 0.00 0.00 51 0 0 0 0 0

4 1.521 1.496 0.20 0.00 1 P52 0.00 0.00 52 0 0 0 0 0

5 2.636 2.625 0.20 0.00 1 P53 0.00 0.00 53 0 0 0 0 0

6 2.275 2.207 0.20 0.00 1 P54 0.00 0.00 54 0 0 0 0 0

7 1.563 1.493 0.20 0.00 1 P55 0.00 0.00 55 0 0 0 0 0

8 1.821 1.777 0.20 0.00 1 P56 0.00 0.00 56 0 0 0 0 0

9 1.460 1.404 0.20 0.00 1 P57 0.00 0.00 57 0 0 0 0 0

10 0.665 0.586 0.20 0.00 1 P60 0.00 0.00 60 0 0 0 0 0

### V406

Viga= 406 V406 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.85 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 197 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 120. 1.25 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

120.- 240. 0.66 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

240.- 360. 1.53 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.85 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 172 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 260. 1.45 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.891 0.645 0.20 0.00 1 P61 0.00 0.00 61 0 0 0 0 0

2 1.876 1.771 0.50 0.10 1 P58 0.00 0.00 58 0 0 0 0 0

3 0.566 0.255 0.20 0.00 1 P59 0.00 0.00 59 0 0 0 0 0

### V407

Viga= 407 V407 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.70 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 200 | M.[-] = 1.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 147. 1.58 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

147.- 293. 0.82 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

293.- 440. 1.86 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.96 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 252 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 157. 1.82 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

157.- 314. 0.72 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

314.- 471. 1.58 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.20 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 320 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 300. 1.40 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.29 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 1.3 tf\* m - Abcis.= 364 | M.[-] = 1.9 tf\* m

[tf,cm]| As = 1.24 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.36 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 177. 2.28 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

177.- 532. 1.17 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

532.- 709. 2.34 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 5.68 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 283 | M.[-] = 1.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.23 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 183. 1.76 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

183.- 365. 0.66 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

365.- 548. 1.87 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 7.05 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.1 tf\* m | M.[+] Max= 1.5 tf\* m - Abcis.= 411 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.52 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.08 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 171. 2.50 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

171.- 514. 1.36 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

514.- 685. 2.00 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.130 0.796 0.40 0.05 1 P71 0.00 0.00 71 0 0 0 0 0

2 2.429 2.235 0.50 0.10 1 P72 0.00 0.00 72 0 0 0 0 0

3 1.595 1.421 0.20 0.00 1 P73 0.00 0.00 73 0 0 0 0 0

4 2.619 2.519 0.20 0.00 1 P74 0.00 0.00 74 0 0 0 0 0

5 2.895 2.885 0.20 0.00 1 P75 0.00 0.00 75 0 0 0 0 0

6 3.073 3.059 0.20 0.00 1 P76 0.00 0.00 76 0 0 0 0 0

7 1.431 1.375 0.20 0.00 1 P77 0.00 0.00 77 0 0 0 0 0

### V408

Viga= 408 V408 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 6.67 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 1.0 tf\* m - Abcis.= 282 | M.[-] = 2.8 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 2.10 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.11

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 159. 1.89 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

159.- 478. 1.51 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

478.- 638. 2.64 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 8.07 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 3.1 tf\* m | M.[+] Max= 1.8 tf\* m - Abcis.= 476 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 2.34 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.12 | As = 1.29 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 3.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.32 | | Asapo[+]= 0.32

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 156. 2.97 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

156.- 625. 1.85 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

625.- 782. 2.27 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.348 1.131 0.40 0.05 1 P93 0.00 0.00 93 0 0 0 0 0

2 3.853 3.731 0.50 0.10 1 P94 0.00 0.00 94 0 0 0 0 0

3 1.620 1.525 0.20 0.00 1 P95 0.00 0.00 95 0 0 0 0 0

### V409

Viga= 409 V409 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.41 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 141 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.59

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 111. 1.50 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.072 -0.134 0.40 0.05 1 P116 0.00 0.00 116 0 0 0 0 0

2 0.765 -0.440 0.40 0.05 1 P168 0.00 0.00 168 0 0 0 0 0

### V410

Viga= 410 V410 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.45 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 0 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.50 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.32 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.465 -0.292 0.40 0.05 1 P169 0.00 0.00 169 0 0 0 0 0

2 0.941 0.185 0.40 0.05 1 P133 0.00 0.00 133 0 0 0 0 0

### V411

Viga= 411 V411 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 5.05 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 214 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 1.58 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 0.76 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 1.88 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 4.29 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 187 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 1.53 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 266. 0.58 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

266.- 399. 1.53 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 5.05 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.3 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 300 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 158. 1.88 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

158.- 317. 0.77 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

317.- 475. 1.57 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.124 0.940 0.40 0.05 1 P150 0.00 0.00 150 0 0 0 0 0

2 2.215 2.170 0.50 0.10 1 P151 0.00 0.00 151 0 0 0 0 0

3 2.214 2.170 0.50 0.10 1 P152 0.00 0.00 152 0 0 0 0 0

4 1.124 0.938 0.40 0.05 1 P153 0.00 0.00 153 0 0 0 0 0

### V412

Viga= 412 V412 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.85 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 133 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 1.20 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 0.69 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 1.55 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 7.78 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.3 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 404 | M.[-] = 2.4 tf\* m

[tf,cm]| As = 1.69 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.75 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 187. 2.50 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

187.- 561. 1.23 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

561.- 748. 2.53 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.54 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 242 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 141. 1.55 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

141.- 283. 0.55 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 424. 1.54 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 7.75 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 2.4 tf\* m | M.[+] Max= 1.2 tf\* m - Abcis.= 402 | M.[-] = 2.3 tf\* m

[tf,cm]| As = 1.74 -SRAS- [ 3 B 10.0mm] | AsL= 0.00 ------ | As = 1.67 -SRAS- [ 3 B 10.0mm]

| AsL= 0.00 ------ x/d =0.09 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.09

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 186. 2.52 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

186.- 558. 1.22 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

558.- 744. 2.49 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.85 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 266 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 1.56 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 237. 0.70 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

237.- 355. 1.19 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.855 0.634 0.60 0.15 1 P162 0.00 0.00 162 0 0 0 0 0

2 2.797 2.629 0.60 0.15 1 P163 0.00 0.00 163 0 0 0 0 0

3 2.818 2.729 0.60 0.15 1 P164 0.00 0.00 164 0 0 0 0 0

4 2.806 2.717 0.60 0.15 1 P165 0.00 0.00 165 0 0 0 0 0

5 2.793 2.625 0.60 0.15 1 P166 0.00 0.00 166 0 0 0 0 0

6 0.849 0.628 0.60 0.15 1 P167 0.00 0.00 167 0 0 0 0 0

### V413

Viga= 413 V413 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.55 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 191 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.44 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 0.74 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.75 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 5.55 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.5 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 326 | M.[-] = 1.1 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 175. 2.00 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

175.- 350. 0.78 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

350.- 525. 1.76 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.030 0.805 0.40 0.05 1 P47 0.00 0.00 47 0 0 0 0 0

2 2.477 2.403 0.40 0.05 1 P32 0.00 0.00 32 0 0 0 0 0

3 1.256 1.079 0.40 0.05 1 P2 0.00 0.00 2 0 0 0 0 0

### V414

Viga= 414 V414 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 0.82 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 0 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.71 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 60. 1.93 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.378 -0.514 0.40 0.05 1 P49 0.00 0.00 49 0 0 0 0 0

2 0.884 -1.009 0.15 0.00 1 P170 0.00 0.00 170 0 0 0 0 0

### V415

Viga= 415 V415 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.12 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 130 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 293. 1.22 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 3.12 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 130 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 292. 1.12 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.35 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 217 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 138. 1.41 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

138.- 277. 0.48 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

277.- 415. 1.41 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 182 | M.[-] = 0.8 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.15 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.48 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.26 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.45 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.9 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 259 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.66 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 0.70 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.28 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.673 0.528 0.20 0.00 1 P116 0.00 0.00 116 0 0 0 0 0

2 1.482 1.412 0.20 0.00 1 P110 0.00 0.00 110 0 0 0 0 0

3 1.754 1.698 0.20 0.00 1 P101 0.00 0.00 101 0 0 0 0 0

4 1.766 1.738 0.20 0.00 1 P91 0.00 0.00 91 0 0 0 0 0

5 2.005 1.974 0.20 0.00 1 P82 0.00 0.00 82 0 0 0 0 0

6 0.914 0.811 0.20 0.00 1 P71 0.00 0.00 71 0 0 0 0 0

### V416

Viga= 416 V416 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 136 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 1.01 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.57 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.28 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.0 tf\* m - Abcis.= 265 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 0.96 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 182 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.23 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.44 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.20 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.15 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 131 | M.[-] = 1.0 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 295. 1.33 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.17 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.1 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 243 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 133. 1.71 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

133.- 267. 0.82 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

267.- 400. 1.14 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.724 0.556 0.20 0.00 1 P162 0.00 0.00 162 0 0 0 0 0

2 1.428 1.377 0.20 0.00 1 P158 0.00 0.00 158 0 0 0 0 0

3 1.473 1.405 0.20 0.00 1 P154 0.00 0.00 154 0 0 0 0 0

4 1.464 1.271 0.20 0.00 1 P142 0.00 0.00 142 0 0 0 0 0

5 2.151 1.831 0.20 0.00 1 P130 0.00 0.00 130 0 0 0 0 0

6 0.815 0.646 0.15 0.00 1 P168 0.00 0.00 168 0 0 0 0 0

### V417

Viga= 417 V417 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.79 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 194 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.38 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 118. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

118.- 236. 0.72 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

236.- 355. 1.58 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.90 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 125 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 266. 1.13 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.27 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 163 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 1.05 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 0.39 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 2.88 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 144 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 268. 0.95 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.70 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 154 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.51 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.31 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.90 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 227 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 1.48 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 0.64 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 1.05 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.779 0.589 0.20 0.00 1 P93 0.00 0.00 93 0 0 0 0 0

2 1.762 1.654 0.50 0.10 1 P103 0.00 0.00 103 0 0 0 0 0

3 1.401 1.252 0.20 0.00 1 P112 0.00 0.00 112 0 0 0 0 0

4 1.431 1.344 0.20 0.00 1 P118 0.00 0.00 118 0 0 0 0 0

5 1.427 1.378 0.20 0.00 1 P126 0.00 0.00 126 0 0 0 0 0

6 1.935 1.930 0.20 0.00 1 P138 0.00 0.00 138 0 0 0 0 0

7 0.751 0.690 0.20 0.00 1 P150 0.00 0.00 150 0 0 0 0 0

### V418

Viga= 418 V418 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.54 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.6 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 121 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.32 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 108. 1.24 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

108.- 216. 0.77 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

216.- 325. 1.57 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.96 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.7 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 127 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 1.16 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.27 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 163 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 102. 1.05 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

102.- 205. 0.38 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 307. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 2.88 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 144 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 268. 0.95 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 3.70 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 154 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 117. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

117.- 233. 0.52 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

233.- 350. 1.32 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 6 /L= 3.90 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 227 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 1.49 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 0.65 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 1.05 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.885 0.484 0.40 0.05 1 P95 0.00 0.00 95 0 0 0 0 0

2 1.697 1.497 0.50 0.10 1 P104 0.00 0.00 104 0 0 0 0 0

3 1.448 1.253 0.20 0.00 1 P115 0.00 0.00 115 0 0 0 0 0

4 1.440 1.339 0.20 0.00 1 P119 0.00 0.00 119 0 0 0 0 0

5 1.421 1.366 0.20 0.00 1 P129 0.00 0.00 129 0 0 0 0 0

6 1.945 1.934 0.20 0.00 1 P141 0.00 0.00 141 0 0 0 0 0

7 0.753 0.682 0.20 0.00 1 P153 0.00 0.00 153 0 0 0 0 0

### V419

Viga= 419 V419 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.27 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 136 | M.[-] = 0.5 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 103. 0.99 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

103.- 205. 0.55 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

205.- 308. 1.26 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 154 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 245. 0.98 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 182 | M.[-] = 1.2 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.09 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.76 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.55 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.17 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 211 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.05 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.38

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 100. 1.67 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

100.- 200. 0.98 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

200.- 300. 0.75 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.708 0.569 0.20 0.00 1 P167 0.00 0.00 167 0 0 0 0 0

2 1.503 1.428 0.20 0.00 1 P161 0.00 0.00 161 0 0 0 0 0

3 1.345 1.065 0.20 0.00 1 P157 0.00 0.00 157 0 0 0 0 0

4 2.301 1.745 0.20 0.00 1 P145 0.00 0.00 145 0 0 0 0 0

5 0.536 0.226 0.15 0.00 1 P169 0.00 0.00 169 0 0 0 0 0

### V420

Viga= 420 V420 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 4.55 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 157 | M.[-] = 1.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.17 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 142. 1.21 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

142.- 283. 0.97 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

283.- 425. 1.98 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 6.40 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.7 tf\* m | M.[+] Max= 0.9 tf\* m - Abcis.= 328 | M.[-] = 1.3 tf\* m

[tf,cm]| As = 1.24 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.07 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.05

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 2.16 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

154.- 461. 1.07 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

461.- 615. 1.99 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 3.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.1 tf\* m - Abcis.= 212 | M.[-] = 0.4 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 1.41 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.62 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 0.93 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 4 /L= 3.65 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 152 | M.[-] = 0.9 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 115. 0.96 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

115.- 230. 0.62 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

230.- 345. 1.41 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 5 /L= 4.10 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 239 | M.[-] = 0.3 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 130. 1.49 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

130.- 260. 0.61 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

260.- 390. 1.17 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.866 0.644 0.40 0.05 1 P77 0.00 0.00 77 0 0 0 0 0

2 2.838 2.692 0.65 0.17 1 P87 0.00 0.00 87 0 0 0 0 0

3 2.407 2.339 0.20 0.00 1 P97 0.00 0.00 97 0 0 0 0 0

4 1.336 1.280 0.20 0.00 1 P107 0.00 0.00 107 0 0 0 0 0

5 2.030 1.985 0.20 0.00 1 P121 0.00 0.00 121 0 0 0 0 0

6 0.835 0.774 0.20 0.00 1 P133 0.00 0.00 133 0 0 0 0 0

### V421

Viga= 421 V421 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 0.82 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 1.0 tf\* m | M.[+] Max= 0.6 tf\* m - Abcis.= 0 | M.[-] = 0.1 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.87 | | Asapo[+]= 0.40

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 60. 2.31 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.645 -0.675 0.40 0.05 1 P59 0.00 0.00 59 0 0 0 0 0

2 1.044 -1.276 0.15 0.00 1 P171 0.00 0.00 171 0 0 0 0 0

### V422

Viga= 422 V422 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 3.00 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.4 tf\* m | M.[+] Max= 0.3 tf\* m - Abcis.= 103 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 270. 1.24 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 2 /L= 2.80 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.5 tf\* m | M.[+] Max= 0.2 tf\* m - Abcis.= 100 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 250. 1.19 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 3 /L= 4.00 /B= 0.15 /H= 0.50 /BCs= 0.00 /BCi= 0.00 /TpS= 1 /Esp.LS= 0.00 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.8 tf\* m | M.[+] Max= 0.4 tf\* m - Abcis.= 239 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.12 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.12 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.04 | As = 1.12 -SRAS- [ 2 B 10.0mm ] | AsL= 0.00 ------ x/d =0.04

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 2.6 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 117.9 | M[+]Min = 117.9 | M[-]Min = 117.9

[cm2 ]| Asapo[+]= 0.28 | | Asapo[+]= 0.28

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 123. 1.47 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

123.- 247. 0.58 29.78 1 45. 0.0 1.5 1.5 5.0 0.0 25.0 2 0.0 0.0

247.- 370. 1.32 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 0.750 0.471 0.40 0.05 1 P48 0.00 0.00 48 0 0 0 0 0

2 1.356 1.283 0.50 0.10 1 P44 0.00 0.00 44 0 0 0 0 0

3 1.690 1.526 0.50 0.10 1 P29 0.00 0.00 29 0 0 0 0 0

4 0.946 0.758 0.40 0.05 1 P14 0.00 0.00 14 0 0 0 0 0

### V423

Viga= 423 V423 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.74 /B= 0.15 /H= 0.50 /BCs= 0.32 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 101 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.30 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.30 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.65 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 149.9 | M[+]Min = 140.3 | M[-]Min = 149.9

[cm2 ]| Asapo[+]= 0.55 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 1.70 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.215 0.842 0.20 0.00 1 P64 0.00 0.00 64 0 0 0 0 0

2 1.059 0.732 0.20 0.00 1 P62 0.00 0.00 62 0 0 0 0 0

### V424

Viga= 424 V424 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.00 /B= 0.15 /H= 0.50 /BCs= 0.35 /BCi= 0.00 /TpS= 5 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 66 | M.[-] = 0.6 tf\* m

[tf,cm]| As = 1.33 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.73 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 154.4 | M[+]Min = 142.5 | M[-]Min = 171.3

[cm2 ]| Asapo[+]= 0.59 | | Asapo[+]= 0.43

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 2.71 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.444 0.787 0.40 0.05 1 P62 0.00 0.00 62 0 0 0 0 0

2 1.937 1.197 0.40 0.05 1 P63 0.00 0.00 63 0 0 0 0 0

### V425

Viga= 425 V425 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 1.74 /B= 0.15 /H= 0.50 /BCs= 0.32 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.2 tf\* m | M.[+] Max= 0.5 tf\* m - Abcis.= 101 | M.[-] = 0.2 tf\* m

[tf,cm]| As = 1.30 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.30 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.65 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.06

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 1.2 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 149.9 | M[+]Min = 140.3 | M[-]Min = 149.9

[cm2 ]| Asapo[+]= 0.55 | | Asapo[+]= 0.55

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 154. 1.58 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.126 0.657 0.20 0.00 1 P65 0.00 0.00 65 0 0 0 0 0

2 1.014 0.650 0.20 0.00 1 P63 0.00 0.00 63 0 0 0 0 0

### V426

Viga= 426 V426 Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0 0.0 CM

------------------------------- G E O M E T R I A E C A R G A S -------------------------------

Vao= 1 /L= 2.00 /B= 0.15 /H= 0.50 /BCs= 0.35 /BCi= 0.00 /TpS= 8 /Esp.LS= 0.20 /Esp.LI= 0.00 FSp.Ex= 0.25 /FLt.Ex= 0.07 [M]

--Solicitações provenientes de modelo de grelha e/ou pórtico espacial--- Estrut. Nós FIXOS --- DeltaE=1.00 DeltaD=1.00 ---

- - - - - - A R M A D U R A S ( F L E X A O E C I S A L H A M E N T O ) - - - - -

FLEXAO-| E S Q U E R D A | M E I O D O V A O | D I R E I T A

| M.[-] = 0.3 tf\* m | M.[+] Max= 0.7 tf\* m - Abcis.= 66 | M.[-] = 0.7 tf\* m

[tf,cm]| As = 1.33 -SRAS- [ 2 B 10.0mm] | AsL= 0.00 ------ | As = 1.43 -SRAS- [ 2 B 10.0mm]

| AsL= 0.00 ------ x/d =0.06 | As = 1.73 -STAS- [ 3 B 10.0mm ] | AsL= 0.00 ------ x/d =0.07

| x/dMx=0.45 | Arm.Lat.=[2 X -- B --- mm] - LN= 1.1 | x/dMx=0.45

| | |

[tf,cm]| M[-]Min = 154.4 | M[+]Min = 142.5 | M[-]Min = 171.3

[cm2 ]| Asapo[+]= 0.64 | | Asapo[+]= 0.49

CISALHAMENTO- Xi Xf Vsd VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T] Bit Bint Esp NR AsTrt AsSus M E N S A G E M

[tf,cm] 0.- 170. 2.73 29.78 1 45. 0.0 1.5 1.5 4.2 0.0 17.5 2 0.0 0.0

REAC. APOIO - No. Maximos Minimos Largura DEPEV Morte Nome M.I.Mx M.I.Mn Pilares:

1 1.359 0.582 0.40 0.05 1 P64 0.00 0.00 64 0 0 0 0 0

2 1.952 1.047 0.40 0.05 1 P65 0.00 0.00 65 0 0 0 0 0

# MEMORIAL DE CÁLCULO DOS PILARES

A seguir são apresentados os dados e resultados do cálculo/dimensionamento dos pilares:

## Montagem de carregamentos de pilares

### Legenda

\*\*Nota A\*\*

Os valores apresentados equivalem a carregamentos de esforços finais de cálculo para o dimensionamento após a envoltória.

\*\*Legenda\*\*

FDzT = FORCA NORMAL DE CALCULO PARA DIMENSIONAMENTO DE ARMADURAS NA SECAO

MdxT = MOMENTO DE CALCULO P/DIMENSIONAMENTO DE ARMADURAS NA SECAO, MOMENTO x

MdyT = MOMENTO DE CALCULO P/DIMENSIONAMENTO DE ARMADURAS NA SECAO, MOMENTO y

CARR = NÚMERO DO CARREGAMENTO NA ENVOLTÓRIA

COMB = NÚMERO DA COMBINAÇÃO DE ORIGEM DO CARREGAMENTO

### P1

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.3 41.3 41.3 41.3 40.3 41.3 41.3 39.6 39.4 40.5

MdxT 86.7 -86.7 0.0 0.0 22.0 64.3 -61.3 -32.5 25.5 12.2

MdyT 0.0 0.0 123.8 -123.8 52.9 7.4 87.6 11.3 82.0 -34.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 2 ) ( 0 ) ( 3 ) ( 9 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 41.0 38.2 38.2 39.8 39.8 39.4 41.2 39.4 41.3 41.3

MdxT 99.7 -65.1 22.4 9.1 6.3 2.4 66.5 25.6 61.3 -61.3

MdyT 6.0 12.6 2.1 -63.4 8.7 -3.8 7.3 81.9 87.6 -87.6

COMB ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 8 ) ( 18 ) ( 11 ) ( 18 ) ( 0 ) ( 0 )

CARR 21

FdzT 41.3

MdxT 61.3

MdyT -87.6

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.2 28.2 28.2 28.2 27.7 27.7 28.2 28.2 28.2 27.3

MdxT 98.7 -98.7 0.0 0.0 79.1 -82.3 109.8 69.8 -107.0 40.2

MdyT 0.0 0.0 84.5 -84.5 154.8 -181.9 24.2 -59.8 -50.3 47.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 2 ) ( 0 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.3 27.8 27.8 27.7 27.7 27.7 26.2 26.2 26.2 27.1

MdxT -88.7 72.4 -77.8 -32.9 130.8 -125.7 12.2 -61.0 -32.1 65.9

MdyT -77.7 -83.7 55.2 -72.7 14.1 -41.2 53.6 -35.1 -87.8 -164.9

COMB ( 3 ) ( 4 ) ( 13 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.0 26.8 26.8 28.1 28.1 28.1 27.8 27.0 28.2 28.2

MdxT -75.2 77.0 -82.6 110.2 44.1 -108.1 71.4 65.0 69.8 -69.8

MdyT 133.1 232.7 -261.4 22.4 -49.1 -49.1 -85.1 -166.3 59.8 59.8

COMB ( 17 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 13 ) ( 17 ) ( 0 ) ( 0 )

CARR 31

FdzT 28.2

MdxT -69.8

MdyT -59.8

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.3 16.3 16.3 16.3 16.0 16.0 16.2 16.3 15.8 16.1

MdxT 57.0 -57.0 0.0 0.0 106.4 -88.6 119.8 -93.0 103.3 -85.4

MdyT 0.0 0.0 48.9 -48.9 83.7 -33.0 11.9 -10.4 126.4 -33.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 14 ) ( 11 ) ( 2 ) ( 18 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.1 16.1 16.1 15.5 15.6 16.0 15.9 15.8 16.0 16.0

MdxT 96.3 -89.9 125.9 76.7 -68.2 91.8 -84.7 -79.4 105.1 -89.3

MdyT -45.2 6.4 6.6 34.2 -17.9 -87.4 21.0 -45.2 20.2 -13.3

COMB ( 4 ) ( 13 ) ( 15 ) ( 16 ) ( 7 ) ( 8 ) ( 17 ) ( 9 ) ( 10 ) ( 10 )

CARR 21 22 23 24 25 26 27 28

FdzT 16.2 15.8 16.1 15.5 15.9 16.3 16.3 16.3

MdxT -96.6 -82.6 103.9 -71.5 99.3 40.3 -40.3 -40.3

MdyT -9.8 -44.8 -43.4 -17.5 -85.7 34.6 34.6 -34.6

COMB ( 11 ) ( 18 ) ( 13 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 34.1 -34.1 0.0 0.0 -5.6 -58.2 -39.8 -5.6 -78.3 -50.4

MdyT 0.0 0.0 9.7 -9.7 9.7 -39.0 -58.2 9.5 -30.9 -57.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 8 ) ( 15 ) ( 15 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.1 3.2 3.2 3.2 3.1 3.1 3.2 3.2 3.2 3.2

MdxT -5.5 -47.3 -28.1 -5.7 -5.5 -7.0 -30.2 -54.8 -27.2 -67.8

MdyT 51.1 -39.3 -60.2 9.0 10.9 -50.3 -44.5 -25.3 -63.1 -31.1

COMB ( 18 ) ( 17 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 15 )

CARR 21 22 23 24 25 26 27 28

FdzT 3.1 3.1 3.1 3.1 3.1 3.2 3.2 3.2

MdxT -31.3 -16.7 -5.3 3.5 -43.9 24.1 -24.1 24.1

MdyT -27.6 -64.0 11.5 -51.1 -25.6 6.9 6.9 -6.9

COMB ( 12 ) ( 18 ) ( 16 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P10

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 40.5 43.1 43.1 43.1 43.1 41.5 43.1 43.1 39.9 39.9

MdxT -50.4 90.5 -90.5 0.0 0.0 41.7 9.4 64.0 5.9 2.5

MdyT 0.0 0.0 0.0 116.3 -116.3 17.1 120.0 -82.2 -55.2 8.5

COMB ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 15 ) ( 0 ) ( 3 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 41.4 43.1 43.1 38.0 38.0 40.6 40.5 39.9 41.4 38.0

MdxT -27.4 64.0 1.5 5.0 2.8 64.8 -50.3 6.0 -27.3 5.2

MdyT 4.2 82.2 -8.7 -99.0 13.0 21.1 3.1 -54.9 4.5 -98.7

COMB ( 5 ) ( 0 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 18 ) ( 12 ) ( 14 ) ( 16 )

CARR 21 22

FdzT 43.1 43.1

MdxT -64.0 -64.0

MdyT 82.2 -82.2

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.3 29.3 29.3 29.3 28.5 28.5 28.5 29.3 29.3 29.3

MdxT 102.7 -102.7 0.0 0.0 46.8 -94.9 -56.0 29.1 -76.7 -41.9

MdyT 0.0 0.0 79.2 -79.2 98.1 39.3 -85.1 171.4 68.5 -151.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 13 ) ( 13 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.7 27.7 27.7 29.0 29.0 29.0 26.2 26.2 26.2 27.5

MdxT 57.7 -75.0 -65.1 28.3 -75.9 -41.4 27.3 -72.7 -40.5 -57.8

MdyT 97.7 8.4 -90.0 219.8 87.9 -200.2 -52.4 -52.4 46.5 70.4

COMB ( 17 ) ( 12 ) ( 17 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 18 )

CARR 21 22 23 24 25 26 27 28

FdzT 27.5 26.2 26.2 26.2 27.5 29.3 29.3 29.3

MdxT -2.1 27.6 -73.1 -40.7 -1.8 72.7 -72.7 72.7

MdyT 69.9 -51.8 -51.8 46.1 70.4 56.0 -56.0 -56.0

COMB ( 9 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.8 16.8 16.8 16.8 16.5 16.5 16.5 16.8 16.8 16.8

MdxT 58.9 -58.9 0.0 0.0 39.2 49.3 -29.4 29.4 51.2 -23.7

MdyT 0.0 0.0 45.4 -45.4 171.1 66.7 -153.2 205.4 82.2 -178.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 10 ) ( 13 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.3 16.2 16.3 16.8 16.8 16.8 15.8 15.8 15.8 16.3

MdxT 45.8 47.6 -32.6 29.3 51.0 -23.0 25.2 44.9 -19.9 -34.1

MdyT 167.3 51.2 -144.2 224.4 89.8 -186.1 95.3 -38.5 -96.2 60.5

COMB ( 17 ) ( 12 ) ( 17 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 9 )

CARR 21 22 23 24

FdzT 16.3 16.8 16.8 16.8

MdxT -34.1 -41.7 -41.7 41.7

MdyT 61.0 32.1 -32.1 -32.1

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3

MdxT 10.4 -10.4 0.0 0.0 20.4 -19.7 -23.7 -19.3 -19.6 13.4

MdyT 0.0 0.0 16.0 -16.0 -31.1 -49.1 -14.6 -73.6 46.5 -31.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 11 ) ( 17 ) ( 15 ) ( 7 ) ( 11 )

CARR 11 12 13

FdzT 3.3 3.3 3.3

MdxT -7.7 -20.2 7.3

MdyT -83.8 46.3 11.3

COMB ( 15 ) ( 16 ) ( 0 )

### P100

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.5 15.5 15.5 15.5 15.3 15.2 15.2 15.3 15.5 15.0

MdxT -32.6 32.6 0.0 0.0 -18.6 9.7 -14.1 -48.3 -15.3 -22.1

MdyT 0.0 0.0 41.9 -41.9 -18.9 -19.7 -19.7 -17.9 -82.0 44.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 4 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.1 15.0 15.0 15.5 15.5 14.6 14.6 15.3 15.3 15.5

MdxT -68.5 30.4 -18.2 -13.3 -23.1 -24.8 -7.6 10.9 -14.3 23.1

MdyT -17.4 -20.3 -4.3 -124.2 29.6 86.7 -10.8 -19.6 -19.6 29.6

COMB ( 7 ) ( 6 ) ( 6 ) ( 8 ) ( 0 ) ( 18 ) ( 9 ) ( 11 ) ( 11 ) ( 0 )

CARR 21 22

FdzT 15.5 15.5

MdxT -23.1 23.1

MdyT -29.6 -29.6

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 7.4 7.4 7.4 7.4 7.3 7.3 7.3 7.4 7.4 7.3

MdxT 25.9 -25.9 0.0 0.0 -83.7 49.8 125.0 -82.7 49.7 121.5

MdyT 0.0 0.0 19.9 -19.9 -207.1 -82.8 151.1 -220.2 -88.1 150.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 14 ) ( 13 ) ( 13 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 7.4 7.4 7.4 7.1 7.1 7.1 7.2 7.2 7.2 7.2

MdxT -92.5 51.1 127.8 -67.2 47.4 124.2 -96.5 51.6 128.9 -80.4

MdyT -204.8 -81.9 136.1 -203.3 -81.3 154.8 -195.6 -78.2 129.8 -221.3

COMB ( 12 ) ( 12 ) ( 12 ) ( 15 ) ( 15 ) ( 18 ) ( 16 ) ( 16 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25

FdzT 7.2 7.1 7.1 7.3 7.4

MdxT 49.3 -83.3 49.7 124.6 -18.3

MdyT -88.5 -177.5 -71.0 143.4 14.1

COMB ( 17 ) ( 18 ) ( 18 ) ( 10 ) ( 0 )

### P101

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 38.9 38.9 38.9 38.9 37.1 37.5 37.5 35.7 36.0 38.9

MdxT 81.7 -81.7 0.0 0.0 -40.7 35.1 -10.5 -4.2 -66.2 -1.8

MdyT 0.0 0.0 105.0 -105.0 10.1 10.1 1.8 -58.8 10.4 78.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 11 ) ( 2 ) ( 4 ) ( 16 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.9 36.6 36.6 36.0 33.7 33.7 38.9 38.9 37.3 38.9

MdxT -57.8 60.3 -17.4 14.6 -5.2 -0.6 -0.6 -57.8 -2.8 -1.4

MdyT -74.3 10.4 2.1 2.1 -104.2 14.3 124.7 74.3 10.1 78.7

COMB ( 0 ) ( 15 ) ( 15 ) ( 7 ) ( 8 ) ( 17 ) ( 18 ) ( 0 ) ( 10 ) ( 14 )

CARR 21 22 23

FdzT 33.7 38.9 38.9

MdxT -5.3 57.8 57.8

MdyT -104.0 74.3 -74.3

COMB ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.8 28.8 28.8 28.8 27.7 27.8 27.7 27.9 27.9 27.9

MdxT 100.7 -100.7 0.0 0.0 -53.9 58.4 58.4 26.5 -58.6 -25.8

MdyT 0.0 0.0 77.7 -77.7 268.5 106.8 -160.7 268.1 106.7 -158.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 1 ) ( 3 ) ( 11 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 26.6 26.8 26.6 28.8 28.8 28.8 26.9 26.9 26.9 26.6

MdxT -80.1 56.3 86.9 -11.2 60.4 13.6 54.0 -94.0 -56.3 34.8

MdyT 249.5 83.3 -158.8 340.6 135.8 -235.2 247.7 99.1 -155.0 99.8

COMB ( 16 ) ( 4 ) ( 7 ) ( 14 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.1 25.1 25.1 28.4 28.4 28.4 27.8 27.8 27.9 27.9

MdxT -17.2 52.8 18.2 -9.0 59.6 12.3 -13.7 58.3 -58.6 -27.4

MdyT 128.7 64.2 -30.8 369.6 147.4 -282.9 268.2 107.3 107.2 -158.2

COMB ( 17 ) ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 27.7 26.8 28.8 28.8 26.9 26.9 25.1 25.1 28.4 28.4

MdxT 58.5 56.3 60.4 13.7 53.8 -94.0 52.7 18.3 59.6 12.5

MdyT -160.4 84.2 136.2 -234.9 248.6 99.5 65.0 -30.5 147.8 -282.7

COMB ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 28.8 28.8 28.8 28.8

MdxT 71.2 -71.2 -71.2 71.2

MdyT 54.9 54.9 -54.9 -54.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.5 15.5 15.5 15.5 15.0 15.1 15.0 15.1 15.1 15.1

MdxT 54.4 -54.4 0.0 0.0 -46.2 -31.7 36.4 20.6 38.1 -11.2

MdyT 0.0 0.0 41.9 -41.9 390.9 155.5 -368.8 386.4 154.6 -365.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 1 ) ( 3 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.7 14.7 14.7 15.5 15.5 15.5 14.9 14.9 14.1 14.1

MdxT -68.5 -30.8 51.9 -13.2 32.6 14.7 45.4 -29.3 -9.9 -29.6

MdyT 375.6 126.2 -344.4 493.6 197.5 -447.2 368.1 -338.4 250.0 100.0

COMB ( 7 ) ( 4 ) ( 7 ) ( 9 ) ( 9 ) ( 9 ) ( 6 ) ( 6 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.1 15.1 15.1 15.1 14.9 14.9 15.5 15.5 15.5 15.5

MdxT 7.8 22.4 40.7 -12.6 45.6 -29.7 38.5 -38.5 -38.5 38.5

MdyT -235.6 382.5 153.0 -363.7 364.3 -337.0 29.7 29.7 -29.7 -29.7

COMB ( 8 ) ( 11 ) ( 11 ) ( 11 ) ( 15 ) ( 15 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 10.3 -10.3 0.0 0.0 -11.9 17.9 22.0 -22.8 -12.4 25.9

MdyT 0.0 0.0 15.8 -15.8 -30.8 -84.3 -35.1 -30.1 -45.5 -34.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 9 ) ( 12 ) ( 3 ) ( 16 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.1

MdxT 6.3 14.4 7.2 -31.2 -12.5 26.2 13.3 15.7 -9.1 5.2

MdyT -47.7 1.8 -93.6 -30.0 -41.4 -28.7 23.4 -36.3 -46.5 -40.9

COMB ( 10 ) ( 4 ) ( 9 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 10 ) ( 12 ) ( 17 )

CARR 21 22 23 24

FdzT 3.2 3.2 3.2 3.2

MdxT 7.1 17.8 7.3 -7.3

MdyT -98.8 -89.9 11.2 11.2

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P102

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 49.4 49.4 47.8 48.4 49.4 49.4 47.6 47.6 47.9 47.9

MdxT 103.7 -103.7 0.0 0.0 0.0 0.0 -37.7 -37.8 36.7 -10.2

MdyT 0.0 0.0 -2.8 10.2 133.3 -133.3 -2.9 -2.7 -2.7 -1.7

COMB ( 0 ) ( 0 ) ( 1 ) ( 17 ) ( 0 ) ( 0 ) ( 3 ) ( 12 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 49.4 49.4 46.2 46.2 46.1 46.1 45.6 45.6 48.4 43.2

MdxT -73.3 -73.3 2.8 -1.7 63.4 -16.8 -63.3 14.4 -3.9 4.1

MdyT -94.2 94.2 65.9 -9.1 -3.6 -2.0 -4.1 -2.0 -118.3 110.6

COMB ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28

FdzT 43.2 47.9 49.3 46.2 45.5 43.2 49.4 49.4

MdxT -2.1 38.4 -2.1 2.7 -63.4 3.9 73.3 73.3

MdyT -14.1 -2.4 -71.3 66.2 -3.8 110.9 94.2 -94.2

COMB ( 9 ) ( 11 ) ( 13 ) ( 14 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.4 39.4 39.4 39.4 38.3 38.3 38.3 38.4 38.5 38.4

MdxT 138.0 -138.0 0.0 0.0 -67.1 -116.8 61.0 10.5 -80.9 -18.8

MdyT 0.0 0.0 106.4 -106.4 -225.8 -90.3 177.1 -225.1 -90.0 177.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 12 ) ( 12 ) ( 11 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 39.3 39.4 39.3 37.4 37.5 37.4 36.6 36.3 36.6 36.3

MdxT -31.8 -82.7 24.2 -24.8 -78.7 18.1 38.5 -91.0 -46.2 86.9

MdyT -295.7 -118.3 252.1 -155.1 -62.0 101.9 -209.0 -210.3 172.3 173.2

COMB ( 13 ) ( 4 ) ( 13 ) ( 14 ) ( 5 ) ( 14 ) ( 6 ) ( 16 ) ( 6 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 38.0 38.1 38.0 34.9 34.8 36.5 36.5 38.0 34.8 39.4

MdxT -32.2 -80.0 25.6 -73.3 15.4 38.2 -46.1 -79.8 -73.1 97.6

MdyT -326.9 -130.7 298.3 -92.5 47.7 -209.2 172.9 -130.8 -92.5 75.2

COMB ( 17 ) ( 8 ) ( 17 ) ( 9 ) ( 18 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 0 )

CARR 31 32 33

FdzT 39.4 39.4 39.4

MdxT -97.6 -97.6 97.6

MdyT 75.2 -75.2 -75.2

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.8 16.8 16.8 16.8 16.4 16.4 16.4 16.6 16.6 16.4

MdxT 59.0 -59.0 0.0 0.0 -34.4 34.5 35.3 -33.6 32.1 -61.2

MdyT 0.0 0.0 45.5 -45.5 -303.0 -121.5 300.2 -438.3 396.2 -302.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 10 ) ( 17 ) ( 17 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.4 16.8 16.8 16.8 15.9 15.9 16.0 16.0 15.9 16.6

MdxT 58.4 -34.7 -58.1 34.7 -77.4 71.4 11.3 33.6 -5.5 -33.6

MdyT 298.6 -391.9 -156.7 370.0 -289.0 277.5 -291.9 -116.8 281.5 -438.5

COMB ( 3 ) ( 4 ) ( 4 ) ( 13 ) ( 7 ) ( 7 ) ( 6 ) ( 6 ) ( 15 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.6 16.6 15.3 15.3 16.4 16.4 16.8 16.8 15.9 15.2

MdxT -56.5 32.1 -32.5 34.0 12.2 58.2 -34.9 -58.3 71.3 33.9

MdyT -175.4 395.8 -142.2 162.8 301.1 299.0 -391.4 -156.6 278.0 163.4

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 16 ) ( 18 )

CARR 31 32 33

FdzT 16.8 16.8 16.8

MdxT 41.7 -41.7 41.7

MdyT 32.1 32.1 -32.1

COMB ( 0 ) ( 0 ) ( 0 )

### P103

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.0 25.2 27.3 27.3 26.5 27.3 26.0 26.8 24.8 27.3

MdxT -14.1 -26.5 163.8 -163.8 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 -3.4 -81.9 3.9 -9.8 7.3 81.9

COMB ( 14 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 12 ) ( 6 ) ( 16 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 26.5 27.3 25.9 26.2 26.2 27.0 26.8 26.8 24.7 24.7

MdxT 55.7 115.8 -69.2 14.7 -98.6 99.8 3.8 76.2 -3.2 -69.4

MdyT -3.4 57.9 -61.7 -6.6 -6.6 -1.7 94.1 52.5 -100.8 -57.6

COMB ( 1 ) ( 0 ) ( 3 ) ( 4 ) ( 4 ) ( 14 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.2 25.2 26.4 26.4 26.6 27.3 26.0 26.3 27.0 27.0

MdxT 24.2 -112.9 -23.8 115.9 56.0 2.4 -69.8 -98.9 3.6 76.1

MdyT -8.7 -8.7 2.4 2.4 -3.2 55.3 -61.6 -6.4 94.2 52.6

COMB ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35 36

FdzT 24.8 24.8 25.3 27.3 27.3 27.3

MdxT -3.4 -70.0 -113.2 -115.8 -115.8 115.8

MdyT -100.7 -57.5 -8.5 57.9 -57.9 -57.9

COMB ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.7 21.7 21.7 21.7 21.0 21.3 21.3 21.7 21.7 21.7

MdxT 129.9 -129.9 0.0 0.0 94.6 100.6 -11.8 24.9 100.5 -10.2

MdyT 0.0 0.0 65.0 -65.0 -108.1 16.4 16.4 128.5 -62.0 -155.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 6 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.9 20.9 20.9 20.9 21.0 21.4 21.4 21.0 21.0 19.8

MdxT 26.6 100.8 -13.2 48.2 106.1 -101.1 -25.8 22.3 -9.2 25.2

MdyT -137.8 75.2 187.9 -25.9 38.5 22.1 -8.3 219.9 -270.3 -226.4

COMB ( 12 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.8 19.8 20.0 20.0 20.8 20.8 21.1 21.5 21.7 21.1

MdxT 95.6 -14.3 61.5 119.5 -113.3 -35.3 95.3 -101.6 -91.9 22.5

MdyT 121.4 303.4 -44.4 54.5 38.1 -21.7 -107.2 19.5 -45.9 217.3

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 15 ) ( 14 ) ( 0 ) ( 15 )

CARR 31 32 33 34 35

FdzT 21.1 20.9 20.9 21.7 21.7

MdxT -9.4 -113.8 -35.4 91.9 -91.9

MdyT -268.1 35.6 -19.5 45.9 45.9

COMB ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.7 11.7 11.7 11.7 11.4 11.5 11.5 11.6 11.7 11.7

MdxT 41.1 -41.1 0.0 0.0 66.2 54.2 -60.3 59.6 -79.1 -61.6

MdyT 0.0 0.0 35.1 -35.1 -239.0 257.5 77.1 124.5 73.8 -47.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 6 ) ( 10 ) ( 2 ) ( 14 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.3 11.4 11.6 11.5 11.5 11.0 11.1 11.5 11.5 11.5

MdxT 67.1 -59.2 86.2 -23.1 -57.8 66.6 -53.9 98.8 -86.9 62.4

MdyT -235.6 202.0 -40.9 103.0 -138.0 -355.7 280.1 -31.2 66.5 -55.0

COMB ( 3 ) ( 12 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 16 ) ( 9 ) ( 18 ) ( 10 )

CARR 21 22 23 24 25 26

FdzT 11.7 11.7 11.6 11.6 11.1 11.5

MdxT 58.7 85.5 -23.2 -58.0 65.8 98.0

MdyT 128.9 -44.4 101.7 -135.8 -359.0 -34.6

COMB ( 11 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 18 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.3

MdxT 29.8 -29.8 0.0 0.0 27.4 28.0 -10.8 5.7 27.6 6.2

MdyT 0.0 0.0 10.3 -10.3 -63.3 57.4 80.2 -110.0 -41.4 -47.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 15 ) ( 15 ) ( 16 ) ( 12 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.3 3.4 3.4 3.4 3.3 3.4 3.4 3.3 3.4

MdxT -67.7 -29.3 5.9 63.7 40.2 -46.3 27.7 6.0 -51.1 5.7

MdyT -18.9 42.7 -84.1 18.5 46.2 40.2 17.9 -4.1 -18.6 -41.7

COMB ( 17 ) ( 13 ) ( 12 ) ( 9 ) ( 9 ) ( 17 ) ( 10 ) ( 11 ) ( 13 ) ( 14 )

CARR 21 22 23 24 25

FdzT 3.4 3.4 3.4 3.4 3.4

MdxT 62.8 39.1 -21.1 -21.1 21.1

MdyT 18.8 47.0 7.3 -7.3 -7.3

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P104

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.4 22.8 23.6 23.6 22.6 22.3 23.2 23.1 23.6 23.6

MdxT 33.0 115.6 141.7 -141.7 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 -5.2 -4.9 6.7 -0.7 70.9 -70.9

COMB ( 4 ) ( 13 ) ( 0 ) ( 0 ) ( 11 ) ( 2 ) ( 7 ) ( 10 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.8 22.3 23.3 22.4 22.4 22.9 21.5 21.5 21.5 23.2

MdxT 68.0 62.1 73.9 114.8 -14.6 -130.0 0.7 55.4 0.6 8.0

MdyT -4.2 51.8 -62.6 -0.7 -0.7 -11.3 93.2 52.7 -8.1 -101.5

COMB ( 1 ) ( 2 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 6 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.2 21.7 21.7 22.9 22.6 23.6 23.2 21.8 21.8 21.8

MdxT 75.6 94.6 -24.5 -42.7 62.3 74.6 -131.2 0.6 55.9 0.6

MdyT -58.2 3.2 -0.8 -11.3 54.0 -62.9 -11.6 93.0 52.5 -8.1

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 11 ) ( 12 ) ( 18 ) ( 15 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 23.5 23.5 22.0 22.0 23.2 23.6 23.6 23.6 23.6

MdxT 7.8 76.2 95.4 -24.5 -42.8 100.2 -100.2 -100.2 100.2

MdyT -101.8 -58.4 2.9 -0.8 -11.6 50.1 50.1 -50.1 -50.1

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.5 17.5 17.5 17.5 16.9 16.8 16.8 16.4 16.4 16.4

MdxT 105.0 -105.0 0.0 0.0 -21.8 -78.5 18.5 -18.5 -75.4 16.1

MdyT 0.0 0.0 52.5 -52.5 -44.2 46.2 46.2 117.2 46.9 -111.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 18 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.2 17.2 17.0 16.6 16.6 16.9 16.9 15.6 15.6 15.6

MdxT -21.1 -81.9 22.1 78.2 44.9 -88.3 -26.2 -16.4 -70.0 13.9

MdyT -140.4 84.3 319.5 28.4 28.4 30.6 76.6 210.3 -91.6 -228.9

COMB ( 3 ) ( 3 ) ( 7 ) ( 4 ) ( 4 ) ( 18 ) ( 18 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.0 17.0 16.1 16.1 16.6 16.6 16.6 16.7 16.7 16.7

MdxT -20.9 82.9 -15.5 92.8 -21.7 -87.4 -26.2 -18.8 -76.7 16.0

MdyT -228.5 127.8 22.8 22.8 -40.9 30.0 74.9 119.4 47.8 -116.5

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 17.5 17.5 17.5 17.2 17.2 15.9 15.9 15.9 17.3 17.3

MdxT -21.4 -83.2 20.9 -22.0 -83.2 -16.7 -71.3 13.9 -21.0 83.7

MdyT -143.9 85.0 212.5 -31.2 27.0 207.1 -90.9 -227.2 -231.8 128.5

COMB ( 12 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45

FdzT 17.3 16.4 17.5 17.5 17.5

MdxT 22.1 93.5 74.3 -74.3 74.3

MdyT 321.2 19.5 37.1 -37.1 -37.1

COMB ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.2 10.2 10.2 10.2 9.9 9.9 9.7 9.7 10.0 10.0

MdxT 36.0 -36.0 0.0 0.0 -36.5 22.1 -32.9 19.6 -41.9 18.6

MdyT 0.0 0.0 30.6 -30.6 -47.2 50.8 114.5 -80.2 -326.9 167.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 18 ) ( 2 ) ( 2 ) ( 7 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.9 9.9 9.5 9.5 10.0 9.8 9.8 9.8 10.1 9.9

MdxT -37.2 -36.0 -29.0 18.3 16.8 -36.4 21.8 -34.3 22.0 -33.0

MdyT -40.2 -54.2 236.6 -171.9 250.6 -33.5 48.7 -56.7 48.9 117.9

COMB ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 14 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 9.9 10.2 10.2 9.7 9.7 10.2 10.2 10.2 10.2

MdxT 19.9 -42.1 18.9 -29.3 18.8 17.1 25.4 -25.4 25.4

MdyT -83.4 -330.5 170.0 232.8 -169.8 252.6 21.7 21.7 -21.7

COMB ( 11 ) ( 16 ) ( 12 ) ( 15 ) ( 15 ) ( 16 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.2 3.2 3.2 3.1 3.1 3.2

MdxT 29.0 -29.0 0.0 0.0 -5.5 -28.4 -25.7 -5.3 -25.5 -5.5

MdyT 0.0 0.0 10.0 -10.0 -29.5 -10.9 19.3 57.1 39.9 -78.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 18 ) ( 1 ) ( 11 ) ( 15 ) ( 15 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.2 3.2 3.1 3.1 3.1 3.1 3.3 3.3 3.3 3.2

MdxT -33.3 -11.5 -5.3 -25.6 -5.2 -24.9 -5.6 -36.2 -13.9 -34.8

MdyT -41.4 13.6 -29.0 -11.5 57.8 40.2 -111.0 -61.2 13.4 -9.8

COMB ( 3 ) ( 3 ) ( 9 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.2 3.1 3.2 3.2 3.3 3.2 3.3 3.3 3.3 3.2

MdxT -12.9 -25.4 -7.3 -5.3 -11.2 -26.1 -5.7 -36.3 -13.6 -25.9

MdyT 11.8 -11.6 14.0 22.7 13.9 -11.8 -111.6 -61.5 13.7 -11.8

COMB ( 8 ) ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 14 ) ( 16 ) ( 16 ) ( 16 ) ( 18 )

CARR 31 32 33

FdzT 3.3 3.3 3.3

MdxT 20.5 -20.5 20.5

MdyT 7.1 7.1 -7.1

COMB ( 0 ) ( 0 ) ( 0 )

### P105

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.7 6.0 6.0 6.0 6.0 5.5 5.2 5.2 5.8 5.8

MdxT -2.4 12.7 -12.7 0.0 0.0 -17.2 12.3 -8.5 -46.9 3.9

MdyT 0.0 0.0 0.0 16.3 -16.3 -22.4 -21.8 -4.5 -22.8 -3.9

COMB ( 4 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.7 5.2 5.2 4.9 5.0 6.0 6.0 5.9 5.9 5.1

MdxT -14.1 -20.2 -2.2 32.6 -12.7 -66.5 9.0 -11.8 -2.5 -22.1

MdyT -85.1 40.6 -8.5 -21.3 -4.6 -23.0 -11.5 -126.8 3.1 82.6

COMB ( 13 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 16 ) ( 0 ) ( 17 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 5.1 5.2 5.9 5.1 6.0 6.0

MdxT -2.2 -20.4 -11.8 -22.4 9.0 -9.0

MdyT -11.3 40.5 -74.9 82.5 11.5 11.5

COMB ( 9 ) ( 14 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.3 1.5 1.5 1.5 1.5 1.4 1.4 1.4 1.3 1.3

MdxT -51.5 5.3 -5.3 0.0 0.0 -49.3 -19.7 42.7 -41.6 -21.1

MdyT 0.0 0.0 0.0 4.1 -4.1 -18.3 25.3 54.3 -15.7 39.6

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 18 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.3 1.4 1.4 1.4 1.4 1.3 1.3 1.5 1.5 1.5

MdxT 49.7 -57.4 -23.0 45.8 -47.0 -34.3 37.2 -61.2 -24.5 47.7

MdyT 59.1 -21.3 25.7 57.0 -36.7 -13.4 50.5 -23.0 26.5 59.5

COMB ( 18 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.5 1.5 1.5 1.3 1.3 1.3 1.4 1.4 1.4 1.3

MdxT -44.1 -17.6 36.3 -51.5 -20.6 48.9 -50.5 -20.2 43.5 -42.6

MdyT -48.6 20.8 51.9 12.3 39.9 58.2 -20.3 25.1 55.3 -17.4

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.5 1.5 1.5 1.4 1.3 1.3 1.3 1.3 1.5 1.5

MdxT -58.7 -23.5 46.8 -48.3 -52.8 -21.1 47.3 -35.6 -62.4 -25.0

MdyT -23.1 25.6 58.1 -38.5 -2.0 33.6 57.3 -15.3 -24.8 26.4

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 )

CARR 41 42 43 44

FdzT 1.5 1.5 1.3 1.5

MdxT 48.6 -45.2 -52.6 3.8

MdyT 60.5 -50.4 10.5 -2.9

COMB ( 16 ) ( 17 ) ( 18 ) ( 0 )

### P106

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.5 41.5 40.6 41.5 41.5 40.0 40.1 40.4 39.0 39.0

MdxT 87.1 -87.1 0.0 0.0 0.0 -7.0 29.0 -43.1 -6.2 -66.8

MdyT 0.0 0.0 -8.8 112.0 -112.0 14.1 16.9 11.5 -47.5 10.9

COMB ( 0 ) ( 0 ) ( 9 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 12 ) ( 13 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.9 41.5 38.3 38.3 38.8 36.7 36.4 40.6 41.5 41.5

MdxT -8.1 -61.6 53.5 -14.7 13.2 -5.2 -1.1 -8.1 -61.6 61.6

MdyT 118.2 -79.2 20.0 3.1 3.2 -87.4 15.1 118.2 79.2 79.2

COMB ( 18 ) ( 0 ) ( 6 ) ( 6 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 0 ) ( 0 )

CARR 21

FdzT 41.5

MdxT 61.6

MdyT -79.2

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.4 30.4 28.5 30.4 30.4 29.3 29.6 29.6 29.5 29.5

MdxT 106.5 -106.5 0.0 0.0 0.0 12.9 70.2 37.1 46.6 83.3

MdyT 0.0 0.0 -243.0 82.1 -82.1 416.4 168.3 -310.2 412.7 165.1

COMB ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 1 ) ( 12 ) ( 12 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.5 29.6 28.5 28.7 30.2 30.4 30.4 27.8 28.1 28.2

MdxT -30.5 -21.4 15.7 60.2 10.2 63.9 6.0 68.0 -52.5 -45.5

MdyT -302.4 420.7 352.4 141.1 480.5 192.3 -369.3 382.8 -292.9 396.6

COMB ( 11 ) ( 12 ) ( 4 ) ( 13 ) ( 5 ) ( 14 ) ( 14 ) ( 6 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 28.2 26.5 26.7 26.7 29.4 29.6 29.6 29.6 28.7 28.7

MdxT 60.1 16.0 56.0 -0.8 7.0 62.1 8.4 12.6 15.3 0.6

MdyT -306.0 282.8 113.3 -194.3 496.3 198.6 -404.5 416.8 352.7 -243.2

COMB ( 16 ) ( 8 ) ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 18 ) ( 10 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38

FdzT 30.4 28.1 26.7 29.6 30.4 30.4 30.4 30.4

MdxT 9.9 67.8 15.7 6.7 75.3 -75.3 -75.3 75.3

MdyT 480.8 383.2 283.2 496.6 58.1 58.1 -58.1 -58.1

COMB ( 14 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.9 12.9 12.9 12.9 12.4 12.4 12.4 12.4 12.4 12.1

MdxT 45.2 -45.2 0.0 0.0 32.5 -30.4 -28.1 13.0 -1.3 44.1

MdyT 0.0 0.0 34.9 -34.9 269.5 -152.3 -383.5 -153.4 267.4 261.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.1 12.1 12.8 12.8 12.8 12.1 12.1 12.1 11.5 11.5

MdxT 31.8 -35.8 14.6 -29.4 -15.4 17.6 -13.4 5.6 17.8 32.0

MdyT -113.2 -357.8 371.7 -191.4 -478.4 -143.1 257.7 -348.3 87.5 -79.2

COMB ( 4 ) ( 6 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.5 12.7 12.7 12.7 12.6 12.6 12.6 12.6 12.2 12.2

MdxT -16.7 13.0 -26.9 -13.7 32.9 -28.4 13.2 -1.5 31.4 -13.7

MdyT -190.3 431.8 -206.4 -515.9 267.4 -382.2 -152.9 265.2 -112.7 255.8

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 16 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.2 12.2 11.7 11.7 11.7 12.8 12.9 12.9 12.9 12.9

MdxT -26.7 5.9 17.5 31.7 -16.4 -26.9 32.0 -32.0 -32.0 32.0

MdyT -138.8 -346.9 85.4 -79.2 -189.0 -205.8 24.7 24.7 -24.7 -24.7

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P107

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 35.1 35.1 30.3 35.1 35.1 33.7 33.7 33.7 33.5 33.3

MdxT 73.7 -73.7 0.0 0.0 0.0 33.9 -15.3 33.9 -20.7 10.9

MdyT 0.0 0.0 121.5 94.7 -94.7 244.4 275.8 197.4 231.7 249.3

COMB ( 0 ) ( 0 ) ( 18 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.1 35.1 32.2 32.2 32.9 32.9 32.5 32.3 35.1 30.3

MdxT 7.3 -4.5 6.3 -1.0 52.1 -23.9 -38.9 19.5 7.3 6.0

MdyT 296.1 383.0 213.8 185.2 237.7 272.4 216.5 229.9 165.8 212.9

COMB ( 17 ) ( 17 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 7 ) ( 17 ) ( 18 )

CARR 21 22 23 24 25 26 27

FdzT 30.1 33.5 32.5 35.1 35.1 35.1 35.1

MdxT 6.0 10.8 19.3 52.1 -52.1 -52.1 52.1

MdyT 174.5 251.6 232.1 67.0 67.0 -67.0 -67.0

COMB ( 9 ) ( 12 ) ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.2 26.2 26.2 26.2 25.3 25.3 25.3 25.3 25.3 25.2

MdxT 91.9 -91.9 0.0 0.0 -6.2 53.2 16.1 15.5 -5.6 -27.9

MdyT 0.0 0.0 70.9 -70.9 -414.8 -167.2 368.3 -418.0 369.5 -411.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.2 25.2 26.2 26.2 26.2 24.2 24.3 24.2 24.3 24.3

MdxT 68.2 37.7 -5.5 55.1 15.4 -42.3 57.7 51.2 30.5 -21.1

MdyT -164.7 367.2 -497.7 -199.1 467.0 -381.5 -156.5 357.3 -391.3 360.2

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 16 ) ( 6 ) ( 16 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.0 26.0 26.0 22.7 22.7 22.7 25.3 24.4 24.4 24.4

MdxT -4.8 54.6 14.1 -7.1 47.6 16.2 53.0 30.2 57.4 -20.9

MdyT -525.0 -210.0 523.6 -248.8 -99.5 194.6 -165.9 -392.1 -156.9 360.9

COMB ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 15 ) ( 15 ) ( 15 )

CARR 31 32 33 34

FdzT 26.2 26.2 26.2 26.2

MdxT 65.0 -65.0 -65.0 65.0

MdyT 50.1 50.1 -50.1 -50.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.9 13.9 13.9 13.9 13.3 13.2 13.3 13.3 13.3 13.7

MdxT 48.7 -48.7 0.0 0.0 -33.7 35.6 28.4 0.8 -13.5 -17.1

MdyT 0.0 0.0 37.6 -37.6 -319.6 381.1 409.8 -317.4 163.9 -373.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 16 ) ( 3 ) ( 2 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.8 13.8 12.9 12.9 12.9 13.1 13.0 13.1 13.0 13.0

MdxT 33.0 17.5 -15.0 29.5 15.4 14.4 35.7 -4.2 -44.7 -17.9

MdyT 201.2 503.0 -263.3 133.1 332.8 -306.0 382.3 374.8 -309.7 152.9

COMB ( 8 ) ( 8 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.8 12.4 12.4 12.4 13.4 13.4 13.4 13.4 13.4 13.8

MdxT -16.9 -13.4 27.2 14.0 -34.0 31.0 28.3 1.4 -13.6 -17.2

MdyT -399.6 -216.0 101.6 254.1 -314.7 162.5 408.4 -312.6 163.4 -368.8

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 12 ) ( 10 ) ( 12 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 13.2 13.2 13.2 13.2 12.5 12.5 12.5 13.9 13.9 13.9

MdxT 14.3 -4.3 -44.8 -17.9 -13.6 27.0 13.9 34.4 -34.4 -34.4

MdyT -301.3 373.4 -304.9 152.4 -211.3 101.1 252.7 26.6 26.6 -26.6

COMB ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

CARR 41

FdzT 13.9

MdxT 34.4

MdyT -26.6

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6

MdxT 8.4 -8.4 0.0 0.0 -15.7 -9.9 17.4 -15.4 13.7 -24.8

MdyT 0.0 0.0 13.0 -13.0 22.7 42.3 33.3 22.8 108.9 22.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 7 ) ( 4 ) ( 4 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6

MdxT -6.2 -6.4 15.0 -24.4 -5.8 12.9 -6.2 -15.3 -9.7 16.8

MdyT 113.0 43.4 -93.8 23.1 160.2 160.2 -94.4 23.2 49.1 40.2

COMB ( 4 ) ( 5 ) ( 9 ) ( 16 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6

MdxT -15.0 13.0 -21.0 -6.0 14.3 -5.7 12.3 -6.0 -5.9 5.9

MdyT 23.4 115.9 23.1 119.7 -87.1 166.9 166.9 -88.3 -9.2 -9.2

COMB ( 13 ) ( 13 ) ( 12 ) ( 13 ) ( 18 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

### P108

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.1 9.1 8.8 9.1 9.1 8.2 8.2 8.2 7.6 7.6

MdxT 19.0 -19.0 0.0 0.0 0.0 -1.3 19.3 -21.8 -2.0 2.9

MdyT 0.0 0.0 330.1 332.4 -24.5 315.8 323.5 308.0 301.6 282.0

COMB ( 0 ) ( 0 ) ( 14 ) ( 18 ) ( 0 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.1 8.1 7.2 7.2 9.0 8.1 9.1 9.1 9.1 9.1

MdxT 32.9 -35.8 -2.8 3.9 -0.6 32.8 13.5 -13.5 -13.5 13.5

MdyT 319.3 295.5 284.8 260.8 327.2 321.6 17.3 17.3 -17.3 -17.3

COMB ( 6 ) ( 16 ) ( 17 ) ( 17 ) ( 9 ) ( 15 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.1 3.1 3.1 3.1 3.1 3.1

MdxT 11.6 -11.6 0.0 0.0 -16.0 19.6 -13.6 21.4 -18.5 -7.4

MdyT 0.0 0.0 9.0 -9.0 24.5 61.6 27.3 60.1 21.7 46.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.1 2.9 2.9 3.3 3.3 3.3 3.1 3.1 3.0 3.0

MdxT 17.8 -16.2 19.9 -15.4 7.8 19.5 -11.5 22.4 -19.7 -7.9

MdyT 63.3 -1.0 93.0 49.8 42.0 30.2 29.0 56.7 19.7 45.2

COMB ( 12 ) ( 4 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.0 2.8 2.8 3.3 3.3 3.3 2.9 2.8 3.3 3.3

MdxT 16.4 -16.2 19.7 -14.6 7.6 19.0 -16.7 -16.8 -8.2 8.2

MdyT 62.2 -18.1 111.6 66.5 42.8 7.1 -0.8 -17.9 -6.3 -6.3

COMB ( 16 ) ( 8 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 13 ) ( 17 ) ( 0 ) ( 0 )

### P109

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.0 8.4 8.4 8.4 8.4 7.7 7.4 7.4 8.0 8.0

MdxT -52.8 17.7 -17.7 0.0 0.0 -23.1 6.7 -9.7 -30.5 2.8

MdyT 0.0 0.0 0.0 22.8 -22.8 3.4 6.2 6.2 1.3 1.3

COMB ( 12 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.2 8.2 7.3 7.3 7.1 7.1 8.2 8.2 8.2 8.4

MdxT -21.1 -3.5 -24.8 -3.4 27.0 -13.9 -72.2 -40.6 7.0 -20.0

MdyT -64.0 4.9 70.4 -2.9 7.7 0.6 -1.8 -1.8 1.4 -108.9

COMB ( 4 ) ( 4 ) ( 14 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 8.4 6.9 6.9 7.4 8.2 7.1 8.2 8.4 8.4

MdxT -12.5 -25.6 -3.4 -9.7 -21.4 26.7 -72.4 12.5 12.5

MdyT 16.1 115.1 -5.6 0.7 -63.8 7.8 -1.7 16.1 -16.1

COMB ( 0 ) ( 18 ) ( 9 ) ( 11 ) ( 13 ) ( 15 ) ( 16 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.4 3.4 3.4 3.4 3.2 3.2 3.1 3.1 3.3 3.3

MdxT 11.8 -11.8 0.0 0.0 -22.7 37.7 -12.0 30.1 -33.5 45.4

MdyT 0.0 0.0 9.1 -9.1 40.5 -60.1 42.8 -61.6 37.9 -57.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 2 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.3 3.1 3.1 3.0 3.0 3.3 3.3 2.9 2.9

MdxT -21.8 36.4 -23.5 38.9 -4.5 25.2 -40.3 50.8 -23.8 16.1

MdyT 20.6 -58.2 60.3 -61.9 43.3 -62.2 35.3 -54.3 72.4 29.0

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 18 ) ( 18 )

CARR 21 22 23 24 25 26

FdzT 2.9 3.1 3.4 3.4 3.4 3.4

MdxT 40.2 30.0 8.4 -8.4 -8.4 8.4

MdyT -61.2 -62.4 6.4 6.4 -6.4 -6.4

COMB ( 18 ) ( 11 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P11

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.5 30.5 30.5 30.5 29.7 30.5 30.5 28.8 28.8 29.7

MdxT 64.1 -64.1 0.0 0.0 -5.6 -3.9 -45.3 -7.4 -63.3 29.1

MdyT 0.0 0.0 82.5 -82.5 22.5 87.4 -58.3 -45.1 13.2 28.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 0 ) ( 3 ) ( 9 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.6 30.3 27.5 27.5 27.5 29.0 28.8 29.7 30.5 29.6

MdxT -40.2 -2.7 -8.7 -8.7 -0.6 52.1 -63.1 -5.5 -3.6 -40.0

MdyT 17.1 135.0 -90.4 -48.2 15.1 31.6 13.3 22.7 90.3 17.2

COMB ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 17 ) ( 18 ) ( 10 ) ( 11 ) ( 14 )

CARR 21 22 23 24 25

FdzT 30.3 28.8 30.5 30.5 30.5

MdxT -2.5 -33.6 45.3 -45.3 45.3

MdyT 135.1 13.3 58.3 58.3 -58.3

COMB ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.5 22.5 22.5 22.5 22.1 22.1 22.1 22.5 22.5 22.5

MdxT 78.9 -78.9 0.0 0.0 -6.7 -46.4 5.6 -6.3 -47.3 5.2

MdyT 0.0 0.0 60.9 -60.9 178.9 71.6 -118.4 244.0 98.8 -171.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 11 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.5 21.5 21.5 22.0 22.0 22.0 22.2 22.2 22.2 22.1

MdxT -37.7 -65.6 30.8 12.7 46.3 -10.1 -25.6 -49.5 20.7 -5.6

MdyT 148.3 59.3 -101.6 189.6 75.8 -128.0 168.4 67.4 -109.1 279.2

COMB ( 9 ) ( 9 ) ( 9 ) ( 13 ) ( 4 ) ( 13 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.1 22.1 20.6 20.6 21.2 21.2 21.2 22.1 22.1 22.1

MdxT -46.3 4.9 -43.3 6.3 25.9 49.3 -20.0 -6.2 -46.4 5.0

MdyT 111.7 -208.9 52.1 -25.5 183.3 73.3 -133.0 179.1 71.6 -118.6

COMB ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 17 ) ( 10 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 22.5 22.5 22.0 22.2 22.2 22.2 22.1 20.6 20.6 21.5

MdxT -5.7 4.6 46.3 -24.9 -48.4 20.2 -5.0 -43.3 5.9 -37.1

MdyT 247.1 -173.5 75.8 168.6 67.4 -109.2 279.3 52.2 -25.6 148.4

COMB ( 11 ) ( 11 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 18 )

CARR 41 42 43 44 45

FdzT 21.5 22.5 22.5 22.5 22.5

MdxT -64.8 55.8 -55.8 -55.8 55.8

MdyT 59.4 43.0 43.0 -43.0 -43.0

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.4 12.4 12.4 12.4 12.3 12.3 12.3 12.4 12.4 12.4

MdxT 43.5 -43.5 0.0 0.0 -5.9 25.8 6.4 -4.1 26.1 4.8

MdyT 0.0 0.0 33.6 -33.6 320.0 -130.6 -326.5 345.7 138.8 -343.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 11 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.1 12.1 12.1 12.2 12.2 12.2 12.3 12.3 12.3 12.4

MdxT -25.2 25.4 8.3 6.7 25.7 -1.8 -17.5 -32.1 14.0 -2.5

MdyT 295.1 -123.6 -309.1 326.8 -131.5 -329.0 313.6 -129.6 -324.1 350.6

COMB ( 9 ) ( 3 ) ( 3 ) ( 13 ) ( 4 ) ( 13 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.4 11.8 11.8 11.8 12.0 12.0 12.0 12.1 12.1 12.3

MdxT 25.9 -8.7 24.7 8.8 14.7 28.0 -7.3 -42.1 18.5 -5.0

MdyT 140.2 261.1 -110.2 -275.5 316.7 126.7 -308.4 -120.2 -300.4 320.3

COMB ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.3 12.3 12.4 12.4 12.1 12.1 12.2 12.3 12.3 12.3

MdxT 25.7 5.7 -3.2 4.1 25.4 7.6 25.7 -16.8 -31.1 13.3

MdyT -130.6 -326.6 347.1 -344.0 -123.8 -309.4 -131.6 313.9 -129.8 -324.4

COMB ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 12.3 12.3 11.8 11.8 11.8 12.1 12.1 12.1 12.4 12.4

MdxT -1.8 25.9 -8.0 24.7 8.1 -24.5 -41.2 17.9 30.8 -30.8

MdyT 350.7 140.3 261.2 -110.3 -275.8 295.4 -120.2 -300.6 23.7 23.7

COMB ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 51 52

FdzT 12.4 12.4

MdxT -30.8 30.8

MdyT -23.7 -23.7

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 9.0 -9.0 0.0 0.0 -10.6 5.0 9.7 12.6 -1.7 9.5

MdyT 0.0 0.0 13.8 -13.8 -25.6 -114.7 -82.6 -45.4 -25.1 -109.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 6 ) ( 2 ) ( 5 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 9.5 5.8 14.4 -1.4 8.5 8.5 -6.3

MdyT 20.2 -54.5 -44.8 -25.2 -114.6 20.3 9.8

COMB ( 7 ) ( 9 ) ( 9 ) ( 10 ) ( 15 ) ( 16 ) ( 0 )

### P110

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 33.9 33.9 32.1 33.9 28.8 33.9 32.4 32.4 31.8 31.9

MdxT 71.2 -71.2 0.0 0.0 0.0 0.0 41.9 -9.2 -35.3 67.6

MdyT 0.0 0.0 2.8 -91.6 -105.1 91.6 10.2 2.7 9.1 10.6

COMB ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 8 ) ( 0 ) ( 11 ) ( 11 ) ( 12 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.6 30.6 33.9 30.7 30.8 28.8 28.8 31.8 31.8 33.9

MdxT 1.7 0.6 6.2 -61.2 15.8 1.0 1.0 67.5 34.3 6.0

MdyT -59.6 9.8 124.5 9.1 2.9 -57.2 14.7 11.1 11.1 124.9

COMB ( 4 ) ( 4 ) ( 9 ) ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 15 ) ( 15 ) ( 18 )

CARR 21 22 23 24

FdzT 33.9 33.9 33.9 33.9

MdxT 50.4 -50.4 -50.4 50.4

MdyT 64.8 64.8 -64.8 -64.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.6 24.6 24.6 24.6 23.5 23.5 23.7 23.8 23.8 23.8

MdxT 86.3 -86.3 0.0 0.0 -42.7 -73.7 -5.2 39.2 -81.6 -48.6

MdyT 0.0 0.0 66.5 -66.5 225.7 90.3 -158.9 224.4 89.8 -156.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.5 22.5 22.5 22.7 24.5 24.6 24.5 23.1 23.1 23.1

MdxT 40.2 -70.6 -70.7 -2.9 3.5 -51.7 -9.0 69.0 -32.3 -80.6

MdyT -161.3 209.9 209.2 -90.7 308.1 113.8 -270.5 207.8 83.1 -152.7

COMB ( 3 ) ( 7 ) ( 16 ) ( 4 ) ( 9 ) ( 5 ) ( 9 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.5 21.2 21.2 21.2 24.5 23.8 23.8 23.4 23.4 23.4

MdxT 70.4 -4.9 -44.5 -1.4 -51.4 40.7 -50.3 -43.0 -74.0 40.5

MdyT -160.4 109.6 48.6 -42.8 123.3 223.7 -156.0 225.0 90.0 -160.6

COMB ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36

FdzT 22.5 21.1 24.6 24.6 24.6 24.6

MdxT 70.7 -5.2 61.0 -61.0 -61.0 61.0

MdyT -159.7 108.9 47.0 47.0 -47.0 -47.0

COMB ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.5 13.5 12.6 13.5 13.5 13.0 13.1 13.0 13.1 12.9

MdxT 47.3 -47.3 0.0 0.0 0.0 37.8 37.1 27.0 -22.3 -32.1

MdyT 0.0 0.0 -243.9 36.5 -36.5 344.7 331.1 -326.3 -320.6 351.7

COMB ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 11 ) ( 2 ) ( 3 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.6 12.6 13.4 13.5 13.5 12.9 12.9 12.6 12.7 12.1

MdxT 4.6 26.5 2.8 28.4 5.0 61.9 -40.3 -55.4 43.7 5.2

MdyT 254.9 102.0 413.8 181.4 -434.1 315.3 -296.8 340.2 -306.7 188.4

COMB ( 4 ) ( 4 ) ( 5 ) ( 9 ) ( 9 ) ( 6 ) ( 6 ) ( 16 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.1 12.1 13.5 13.0 13.0 12.9 12.6 12.6 12.9 12.6

MdxT 25.5 -1.8 2.2 2.8 -23.2 27.2 3.8 26.4 61.0 43.8

MdyT 75.4 -169.3 453.5 348.2 -320.0 -325.9 268.7 107.5 328.7 -306.3

COMB ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 12.1 12.1 13.4 13.4 13.4 13.5 13.5 13.5 13.5

MdxT 4.3 25.4 1.4 28.2 5.2 33.4 -33.4 -33.4 33.4

MdyT 201.9 80.8 466.9 186.8 -433.7 25.8 25.8 -25.8 -25.8

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 9.1 -9.1 0.0 0.0 5.9 -12.7 23.8 9.5 -11.1 -5.8

MdyT 0.0 0.0 14.0 -14.0 -49.5 -41.3 -25.8 -51.1 -25.2 -63.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 6 ) ( 6 ) ( 3 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.8 2.7 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 6.0 -2.9 5.8 -5.8 -19.7 -7.9 9.9 5.8 -0.6 -2.5

MdyT -59.8 59.8 -89.8 -90.1 -25.1 -47.4 -37.7 -115.7 -110.9 31.4

COMB ( 17 ) ( 17 ) ( 5 ) ( 18 ) ( 7 ) ( 7 ) ( 7 ) ( 9 ) ( 9 ) ( 13 )

CARR 21 22 23 24 25

FdzT 2.8 2.8 2.8 2.8 2.8

MdxT 23.8 -13.3 -8.1 6.4 -6.4

MdyT -25.5 -13.6 -34.6 9.9 9.9

COMB ( 15 ) ( 15 ) ( 16 ) ( 0 ) ( 0 )

### P111

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.6 41.6 40.1 41.6 41.6 40.0 40.2 40.4 39.6 39.8

MdxT 87.3 -87.3 0.0 0.0 0.0 4.9 41.9 -9.2 -33.7 9.1

MdyT 0.0 0.0 -2.0 112.3 -112.3 -7.0 -6.2 -2.0 -7.8 -2.1

COMB ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 11 ) ( 3 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 41.6 38.6 38.5 38.9 38.9 37.9 37.9 40.9 40.9 36.1

MdxT 61.8 7.1 -0.6 69.2 -15.4 -59.6 15.3 1.1 0.8 8.4

MdyT -79.4 62.3 -9.0 -6.4 -2.1 -9.2 -2.2 -123.1 9.5 107.5

COMB ( 0 ) ( 14 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26

FdzT 35.9 40.1 40.4 41.6 41.6 41.6

MdxT -1.0 4.9 43.5 61.8 -61.8 -61.8

MdyT -13.9 -6.9 -6.0 79.4 79.4 -79.4

COMB ( 9 ) ( 10 ) ( 11 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.4 32.4 31.3 32.4 32.4 31.3 31.1 31.3 31.4 31.4

MdxT 113.3 -113.3 0.0 0.0 0.0 2.9 -71.7 -4.8 41.6 -82.5

MdyT 0.0 0.0 290.4 87.4 -87.4 -219.8 -88.3 181.0 -219.1 -87.6

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 3 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.4 31.1 31.1 32.2 32.2 32.2 30.1 30.3 30.1 30.0

MdxT -45.1 -37.5 37.5 -0.8 -67.7 -1.7 69.9 -63.7 -74.8 70.0

MdyT 180.7 -220.6 181.3 -275.7 -110.3 248.6 -200.5 -65.6 177.0 -204.4

COMB ( 2 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 15 ) ( 5 ) ( 15 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 30.0 30.0 29.5 29.5 29.5 31.3 31.3 28.2 28.2 28.2

MdxT -30.0 -74.9 -64.7 26.2 65.5 -3.5 -65.8 9.0 -59.1 -9.7

MdyT -81.8 177.2 -207.1 -82.8 177.9 -298.6 -119.4 -112.7 -45.1 64.8

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 31.6 31.6 31.6 31.3 31.3 32.4 32.4 30.5 29.6 29.6

MdxT 43.0 -84.9 -46.8 -37.8 37.7 -1.1 -68.0 -64.0 -64.8 26.3

MdyT -215.0 -86.0 180.6 -216.7 181.0 -271.7 -108.7 -64.1 -203.1 -81.3

COMB ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45 46 47 48

FdzT 29.6 31.5 31.5 28.3 32.4 32.4 32.4 32.4

MdxT 65.7 -3.6 -66.1 -59.4 80.1 -80.1 -80.1 80.1

MdyT 177.8 -294.8 -117.9 -43.6 61.8 61.8 -61.8 -61.8

COMB ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.2 14.2 14.2 14.2 13.9 13.7 13.9 13.8 13.8 13.7

MdxT 49.9 -49.9 0.0 0.0 33.0 28.8 -26.9 -21.0 -37.8 20.6

MdyT 0.0 0.0 38.4 -38.4 -249.5 -96.1 243.9 -246.5 -98.6 233.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 1 ) ( 11 ) ( 12 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.2 14.2 14.1 13.5 13.3 13.5 13.4 13.4 13.4 14.1

MdxT 6.0 29.9 -3.9 51.0 36.4 -42.4 51.0 -42.3 -39.2 5.9

MdyT -349.9 -139.9 371.4 -240.8 215.0 227.9 -233.0 221.3 -235.8 -407.8

COMB ( 13 ) ( 13 ) ( 17 ) ( 15 ) ( 7 ) ( 15 ) ( 6 ) ( 6 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.1 12.7 12.7 12.7 13.8 13.8 13.8 14.2 13.4 14.2

MdxT 29.7 6.0 26.8 -2.4 6.0 -3.2 20.3 -3.8 36.3 35.3

MdyT -163.1 -68.6 31.2 78.1 -248.1 242.1 240.2 330.1 221.6 27.2

COMB ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 12 ) ( 13 ) ( 16 ) ( 0 )

CARR 31 32 33

FdzT 14.2 14.2 14.2

MdxT -35.3 -35.3 35.3

MdyT 27.2 -27.2 -27.2

COMB ( 0 ) ( 0 ) ( 0 )

### P112

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.2 29.2 27.2 29.2 29.2 27.2 25.7 25.7 28.8 28.8

MdxT 61.4 -61.4 0.0 0.0 0.0 -3.5 -47.6 8.8 45.4 -9.2

MdyT 0.0 0.0 -4.2 79.0 -79.0 -60.5 -15.3 -4.3 -12.5 -4.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 14 ) ( 11 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.3 24.0 23.9 29.2 29.2 29.2 26.7 26.5 26.5 25.7

MdxT 1.3 -78.5 15.4 76.3 76.0 -43.4 2.7 -5.0 -5.0 9.2

MdyT 32.8 -16.1 -4.3 -11.6 -11.8 -55.8 63.7 -91.6 -51.7 -4.2

COMB ( 4 ) ( 15 ) ( 6 ) ( 7 ) ( 16 ) ( 0 ) ( 8 ) ( 18 ) ( 18 ) ( 11 )

CARR 21 22 23 24 25 26

FdzT 28.9 29.2 29.2 26.7 29.2 29.2

MdxT 45.2 43.4 -15.5 -1.0 43.4 -43.4

MdyT -12.6 -55.8 -3.9 -16.4 55.8 55.8

COMB ( 12 ) ( 0 ) ( 16 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.5 19.5 19.5 19.5 18.5 18.5 18.5 17.5 17.5 19.5

MdxT 68.4 -68.4 0.0 0.0 -12.0 38.8 12.6 -36.7 37.5 40.9

MdyT 0.0 0.0 52.7 -52.7 30.4 53.1 68.3 27.3 70.4 53.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.5 18.9 18.9 19.0 18.0 18.0 18.0 16.0 16.0 19.5

MdxT -13.6 -7.3 39.8 8.0 -16.8 37.7 17.2 -54.2 55.6 55.9

MdyT 65.9 116.1 46.4 -86.1 -59.4 110.7 221.3 21.4 73.1 52.1

COMB ( 3 ) ( 4 ) ( 4 ) ( 13 ) ( 14 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.5 18.6 18.6 18.6 17.0 16.9 16.9 18.5 18.5 18.5

MdxT -31.5 -3.6 39.1 4.3 -19.3 38.4 20.0 -12.2 38.8 12.7

MdyT 65.5 169.4 -74.8 -187.0 -120.0 148.3 324.5 26.3 50.8 67.1

COMB ( 7 ) ( 8 ) ( 17 ) ( 17 ) ( 18 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 17.5 17.5 19.0 19.0 18.0 18.0 16.1 16.1 18.6 17.0

MdxT -37.9 38.8 -7.6 39.9 37.8 17.4 -54.5 55.7 -3.8 38.7

MdyT 23.1 69.3 112.0 44.8 108.4 220.2 17.5 72.0 165.5 146.0

COMB ( 11 ) ( 11 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 18 )

CARR 41 42 43 44

FdzT 17.0 19.5 19.5 19.5

MdxT 20.2 -48.3 -48.3 48.3

MdyT 323.3 37.3 -37.3 -37.3

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.5 10.5 10.0 10.2 9.8 10.1 9.5 10.5 10.5 10.0

MdxT 36.7 -36.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -3.2

MdyT 0.0 0.0 -110.0 -32.1 -188.0 26.3 -233.7 28.3 -28.3 140.3

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 5 ) ( 8 ) ( 9 ) ( 0 ) ( 0 ) ( 10 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.0 9.6 9.6 10.5 10.5 10.2 10.2 9.8 9.8 9.1

MdxT -21.0 -36.4 28.1 52.9 -44.9 -2.2 -21.4 -4.1 -20.6 -58.5

MdyT 52.9 133.6 -110.5 139.4 -116.1 116.6 52.4 163.9 -75.2 124.9

COMB ( 1 ) ( 11 ) ( 11 ) ( 7 ) ( 16 ) ( 13 ) ( 4 ) ( 14 ) ( 5 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.1 10.5 10.1 9.5 9.5 10.0 10.0 10.5 10.4 10.2

MdxT 46.3 -45.4 -21.2 -4.6 -20.0 -21.0 0.8 52.4 -26.6 -21.4

MdyT -100.9 -111.3 63.8 175.6 -93.5 56.1 -114.9 147.3 -119.4 55.2

COMB ( 15 ) ( 7 ) ( 8 ) ( 18 ) ( 9 ) ( 10 ) ( 10 ) ( 16 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 10.2 9.8 9.8 10.1 10.1 9.5 9.5 10.5 10.5

MdxT 0.8 -20.6 0.8 -21.2 0.7 -20.0 0.8 -26.0 26.0

MdyT -37.0 -77.2 -192.9 66.5 21.4 -95.4 -238.4 20.0 -20.0

COMB ( 13 ) ( 14 ) ( 14 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.7 2.7 2.7 2.7 2.6 2.6 2.6 2.6 2.6 2.7

MdxT 8.7 -8.7 0.0 0.0 -2.0 5.6 -10.5 -4.2 7.4 7.1

MdyT 0.0 0.0 24.1 -12.0 23.2 30.8 22.5 29.9 54.0 32.3

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 14 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.7 2.7 2.5 2.5 2.5 2.7 2.7 2.7 2.7 2.7

MdxT -0.7 2.1 -16.9 -7.0 8.1 12.6 7.1 -1.1 5.7 1.4

MdyT 23.8 -14.7 22.0 29.2 16.0 24.5 32.3 16.8 32.6 -32.6

COMB ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.5 2.5 2.6 2.6 2.6 2.6 2.7 2.7 2.5 2.5

MdxT 2.2 5.6 -2.2 6.0 -11.2 -4.5 -1.0 2.4 -17.2 -7.1

MdyT 70.7 65.5 23.1 30.6 22.4 29.7 23.7 -6.9 21.8 29.0

COMB ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 13 ) ( 13 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35

FdzT 2.7 2.7 2.7 2.7 2.7

MdxT -0.8 1.7 -6.2 -6.2 6.2

MdyT 24.5 -24.9 8.5 -8.5 -8.5

COMB ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P113

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.4 9.8 9.8 8.7 9.4 8.1 9.8 7.7 9.8 8.7

MdxT 1.3 33.2 -33.2 0.0 0.0 0.0 0.0 0.0 0.0 18.3

MdyT 0.0 0.0 0.0 9.7 71.7 -54.7 113.5 -97.0 -26.5 8.5

COMB ( 13 ) ( 0 ) ( 0 ) ( 7 ) ( 4 ) ( 14 ) ( 8 ) ( 18 ) ( 0 ) ( 1 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.7 8.7 9.4 8.1 8.1 8.7 9.8 9.8 7.7 7.7

MdxT 19.4 -27.2 19.7 -17.0 -1.1 27.4 20.6 23.5 -16.1 -2.0

MdyT 7.7 9.7 43.0 -30.9 4.9 7.1 67.5 -18.7 -55.6 6.4

COMB ( 2 ) ( 7 ) ( 4 ) ( 14 ) ( 14 ) ( 6 ) ( 8 ) ( 0 ) ( 18 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 8.7 8.7 9.4 8.7 8.7 9.8 9.8 9.8 9.8

MdxT 18.3 20.0 19.7 27.4 -27.2 20.6 23.5 -23.5 -23.5

MdyT 8.3 7.6 42.8 6.9 9.5 67.4 18.7 18.7 -18.7

COMB ( 10 ) ( 11 ) ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P114

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.4 9.8 9.8 8.8 8.2 8.2 9.4 7.8 9.8 9.8

MdxT 0.0 33.1 -33.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 -9.9 54.6 -5.0 -71.0 96.3 -112.7 26.4

COMB ( 14 ) ( 0 ) ( 0 ) ( 15 ) ( 4 ) ( 4 ) ( 14 ) ( 8 ) ( 18 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.8 8.8 8.2 9.4 8.8 7.8 7.8 9.8 9.8 8.2

MdxT 29.3 -19.8 17.3 19.7 -29.3 16.4 0.8 -20.5 -23.4 17.3

MdyT -9.9 -7.4 30.7 -42.5 -6.9 55.1 -6.9 -66.9 18.6 30.5

COMB ( 15 ) ( 12 ) ( 4 ) ( 14 ) ( 16 ) ( 8 ) ( 17 ) ( 18 ) ( 0 ) ( 13 )

CARR 21 22 23 24

FdzT 7.8 9.8 9.8 9.8

MdxT 16.4 23.4 -23.4 23.4

MdyT 54.8 18.6 -18.6 -18.6

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P115

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.7 26.7 25.1 25.1 24.6 26.7 26.7 25.2 23.9 23.9

MdxT 56.1 -56.1 0.0 0.0 0.0 0.0 0.0 -2.7 -43.4 8.0

MdyT 0.0 0.0 16.1 -2.1 -6.6 72.1 -72.1 65.0 15.8 4.9

COMB ( 0 ) ( 0 ) ( 1 ) ( 13 ) ( 8 ) ( 0 ) ( 0 ) ( 4 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 26.4 26.4 25.0 22.4 22.4 22.4 26.7 26.7 24.6 24.4

MdxT 45.1 -9.4 2.4 -75.6 -39.6 14.3 75.3 -39.6 -4.3 4.1

MdyT 16.4 4.5 -33.2 15.4 15.4 4.9 16.2 51.0 97.3 -65.9

COMB ( 3 ) ( 3 ) ( 14 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 0 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27

FdzT 23.8 23.8 26.3 26.3 26.7 26.7 26.7

MdxT -45.4 8.3 45.2 -9.5 39.6 -39.6 39.6

MdyT 15.4 4.8 16.0 4.3 51.0 -51.0 -51.0

COMB ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.1 17.1 17.1 17.1 16.3 16.3 16.3 15.5 15.5 17.1

MdxT 59.9 -59.9 0.0 0.0 -3.8 34.2 4.2 -43.7 24.4 35.9

MdyT 0.0 0.0 46.2 -46.2 -38.5 -44.5 -48.6 -44.5 -48.2 -44.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 15.8 15.9 15.9 16.7 16.7 16.6 14.3 14.3 14.3

MdxT -30.9 -6.0 -33.4 5.3 -2.2 35.0 3.6 -39.9 -16.0 39.5

MdyT -51.2 22.1 -96.0 -174.4 -98.7 -39.5 77.6 -35.8 -44.2 -49.8

COMB ( 7 ) ( 13 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 14 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.1 15.0 15.1 15.1 16.3 16.3 16.3 16.2 16.2 15.4

MdxT 55.3 -7.0 -31.6 6.2 -1.0 34.3 2.9 -4.3 4.8 -45.5

MdyT -44.4 65.8 -130.1 -260.4 -135.1 63.7 159.5 -38.1 -48.4 -44.3

COMB ( 7 ) ( 17 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 18 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 15.4 15.8 16.6 14.2 14.2 14.2 15.0 16.3 16.3 17.1

MdxT 25.8 5.7 -2.7 -40.3 -16.1 39.9 6.6 -1.4 34.2 42.4

MdyT -48.0 -174.3 -98.1 -35.4 -44.0 -49.7 -260.3 -134.7 63.8 32.7

COMB ( 11 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 41 42

FdzT 17.1 17.1

MdxT -42.4 -42.4

MdyT 32.7 -32.7

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.3 9.3 9.3 9.3 8.8 8.9 8.8 8.4 8.4 9.2

MdxT 32.6 -32.6 0.0 0.0 4.1 18.7 -3.9 -23.9 19.5 51.7

MdyT 0.0 0.0 25.1 -25.1 -100.0 -48.7 70.4 -93.7 64.3 -108.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 14 ) ( 1 ) ( 2 ) ( 2 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.2 8.7 8.7 8.7 9.0 9.0 9.0 8.0 8.0 9.3

MdxT -43.7 4.2 -18.2 -4.6 3.8 18.8 -3.4 -45.6 38.1 52.4

MdyT 77.6 -107.2 49.4 123.6 -92.7 -48.8 17.1 -86.7 56.6 -108.4

COMB ( 16 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.3 8.4 8.4 8.4 8.9 8.9 8.7 8.4 8.4 9.1

MdxT -44.5 4.1 -17.7 -4.8 18.8 -2.7 18.3 -25.9 21.4 32.5

MdyT 76.9 -109.5 62.0 155.1 -60.1 -22.4 -40.1 -93.7 64.7 -106.8

COMB ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 9.1 8.6 8.6 8.6 8.4 8.4 8.4 9.3 9.3

MdxT -27.6 3.5 -18.0 -3.6 3.4 -17.5 -3.9 23.1 -23.1

MdyT 77.4 -107.5 49.7 124.3 -109.8 62.3 155.8 17.8 -17.8

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.8 2.7 2.7 2.6 2.6 2.6

MdxT 8.9 -8.9 0.0 0.0 0.0 -1.5 5.6 -10.5 -4.2 6.2

MdyT 0.0 0.0 -24.8 12.3 -12.3 -23.9 -31.6 -23.1 -30.6 -10.2

COMB ( 0 ) ( 0 ) ( 9 ) ( 0 ) ( 0 ) ( 14 ) ( 14 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.8 2.6 2.7 2.7 2.6 2.6 2.6 2.8

MdxT 13.9 6.4 -4.8 5.5 -0.7 5.7 -17.4 -6.9 9.4 14.7

MdyT -24.9 -32.9 -18.5 -31.3 -24.5 -32.3 -22.4 -29.7 -8.3 -25.3

COMB ( 16 ) ( 16 ) ( 16 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.8 2.8 2.6 2.8 2.6 2.6 2.6 2.6 2.7 2.7

MdxT 6.5 -5.7 5.5 1.1 5.5 -11.8 -4.7 7.4 7.6 -1.7

MdyT -33.4 -17.9 -38.4 4.9 -30.9 -22.5 -29.9 -10.8 -24.2 -16.5

COMB ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 2.5 2.5 2.5 2.6 2.7 2.7 2.8 2.8 2.8

MdxT -18.2 -7.3 10.5 5.9 -1.3 2.1 6.3 -6.3 -6.3

MdyT -22.0 -29.2 -8.8 -38.8 -24.2 4.3 8.7 8.7 -8.7

COMB ( 15 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P116

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.5 27.5 27.1 27.5 27.5 24.8 24.0 24.0 25.6 25.7

MdxT 57.8 -57.8 0.0 0.0 0.0 -2.7 32.5 -10.8 -39.5 15.1

MdyT 0.0 0.0 124.0 125.2 -74.4 21.6 23.2 6.2 19.9 6.0

COMB ( 0 ) ( 0 ) ( 9 ) ( 18 ) ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.1 23.1 26.4 26.4 26.4 22.9 22.9 25.7 21.5 21.5

MdxT -4.5 -1.0 -0.8 -1.7 -1.7 58.5 -17.8 -64.1 -5.7 -0.6

MdyT -39.8 13.6 82.9 49.1 -1.5 24.6 6.3 18.9 -80.5 18.8

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.1 27.1 25.2 24.4 24.4 26.1 26.1 23.6 23.6 26.9

MdxT -2.0 -2.0 -2.8 33.9 -11.2 -39.6 15.1 -4.6 -1.0 -1.0

MdyT 71.8 -6.4 22.8 24.5 6.4 21.0 6.3 -38.6 14.0 84.1

COMB ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 16 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 23.4 23.4 26.1 22.0 22.0 27.5 27.5 27.5 27.5 27.5

MdxT 58.4 -17.8 -64.3 -5.9 -0.7 -2.0 -40.9 40.9 -40.9 40.9

MdyT 25.8 6.6 20.2 -79.2 19.0 72.6 -52.6 52.6 52.6 -52.6

COMB ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.7 19.7 19.7 19.7 17.7 17.7 17.7 17.3 17.3 17.3

MdxT 69.0 -69.0 0.0 0.0 -4.2 37.2 10.2 30.8 53.4 -26.2

MdyT 0.0 0.0 53.2 -53.2 204.5 -88.8 -221.9 207.8 -90.5 -226.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.2 18.2 16.5 16.5 16.5 18.9 18.9 18.9 16.5 16.5

MdxT -40.6 48.4 -7.4 34.7 13.0 -0.8 39.7 7.6 56.6 22.6

MdyT 201.2 -217.3 135.0 -58.9 -147.3 274.0 -118.6 -296.5 200.9 -91.1

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.5 18.1 18.1 15.3 15.3 15.3 19.3 19.3 19.3 17.7

MdxT -53.2 -65.1 73.9 -9.8 32.1 14.8 1.4 40.4 5.9 32.3

MdyT -227.8 189.6 -212.8 79.4 -38.4 -95.9 311.1 -137.9 -344.7 176.5

COMB ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 17.7 17.7 18.6 18.6 17.0 17.0 17.0 19.4 19.4 19.4

MdxT 55.8 -27.7 -40.6 48.6 -7.4 35.7 13.0 -0.7 40.7 7.7

MdyT -88.5 -221.2 169.8 -212.2 103.7 -56.8 -142.1 242.8 -116.5 -291.3

COMB ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 16.9 16.9 16.9 18.5 18.5 15.7 15.7 15.7 19.7 19.7

MdxT 56.7 22.7 -53.1 -65.1 74.1 -9.7 33.0 15.0 1.4 41.4

MdyT 170.1 -89.1 -222.7 158.9 -207.8 48.6 -36.3 -90.9 280.3 -135.9

COMB ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 51 52 53 54 55

FdzT 19.7 19.7 19.7 19.7 19.7

MdxT 5.9 48.8 -48.8 -48.8 48.8

MdyT -339.6 37.6 37.6 -37.6 -37.6

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 12.2 10.8 11.5 11.5 10.5 9.9 12.2 12.2 10.7

MdxT 42.6 -42.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -37.5

MdyT 0.0 0.0 94.8 187.2 -227.2 210.4 140.7 32.9 -32.9 -211.4

COMB ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 5 ) ( 13 ) ( 17 ) ( 0 ) ( 0 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.8 10.7 10.6 10.6 11.0 11.0 11.0 10.1 10.1 10.1

MdxT -0.7 52.4 12.4 -21.8 -31.8 -22.7 21.4 0.7 -21.3 -1.8

MdyT -161.3 300.3 -65.2 -163.0 91.4 -221.8 -159.5 2.5 -56.2 -95.3

COMB ( 1 ) ( 15 ) ( 2 ) ( 2 ) ( 3 ) ( 11 ) ( 3 ) ( 4 ) ( 4 ) ( 4 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.5 10.4 10.4 10.4 11.0 11.0 11.0 9.5 9.5 11.9

MdxT 24.1 53.6 21.4 -37.5 -53.3 -21.3 36.3 1.0 -20.0 -1.4

MdyT -90.9 96.5 -61.5 -153.9 84.8 -59.1 -147.7 -63.3 -54.3 395.1

COMB ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 11.8 11.8 11.2 11.2 11.2 11.0 11.4 11.4 10.5 10.5

MdxT 24.8 1.3 -1.0 -23.5 -0.6 31.1 -33.0 21.6 -22.0 -1.7

MdyT -104.2 -260.5 302.7 121.1 -219.9 306.2 299.3 -218.3 84.2 -154.1

COMB ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 11.9 11.9 11.4 11.4 9.9 9.9 12.2 12.2 12.2 12.2

MdxT -24.9 0.6 -54.5 36.3 -20.8 -2.5 -1.8 -25.6 1.4 30.1

MdyT 158.0 -285.9 288.8 -205.4 56.3 -98.6 448.4 179.4 -318.2 23.2

COMB ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 51 52 53

FdzT 12.2 12.2 12.2

MdxT -30.1 -30.1 30.1

MdyT 23.2 -23.2 -23.2

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.1 3.1 3.1 3.1 2.1 2.1 2.1 2.0 2.0 2.1

MdxT 10.0 -10.0 0.0 0.0 -9.7 -9.1 8.5 4.9 4.3 -20.9

MdyT 0.0 0.0 8.5 -8.5 1.4 14.1 10.5 6.6 9.7 0.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 13 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.1 2.1 1.7 1.7 2.5 2.5 2.0 2.0 2.2 2.2

MdxT -8.3 13.0 -9.1 8.1 -10.2 9.0 9.1 1.0 -28.3 -11.3

MdyT 7.1 11.3 -22.1 6.4 24.9 14.4 6.0 8.4 0.6 6.9

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.2 1.4 1.4 2.7 2.7 2.5 2.4 2.4 2.5 2.5

MdxT 16.0 -8.7 7.8 -10.6 9.1 -9.7 1.5 7.0 -21.0 13.4

MdyT 11.1 -37.8 3.2 40.6 16.4 37.7 38.2 23.9 37.1 4.2

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 2.1 2.9 2.9 2.4 2.6 2.6 1.8 1.8 1.8 3.1

MdxT 8.5 -10.4 9.4 9.1 -28.4 16.2 -8.7 -3.5 8.1 -10.6

MdyT -0.6 61.2 7.3 38.1 36.3 3.8 -2.1 -4.2 -4.2 76.3

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43

FdzT 3.1 3.1 3.1

MdxT 9.5 -7.1 7.1

MdyT 9.0 -6.0 -6.0

COMB ( 18 ) ( 0 ) ( 0 )

### P117

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 43.8 46.8 46.8 46.2 44.6 44.8 43.3 46.8 46.8 46.0

MdxT 61.5 98.3 -98.3 0.0 0.0 0.0 0.0 0.0 0.0 -1.8

MdyT 0.0 0.0 0.0 -1.8 8.8 -2.2 8.7 126.4 -126.4 -69.2

COMB ( 6 ) ( 0 ) ( 0 ) ( 1 ) ( 8 ) ( 10 ) ( 17 ) ( 0 ) ( 0 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 45.6 45.9 46.8 46.8 46.0 46.3 43.8 43.8 44.6 45.1

MdxT 35.6 -61.0 -69.5 69.5 -0.7 2.8 61.5 -17.4 -3.5 4.1

MdyT -0.8 -3.8 -89.4 -89.4 5.0 65.7 -1.0 -1.0 -114.2 110.3

COMB ( 2 ) ( 7 ) ( 0 ) ( 0 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 45.1 44.2 45.4 45.4 44.7 42.5 42.5 44.6 43.3 43.8

MdxT -2.1 37.1 -36.4 8.4 -0.7 61.5 -17.4 -61.0 -3.5 4.1

MdyT -10.4 -1.3 -3.4 -0.8 4.9 -1.1 -1.1 -4.2 -114.8 109.8

COMB ( 9 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 18 )

CARR 31 32 33

FdzT 43.8 46.8 46.8

MdxT -2.1 69.5 -69.5

MdyT -10.6 89.4 89.4

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.1 36.1 36.1 36.1 35.5 36.1 35.7 35.5 35.5 36.1

MdxT 126.3 -126.3 0.0 0.0 35.1 89.3 9.5 74.5 -27.3 -34.3

MdyT 0.0 0.0 97.4 -97.4 -116.3 -68.8 253.5 -46.5 108.6 -114.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 0 ) ( 4 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.1 36.1 35.7 35.7 33.9 33.9 33.9 34.9 34.9 34.9

MdxT 81.1 42.1 -2.2 75.0 60.5 104.9 -52.6 -58.0 112.4 65.7

MdyT -45.9 103.7 -240.1 101.4 -111.7 -44.7 108.1 -108.8 -43.5 99.8

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.4 34.4 34.4 34.5 34.5 34.1 34.7 32.6 32.6 32.6

MdxT -4.5 72.2 11.2 72.4 1.7 72.5 79.9 60.8 104.2 -52.9

MdyT -317.8 139.8 349.6 -56.7 -141.7 41.2 39.2 -93.2 41.0 102.5

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 15 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 33.6 33.6 33.6 33.0 33.0 33.0 33.1 33.1 36.1 36.1

MdxT -57.5 111.0 65.4 -4.1 69.3 11.1 69.5 1.5 89.3 -89.3

MdyT -90.3 37.6 94.1 -299.2 137.5 343.8 -58.9 -147.3 68.8 68.8

COMB ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41

FdzT 36.1

MdxT -89.3

MdyT -68.8

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.5 19.5 19.5 19.5 19.3 19.4 19.3 19.5 19.5 19.5

MdxT 68.4 -68.4 0.0 0.0 58.2 58.9 -41.2 33.5 58.6 -21.4

MdyT 0.0 0.0 52.7 -52.7 -18.3 52.2 54.3 -152.2 63.6 158.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 1 ) ( 2 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.3 19.3 19.3 18.8 18.7 18.8 19.0 19.0 19.1 19.1

MdxT 34.0 59.1 -20.3 75.0 32.9 -55.7 -10.2 39.9 32.1 56.4

MdyT 120.5 50.6 -54.3 -18.5 213.4 50.7 -9.5 43.7 -241.4 -96.5

COMB ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 9 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.1 18.7 18.7 18.2 18.2 18.2 18.3 18.3 18.3 18.1

MdxT -21.1 57.3 -19.5 58.0 56.3 -41.9 0.6 32.2 -21.3 56.6

MdyT 224.8 85.3 -130.3 -99.8 -38.9 92.0 87.8 -233.7 196.4 39.2

COMB ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.1 17.7 17.7 17.8 17.8 18.0 18.0 18.0 17.5 17.5

MdxT -20.2 73.8 -55.6 -11.5 15.1 30.7 53.7 -21.0 31.6 54.7

MdyT -16.7 -98.3 87.6 -89.3 80.6 -321.2 -128.5 261.7 133.6 53.4

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 17.5 19.5 19.5 19.5

MdxT -19.5 -48.3 -48.3 48.3

MdyT -93.5 37.3 -37.3 -37.3

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P118

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.6 24.6 24.2 22.5 23.9 22.3 24.6 24.6 23.3 24.1

MdxT 51.6 -51.6 0.0 0.0 0.0 0.0 0.0 0.0 3.4 -42.8

MdyT 0.0 0.0 -10.4 -56.1 -5.3 -55.9 66.4 -66.4 5.6 5.0

COMB ( 0 ) ( 0 ) ( 8 ) ( 5 ) ( 13 ) ( 14 ) ( 0 ) ( 0 ) ( 1 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.6 22.3 22.3 24.0 24.0 22.5 24.3 24.6 24.6 21.1

MdxT 36.5 49.7 -8.4 8.8 8.8 1.7 -73.8 -37.5 16.8 80.5

MdyT 46.9 6.6 1.7 108.9 61.3 9.2 4.5 4.2 2.1 7.3

COMB ( 0 ) ( 3 ) ( 3 ) ( 17 ) ( 17 ) ( 5 ) ( 15 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.1 21.5 21.5 21.5 23.1 22.1 22.1 23.9 23.9 22.3

MdxT -14.7 -2.1 -2.1 2.1 3.5 49.8 -8.3 6.7 6.7 1.8

MdyT 1.7 -97.0 -52.6 14.1 5.9 6.9 1.8 67.6 38.4 -55.9

COMB ( 7 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 22.3 20.9 20.9 21.2 21.2 21.2 24.6 24.6 24.6

MdxT 1.8 80.6 -14.6 -2.1 2.2 2.2 -36.5 -36.5 36.5

MdyT 9.4 7.6 1.8 -96.7 -52.3 14.3 46.9 -46.9 -46.9

COMB ( 14 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.5 17.5 16.8 17.5 17.5 17.2 17.3 17.2 17.5 17.5

MdxT 61.4 -61.4 0.0 0.0 0.0 8.8 -57.3 -10.4 -18.9 -37.1

MdyT 0.0 0.0 -52.2 47.3 -47.3 249.3 -56.3 -277.1 124.0 -56.1

COMB ( 0 ) ( 0 ) ( 5 ) ( 0 ) ( 0 ) ( 8 ) ( 6 ) ( 8 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.5 16.7 16.7 16.7 17.5 17.5 17.5 16.8 17.3 17.3

MdxT 16.8 22.0 -45.4 -25.1 5.7 -36.7 -7.6 -3.6 -33.7 31.8

MdyT -140.3 121.2 -53.6 -134.0 200.9 -88.9 -222.3 44.4 121.2 -140.8

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.0 16.0 17.2 16.8 16.8 16.8 17.5 17.5 17.5 16.0

MdxT 35.8 -39.6 -36.1 24.2 -48.0 -27.0 8.0 -36.7 -9.5 38.1

MdyT 116.5 -129.9 -110.8 103.9 -51.2 -128.1 183.7 -86.6 -216.4 99.4

COMB ( 7 ) ( 7 ) ( 8 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 16 )

CARR 31 32 33 34 35 36 37 38

FdzT 16.0 17.2 17.2 17.2 17.5 17.5 17.5 17.5

MdxT -41.4 10.9 -36.1 -12.3 43.4 -43.4 -43.4 43.4

MdyT -124.2 232.4 -108.5 -271.3 33.5 33.5 -33.5 -33.5

COMB ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.7 10.7 10.7 10.7 9.9 9.9 9.9 9.9 9.9 10.3

MdxT 37.5 -37.5 0.0 0.0 39.1 -35.6 -9.8 -22.5 14.7 11.8

MdyT 0.0 0.0 28.9 -28.9 71.5 -70.6 -70.8 68.7 -71.1 196.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 1 ) ( 2 ) ( 2 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.2 10.3 9.6 9.6 9.8 9.8 9.7 9.7 9.2 9.2

MdxT -44.0 -13.0 4.9 -20.1 -45.2 33.5 59.8 -52.1 2.7 -19.4

MdyT 139.2 -170.4 -7.7 -8.4 64.7 -66.8 69.3 -65.9 -62.9 -25.1

COMB ( 15 ) ( 8 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.2 10.4 10.4 10.3 10.3 10.7 10.7 10.7 10.0 10.0

MdxT -5.5 -22.5 13.9 40.5 -37.4 13.2 -27.4 -14.8 6.2 -9.5

MdyT 37.5 144.8 -106.4 147.6 -105.8 271.2 108.5 -205.0 68.3 -43.7

COMB ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 17 ) ( 17 ) ( 17 ) ( 14 ) ( 14 )

CARR 31 32 33 34 35 36 37

FdzT 10.2 10.1 10.1 9.7 10.7 10.7 10.7

MdxT 31.6 61.2 -53.8 -20.3 26.5 -26.5 26.5

MdyT -101.4 143.8 -100.5 11.6 20.4 -20.4 -20.4

COMB ( 15 ) ( 16 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.7 2.8 2.7 2.7 2.7 2.7

MdxT 8.8 -8.8 0.0 0.0 16.8 -2.7 -8.2 7.4 3.9 -5.7

MdyT 0.0 0.0 13.9 -13.9 24.5 129.1 51.8 54.2 23.9 -26.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 18 ) ( 2 ) ( 7 ) ( 4 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.7 2.7 2.7 2.8 2.7 2.8 2.7 2.7

MdxT -2.6 -6.6 -10.6 -8.0 -5.2 4.2 4.2 -6.9 17.1 7.4

MdyT 140.5 137.3 51.3 63.6 -63.6 25.2 23.8 124.9 24.4 42.2

COMB ( 9 ) ( 9 ) ( 6 ) ( 17 ) ( 17 ) ( 9 ) ( 13 ) ( 18 ) ( 16 ) ( 16 )

CARR 21 22 23 24

FdzT 2.8 2.8 2.8 2.8

MdxT 4.5 6.2 -6.2 6.2

MdyT 25.1 9.8 -9.8 -9.8

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P119

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.2 21.2 19.5 20.7 21.2 20.2 21.2 19.5 20.3 20.3

MdxT 44.5 -44.5 0.0 0.0 0.0 0.0 0.0 3.9 -71.4 15.5

MdyT 0.0 0.0 -1.1 9.4 57.2 5.2 -57.2 -2.2 -4.2 -1.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 18 ) ( 0 ) ( 14 ) ( 0 ) ( 1 ) ( 15 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.5 18.5 18.5 18.3 18.3 18.3 20.7 20.8 20.8 17.6

MdxT 49.4 26.2 -8.5 0.7 0.8 0.8 9.8 -71.7 15.5 79.7

MdyT -1.3 -1.3 -1.3 57.8 31.7 -7.6 -102.6 -4.1 -1.1 -0.8

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 18 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.6 17.6 17.1 17.1 21.2 19.0 20.0 20.0 18.0 18.0

MdxT 42.0 -14.6 -1.5 1.3 9.4 4.3 -41.0 9.5 49.7 26.4

MdyT -1.3 -1.3 97.6 -11.8 -102.5 -2.4 -3.4 -1.1 -1.4 -1.4

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.0 17.8 17.8 17.8 20.2 17.1 17.1 17.1 16.7 16.7

MdxT -8.5 1.0 1.0 1.0 7.7 79.9 42.1 -14.6 -1.3 1.3

MdyT -1.3 57.7 31.6 -7.6 -62.4 -1.0 -1.3 -1.3 97.4 53.7

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45

FdzT 16.7 21.2 21.2 21.2 21.2

MdxT 1.3 31.5 -31.5 -31.5 31.5

MdyT -11.9 40.5 40.5 -40.5 -40.5

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.7 14.7 14.7 14.7 13.9 13.8 13.9 14.1 14.1 14.1

MdxT 51.3 -51.3 0.0 0.0 5.7 -39.7 -9.5 -23.9 -42.0 19.9

MdyT 0.0 0.0 39.6 -39.6 -30.2 49.8 97.4 -42.0 48.6 108.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 15 ) ( 1 ) ( 6 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.5 13.5 13.5 13.2 13.2 14.7 14.7 14.7 13.0 13.0

MdxT 23.4 -45.4 -26.9 2.8 -28.0 10.4 -30.8 -13.2 34.9 -38.2

MdyT -23.2 44.4 89.5 46.6 91.7 -158.5 93.2 233.0 -18.8 82.2

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 12 ) ( 9 ) ( 9 ) ( 9 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.5 12.5 12.5 13.5 13.5 13.5 13.8 13.8 13.2 13.2

MdxT 0.6 -26.2 -5.2 7.4 -28.4 -10.6 -22.4 18.8 25.1 -11.2

MdyT 97.7 41.9 -41.9 -30.5 47.7 99.8 -42.3 111.2 -23.7 45.6

COMB ( 8 ) ( 8 ) ( 8 ) ( 10 ) ( 10 ) ( 10 ) ( 15 ) ( 15 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.9 14.3 14.3 14.3 12.7 12.7 12.1 12.1 12.1 14.7

MdxT 4.5 11.9 -30.1 -14.3 36.5 -39.3 2.1 -25.5 -6.3 36.3

MdyT 46.2 -158.6 94.0 235.1 -19.0 84.3 97.4 42.6 -39.6 28.0

COMB ( 13 ) ( 18 ) ( 18 ) ( 18 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 )

CARR 41 42 43

FdzT 14.7 14.7 14.7

MdxT -36.3 -36.3 36.3

MdyT 28.0 -28.0 -28.0

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.8 9.8 9.8 9.8 9.2 9.2 9.2 9.3 9.2 8.9

MdxT 34.3 -34.3 0.0 0.0 37.0 -38.1 -33.6 -18.2 28.6 8.1

MdyT 0.0 0.0 26.5 -26.5 -104.3 -87.2 32.9 -102.8 27.2 -41.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 6 ) ( 12 ) ( 11 ) ( 15 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.9 8.8 9.6 9.6 9.6 9.2 9.1 9.1 8.5 8.5

MdxT -18.6 -8.1 10.6 -22.4 -11.8 29.7 54.9 -48.3 5.7 -17.8

MdyT -35.8 -39.2 -166.2 -66.5 90.0 16.1 -102.1 33.3 15.8 -41.0

COMB ( 13 ) ( 4 ) ( 14 ) ( 14 ) ( 14 ) ( 6 ) ( 16 ) ( 16 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.5 9.8 9.8 9.8 9.3 9.3 9.3 9.2 8.5 8.5

MdxT -6.7 10.9 -22.7 -11.9 9.4 -10.5 12.5 -37.1 6.7 -17.8

MdyT -79.0 -205.0 -82.0 128.4 -103.6 31.1 29.3 -99.4 3.6 -39.3

COMB ( 8 ) ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 11 ) ( 15 ) ( 17 ) ( 17 )

CARR 31 32 33 34 35

FdzT 8.5 9.8 9.8 9.8 9.8

MdxT -8.0 24.3 -24.3 -24.3 24.3

MdyT -67.9 18.7 18.7 -18.7 -18.7

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.7 2.8 2.8 2.7 2.7 2.7 2.7 2.7

MdxT 8.9 -8.9 0.0 0.0 0.0 7.7 -7.1 -10.8 16.8 5.0

MdyT 0.0 0.0 -31.4 13.7 -13.7 -44.4 -40.9 -24.5 -24.2 -43.4

COMB ( 0 ) ( 0 ) ( 2 ) ( 0 ) ( 0 ) ( 7 ) ( 2 ) ( 15 ) ( 7 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.7 2.7 2.7 2.6 2.7 2.7 2.7 2.7

MdxT 6.0 -3.1 5.6 -2.1 5.6 -1.8 -8.2 16.4 -2.0 -1.7

MdyT -125.8 -121.8 -33.1 20.9 -59.6 56.4 -37.7 -24.5 24.2 59.6

COMB ( 8 ) ( 8 ) ( 5 ) ( 5 ) ( 18 ) ( 9 ) ( 11 ) ( 16 ) ( 14 ) ( 18 )

CARR 21 22 23 24

FdzT 2.8 2.8 2.8 2.8

MdxT 6.3 -6.3 -6.3 6.3

MdyT 9.7 9.7 -9.7 -9.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P12

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 44.3 44.3 44.3 44.3 42.7 44.3 44.3 41.1 41.2 42.6

MdxT 92.9 -92.9 0.0 0.0 52.1 13.4 65.7 4.5 3.9 -36.5

MdyT 0.0 0.0 119.5 -119.5 28.3 157.9 -84.5 -59.9 12.2 15.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 6 ) ( 0 ) ( 12 ) ( 3 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 44.1 44.3 39.1 39.1 39.3 42.0 42.4 41.5 41.5 44.3

MdxT 13.4 2.5 2.7 4.2 4.2 81.8 -36.4 -65.8 18.8 65.7

MdyT 89.5 -13.0 -114.5 -61.3 18.6 32.5 15.5 11.1 2.9 84.5

COMB ( 15 ) ( 6 ) ( 16 ) ( 16 ) ( 7 ) ( 8 ) ( 14 ) ( 9 ) ( 9 ) ( 0 )

CARR 21 22

FdzT 44.3 44.3

MdxT -65.7 -65.7

MdyT 84.5 -84.5

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.2 30.2 30.2 30.2 29.4 29.4 29.4 30.2 30.2 30.2

MdxT 105.7 -105.7 0.0 0.0 21.7 -61.7 -30.1 23.1 -63.4 -31.5

MdyT 0.0 0.0 81.5 -81.5 160.3 64.1 -136.9 244.2 97.7 -216.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.5 28.5 28.5 29.4 29.4 29.4 29.3 29.3 29.3 29.9

MdxT 64.3 -59.9 -75.7 47.6 -97.6 -57.5 -4.3 -61.5 -2.7 23.4

MdyT 134.0 72.7 -117.5 150.8 60.3 -126.4 169.8 67.9 -147.6 296.0

COMB ( 8 ) ( 3 ) ( 8 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.9 29.9 27.0 27.0 28.3 28.2 29.2 29.3 29.2 29.2

MdxT -63.9 -32.6 18.3 -56.7 -22.5 16.0 -29.8 -57.3 -4.6 -2.4

MdyT 118.4 -272.7 3.6 3.6 165.8 -152.9 -137.2 -126.6 168.6 -147.7

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 18 ) ( 10 ) ( 13 ) ( 14 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 29.7 28.4 28.2 28.2 30.2 30.2 30.2 30.2

MdxT -32.3 -75.5 -22.7 -59.2 74.8 -74.8 -74.8 74.8

MdyT -272.9 -117.6 164.5 65.8 57.6 57.6 -57.6 -57.6

COMB ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.1 17.1 17.1 17.1 16.6 16.6 16.6 17.0 17.1 17.0

MdxT 60.0 -60.0 0.0 0.0 18.8 50.7 -42.6 21.0 40.0 -17.5

MdyT 0.0 0.0 46.3 -46.3 222.6 222.3 -206.9 280.4 110.7 -271.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 13 ) ( 13 ) ( 15 ) ( 6 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.2 16.4 16.2 16.7 16.7 16.7 15.7 15.8 15.7 16.5

MdxT 17.1 71.5 -14.4 -13.3 -35.0 10.8 15.5 33.2 -12.5 71.4

MdyT 183.0 213.6 -156.9 219.2 87.7 -199.1 148.0 57.7 -111.7 209.9

COMB ( 12 ) ( 17 ) ( 12 ) ( 5 ) ( 5 ) ( 5 ) ( 16 ) ( 7 ) ( 16 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.4 16.4 16.4 16.6 17.0 16.2 16.6 16.6 17.0 15.7

MdxT -59.2 -35.0 29.5 -16.0 -17.5 34.0 -13.2 10.6 39.9 33.0

MdyT -194.9 211.1 -184.5 -205.0 -252.8 73.2 223.0 -203.0 112.2 59.2

COMB ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 14 ) ( 14 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35 36

FdzT 16.3 16.3 17.1 17.1 17.1 17.1

MdxT -34.9 29.4 42.4 -42.4 -42.4 42.4

MdyT 214.8 -188.4 32.7 32.7 -32.7 -32.7

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 10.1 -10.1 0.0 0.0 32.3 -25.1 -24.6 9.1 -23.1 -31.6

MdyT 0.0 0.0 15.5 -15.5 -29.8 -195.3 -129.4 -30.0 52.8 -37.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 8 ) ( 6 ) ( 2 ) ( 3 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.2 3.2 3.2 3.2 3.1 3.1 3.1 3.1 3.1 3.1

MdxT -10.4 -9.9 -22.3 -36.5 32.3 -25.1 -24.6 23.4 -23.0 -31.5

MdyT -195.3 115.7 115.2 -35.4 -29.4 -194.5 -132.7 -29.3 53.6 -36.8

COMB ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 17 ) ( 15 ) ( 11 ) ( 13 ) ( 12 ) ( 13 )

CARR 21 22 23 24 25 26

FdzT 3.1 3.1 3.1 3.1 3.1 3.2

MdxT -10.4 8.5 -9.9 -22.3 -36.4 7.1

MdyT -194.5 -29.5 116.3 115.9 -34.7 11.0

COMB ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 0 )

### P120

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 55.2 53.6 56.3 56.3 56.3 55.4 55.0 56.3 55.2 55.1

MdxT 9.2 14.8 118.2 -118.2 0.0 0.0 0.0 0.0 -36.4 32.8

MdyT 0.0 0.0 0.0 0.0 -152.0 -110.2 8.3 152.0 -4.3 -3.1

COMB ( 3 ) ( 7 ) ( 0 ) ( 0 ) ( 0 ) ( 8 ) ( 17 ) ( 0 ) ( 3 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 55.1 56.3 56.3 53.6 54.1 53.5 53.6 51.3 51.7 54.7

MdxT -7.3 83.6 83.6 -1.8 1.0 58.0 -59.8 -2.1 1.1 34.3

MdyT -0.7 -107.5 107.5 60.6 -5.7 -2.0 -4.2 104.2 -9.1 -2.9

COMB ( 2 ) ( 0 ) ( 0 ) ( 14 ) ( 5 ) ( 6 ) ( 7 ) ( 18 ) ( 9 ) ( 11 )

CARR 21 22 23 24 25

FdzT 55.9 53.1 53.1 56.3 56.3

MdxT 0.6 58.0 -13.4 -83.6 -83.6

MdyT -67.8 -1.8 -0.7 107.5 -107.5

COMB ( 13 ) ( 15 ) ( 15 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 42.7 42.7 42.7 42.7 41.9 41.9 41.9 41.6 41.9 41.6

MdxT 149.4 -149.4 0.0 0.0 -11.2 -88.1 1.8 22.4 -88.0 -30.7

MdyT 0.0 0.0 -115.2 115.2 242.9 97.2 -159.6 249.6 99.3 -167.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 11 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 42.0 42.0 42.0 42.7 42.7 41.2 41.2 41.2 39.9 39.9

MdxT -44.4 -88.2 34.0 -9.7 -105.6 -12.9 -86.6 3.6 45.8 -98.1

MdyT 237.3 94.9 -154.4 133.4 81.4 352.4 141.0 -288.5 240.5 96.2

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 0 ) ( 5 ) ( 5 ) ( 5 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 39.9 40.4 40.4 40.4 41.6 39.1 39.1 39.1 41.6 41.6

MdxT -52.5 -65.2 -115.9 55.2 -87.3 -12.7 -82.1 4.5 -43.8 33.6

MdyT -165.3 220.8 88.3 -145.9 99.8 412.7 165.1 -369.3 238.3 -157.1

COMB ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 11 ) ( 9 ) ( 9 ) ( 9 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 40.9 40.9 40.9 40.0 40.0 40.0 38.8 38.8 38.8 42.7

MdxT -12.3 -85.8 3.2 -64.7 -114.9 54.7 -12.2 -81.4 3.9 105.6

MdyT 353.5 141.4 -291.2 221.8 88.7 -148.4 413.7 165.5 -372.0 81.4

COMB ( 14 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 41 42

FdzT 42.7 42.7

MdxT -105.6 105.6

MdyT -81.4 -81.4

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.0 22.0 22.0 22.0 21.7 21.7 21.7 21.5 22.0 22.0

MdxT 76.9 -76.9 0.0 0.0 -27.4 60.3 33.6 7.7 -54.4 46.1

MdyT 0.0 0.0 59.3 -59.3 88.3 -86.0 -202.2 100.5 -41.9 -74.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 3 ) ( 11 ) ( 0 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.0 21.4 21.4 21.4 20.9 21.2 20.9 21.2 21.2 21.6

MdxT 21.4 -10.5 45.0 21.1 19.7 68.4 -1.8 -38.4 40.0 -9.2

MdyT -107.0 200.2 -117.5 -293.7 95.3 -80.6 -196.8 84.4 -190.5 -104.3

COMB ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 15 ) ( 7 ) ( 15 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.7 20.7 20.7 21.5 21.5 21.5 21.2 21.2 21.2 21.0

MdxT -10.2 43.4 19.3 59.1 -26.7 32.8 -9.8 44.6 20.3 67.2

MdyT 270.9 -137.3 -343.1 -88.0 101.9 -214.6 213.8 -122.5 -306.2 -82.5

COMB ( 9 ) ( 9 ) ( 9 ) ( 12 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 14 ) ( 16 )

CARR 31 32 33 34 35 36 37 38

FdzT 21.0 21.0 20.5 20.5 20.5 22.0 22.0 22.0

MdxT -37.7 39.2 -9.4 43.1 18.5 54.4 -54.4 54.4

MdyT 97.7 -202.7 284.1 -142.1 -355.3 41.9 41.9 -41.9

COMB ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P121

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 42.3 42.3 41.4 42.3 40.6 39.1 42.3 41.3 41.4 41.2

MdxT 88.8 -88.8 0.0 0.0 0.0 0.0 0.0 7.4 48.0 -33.2

MdyT 0.0 0.0 -3.4 114.1 -10.5 -15.4 -114.1 -13.6 -13.0 -14.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 5 ) ( 9 ) ( 0 ) ( 10 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 42.3 40.6 40.5 40.2 41.9 39.1 41.7 42.3 42.3 42.3

MdxT 62.8 7.8 74.8 -60.6 6.7 7.7 6.6 62.8 -62.8 -62.8

MdyT -80.7 44.1 -12.9 -15.0 -109.8 82.2 -109.9 80.7 80.7 -80.7

COMB ( 0 ) ( 5 ) ( 15 ) ( 16 ) ( 8 ) ( 9 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.2 31.2 31.2 31.2 30.5 30.6 30.5 30.5 30.7 30.5

MdxT 109.2 -109.2 0.0 0.0 -38.2 -72.4 34.9 4.5 64.5 -3.1

MdyT 0.0 0.0 84.2 -84.2 -320.5 -127.7 189.8 -312.6 -124.7 182.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 3 ) ( 12 ) ( 11 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.2 31.2 31.0 30.0 30.1 30.0 29.6 29.8 29.6 29.5

MdxT -16.0 -65.5 15.0 -17.8 -63.3 16.8 20.0 62.6 -16.9 -51.2

MdyT -370.7 -148.3 238.7 -261.2 -104.0 133.3 -291.9 -116.3 176.8 -304.8

COMB ( 4 ) ( 4 ) ( 13 ) ( 14 ) ( 5 ) ( 14 ) ( 15 ) ( 6 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.6 29.5 30.5 30.6 30.5 28.8 28.8 28.7 30.5 30.5

MdxT -89.5 46.3 -14.0 -64.3 13.0 -17.2 -60.5 16.2 64.1 -72.3

MdyT -121.5 189.7 -390.5 -155.7 271.0 -205.1 -85.2 95.5 -125.0 -128.2

COMB ( 7 ) ( 16 ) ( 17 ) ( 8 ) ( 17 ) ( 9 ) ( 9 ) ( 18 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 31.0 31.0 30.0 29.6 29.5 30.5 28.7 28.7 31.2 31.2

MdxT -15.8 -65.2 -62.9 62.3 -89.4 -64.0 -17.1 -60.2 77.2 -77.2

MdyT -371.8 -148.7 -104.5 -116.8 -121.9 -156.2 -206.1 -85.5 59.5 59.5

COMB ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41 42

FdzT 31.2 31.2

MdxT -77.2 77.2

MdyT -59.5 -59.5

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.4 18.4 18.1 18.4 18.4 18.1 18.3 18.1 18.2 18.1

MdxT 64.6 -64.6 0.0 0.0 0.0 -37.0 51.9 41.4 41.6 28.0

MdyT 0.0 0.0 -230.6 49.8 -49.8 -239.7 156.1 341.6 340.1 402.2

COMB ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 0 ) ( 12 ) ( 13 ) ( 12 ) ( 3 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.3 18.4 18.3 17.7 18.1 17.8 17.9 17.9 18.1 18.1

MdxT -19.3 52.0 29.1 -48.2 50.5 48.7 14.8 37.7 28.1 -18.8

MdyT -289.4 155.5 390.3 -235.2 136.9 319.8 -206.2 128.7 342.2 -318.1

COMB ( 13 ) ( 4 ) ( 13 ) ( 16 ) ( 10 ) ( 7 ) ( 6 ) ( 6 ) ( 10 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.3 17.4 17.5 17.5 18.1 17.9 17.8 17.8 17.7 18.1

MdxT 50.4 -15.3 45.7 24.9 -18.3 49.0 14.1 4.2 48.6 50.3

MdyT 160.4 -137.3 96.3 240.7 -235.1 117.6 -220.1 323.1 321.2 160.9

COMB ( 8 ) ( 18 ) ( 9 ) ( 9 ) ( 10 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 )

CARR 31 32 33 34 35

FdzT 17.4 17.4 18.4 18.4 18.4

MdxT 45.4 24.8 -45.7 -45.7 45.7

MdyT 96.8 241.9 35.2 -35.2 -35.2

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6

MdxT 11.5 -11.5 0.0 0.0 -21.6 -5.0 10.6 -7.3 10.6 -4.8

MdyT 0.0 0.0 17.7 -17.7 35.3 59.9 66.6 52.7 39.6 89.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 1 ) ( 2 ) ( 3 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6

MdxT 7.8 -12.9 8.6 -8.6 11.9 -4.5 7.1 10.1 -11.3 -9.0

MdyT 78.4 35.4 70.7 48.4 33.9 108.7 98.6 -6.4 34.7 47.7

COMB ( 4 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.6 3.6 3.6 3.6 3.6 3.6 3.5 3.5 3.6 3.6

MdxT -20.4 8.7 -4.4 5.9 8.1 9.9 -4.1 5.2 -8.1 8.1

MdyT 34.6 15.7 67.0 54.5 -30.0 10.5 86.5 75.0 -12.5 -12.5

COMB ( 16 ) ( 12 ) ( 13 ) ( 13 ) ( 18 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

### P122

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.4 8.4 6.9 7.2 7.3 8.4 8.4 6.9 6.8 6.8

MdxT 17.7 -17.7 0.0 0.0 0.0 0.0 0.0 1.1 -44.1 -22.8

MdyT 0.0 0.0 -3.4 -11.3 -16.5 -31.6 31.6 -22.5 -17.1 -23.9

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 6.8 7.1 7.1 7.1 7.2 7.2 6.7 6.7 6.7 6.6

MdxT 9.2 48.6 25.7 -8.7 5.9 5.9 -3.5 -3.5 0.8 -77.8

MdyT -3.4 -14.7 -20.9 -3.2 35.6 16.8 -67.5 -38.6 4.6 -17.4

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 6.6 6.6 7.1 7.1 7.1 7.3 7.3 6.4 6.4 6.4

MdxT -40.5 15.5 80.1 42.2 -14.7 8.8 8.8 -6.7 -6.7 1.0

MdyT -24.1 -3.4 -13.3 -19.1 -3.1 70.6 35.7 -101.1 -56.6 10.1

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 8.1 8.0 8.0 8.0 8.2 8.2 8.2 8.4 8.4 7.8

MdxT 1.0 -46.3 -24.0 9.5 48.4 25.6 -8.7 8.8 8.8 -3.6

MdyT -22.3 -16.8 -23.9 -3.4 -14.4 -22.2 -3.2 70.8 36.0 -67.1

COMB ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 17 ) ( 17 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 7.8 7.8 7.8 7.8 7.8 8.2 8.2 8.2 7.6 7.6

MdxT -3.6 0.8 -77.8 -40.4 15.7 79.9 42.1 -14.7 -6.9 -6.9

MdyT -38.4 4.6 -16.9 -24.0 -3.4 -12.9 -22.2 -2.9 -100.7 -56.4

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 18 )

CARR 51 52 53 54 55

FdzT 7.6 8.4 8.4 8.4 8.4

MdxT 1.0 12.5 -12.5 -12.5 12.5

MdyT 10.1 22.3 22.3 -22.3 -22.3

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 6.1 6.1 6.1 6.1 4.8 4.8 4.8 5.1 5.1 5.1

MdxT 21.4 -21.4 0.0 0.0 -16.2 -6.5 9.7 -32.8 15.0 37.4

MdyT 0.0 0.0 22.8 -22.8 71.8 88.3 80.9 76.0 93.7 86.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.5 4.5 4.5 5.1 5.1 5.0 4.6 5.3 5.3 5.3

MdxT 21.8 8.7 -21.6 -24.6 -9.9 41.4 23.8 -52.2 23.4 58.4

MdyT 67.3 82.6 75.6 -36.0 -38.0 -66.1 186.5 76.2 94.2 86.2

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 16 ) ( 5 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.3 4.3 5.1 5.1 5.1 4.4 4.4 5.7 5.7 5.7

MdxT 40.7 -42.0 -29.4 -11.8 17.8 29.2 22.8 -16.8 -6.7 8.5

MdyT -65.1 68.3 -79.1 -99.0 -92.5 234.9 247.2 72.0 88.8 79.7

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 6.0 6.0 6.0 5.9 5.9 5.9 5.4 6.1 6.1 6.1

MdxT -33.2 15.5 38.8 -30.0 -12.0 16.4 24.7 -51.4 23.4 58.4

MdyT 76.4 94.5 85.0 -79.0 -101.1 -93.8 187.6 76.3 94.8 85.1

COMB ( 11 ) ( 11 ) ( 11 ) ( 17 ) ( 17 ) ( 17 ) ( 14 ) ( 15 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45

FdzT 5.0 5.2 5.2 6.1 6.1

MdxT -42.0 30.3 22.8 -15.1 15.1

MdyT 67.2 234.2 246.0 -16.1 -16.1

COMB ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P123

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.8 10.8 10.8 10.8 10.6 10.7 10.8 10.3 10.8 10.8

MdxT 65.6 -65.6 0.0 0.0 -79.6 -74.6 46.4 -59.2 -31.4 -63.0

MdyT 0.0 0.0 40.5 -40.5 28.5 29.0 28.6 27.8 98.1 57.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 11 ) ( 0 ) ( 12 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.8 10.3 10.3 10.6 10.6 9.8 9.8 10.6 10.6 10.6

MdxT -46.4 -33.7 -62.9 -70.0 20.2 8.1 -50.5 -29.0 -60.6 -4.9

MdyT -28.6 -62.3 -33.6 15.4 3.1 19.0 27.6 150.8 87.3 -7.8

COMB ( 0 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28

FdzT 9.8 9.8 10.3 10.3 9.8 9.8 9.8 10.8

MdxT -33.0 -60.5 -33.9 -63.0 8.0 -33.2 -60.6 46.4

MdyT -116.3 -64.3 -62.0 -33.4 19.2 -116.1 -64.1 -28.6

COMB ( 9 ) ( 9 ) ( 14 ) ( 14 ) ( 16 ) ( 18 ) ( 18 ) ( 0 )

### P124

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.0 11.0 11.0 11.0 10.8 11.0 11.0 10.6 10.5 10.5

MdxT 67.1 -67.1 0.0 0.0 -84.4 -79.6 47.5 -60.6 -37.8 -67.5

MdyT 0.0 0.0 41.4 -41.4 -29.2 -29.7 -29.3 -28.5 61.3 33.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 11 ) ( 0 ) ( 12 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.0 11.0 11.0 10.8 10.8 10.1 10.1 10.0 10.0 10.8

MdxT -37.1 -68.7 -47.5 -74.6 19.3 3.4 -54.2 -36.3 -64.4 -35.1

MdyT -98.1 -57.5 29.3 -20.0 -2.7 -15.8 -27.2 115.1 63.5 -150.5

COMB ( 5 ) ( 5 ) ( 0 ) ( 6 ) ( 6 ) ( 7 ) ( 16 ) ( 17 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 10.8 10.8 11.0 10.8 10.8 11.0

MdxT -66.5 -5.2 -68.8 -35.3 -66.7 47.5

MdyT -87.1 8.0 -57.3 -150.4 -87.1 29.3

COMB ( 9 ) ( 9 ) ( 14 ) ( 18 ) ( 18 ) ( 0 )

### P125

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.2 9.2 7.9 7.5 8.2 7.2 8.9 8.5 9.2 8.2

MdxT 19.4 -19.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 3.8 -4.1 11.6 -9.5 3.6 -4.2 34.6 -9.5

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 5 ) ( 8 ) ( 10 ) ( 13 ) ( 0 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.2 7.9 7.8 7.8 7.8 7.9 7.9 7.9 7.5 8.3

MdxT 0.0 41.3 -42.0 -21.8 8.4 48.0 25.3 -8.8 -2.0 8.4

MdyT -34.6 24.8 16.7 23.7 4.1 17.9 25.3 3.5 69.0 -69.9

COMB ( 0 ) ( 7 ) ( 2 ) ( 2 ) ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.6 7.6 7.6 7.9 7.9 7.2 8.3 8.9 8.8 8.8

MdxT -74.8 -39.0 14.6 78.7 -14.7 -4.6 -0.6 25.4 -43.8 -22.8

MdyT 15.5 22.2 4.1 17.5 3.2 102.9 16.7 25.5 16.5 23.8

COMB ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 12 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 8.8 8.9 8.9 8.5 9.2 8.6 8.6 8.6 8.8 8.2

MdxT 78.8 48.2 -8.8 -1.8 8.5 -74.6 -38.9 14.6 41.4 -4.5

MdyT 17.5 17.8 3.4 69.0 -70.0 15.4 23.1 3.9 25.1 102.9

COMB ( 16 ) ( 12 ) ( 12 ) ( 13 ) ( 18 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 17 )

CARR 41 42 43 44

FdzT 9.2 9.2 9.2 9.2

MdxT -13.7 13.7 -13.7 13.7

MdyT 24.4 24.4 -24.4 -24.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 6.9 6.9 6.9 6.9 5.7 5.7 5.7 6.1 6.0 5.3

MdxT 24.0 -24.0 0.0 0.0 -16.6 -41.6 3.9 -24.9 24.1 24.6

MdyT 0.0 0.0 25.7 -25.7 79.1 61.3 -60.5 59.4 -58.2 65.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 16 ) ( 1 ) ( 12 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.3 5.3 5.5 5.5 5.8 5.8 6.1 6.1 5.0 5.0

MdxT -10.1 -25.2 -13.2 3.8 -18.6 6.4 -39.8 42.0 40.6 -16.8

MdyT 26.2 -62.7 -132.3 -123.6 -43.0 -12.7 53.3 -53.6 66.6 26.7

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 5.0 5.3 5.8 5.8 6.4 6.4 6.4 6.8 6.8 6.8

MdxT -42.0 12.3 -7.9 8.3 -12.2 -20.8 -4.2 -23.4 10.2 25.5

MdyT -61.3 -169.6 19.2 47.9 65.9 26.4 -55.6 61.9 24.8 -53.3

COMB ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 6.1 6.1 6.3 6.3 6.3 6.5 6.6 6.9 6.9 6.9

MdxT 24.9 10.0 -7.7 -14.6 4.1 -19.3 6.3 -39.5 17.0 42.4

MdyT 69.9 77.9 112.4 -47.5 -118.9 -51.8 -13.2 57.8 23.1 -48.9

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 18 ) ( 14 ) ( 15 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45 46 47 48

FdzT 5.7 6.1 6.1 6.1 6.5 6.5 6.9 6.9

MdxT 40.9 5.5 13.1 6.7 -8.3 8.1 17.0 -17.0

MdyT 71.3 142.0 -63.2 -158.1 21.1 52.6 18.1 -18.1

COMB ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P126

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.0 23.0 22.8 22.1 23.0 23.0 22.8 22.7 22.8 22.5

MdxT 48.4 -48.4 0.0 0.0 0.0 0.0 -3.8 -45.4 45.8 0.8

MdyT 0.0 0.0 -2.9 -2.9 86.2 -86.2 -97.6 -61.3 -61.5 60.7

COMB ( 0 ) ( 0 ) ( 1 ) ( 10 ) ( 0 ) ( 0 ) ( 9 ) ( 2 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.3 23.0 23.0 23.0 22.3 22.4 22.4 21.9 21.9 22.0

MdxT -78.4 -2.7 -34.2 34.2 -40.8 76.9 40.0 2.1 2.1 -47.6

MdyT -21.4 -66.1 -60.9 60.9 -60.2 -11.9 -60.5 64.3 31.6 -20.4

COMB ( 6 ) ( 5 ) ( 0 ) ( 0 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.0 22.1 21.6 22.1 21.6 21.7 21.7 21.2 21.2 21.2

MdxT -24.8 45.6 -78.5 -3.9 -40.9 76.7 39.9 2.0 2.0 -1.3

MdyT -59.5 -59.7 -21.4 -97.6 -58.3 -11.9 -58.7 64.3 31.6 -17.4

COMB ( 11 ) ( 12 ) ( 15 ) ( 18 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 31 32 33

FdzT 22.1 23.0 23.0

MdxT 1.4 -34.2 34.2

MdyT 11.8 60.9 -60.9

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.4 19.4 19.4 19.4 19.0 19.0 18.9 18.8 19.1 19.1

MdxT 67.9 -67.9 0.0 0.0 -42.4 52.6 39.7 39.4 28.0 -59.7

MdyT 0.0 0.0 72.6 -72.6 -87.5 97.6 211.7 271.2 -82.9 -33.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 14 ) ( 18 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.1 18.5 18.6 19.3 19.4 18.5 18.7 18.7 18.7 18.0

MdxT -34.6 80.5 11.1 -17.9 40.7 -66.2 47.9 -21.4 -53.5 16.9

MdyT 80.2 99.8 78.1 209.2 211.0 -89.5 -95.9 -38.4 70.3 -60.1

COMB ( 3 ) ( 6 ) ( 4 ) ( 9 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.0 18.0 19.3 18.6 18.6 18.1 18.1 18.8 18.0 18.2

MdxT 80.2 8.4 40.4 -58.1 -33.6 38.1 10.8 -17.5 -66.5 47.6

MdyT 101.4 114.7 270.7 32.8 81.9 79.9 79.9 209.4 -87.6 -94.2

COMB ( 15 ) ( 8 ) ( 9 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 18 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 18.2 18.2 17.5 17.5 17.5 19.4 19.4 19.4 19.4

MdxT -21.5 -53.8 16.1 36.7 8.1 48.0 -48.0 -48.0 48.0

MdyT -37.7 72.0 -59.6 46.6 116.5 51.3 51.3 -51.3 -51.3

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.6 8.6 8.3 8.6 8.6 8.4 8.3 8.4 8.4 8.3

MdxT 30.2 -30.2 0.0 0.0 0.0 -40.5 -60.6 22.0 20.9 -20.9

MdyT 0.0 0.0 -21.0 -23.3 23.3 101.1 100.5 -23.4 98.0 -19.7

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 11 ) ( 15 ) ( 11 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.5 8.6 8.1 8.2 8.2 8.3 8.4 8.3 8.6 8.0

MdxT -7.3 -18.0 -13.0 -60.9 1.3 36.4 41.6 -35.0 -18.1 -14.7

MdyT 61.9 39.2 121.1 92.7 -37.5 -23.2 95.5 -18.1 30.9 139.4

COMB ( 4 ) ( 13 ) ( 5 ) ( 6 ) ( 14 ) ( 15 ) ( 16 ) ( 7 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.0 8.0 8.4 8.4 8.4 8.4 8.6 8.2 8.4 8.0

MdxT -25.3 1.8 -9.8 -18.9 0.7 -20.7 -6.9 -12.6 -34.9 -14.4

MdyT 65.5 -46.9 99.5 50.8 -22.3 -21.1 70.0 129.2 -19.5 147.3

COMB ( 9 ) ( 18 ) ( 10 ) ( 10 ) ( 10 ) ( 12 ) ( 13 ) ( 14 ) ( 16 ) ( 18 )

CARR 31 32 33 34 35

FdzT 8.0 8.6 8.6 8.6 8.6

MdxT -25.0 21.4 -21.4 -21.4 21.4

MdyT 69.6 16.5 16.5 -16.5 -16.5

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.7 2.8 2.8 2.8 2.7 2.7 2.7 2.7 2.7 2.7

MdxT 10.4 -8.8 0.0 0.0 -14.4 8.0 10.2 -5.8 3.3 12.6

MdyT 0.0 0.0 12.2 -12.2 24.8 96.9 45.6 49.8 70.9 43.6

COMB ( 4 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 18 ) ( 12 ) ( 15 ) ( 5 ) ( 16 )

CARR 11 12 13 14 15 16 17 18

FdzT 2.7 2.8 2.7 2.7 2.7 2.7 2.8 2.8

MdxT 8.8 11.5 -1.1 4.3 -9.4 -3.8 10.4 -6.2

MdyT 42.0 -22.0 24.1 47.5 24.6 49.4 7.7 -8.6

COMB ( 11 ) ( 8 ) ( 18 ) ( 10 ) ( 11 ) ( 11 ) ( 13 ) ( 0 )

### P127

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.5 18.5 18.5 18.5 18.2 18.1 18.1 18.5 18.5 18.5

MdxT 112.9 -112.9 0.0 0.0 -104.7 -104.4 10.4 -48.3 -100.5 -79.9

MdyT 0.0 0.0 69.6 -69.6 49.1 49.0 2.9 95.2 55.4 -49.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 2 ) ( 2 ) ( 13 ) ( 13 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.8 17.8 17.8 17.4 17.5 18.1 18.1 18.1 16.9 16.9

MdxT -49.1 -98.5 -2.0 -105.6 79.2 -45.8 -97.1 -2.5 -47.2 -93.8

MdyT -88.9 -49.1 10.6 47.1 47.4 151.1 86.9 -9.4 -148.3 -82.7

COMB ( 5 ) ( 5 ) ( 5 ) ( 15 ) ( 7 ) ( 17 ) ( 17 ) ( 8 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 16.9 18.1 17.8 17.8 18.5 18.5

MdxT -1.7 10.9 -49.1 -98.5 79.9 79.9

MdyT 15.5 2.8 -88.2 -48.7 49.2 -49.2

COMB ( 9 ) ( 11 ) ( 14 ) ( 14 ) ( 0 ) ( 0 )

### P128

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.9 18.9 18.9 18.9 18.4 18.5 18.4 18.5 18.5 18.5

MdxT 115.0 -115.0 0.0 0.0 -102.0 -109.3 -2.7 9.9 -110.9 -15.5

MdyT 0.0 0.0 70.9 -70.9 -156.1 -83.1 14.1 2.2 -69.3 1.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 2 ) ( 18 ) ( 2 ) ( 3 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.2 18.2 18.2 18.9 18.9 18.9 17.8 17.8 17.8 17.9

MdxT -52.5 -102.8 -2.2 -52.6 -105.4 -81.3 -75.5 -108.8 19.3 41.4

MdyT 85.0 48.7 -5.7 -216.3 -126.1 50.2 -143.4 -85.1 2.4 -103.0

COMB ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 0 ) ( 6 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.9 17.9 17.3 17.3 17.3 18.4 18.5 18.5 18.5 17.3

MdxT 78.4 -24.1 -50.1 -97.8 -2.0 -50.3 -109.5 10.5 -111.0 -97.8

MdyT -61.4 1.0 135.1 76.7 -10.8 -269.6 -82.7 2.1 -68.5 76.7

COMB ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 8 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 17 )

CARR 31 32

FdzT 18.9 18.9

MdxT 81.3 81.3

MdyT 50.2 -50.2

COMB ( 0 ) ( 0 )

### P129

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.0 24.0 23.8 24.0 24.0 23.9 23.7 23.9 24.0 23.5

MdxT 50.5 -50.5 0.0 0.0 0.0 46.1 -43.0 46.1 -1.8 2.9

MdyT 0.0 0.0 3.5 -89.9 89.9 64.4 64.0 15.8 67.1 -63.5

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 3 ) ( 2 ) ( 3 ) ( 4 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.1 23.2 23.1 23.4 23.4 23.6 23.6 22.9 23.1 23.4

MdxT -75.2 -39.3 14.6 76.4 39.7 -44.8 -3.4 4.3 -39.3 39.8

MdyT 18.6 62.5 4.2 14.1 63.2 63.8 99.7 -67.1 62.4 63.1

COMB ( 15 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 11 ) ( 17 ) ( 9 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25

FdzT 22.8 22.8 24.0 24.0 24.0

MdxT 4.5 -1.4 -35.7 -35.7 35.7

MdyT -66.9 17.4 63.6 -63.6 -63.6

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.6 20.6 20.6 20.6 20.3 20.3 20.3 20.1 20.1 20.2

MdxT 72.2 -72.2 0.0 0.0 30.0 -60.8 -42.7 -30.1 60.5 36.0

MdyT 0.0 0.0 77.2 -77.2 83.7 99.6 -80.5 69.2 27.7 -74.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 17 ) ( 2 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.5 20.6 20.5 19.9 19.9 19.5 19.5 19.5 19.9 19.9

MdxT -6.2 -43.3 -11.3 10.2 -41.7 -51.0 23.6 58.9 47.0 -21.9

MdyT 132.9 -60.4 -143.1 -47.7 -67.0 68.9 27.6 -66.2 98.4 108.6

COMB ( 4 ) ( 13 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.9 20.2 20.2 19.2 19.2 20.2 20.4 20.6 19.6 20.0

MdxT -54.7 -6.7 -10.8 40.2 -10.4 62.4 -33.3 -9.9 58.8 47.2

MdyT 58.0 175.0 -193.3 -103.4 -86.2 -30.0 -67.2 -151.1 -74.2 94.5

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 13 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35 36 37 38

FdzT 20.0 20.3 19.3 19.3 20.6 20.6 20.6 20.6

MdxT -54.7 -9.5 11.9 -9.1 51.1 -51.1 -51.1 51.1

MdyT -61.3 -201.3 50.5 -90.2 54.6 54.6 -54.6 -54.6

COMB ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.1 9.1 8.8 9.1 9.1 8.3 8.3 8.3 8.3 8.3

MdxT 32.0 -32.0 0.0 0.0 0.0 3.6 -21.8 -36.5 13.3 30.2

MdyT 0.0 0.0 -162.7 24.7 -24.7 -112.8 -114.0 41.2 35.7 -111.6

COMB ( 0 ) ( 0 ) ( 13 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 7 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.1 8.2 8.1 8.5 8.6 8.5 8.2 8.3 7.9 7.9

MdxT 2.9 -41.0 -5.5 4.3 -18.0 -4.5 27.3 47.6 2.1 -16.6

MdyT -151.9 -112.4 64.5 -73.6 -74.5 12.3 32.1 -108.4 -175.6 -73.3

COMB ( 4 ) ( 6 ) ( 4 ) ( 5 ) ( 17 ) ( 5 ) ( 6 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.9 8.5 8.9 8.9 9.0 8.9 9.0 8.8 8.8 9.1

MdxT -5.5 17.9 0.7 -25.9 -22.3 16.1 27.3 -44.0 -3.5 1.4

MdyT 80.1 -29.8 -123.6 -124.7 55.7 50.3 -122.4 -123.1 79.1 -84.4

COMB ( 8 ) ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 11 ) ( 12 ) ( 15 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 9.1 9.1 8.8 8.9 8.9 8.6 8.6 9.1 9.1 9.1

MdxT -19.1 -2.5 29.3 44.8 -34.7 -0.7 -3.5 1.5 -19.2 22.6

MdyT -39.9 26.9 46.5 -118.9 55.6 -186.2 94.5 -55.7 -30.4 17.4

COMB ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 41 42 43

FdzT 9.1 9.1 9.1

MdxT -22.6 -22.6 22.6

MdyT 17.4 -17.4 -17.4

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.7 2.8 2.8 2.7 2.7 2.7 2.7 2.7

MdxT 8.8 -8.8 0.0 0.0 0.0 -14.4 6.6 -6.4 12.7 5.7

MdyT 0.0 0.0 -111.2 12.2 -12.2 -24.6 -49.3 -49.1 -24.4 -87.4

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 6 ) ( 10 ) ( 6 ) ( 7 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.7 2.8 2.7 2.8 2.7 2.7 2.7 2.7 2.7 2.7

MdxT 7.0 2.7 5.7 5.8 -6.2 11.6 8.4 5.5 -15.5 -1.4

MdyT -47.7 33.2 -113.3 -33.2 -51.3 -46.1 -32.7 30.7 -24.4 -23.8

COMB ( 12 ) ( 9 ) ( 8 ) ( 9 ) ( 15 ) ( 16 ) ( 18 ) ( 18 ) ( 15 ) ( 17 )

CARR 21 22 23

FdzT 2.7 2.8 2.8

MdxT 5.6 6.2 -6.2

MdyT -115.5 8.6 8.6

COMB ( 17 ) ( 0 ) ( 0 )

### P13

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.0 32.0 30.9 30.9 32.0 32.0 28.2 28.2 28.2 25.6

MdxT 67.3 -67.3 0.0 0.0 0.0 0.0 -2.7 -2.7 0.8 -5.2

MdyT 0.0 0.0 95.6 -5.9 86.5 -86.5 -1.5 2.5 2.5 -98.8

COMB ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.6 25.4 26.9 26.9 29.5 29.5 31.9 32.0 32.0 23.3

MdxT -5.2 66.1 38.6 -9.4 -44.0 10.9 1.5 1.7 -47.6 -6.7

MdyT -54.9 17.2 9.4 2.2 -12.3 2.8 161.1 161.0 -61.2 -163.1

COMB ( 3 ) ( 8 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 0 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.3 23.3 25.4 29.8 29.9 28.3 25.6 27.0 32.0 32.0

MdxT -6.7 2.0 -16.2 -71.3 17.6 -2.5 66.4 38.8 1.7 47.6

MdyT -91.3 16.5 2.2 -19.0 2.9 2.5 17.1 9.2 92.1 61.2

COMB ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 18 ) ( 10 ) ( 17 ) ( 13 ) ( 15 ) ( 0 )

CARR 31 32

FdzT 32.0 32.0

MdxT -47.6 47.6

MdyT 61.2 -61.2

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.6 22.6 22.6 22.6 20.0 20.0 21.7 21.7 18.1 18.1

MdxT 79.1 -79.1 0.0 0.0 -51.8 50.0 -48.6 46.2 -55.0 54.0

MdyT 0.0 0.0 61.0 -61.0 258.7 -198.5 274.3 -264.9 242.6 -132.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.0 19.0 19.1 21.1 21.1 21.1 22.5 22.6 22.5 16.4

MdxT 23.4 44.4 -15.5 -125.4 51.0 127.4 -44.1 -75.0 41.9 -55.2

MdyT 211.4 84.6 -178.5 323.8 129.5 -227.6 271.7 -123.9 -309.1 217.8

COMB ( 4 ) ( 4 ) ( 13 ) ( 9 ) ( 9 ) ( 9 ) ( 6 ) ( 15 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.4 16.4 17.8 17.9 20.1 21.9 18.3 19.1 19.1 22.6

MdxT 22.2 55.4 37.4 -30.2 49.8 45.8 -55.2 23.9 45.3 -44.2

MdyT 87.1 -161.7 165.8 -159.6 -199.1 -268.4 238.7 207.5 83.0 267.8

COMB ( 7 ) ( 7 ) ( 8 ) ( 17 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 15 )

CARR 31 32 33 34 35 36 37 38

FdzT 22.6 16.5 17.9 21.2 21.2 22.6 22.6 22.6

MdxT 41.7 -55.3 37.9 -125.6 127.3 56.0 -56.0 56.0

MdyT -309.7 214.1 162.0 319.9 -228.2 43.1 43.1 -43.1

COMB ( 15 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.1 12.1 12.1 12.1 11.3 11.3 11.3 11.8 11.8 11.8

MdxT 42.5 -42.5 0.0 0.0 -21.0 -53.6 18.8 -18.6 -33.3 15.3

MdyT 0.0 0.0 32.8 -32.8 209.0 187.0 -123.9 280.7 112.3 -211.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.7 10.7 11.3 11.3 11.3 11.3 12.1 12.1 12.1 10.2

MdxT -23.5 22.4 12.5 24.3 -10.6 47.3 -16.1 -30.0 12.0 -24.5

MdyT 134.1 -32.3 233.8 93.5 -143.9 -108.5 325.1 130.0 -268.7 75.5

COMB ( 3 ) ( 3 ) ( 13 ) ( 13 ) ( 13 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.2 11.1 11.1 11.2 11.2 11.4 11.4 11.9 11.9 11.9

MdxT 24.1 34.9 -30.2 -74.6 65.7 -20.2 17.9 -17.6 -32.0 14.3

MdyT 36.5 239.7 -146.3 163.7 -90.4 211.8 -128.5 286.7 114.7 -220.1

COMB ( 7 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.8 10.8 11.4 11.4 12.1 12.1 12.1 10.2 11.3 11.3

MdxT -22.7 21.6 -52.6 46.5 -15.3 -28.8 11.2 -23.7 -73.8 64.8

MdyT 136.9 -37.0 189.8 -113.1 327.9 131.2 -273.1 78.1 166.5 -95.1

COMB ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 12.1 12.1 12.1 12.1

MdxT 30.1 -30.1 -30.1 30.1

MdyT 23.2 23.2 -23.2 -23.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.9 2.9 2.9 2.9 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 9.1 -9.1 0.0 0.0 -10.3 4.3 10.2 6.7 -25.8 18.9

MdyT 0.0 0.0 14.1 -14.1 -80.6 -116.3 -111.2 21.7 -25.8 -72.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 6 ) ( 6 ) ( 3 ) ( 9 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.8 2.8 2.8 2.9 2.8 2.9 2.9 2.9

MdxT 5.6 16.0 -3.1 4.1 9.2 -24.8 -3.9 -9.9 17.9 6.4

MdyT 55.3 -25.6 16.5 -117.3 -112.1 -26.0 15.5 -81.6 -73.4 9.9

COMB ( 7 ) ( 8 ) ( 8 ) ( 15 ) ( 15 ) ( 18 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 21

FdzT 2.9

MdxT -6.4

MdyT 9.9

COMB ( 0 )

### P130

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.5 30.5 30.5 30.5 27.4 28.1 28.0 26.9 26.9 25.8

MdxT 64.1 -64.1 0.0 0.0 -7.4 56.6 -11.5 -45.9 13.9 -10.4

MdyT 0.0 0.0 82.5 -82.5 15.1 17.4 1.8 13.6 2.4 -43.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 2 ) ( 3 ) ( 16 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.8 29.1 29.1 28.1 26.3 26.3 24.4 24.4 29.9 29.7

MdxT -1.8 -4.6 -2.7 -18.3 -71.8 13.9 -12.3 -1.5 -2.8 -4.8

MdyT 8.5 73.6 -4.5 1.7 11.9 2.2 -82.7 12.7 112.0 73.5

COMB ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 14 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.9 28.1 28.7 28.6 27.5 27.5 26.4 28.7 26.9 25.0

MdxT -2.9 -7.6 56.4 -11.9 -46.2 7.4 -10.5 -18.3 -72.0 -12.6

MdyT -8.8 15.1 17.2 2.0 13.4 2.2 -43.4 1.8 11.9 -82.9

COMB ( 9 ) ( 10 ) ( 15 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 15 ) ( 16 ) ( 17 )

CARR 31 32 33 34 35 36 37 38

FdzT 25.0 25.0 30.5 30.5 30.5 30.5 30.5 30.5

MdxT -12.6 -1.5 -2.9 -3.1 -45.3 45.3 -45.3 45.3

MdyT -44.6 12.9 112.0 63.7 -58.3 58.3 58.3 -58.3

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.3 20.3 20.3 20.3 18.2 18.2 18.2 18.5 18.5 17.9

MdxT 71.0 -71.0 0.0 0.0 -17.5 45.3 24.4 38.8 -13.3 -54.3

MdyT 0.0 0.0 54.8 -54.8 -26.2 -26.2 20.4 -26.7 22.3 -25.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.9 17.9 17.1 17.1 17.1 19.3 19.3 19.3 18.4 17.5

MdxT 25.5 63.7 -19.2 46.4 25.6 -15.8 44.2 23.1 -41.2 -78.5

MdyT -25.5 18.5 -94.6 40.4 101.1 42.4 -24.1 -60.3 21.4 -23.7

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.5 17.5 16.2 16.2 16.2 19.7 19.7 19.7 18.8 18.8

MdxT 36.0 89.9 -19.9 46.9 26.5 -14.1 43.0 22.1 -16.9 45.7

MdyT -23.7 15.1 -139.0 61.1 152.7 89.6 -46.5 -116.3 -25.8 -25.8

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.8 19.1 18.5 18.5 17.8 17.8 17.8 19.9 19.9 19.9

MdxT 24.4 40.1 -53.9 63.7 -18.6 46.8 25.6 -15.3 44.5 23.1

MdyT 20.6 -26.5 -25.2 18.8 -94.4 40.5 101.4 42.7 -24.0 -60.1

COMB ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 19.0 18.1 18.1 16.8 16.8 16.8 20.3 20.3 20.3 20.3

MdxT -41.2 -78.0 89.9 -19.3 47.3 26.5 -13.7 43.3 22.1 50.2

MdyT 21.7 -23.2 15.3 -138.6 61.2 153.0 89.9 -46.4 -116.1 38.7

COMB ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 51 52 53

FdzT 20.3 20.3 20.3

MdxT -50.2 -50.2 50.2

MdyT 38.7 -38.7 -38.7

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.2 14.2 14.2 14.2 13.0 13.1 13.0 13.2 13.2 12.8

MdxT 49.9 -49.9 0.0 0.0 -48.3 41.9 39.6 17.5 -8.4 -70.3

MdyT 0.0 0.0 38.5 -38.5 126.8 121.1 -81.5 126.7 -79.8 121.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 6 ) ( 3 ) ( 2 ) ( 2 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.7 12.8 13.5 13.5 13.5 13.1 12.3 12.3 12.3 13.6

MdxT -28.0 55.3 -14.8 30.4 15.8 -26.5 -13.9 -26.9 13.2 -14.6

MdyT 28.9 -78.8 203.8 81.5 -158.9 -75.9 -7.1 29.0 53.1 249.8

COMB ( 4 ) ( 7 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 8 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.7 13.6 13.7 13.8 13.7 13.8 13.8 13.8 13.4 13.3

MdxT 36.5 15.7 -53.6 -36.5 41.2 13.7 29.0 -8.0 -75.5 -35.8

MdyT 127.7 -207.8 133.6 53.4 -81.2 133.4 53.4 -79.4 128.0 33.0

COMB ( 15 ) ( 9 ) ( 12 ) ( 10 ) ( 12 ) ( 11 ) ( 11 ) ( 11 ) ( 16 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 13.4 14.2 14.2 14.2 13.7 12.9 12.9 14.2 14.2 14.2

MdxT 56.7 -20.2 -37.0 17.4 -24.9 -19.2 14.6 -19.7 -36.4 17.1

MdyT -78.5 210.6 84.2 -158.6 -75.5 -0.7 53.3 256.3 102.5 -207.5

COMB ( 16 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 )

CARR 41 42 43

FdzT 14.2 14.2 14.2

MdxT 35.3 -35.3 35.3

MdyT 27.2 -27.2 -27.2

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.8 3.8 3.8 3.8 3.4 3.4 3.4 3.4 3.4 3.5

MdxT 12.0 -12.0 0.0 0.0 -13.6 11.6 25.2 -34.0 -9.9 -12.5

MdyT 0.0 0.0 18.6 -18.6 -45.6 -45.8 -30.2 -33.2 -45.6 -34.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 6 ) ( 7 ) ( 7 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.5 3.5 3.4 3.4 3.4 3.4 3.5 3.5 3.5 3.3

MdxT 5.6 14.0 -9.8 4.7 11.8 11.6 -13.4 5.9 14.7 -8.8

MdyT -46.9 25.9 -32.5 -95.3 -85.3 -33.3 -34.6 -63.4 63.4 -31.9

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 8 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.3 3.3 3.7 3.7 3.7 3.7 3.7 3.7 3.8 3.8

MdxT 4.4 10.9 -16.2 10.3 30.0 5.2 -30.0 -12.0 -18.5 7.8

MdyT -129.0 -121.9 -36.4 -49.9 -9.1 -49.9 -36.3 -49.7 -37.7 -84.6

COMB ( 9 ) ( 9 ) ( 10 ) ( 15 ) ( 16 ) ( 11 ) ( 12 ) ( 12 ) ( 17 ) ( 17 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 3.8 3.6 3.6 3.6 3.7 3.7 3.6 3.6 3.6 3.8

MdxT 19.5 -14.8 6.7 16.7 -38.9 -15.6 -13.9 6.3 15.8 -8.5

MdyT 84.6 -35.6 -76.2 -63.7 -36.1 -49.5 -34.9 -110.7 -100.8 13.1

COMB ( 17 ) ( 14 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 41

FdzT 3.8

MdxT 8.5

MdyT -13.1

COMB ( 0 )

### P131

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.2 32.2 30.7 29.3 32.2 27.8 32.2 30.7 31.2 31.2

MdxT 67.7 -67.7 0.0 0.0 0.0 0.0 0.0 3.4 66.9 -15.7

MdyT 0.0 0.0 1.0 -4.5 -91.8 -8.3 87.0 11.5 14.3 0.8

COMB ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 8 ) ( 9 ) ( 0 ) ( 1 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.9 29.9 32.2 32.2 29.3 31.2 28.8 28.8 27.8 30.6

MdxT -34.9 10.2 47.8 47.8 5.6 33.9 -60.5 16.7 7.0 3.4

MdyT 9.5 1.0 -61.5 61.5 73.2 14.3 7.7 1.0 114.0 11.3

COMB ( 3 ) ( 12 ) ( 0 ) ( 0 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 10 )

CARR 21 22 23 24

FdzT 28.8 32.2 32.2 32.2

MdxT -60.5 -0.6 -47.8 -47.8

MdyT 7.6 -92.1 61.5 -61.5

COMB ( 16 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.2 23.2 23.2 23.2 22.3 22.3 22.3 22.7 22.7 22.7

MdxT 81.4 -81.4 0.0 0.0 -12.9 -56.8 -2.5 18.1 -62.7 -34.9

MdyT 0.0 0.0 187.0 -62.7 -62.7 59.9 67.1 -60.5 26.2 65.4

COMB ( 0 ) ( 0 ) ( 13 ) ( 0 ) ( 1 ) ( 6 ) ( 1 ) ( 2 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.0 22.0 22.0 23.2 23.2 21.4 21.5 22.3 22.3 21.1

MdxT -45.4 -76.5 30.1 -16.7 -48.8 -10.6 -45.0 41.7 -56.6 -66.2

MdyT -65.2 28.2 70.4 -220.4 74.4 33.7 -52.1 -56.3 60.8 -64.4

COMB ( 3 ) ( 12 ) ( 12 ) ( 8 ) ( 4 ) ( 14 ) ( 5 ) ( 6 ) ( 15 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.1 21.1 23.2 23.2 20.2 20.2 20.2 22.3 22.3 22.7

MdxT -26.7 51.7 -48.7 1.0 -8.1 -42.4 -6.3 -13.3 -2.4 19.0

MdyT 27.7 69.3 105.0 263.5 100.1 -53.7 -134.3 -62.3 67.9 -59.9

COMB ( 16 ) ( 16 ) ( 8 ) ( 17 ) ( 18 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 22.0 23.2 21.1 23.2 23.2 23.2 23.2 23.2 23.2

MdxT -45.8 -48.8 -66.6 -16.9 -48.7 57.5 -57.5 -57.5 57.5

MdyT -64.8 74.8 -64.0 -219.9 105.4 44.4 44.4 -44.4 -44.4

COMB ( 12 ) ( 13 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.7 14.7 14.7 14.7 14.2 14.3 14.2 14.4 14.7 14.7

MdxT 51.6 -51.6 0.0 0.0 -58.8 13.7 54.7 30.2 -35.0 34.6

MdyT 0.0 0.0 39.8 -39.8 -47.0 -20.0 20.3 -19.9 -171.8 130.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 10 ) ( 12 ) ( 11 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.8 13.8 14.0 14.0 13.7 13.7 14.6 14.6 13.1 13.1

MdxT -32.6 33.9 29.5 -1.7 -73.6 66.9 -34.0 33.0 -30.4 32.1

MdyT 84.8 -96.7 -37.1 12.3 -44.4 18.9 -252.4 203.1 170.8 -171.9

COMB ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.3 14.3 13.9 13.9 14.1 14.1 14.1 13.1 13.1 14.7

MdxT -34.0 34.3 -32.9 34.0 9.0 29.5 -1.5 -30.7 32.2 36.5

MdyT -46.8 20.2 78.4 -90.4 -43.4 -18.6 18.5 164.5 -165.8 28.1

COMB ( 10 ) ( 10 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 0 )

CARR 31 32 33

FdzT 14.7 14.7 14.7

MdxT -36.5 -36.5 36.5

MdyT 28.1 -28.1 -28.1

COMB ( 0 ) ( 0 ) ( 0 )

### P132

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 44.4 43.7 44.4 44.0 42.1 44.4 44.4 43.8 44.4 43.8

MdxT -93.3 -14.8 93.3 0.0 0.0 0.0 0.0 -43.0 66.0 7.6

MdyT 0.0 0.0 0.0 -8.8 -8.4 120.0 -120.0 -5.9 -84.8 0.6

COMB ( 0 ) ( 6 ) ( 0 ) ( 9 ) ( 18 ) ( 0 ) ( 0 ) ( 3 ) ( 0 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 43.6 44.0 44.4 44.4 43.7 43.0 43.0 42.7 42.5 41.9

MdxT -6.7 -8.5 -66.0 -66.0 51.8 -66.5 13.2 -6.0 -8.4 -43.3

MdyT -66.2 96.6 84.8 -84.8 -3.9 -5.7 0.8 -106.4 56.7 -4.8

COMB ( 4 ) ( 9 ) ( 0 ) ( 0 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 14 ) ( 12 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 42.1 42.4 42.4 41.9 41.8 41.8 41.8 41.1 41.1 40.8

MdxT -8.7 27.9 -9.2 7.6 -7.0 51.7 -14.8 -66.6 13.0 -6.2

MdyT 97.7 -3.6 0.6 1.0 -65.1 -2.8 0.6 -4.6 1.1 -105.3

COMB ( 18 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 31 32

FdzT 40.8 44.4

MdxT -1.4 66.0

MdyT 10.2 84.8

COMB ( 17 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.6 30.6 30.6 30.6 30.6 30.6 30.6 30.4 30.4 30.2

MdxT 107.1 -107.1 0.0 0.0 -14.3 64.2 18.5 19.2 -14.4 -46.3

MdyT 0.0 0.0 82.6 -82.6 285.2 -122.4 -305.9 208.7 -214.1 191.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 5 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.2 30.2 30.0 29.8 29.8 29.8 29.4 29.4 29.1 29.1

MdxT 88.3 50.0 63.1 43.0 78.5 -37.8 -68.5 72.0 -10.4 61.1

MdyT -78.2 -195.4 46.3 208.9 -86.6 -216.6 179.6 -184.8 52.9 52.9

COMB ( 3 ) ( 3 ) ( 4 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.1 30.1 30.1 30.1 28.7 28.7 28.7 28.5 28.5 28.3

MdxT 14.7 -15.1 63.1 19.5 -15.3 60.2 19.2 19.6 -15.1 -47.3

MdyT -32.6 335.6 -147.5 -368.8 249.1 -117.1 -292.7 173.2 -201.5 155.5

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 14 ) ( 14 ) ( 14 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 28.3 28.3 27.9 27.9 27.9 27.5 27.5 27.2 27.2 28.2

MdxT 87.8 50.7 42.0 75.9 -37.1 -69.4 72.5 -11.3 57.2 -16.1

MdyT -73.0 -182.4 173.6 -81.5 -203.7 144.2 -172.1 17.6 -19.7 300.2

COMB ( 12 ) ( 12 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43 44 45 46

FdzT 28.2 28.2 30.6 30.6 30.6 30.6

MdxT 59.2 20.0 75.7 -75.7 -75.7 75.7

MdyT -142.4 -356.0 58.4 58.4 -58.4 -58.4

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.2 21.2 21.2 21.2 21.2 21.2 21.0 20.8 20.8 21.2

MdxT 74.1 -74.1 0.0 0.0 -39.1 -67.2 29.5 -37.9 -65.5 29.4

MdyT 0.0 0.0 57.2 -57.2 123.3 -55.0 -48.4 192.4 -77.4 -137.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 1 ) ( 9 ) ( 9 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.9 20.9 20.8 20.8 20.6 20.6 20.6 20.4 20.4 20.2

MdxT -56.1 42.0 -38.4 29.7 -8.3 -43.2 7.6 -66.5 49.1 -36.8

MdyT 14.6 -48.3 -88.3 40.6 21.0 -45.2 -45.2 10.9 -44.9 -160.4

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.2 20.2 20.8 19.2 19.2 19.2 19.4 19.2 19.4 19.2

MdxT -63.5 28.6 28.3 -37.2 -63.3 29.4 -37.7 -54.7 29.4 42.0

MdyT -64.2 103.3 -193.5 145.9 58.4 -112.7 251.7 142.8 -201.7 -112.6

COMB ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 14 ) ( 12 ) ( 14 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 19.0 19.4 18.8 18.8 18.8 18.7 18.7 18.4 18.4 18.4

MdxT -62.8 -64.0 -6.9 39.5 7.4 -65.1 49.0 -35.4 -60.3 28.4

MdyT 40.0 100.7 146.6 58.6 -108.4 136.5 -107.9 -34.9 40.2 40.2

COMB ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45 46

FdzT 19.1 19.1 19.1 21.2 21.2 21.2

MdxT -36.5 -62.3 28.1 52.4 -52.4 52.4

MdyT 317.9 127.2 -256.5 40.4 40.4 -40.4

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P133

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.4 27.4 27.4 27.4 25.3 24.8 24.8 25.8 25.8 26.6

MdxT 57.5 -57.5 0.0 0.0 -2.7 61.3 -17.2 -67.5 11.9 -2.9

MdyT 0.0 0.0 73.9 -73.9 -37.9 -39.2 -10.2 -38.2 -8.7 -95.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.1 24.1 24.6 24.6 25.5 25.3 27.1 27.1 23.0 23.0

MdxT -2.7 -2.7 61.5 -17.2 -67.3 35.8 -3.4 -2.5 -2.7 -2.7

MdyT 19.3 -15.8 -38.1 -9.9 -37.1 -39.3 -132.9 2.0 57.7 -20.3

COMB ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 11 ) ( 8 ) ( 8 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.6 25.9 25.9 24.4 24.4 27.4 27.4 23.3 23.3 27.4

MdxT -2.8 -41.4 6.2 -2.7 -2.7 -3.5 -40.7 -2.7 -2.7 40.7

MdyT -39.1 -38.8 -9.0 18.2 -16.1 -134.0 52.3 56.6 -20.6 52.3

COMB ( 10 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 17 ) ( 0 ) ( 18 ) ( 18 ) ( 0 )

CARR 31 32

FdzT 27.4 27.4

MdxT -40.7 40.7

MdyT -52.3 -52.3

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.2 19.2 19.2 19.2 18.0 17.9 18.0 17.7 18.7 18.7

MdxT 67.3 -67.3 0.0 0.0 -29.4 60.2 49.6 6.2 -10.2 59.8

MdyT 0.0 0.0 51.9 -51.9 -139.4 80.7 201.7 -133.7 -184.2 102.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 1 ) ( 3 ) ( 2 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.7 17.0 17.0 17.4 17.4 17.4 17.7 17.7 19.0 19.0

MdxT 34.9 -12.3 36.5 19.2 37.4 12.0 -41.4 58.1 -9.5 58.4

MdyT 256.6 -88.8 146.9 -129.1 81.3 203.3 -138.9 203.3 -213.5 117.9

COMB ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.0 16.2 16.2 18.1 18.0 18.2 18.2 19.0 19.0 19.0

MdxT 33.6 -12.9 36.4 61.0 6.7 -29.7 50.0 -10.5 60.6 35.3

MdyT 294.8 -54.5 111.7 79.6 -101.1 -107.0 199.1 -151.8 101.6 254.1

COMB ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 17.3 17.3 17.6 18.0 18.0 19.2 19.2 19.2 16.4 16.4

MdxT -12.5 37.0 18.9 -41.7 58.5 -9.7 59.1 34.0 -13.0 36.8

MdyT -56.3 144.2 -97.3 -107.1 200.6 -181.6 116.9 292.3 -22.7 109.2

COMB ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43

FdzT 19.2 19.2 19.2

MdxT -47.6 -47.6 47.6

MdyT 36.7 -36.7 -36.7

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.1 13.1 13.1 13.1 12.4 12.3 12.4 12.3 12.3 12.3

MdxT 45.8 -45.8 0.0 0.0 -75.0 -18.8 46.1 -35.7 -12.5 17.2

MdyT 0.0 0.0 35.3 -35.3 -320.7 55.1 183.3 -132.0 56.5 141.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 1 ) ( 16 ) ( 15 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.3 12.3 12.3 12.8 12.8 12.8 11.9 11.9 11.9 12.1

MdxT -63.4 -25.4 38.9 -47.2 -18.9 28.0 -46.9 -18.8 27.6 -49.7

MdyT -82.5 53.6 134.1 -175.4 81.6 204.1 5.0 44.9 71.4 -241.5

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 14 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.1 12.1 12.2 12.2 12.9 12.9 12.9 11.4 11.4 12.5

MdxT -32.0 8.0 -72.2 45.1 -50.0 -18.0 29.0 -44.7 26.2 -49.8

MdyT 55.4 138.5 -78.8 126.1 -422.0 97.2 262.5 66.9 21.7 -331.8

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 13 ) ( 8 ) ( 13 ) ( 9 ) ( 9 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.5 12.5 12.5 12.5 12.5 12.1 12.3 12.3 13.1 13.1

MdxT 28.8 -33.3 17.8 -66.4 39.9 28.6 -20.2 9.0 -47.9 27.9

MdyT 196.1 -334.6 199.8 -329.0 192.4 129.6 -330.1 195.6 -475.9 300.2

COMB ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45

FdzT 11.6 11.6 13.1 13.1 13.1

MdxT -47.3 27.2 32.4 -32.4 32.4

MdyT -175.0 78.8 24.9 24.9 -24.9

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 2.4 2.4 2.4 2.4 2.4 2.4

MdxT 10.3 -10.3 0.0 0.0 -34.7 20.4 51.0 -29.5 19.7 49.1

MdyT 0.0 0.0 8.7 -8.7 -4.9 -4.9 0.8 -6.4 -6.4 2.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.4 2.4 2.4 2.6 2.6 2.3 2.3 2.4 2.4 2.4

MdxT -40.2 21.1 52.8 -34.9 50.8 -34.6 51.1 -24.9 46.5 -43.3

MdyT -3.4 -3.4 -1.8 -11.9 -25.5 2.0 27.0 -7.6 3.8 -2.4

COMB ( 3 ) ( 3 ) ( 7 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.4 2.7 2.7 2.1 2.1 2.9 2.9 3.0 2.9 2.9

MdxT 21.1 -34.3 49.3 -33.9 49.8 -35.0 20.6 53.3 -29.5 19.8

MdyT -2.4 -16.5 -42.7 6.6 44.8 -42.1 -36.1 -28.8 -43.7 -36.4

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 12 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 3.0 3.0 3.1 3.1 2.8 2.8 2.8 2.9 2.9 3.0

MdxT -40.5 21.3 -35.0 51.2 -34.9 20.6 51.5 -25.2 46.9 -43.4

MdyT -40.6 -35.9 -49.0 -53.5 -35.1 -21.4 -0.8 -44.2 -23.2 -39.1

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 )

CARR 41 42 43 44 45 46 47

FdzT 3.2 3.2 2.6 2.6 2.6 3.2 3.2

MdxT -34.4 49.7 -34.2 20.1 50.3 7.3 -7.3

MdyT -53.2 -69.9 -30.1 -12.0 17.8 6.2 6.2

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P134

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.1 16.1 15.3 15.9 16.1 16.1 15.5 15.5 15.5 15.5

MdxT 33.8 -33.8 0.0 0.0 0.0 0.0 42.6 -43.5 -22.5 80.8

MdyT 0.0 0.0 -11.3 -11.3 60.5 -60.5 -42.0 -23.8 -41.8 -17.9

COMB ( 0 ) ( 0 ) ( 4 ) ( 13 ) ( 0 ) ( 0 ) ( 16 ) ( 2 ) ( 2 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.3 15.3 15.2 15.3 15.5 15.5 15.2 14.9 14.9 14.9

MdxT 49.3 26.2 -77.3 5.0 -1.3 7.0 -40.2 80.9 42.7 -14.6

MdyT -20.4 -41.3 -23.8 41.3 -72.2 62.9 -41.0 -18.1 -40.3 -2.8

COMB ( 3 ) ( 3 ) ( 6 ) ( 4 ) ( 5 ) ( 17 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.9 14.9 14.9 15.2 15.2 16.0 16.1 16.1 16.1 15.9

MdxT 7.1 7.1 -0.6 -3.5 -3.5 1.8 -45.6 -23.6 23.9 49.3

MdyT 62.6 30.8 -16.9 -104.6 -58.0 -43.3 -23.7 -43.5 -42.8 -20.3

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 0 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 15.9 15.8 15.9 16.1 16.1 15.8 15.5 15.8 15.8 16.1

MdxT 26.2 -77.3 4.9 -1.4 23.9 -40.2 7.0 -3.6 -3.6 -23.9

MdyT -43.0 -23.7 43.0 -72.1 42.8 -42.7 30.9 -104.3 -57.9 42.8

COMB ( 12 ) ( 15 ) ( 13 ) ( 14 ) ( 0 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 41

FdzT 16.1

MdxT -23.9

MdyT -42.8

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.5 11.5 11.5 11.5 10.8 10.9 10.8 10.8 10.9 10.8

MdxT 40.2 -40.2 0.0 0.0 11.2 -34.6 -48.2 46.9 37.7 26.0

MdyT 0.0 0.0 43.1 -43.1 -203.0 -129.9 119.7 -111.3 112.3 -118.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 2 ) ( 3 ) ( 16 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.8 10.6 10.7 11.0 11.0 10.6 10.6 10.4 10.4 10.2

MdxT -73.5 -56.3 -16.2 9.5 13.0 23.5 58.7 46.9 -73.2 -28.4

MdyT 114.5 -130.3 163.7 -173.9 177.7 -145.3 -112.4 -110.3 115.6 119.4

COMB ( 16 ) ( 6 ) ( 17 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.2 10.8 10.8 11.4 11.4 11.2 11.4 11.2 11.2 11.1

MdxT -15.8 28.2 15.4 15.5 -35.8 -48.4 38.8 26.0 -19.4 -56.3

MdyT 164.8 90.8 226.9 -147.5 -131.3 118.6 -113.5 -119.3 -47.7 -131.3

COMB ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 11 ) ( 12 ) ( 12 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 11.1 11.5 11.5 11.5 11.1 11.1 11.3 11.3 11.3 11.5

MdxT -14.1 9.4 25.1 12.9 23.4 58.4 11.1 28.3 15.3 28.4

MdyT 148.0 -174.9 70.3 175.8 -147.1 -113.5 -204.0 90.0 225.0 30.5

COMB ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 41

FdzT 11.5

MdxT -28.4

MdyT 30.5

COMB ( 0 )

### P135

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.4 18.4 17.9 17.0 18.4 18.4 18.1 18.1 18.4 18.4

MdxT 111.9 -111.9 0.0 0.0 0.0 0.0 -109.1 12.0 -57.0 -106.5

MdyT 0.0 0.0 11.3 16.9 69.0 -69.0 48.9 2.9 102.5 59.2

COMB ( 0 ) ( 0 ) ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 11 ) ( 2 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.4 17.9 17.9 17.5 17.4 17.9 17.9 17.0 17.0 18.1

MdxT -79.1 -58.0 -105.3 -106.9 96.2 -53.9 -102.5 -55.7 -100.7 12.6

MdyT -48.8 -87.9 -48.2 47.2 47.1 163.1 93.3 -150.5 -83.5 2.8

COMB ( 0 ) ( 5 ) ( 5 ) ( 15 ) ( 7 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 11 )

CARR 21 22 23 24 25

FdzT 17.9 17.5 17.0 18.4 18.4

MdxT -105.3 96.1 -100.7 79.1 79.1

MdyT -48.1 47.1 -83.4 48.8 -48.8

COMB ( 14 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

### P136

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.6 18.6 18.6 18.6 18.4 18.4 18.3 18.4 18.3 18.1

MdxT 113.2 -113.2 0.0 0.0 -74.1 -113.4 -1.0 12.5 -14.3 -61.3

MdyT 0.0 0.0 69.8 -69.8 -145.2 -86.2 2.0 2.2 1.7 93.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 10 ) ( 11 ) ( 3 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.1 18.1 18.6 18.6 18.6 17.7 17.7 17.7 17.6 17.6

MdxT -109.0 -59.6 -62.2 -111.5 -80.0 -80.2 -111.2 21.3 63.6 96.2

MdyT 53.4 -289.5 -232.8 -135.5 49.4 -143.6 -85.2 2.4 -124.5 -74.1

COMB ( 4 ) ( 9 ) ( 5 ) ( 5 ) ( 0 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.6 17.3 17.3 17.3 18.1 18.4 18.4 18.1 17.6 17.3

MdxT -23.1 -58.2 -103.8 -0.6 -107.8 -74.5 -113.4 -109.0 63.6 -103.8

MdyT 1.4 147.8 83.6 -12.3 -167.3 -145.0 -86.1 53.6 -124.2 83.8

COMB ( 7 ) ( 17 ) ( 8 ) ( 17 ) ( 9 ) ( 11 ) ( 11 ) ( 13 ) ( 16 ) ( 17 )

CARR 31 32 33

FdzT 18.1 18.6 18.6

MdxT -107.8 80.0 80.0

MdyT -167.1 49.4 -49.4

COMB ( 18 ) ( 0 ) ( 0 )

### P137

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.5 15.5 14.8 15.4 15.5 14.8 14.8 14.8 14.7 14.7

MdxT 32.5 -32.5 0.0 0.0 0.0 3.4 -40.7 -21.0 49.7 26.4

MdyT 0.0 0.0 74.6 74.6 -58.2 39.8 24.6 40.0 25.8 39.6

COMB ( 0 ) ( 0 ) ( 4 ) ( 13 ) ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.8 14.7 14.6 14.6 14.3 14.3 14.3 14.5 14.4 15.4

MdxT 0.6 6.6 -73.8 -38.4 80.4 42.4 -14.4 -2.1 8.7 3.5

MdyT 43.0 -39.8 23.1 39.3 24.9 38.7 3.8 106.4 -58.4 41.7

COMB ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 10 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.5 15.5 15.4 15.4 15.4 15.4 15.2 15.2 15.0 15.0

MdxT -42.7 -22.1 49.7 26.4 0.6 6.7 -73.6 -38.4 80.4 42.4

MdyT 24.6 41.8 25.8 41.5 43.0 -41.6 23.1 41.1 24.9 40.5

COMB ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36

FdzT 15.0 15.1 15.1 15.5 15.5 15.5

MdxT -14.4 -2.0 8.7 -23.0 -23.0 23.0

MdyT 3.6 106.5 -58.4 41.2 -41.2 -41.2

COMB ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.0 11.0 11.0 11.0 10.4 10.3 10.4 10.4 10.4 10.3

MdxT 38.6 -38.6 0.0 0.0 -25.6 -39.5 -62.3 43.5 28.3 26.2

MdyT 0.0 0.0 41.4 -41.4 127.1 -135.0 -132.7 100.2 -125.3 111.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 3 ) ( 16 ) ( 16 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.2 10.5 10.5 10.5 10.2 10.1 10.1 10.1 9.9 9.9

MdxT -29.9 -13.9 -25.9 -8.3 -10.2 -44.7 21.3 53.3 43.8 -62.3

MdyT -175.0 179.6 71.8 -163.9 -175.0 128.8 51.5 -115.1 101.5 -131.5

COMB ( 5 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.3 10.3 10.3 9.8 9.8 10.9 10.8 10.9 10.9 10.8

MdxT -12.0 -23.2 -7.1 -29.8 -10.5 -27.2 -39.5 -8.8 29.8 25.9

MdyT 215.5 86.2 -201.2 -198.4 -198.4 126.3 -136.2 -131.2 -126.3 109.9

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 10 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.7 11.0 11.0 10.7 10.7 10.7 10.7 10.4 10.8 10.8

MdxT -29.1 -13.2 -7.8 -9.9 -44.9 21.3 53.3 -24.9 -11.3 -22.7

MdyT -176.3 178.4 -168.4 -176.3 127.5 51.0 -116.2 -53.1 214.3 85.7

COMB ( 14 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45 46

FdzT 10.8 10.3 10.3 11.0 11.0 11.0

MdxT -6.7 -29.2 -10.4 27.3 -27.3 -27.3

MdyT -205.5 -199.6 -199.6 29.3 29.3 -29.3

COMB ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P138

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.5 24.5 24.1 23.7 23.4 23.0 24.5 24.5 24.3 24.5

MdxT 51.4 -51.4 0.0 0.0 0.0 0.0 0.0 0.0 -44.7 36.4

MdyT 0.0 0.0 -65.1 -14.7 -63.2 -14.8 92.0 -92.0 -65.5 -65.0

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 10 ) ( 13 ) ( 0 ) ( 0 ) ( 2 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.9 23.9 23.7 24.5 24.5 23.9 23.3 23.3 23.2 23.0

MdxT 46.5 -77.7 2.5 -2.8 36.4 -40.4 77.6 40.4 -77.7 4.3

MdyT -64.7 -41.2 4.8 -85.4 65.0 -64.5 -35.7 -63.0 -41.2 62.1

COMB ( 3 ) ( 6 ) ( 4 ) ( 5 ) ( 0 ) ( 6 ) ( 7 ) ( 7 ) ( 15 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.2 24.2 24.2 23.6 23.6 23.2 23.2 23.6 22.7 22.7

MdxT -40.3 -4.6 1.3 -46.8 9.5 46.3 -9.1 -4.8 77.4 40.3

MdyT -62.7 -113.7 11.6 -63.7 -4.8 -62.8 -5.2 -113.7 -35.8 -61.2

COMB ( 15 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 18 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35

FdzT 22.7 22.3 22.3 23.6 24.5

MdxT -15.3 4.3 -0.8 1.3 -36.4

MdyT -5.2 60.3 -21.0 11.5 65.0

COMB ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.1 22.1 22.1 22.1 21.8 21.5 21.7 21.8 21.8 21.4

MdxT 77.2 -77.2 0.0 0.0 73.5 -73.6 -33.9 113.1 77.8 105.6

MdyT 0.0 0.0 82.8 -82.8 -129.4 167.4 164.9 65.0 162.4 -128.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 3 ) ( 1 ) ( 2 ) ( 2 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.5 21.4 21.3 22.1 21.4 20.9 21.0 20.6 20.6 21.8

MdxT -34.8 111.9 -65.1 62.8 150.3 104.4 -98.7 19.9 -65.6 65.3

MdyT 67.0 152.2 235.9 -246.2 60.9 -127.3 160.7 156.5 274.7 -301.7

COMB ( 3 ) ( 6 ) ( 4 ) ( 5 ) ( 6 ) ( 15 ) ( 7 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.3 21.3 21.3 21.0 21.0 20.9 21.5 20.9 20.4 20.4

MdxT 74.5 113.6 78.8 24.4 -72.7 110.6 60.8 148.2 53.9 -97.7

MdyT -128.5 65.4 163.4 -119.7 168.6 153.2 -244.2 61.3 -112.4 161.8

COMB ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 15 ) ( 14 ) ( 15 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36

FdzT 20.0 20.0 21.3 22.1 22.1 22.1

MdxT 18.8 -63.9 63.4 54.6 -54.6 -54.6

MdyT 156.5 275.8 -299.8 58.6 58.6 -58.6

COMB ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.4 12.4 12.4 12.4 12.4 12.4 12.3 12.3 12.3 12.2

MdxT 43.5 -43.5 0.0 0.0 4.8 -43.1 -25.9 35.0 4.2 -45.9

MdyT 0.0 0.0 33.6 -33.6 96.3 97.6 115.2 86.8 124.2 110.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 14 ) ( 3 ) ( 5 ) ( 6 )

CARR 11 12 13 14 15 16 17

FdzT 12.1 12.1 12.1 12.3 12.1 12.4 12.4

MdxT 55.0 3.6 -25.4 -46.2 21.9 -30.8 30.8

MdyT 78.5 141.0 128.5 110.2 79.0 -23.7 -23.7

COMB ( 7 ) ( 9 ) ( 18 ) ( 15 ) ( 16 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5

MdxT 11.1 -11.1 0.0 0.0 -7.3 4.1 -16.2 -7.9 4.3 9.4

MdyT 0.0 0.0 15.3 -15.3 80.9 -30.5 33.6 43.8 -21.1 44.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 10 ) ( 15 ) ( 15 ) ( 11 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5

MdxT 3.6 3.2 4.6 9.4 3.5 2.7 -11.5 -7.3 -7.8 7.8

MdyT -39.9 -61.9 -13.0 44.0 -44.2 -80.9 33.7 61.9 -10.8 -10.8

COMB ( 12 ) ( 13 ) ( 15 ) ( 7 ) ( 16 ) ( 17 ) ( 11 ) ( 13 ) ( 0 ) ( 0 )

### P139

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.1 18.1 17.8 18.1 17.5 18.1 17.8 17.8 18.1 18.1

MdxT 110.3 -110.3 0.0 0.0 0.0 0.0 -104.4 93.6 -52.9 -101.9

MdyT 0.0 0.0 2.7 -68.0 12.0 68.0 48.2 48.0 120.0 69.4

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 5 ) ( 0 ) ( 11 ) ( 12 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.5 17.5 17.2 17.1 17.6 17.6 16.7 16.7 16.7 18.1

MdxT -54.3 -100.9 -102.3 106.5 -50.0 -98.1 -52.2 -96.3 0.6 -101.9

MdyT -71.5 -38.1 46.5 46.2 183.0 104.6 -135.9 -74.3 18.1 69.2

COMB ( 14 ) ( 14 ) ( 15 ) ( 7 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 9 ) ( 13 )

CARR 21 22 23 24 25

FdzT 17.1 17.7 18.1 18.1 18.1

MdxT 106.4 -98.2 78.0 -78.0 78.0

MdyT 46.3 104.5 48.1 -48.1 -48.1

COMB ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P14

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.4 22.4 22.4 22.4 19.1 21.3 21.3 21.3 17.1 17.1

MdxT 47.1 -47.1 0.0 0.0 4.5 6.6 6.6 1.5 2.8 3.4

MdyT 0.0 0.0 60.5 -60.5 3.4 106.3 62.2 -3.8 -99.8 -55.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 21.0 20.9 17.3 17.3 17.3 22.3 22.4 22.4 15.5

MdxT 3.4 44.7 -8.0 -35.6 -35.6 12.9 7.7 7.8 33.3 1.7

MdyT 10.4 9.5 2.0 -2.8 4.6 4.6 175.3 175.1 -42.8 -168.3

COMB ( 3 ) ( 13 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 0 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.5 15.4 21.9 21.9 15.8 15.8 19.2 17.4 17.4 22.4

MdxT 3.8 3.8 71.4 -15.1 -62.2 19.9 4.6 -35.4 -35.4 7.8

MdyT -95.0 15.0 14.0 1.0 -6.7 5.5 3.2 -2.9 4.6 101.7

COMB ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 14 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35

FdzT 22.0 15.9 22.4 22.4 22.4

MdxT 71.5 -62.0 33.3 -33.3 -33.3

MdyT 13.9 -6.9 42.8 42.8 -42.8

COMB ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.0 15.0 15.0 15.0 12.7 12.7 14.0 14.0 11.3 11.3

MdxT 52.4 -52.4 0.0 0.0 17.8 -35.1 15.4 -34.4 -48.2 -35.3

MdyT 0.0 0.0 40.4 -40.4 -200.9 -248.4 -211.5 -258.0 -216.5 -235.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 2 ) ( 2 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.8 13.8 11.6 11.6 15.0 15.0 10.1 10.1 14.2 14.2

MdxT 37.2 -48.4 -70.7 -47.9 13.4 -33.2 -49.7 -33.6 56.7 -58.5

MdyT -227.2 -289.2 -194.5 -207.6 -216.2 -261.0 -200.2 -218.5 -236.3 -305.3

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28

FdzT 10.7 10.7 14.3 14.3 15.0 15.0 15.0 15.0

MdxT -97.4 -72.4 56.6 -58.2 37.1 -37.1 -37.1 37.1

MdyT -163.3 -171.8 -238.1 -307.7 28.6 28.6 -28.6 -28.6

COMB ( 18 ) ( 18 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.8 8.8 8.7 8.8 8.8 8.3 8.3 8.3 8.6 8.6

MdxT 30.8 -30.8 0.0 0.0 0.0 -2.1 17.4 8.8 44.7 6.9

MdyT 0.0 0.0 129.8 23.7 -23.7 77.0 36.8 -23.4 77.8 -53.9

COMB ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 17 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 7.9 7.9 8.5 8.5 8.0 8.0 8.0 8.8 8.8 8.7

MdxT -47.6 20.0 25.9 -14.8 -29.7 12.9 32.2 1.5 18.5 4.9

MdyT 76.6 19.7 80.5 -29.3 76.6 37.0 -22.4 160.2 64.2 -75.2

COMB ( 18 ) ( 3 ) ( 13 ) ( 13 ) ( 5 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.6 7.6 7.6 8.6 7.8 7.8 8.3 8.3 8.3 8.7

MdxT -4.8 20.9 11.6 -31.1 -47.9 47.3 -1.8 17.4 8.5 18.2

MdyT -8.8 15.0 30.8 -28.7 73.5 -20.4 80.1 36.8 -28.1 53.9

COMB ( 7 ) ( 7 ) ( 7 ) ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 8.7 8.1 8.1 8.8 7.9 8.8 8.8 8.8 8.8

MdxT 6.6 -29.4 32.1 4.8 47.2 21.8 -21.8 -21.8 21.8

MdyT -59.9 79.7 -27.2 -79.8 -25.1 16.8 16.8 -16.8 -16.8

COMB ( 11 ) ( 14 ) ( 14 ) ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.9 2.9 2.9 2.9 2.8 2.8 2.9 2.9 2.7 2.7

MdxT 9.4 -9.4 0.0 0.0 8.5 -13.7 9.5 -14.0 7.4 -13.4

MdyT 0.0 0.0 7.9 -7.9 58.7 -82.3 74.1 -83.6 43.3 -81.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.9 2.9 2.7 2.8 2.9 2.9 2.9 2.7 2.7 2.9

MdxT 20.6 -21.0 -11.5 -6.4 10.4 -5.6 -14.0 6.9 -13.0 28.6

MdyT 57.3 -77.8 60.5 -86.8 83.9 33.5 -82.7 32.6 -78.5 55.9

COMB ( 13 ) ( 13 ) ( 18 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25 26 27

FdzT 2.9 2.9 2.7 2.7 2.8 2.9 2.9

MdxT 11.4 -25.6 -11.8 -1.4 -3.5 -6.6 6.6

MdyT -29.2 -73.1 56.0 -88.1 60.1 5.6 -5.6

COMB ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 14 ) ( 0 ) ( 0 )

### P140

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.3 18.3 18.1 17.8 18.3 16.9 18.3 18.1 18.1 18.1

MdxT 111.7 -111.7 0.0 0.0 0.0 0.0 0.0 -72.1 -110.2 13.3

MdyT 0.0 0.0 1.5 -7.7 68.9 -14.0 -68.9 -152.9 -91.0 1.8

COMB ( 0 ) ( 0 ) ( 10 ) ( 4 ) ( 0 ) ( 8 ) ( 0 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.0 18.0 18.0 17.8 17.8 18.3 18.3 17.5 17.5 17.5

MdxT 51.0 91.7 -14.0 -59.2 -106.0 -59.5 -108.2 -77.8 -107.9 22.4

MdyT -149.8 -89.3 1.4 95.3 54.1 -247.2 -144.0 -148.0 -88.1 1.8

COMB ( 12 ) ( 12 ) ( 3 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.3 17.3 17.3 17.0 17.0 17.9 17.9 18.3 18.3 18.3

MdxT 74.6 104.4 -23.1 -56.3 -100.8 -57.0 -104.6 -79.0 79.0 79.0

MdyT -142.5 -85.1 1.1 152.7 86.0 -305.1 -176.2 48.7 48.7 -48.7

COMB ( 16 ) ( 16 ) ( 7 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P141

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.7 23.7 23.4 23.7 23.0 23.4 23.7 23.4 23.5 23.5

MdxT 49.9 -49.9 0.0 0.0 0.0 0.0 0.0 0.8 -42.6 8.3

MdyT 0.0 0.0 5.9 -89.2 6.0 -3.8 89.2 63.1 63.4 6.2

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 10 ) ( 13 ) ( 0 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.3 23.1 23.5 23.0 23.0 23.1 22.7 22.9 22.8 23.7

MdxT 46.3 -74.8 -3.8 3.6 3.6 -44.4 76.6 46.5 -74.6 35.3

MdyT 62.8 34.9 111.4 -7.6 62.1 62.5 37.0 61.8 35.4 -63.1

COMB ( 3 ) ( 6 ) ( 8 ) ( 5 ) ( 5 ) ( 11 ) ( 7 ) ( 12 ) ( 15 ) ( 0 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.3 22.3 23.1 22.9 22.8 22.6 22.6 22.6 22.3 22.3

MdxT 5.5 -1.1 -44.4 46.5 -38.9 3.8 3.8 -0.7 76.7 40.0

MdyT -60.2 21.8 37.7 38.9 61.4 -7.0 61.1 15.8 37.5 60.3

COMB ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 15 ) ( 14 ) ( 14 ) ( 14 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36 37 38

FdzT 22.3 23.2 23.2 21.9 21.9 23.7 23.7 23.7

MdxT -15.1 -3.6 0.6 5.6 -1.1 35.3 -35.3 -35.3

MdyT 5.2 112.0 -10.5 -59.2 22.0 63.1 63.1 -63.1

COMB ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.3 21.3 21.3 21.3 21.0 20.9 21.0 21.0 21.0 21.3

MdxT 74.6 -74.6 0.0 0.0 51.7 -58.9 -23.2 85.3 54.7 15.1

MdyT 0.0 0.0 80.1 -80.1 125.6 -177.0 -179.6 -72.9 -182.3 214.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 3 ) ( 1 ) ( 2 ) ( 2 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.3 20.6 20.6 20.6 20.6 20.4 20.4 21.1 21.1 19.9

MdxT -44.8 83.6 -50.0 78.8 118.2 79.0 -81.5 15.1 -44.3 13.3

MdyT 245.2 -175.1 -253.7 121.7 -70.1 122.1 -165.9 269.2 300.7 -198.1

COMB ( 4 ) ( 6 ) ( 5 ) ( 6 ) ( 6 ) ( 15 ) ( 7 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.9 20.8 20.8 20.8 20.7 21.1 21.1 20.4 20.4 20.4

MdxT -50.9 53.5 87.3 56.6 -57.3 15.3 -44.3 83.7 -47.4 118.1

MdyT -296.5 126.1 -72.7 -181.7 -176.3 214.8 245.3 -174.4 -252.5 -69.8

COMB ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 15 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 20.1 20.1 20.9 19.7 19.7 21.3 21.3 21.3 21.3

MdxT 53.5 -79.9 43.8 13.4 -48.6 52.8 -52.8 -52.8 52.8

MdyT 121.1 -165.3 300.7 -196.8 -295.3 56.6 56.6 -56.6 -56.6

COMB ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.8 11.8 11.8 11.8 11.5 11.5 11.4 11.5 11.5 11.4

MdxT 41.5 -41.5 0.0 0.0 3.6 -39.3 -42.4 9.1 28.4 21.6

MdyT 0.0 0.0 32.0 -32.0 -128.4 -93.9 -110.5 -84.3 -68.3 -81.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 2 ) ( 6 ) ( 2 ) ( 3 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.3 11.3 11.3 11.7 11.8 11.8 11.8 11.8 11.7 11.7

MdxT 45.9 2.5 -23.6 3.6 -39.6 -23.4 9.4 29.7 21.3 -41.3

MdyT -55.9 -122.9 -113.5 -114.1 -95.8 -106.7 -79.5 -73.9 -77.1 -116.1

COMB ( 7 ) ( 8 ) ( 8 ) ( 13 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 15 ) ( 15 )

CARR 21 22 23 24

FdzT 11.6 11.5 11.8 11.8

MdxT 47.2 -24.2 29.3 -29.3

MdyT -61.5 -114.9 22.6 22.6

COMB ( 16 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5

MdxT 11.1 -11.1 0.0 0.0 -18.6 11.1 9.8 -7.4 12.0 9.2

MdyT 0.0 0.0 15.4 -15.4 -33.9 -54.7 29.5 -44.2 14.0 56.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 7 ) ( 1 ) ( 15 ) ( 2 ) ( 5 )

CARR 11 12 13 14 15 16 17 18

FdzT 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5

MdxT 3.7 13.6 3.5 8.7 -13.4 -5.4 13.0 -7.9

MdyT -56.6 0.6 -72.8 72.8 -33.9 -44.2 -1.1 10.9

COMB ( 5 ) ( 6 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 15 ) ( 0 )

### P142

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.5 24.5 21.4 19.4 23.3 21.0 19.1 23.0 24.5 24.5

MdxT 51.4 -51.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 2.5 -53.5 -3.8 2.5 -53.5 -3.6 66.1 -66.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 5 ) ( 10 ) ( 13 ) ( 14 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.2 21.2 21.6 21.5 19.4 19.4 23.3 20.9 20.9 21.5

MdxT 40.2 -36.5 -36.5 16.2 1.0 1.0 5.0 67.9 -15.4 -62.7

MdyT 13.7 9.8 9.9 2.8 -28.6 8.8 77.1 15.0 2.2 8.4

COMB ( 2 ) ( 12 ) ( 3 ) ( 7 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.0 18.0 18.0 24.5 24.5 20.8 19.1 19.1 23.0 20.6

MdxT -1.1 1.4 1.4 6.4 -36.4 -9.1 1.0 1.0 5.0 67.9

MdyT -97.2 -53.1 13.0 120.5 -46.7 2.4 -28.6 8.8 77.1 14.8

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 0 ) ( 11 ) ( 13 ) ( 13 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 20.6 21.2 17.6 17.6 17.6 24.1 24.1 24.5 24.5 24.5

MdxT -15.4 -62.7 -1.3 1.4 1.4 6.4 -0.6 36.4 -36.4 36.4

MdyT 2.2 8.4 -97.2 -53.1 13.0 120.4 -7.8 46.7 46.7 -46.7

COMB ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.8 13.4 15.7 15.7 15.7 15.7 13.9 13.8 13.9 13.8

MdxT 45.9 47.0 55.0 -55.0 0.0 0.0 29.4 -52.1 -12.3 -20.8

MdyT 0.0 0.0 0.0 0.0 42.4 -42.4 -48.0 -55.0 -51.7 -33.1

COMB ( 2 ) ( 11 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 2 ) ( 1 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.9 12.6 12.6 12.6 15.1 15.1 15.1 13.5 13.5 13.9

MdxT -55.4 8.7 -26.5 -12.7 9.4 -31.6 -11.8 72.9 -81.5 57.4

MdyT -6.4 -76.9 -37.2 22.3 70.8 -50.2 -125.4 2.8 -58.2 -46.3

COMB ( 7 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.7 11.7 11.7 15.7 15.7 15.7 13.6 13.4 12.3 12.3

MdxT 8.3 -25.2 -12.9 9.4 -33.0 -11.2 29.7 -53.6 8.3 -25.8

MdyT -124.9 -50.0 70.7 121.2 -70.2 -175.4 -47.9 -55.2 -76.7 -37.1

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 12 ) ( 11 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.3 14.7 14.7 14.7 13.2 13.2 13.5 11.3 11.3 11.3

MdxT -12.6 8.8 -30.9 -11.5 72.5 -81.3 57.5 7.8 -24.8 -12.7

MdyT 22.3 71.0 -50.1 -125.3 2.9 -58.2 -46.2 -124.7 -49.9 70.8

COMB ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45 46 47

FdzT 15.4 15.4 15.4 15.7 15.7 15.7 15.7

MdxT 8.8 -32.3 -11.1 38.9 -38.9 -38.9 38.9

MdyT 121.4 -70.1 -175.3 30.0 30.0 -30.0 -30.0

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.6 12.6 12.4 12.0 12.6 12.6 11.8 11.9 11.8 11.9

MdxT 44.1 -44.1 0.0 0.0 0.0 0.0 34.0 -32.3 -25.5 23.4

MdyT 0.0 0.0 199.2 -75.7 34.0 -34.0 156.0 147.4 -30.7 -25.6

COMB ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 0 ) ( 0 ) ( 2 ) ( 3 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.3 11.4 12.4 12.4 11.6 11.6 11.7 11.7 10.8 10.8

MdxT 58.0 -55.2 26.1 0.6 58.1 -43.1 -55.0 40.0 4.9 -22.6

MdyT 151.9 137.3 89.1 -76.2 153.2 -31.4 138.5 -22.8 66.8 61.2

COMB ( 15 ) ( 16 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.6 12.6 12.6 11.4 11.5 11.4 11.5 10.9 10.9 12.0

MdxT -1.8 26.5 2.1 35.4 -32.5 -26.9 23.0 3.5 -22.9 -0.6

MdyT 224.8 92.1 -107.1 155.0 146.2 -30.4 -25.2 103.2 70.0 198.0

COMB ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.0 11.3 11.4 10.4 10.4 12.2 12.2 12.2 12.6 12.6

MdxT -25.2 -43.4 39.8 4.8 -21.8 -1.8 -25.6 1.8 31.2 -31.2

MdyT 88.5 -31.1 -22.4 65.7 60.7 223.6 91.5 -106.7 24.1 24.1

COMB ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41 42

FdzT 12.6 12.6

MdxT -31.2 31.2

MdyT -24.1 -24.1

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.7

MdxT 9.0 -9.0 0.0 0.0 8.4 -7.1 28.4 -10.9 -3.4 5.7

MdyT 0.0 0.0 13.8 -13.8 -43.1 -46.9 -24.8 -30.9 -45.4 -24.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 6 ) ( 2 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.7 2.7 2.8 2.8 2.8 2.8 2.8 2.7 2.8 2.6

MdxT 2.4 -3.6 8.0 -3.4 11.4 -16.5 -17.6 5.9 7.7 33.2

MdyT -60.8 60.8 -96.5 -127.1 -38.8 -29.0 -24.9 -24.1 -131.0 -23.0

COMB ( 8 ) ( 8 ) ( 5 ) ( 9 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 9 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.6 2.6 2.6 2.6 2.6 2.6 2.5 2.6 2.6 2.6

MdxT 4.1 -9.5 9.7 -17.4 -6.3 10.6 4.3 -9.7 10.1 4.0

MdyT -48.0 -39.1 -45.7 -36.7 -51.8 -22.5 -55.2 17.2 -23.4 -101.0

COMB ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 16 ) ( 13 ) ( 17 ) ( 13 ) ( 14 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 2.6 2.6 2.6 2.5 2.7 2.7 2.7 2.8 2.8 2.8

MdxT -9.5 13.3 -22.5 -9.5 9.8 3.9 -9.2 6.4 -6.4 -6.4

MdyT -95.5 -43.8 -34.7 55.2 -23.8 -135.4 -132.9 9.8 9.8 -9.8

COMB ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P143

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.9 27.9 25.4 27.1 27.9 27.9 24.9 24.9 25.8 25.8

MdxT 58.6 -58.6 0.0 0.0 0.0 0.0 40.5 -9.7 -66.5 9.0

MdyT 0.0 0.0 -3.9 4.1 75.4 -75.4 -2.4 -2.4 -7.0 -1.8

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 16 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.1 23.6 23.6 24.3 24.2 24.2 25.8 27.9 27.9 22.1

MdxT -2.2 3.1 -0.8 67.1 33.9 -15.8 15.3 -4.1 41.5 4.8

MdyT -69.6 61.6 -8.3 -1.3 -2.5 -2.5 -1.7 -113.4 53.3 105.3

COMB ( 13 ) ( 5 ) ( 5 ) ( 15 ) ( 6 ) ( 6 ) ( 16 ) ( 17 ) ( 0 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 22.1 24.9 23.6 27.9 27.9 27.9

MdxT -1.1 40.5 2.9 -41.5 -41.5 41.5

MdyT -12.5 -2.2 61.6 53.3 -53.3 -53.3

COMB ( 9 ) ( 11 ) ( 14 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.2 17.8 17.8 17.8 17.8 16.4 16.4 16.4 16.1 16.2

MdxT 40.0 62.2 -62.2 0.0 0.0 4.3 60.1 -3.8 38.8 -41.9

MdyT 0.0 0.0 0.0 48.0 -48.0 -1.8 66.5 65.1 -0.6 64.3

COMB ( 11 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 1 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.6 16.6 16.6 17.4 17.4 17.4 15.3 15.3 15.3 15.6

MdxT -31.8 57.8 34.6 1.1 36.6 -0.7 7.6 32.2 -6.9 64.3

MdyT -3.2 38.4 66.1 -69.9 55.3 138.2 66.2 36.6 -8.0 -0.6

COMB ( 3 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 4 ) ( 5 ) ( 14 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.6 16.4 17.8 17.8 17.8 14.3 14.3 14.3 16.6 15.6

MdxT -67.2 -56.3 -1.5 37.3 1.5 9.4 30.0 -8.7 -32.1 -67.1

MdyT 63.3 -5.0 -116.2 74.7 186.8 110.6 44.2 -56.8 -3.1 63.4

COMB ( 6 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 9 ) ( 12 ) ( 15 )

CARR 31 32 33 34

FdzT 17.8 17.8 17.8 17.8

MdxT 44.0 -44.0 -44.0 44.0

MdyT 33.9 33.9 -33.9 -33.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.7 14.2 14.2 14.2 14.2 13.8 13.8 13.8 13.7 13.7

MdxT -0.7 49.6 -49.6 0.0 0.0 -29.4 -29.4 24.2 22.0 39.1

MdyT 0.0 0.0 0.0 38.2 -38.2 -136.8 -135.9 55.4 -133.4 -58.8

COMB ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 12 ) ( 3 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.7 14.1 14.1 14.1 13.3 13.3 13.3 13.3 13.5 13.5

MdxT -19.2 -5.5 -29.7 3.1 -1.8 -27.9 40.6 -35.0 -46.9 39.1

MdyT 53.1 -259.4 -85.2 147.4 -57.3 -35.6 -126.7 49.6 -132.4 53.8

COMB ( 2 ) ( 8 ) ( 4 ) ( 8 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.1 12.7 12.7 13.7 13.7 13.7 14.2 13.3 13.3 14.1

MdxT -29.5 26.6 0.8 23.1 40.6 -20.3 -29.7 -27.9 -35.1 -29.6

MdyT -103.8 -26.4 -44.5 -132.4 -58.5 52.5 -84.8 -35.2 49.1 -103.4

COMB ( 8 ) ( 9 ) ( 18 ) ( 11 ) ( 11 ) ( 11 ) ( 13 ) ( 14 ) ( 15 ) ( 17 )

CARR 31 32 33 34 35 36

FdzT 12.7 12.7 14.2 14.2 14.2 14.2

MdxT -0.7 26.6 35.1 -35.1 -35.1 35.1

MdyT 1.0 -26.3 27.0 27.0 -27.0 -27.0

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P144

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 25.5 25.5 21.3 19.9 21.5 20.1 25.5 25.5 23.1 23.1

MdxT 53.6 -53.6 0.0 0.0 0.0 0.0 0.0 0.0 -1.1 34.6

MdyT 0.0 0.0 -55.6 11.9 -55.6 11.9 69.0 -69.0 9.5 10.9

COMB ( 0 ) ( 0 ) ( 4 ) ( 8 ) ( 13 ) ( 17 ) ( 0 ) ( 0 ) ( 10 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.2 21.3 21.3 24.8 24.8 22.5 22.7 19.9 25.5 25.5

MdxT -36.8 0.6 0.6 -2.2 1.0 58.8 -60.3 1.3 -2.8 37.9

MdyT 8.1 -55.6 7.8 74.6 -4.3 11.6 7.1 -99.1 117.9 -48.8

COMB ( 12 ) ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 6 ) ( 7 ) ( 8 ) ( 18 ) ( 0 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 23.1 21.5 21.5 22.7 20.1 20.1 25.5 25.5 25.5

MdxT 0.8 0.6 0.6 58.7 1.1 1.1 37.9 -37.9 -37.9

MdyT 1.7 -55.6 7.8 11.8 -99.0 -54.6 48.8 48.8 -48.8

COMB ( 10 ) ( 13 ) ( 13 ) ( 15 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.1 16.1 16.1 16.1 14.6 14.5 14.6 14.6 14.6 14.6

MdxT 56.4 -56.4 0.0 0.0 37.2 -61.0 -7.1 -15.3 -27.2 -46.6

MdyT 0.0 0.0 43.5 -43.5 8.8 -78.4 -73.4 -41.7 4.9 -40.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 15 ) ( 1 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.6 13.6 13.6 15.6 15.6 15.6 14.3 14.3 14.3 14.3

MdxT 25.3 8.0 -28.7 3.5 -32.7 -4.8 60.3 -61.2 -49.3 47.0

MdyT -71.3 -61.0 -37.9 74.9 -57.5 -143.8 10.9 -76.6 4.5 -69.3

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.7 12.7 12.7 15.9 15.9 15.9 14.8 14.8 14.8 14.8

MdxT 9.4 -26.6 -11.1 1.7 -33.4 -3.1 38.2 -39.5 -7.0 -15.8

MdyT -105.6 -45.6 44.4 121.0 -76.1 -190.3 6.0 -77.4 -75.2 -44.0

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 14.8 14.8 14.8 13.8 13.8 15.8 15.8 14.5 14.5 14.5

MdxT -27.6 -47.4 25.5 7.7 -29.1 3.1 -4.6 59.9 -49.7 47.2

MdyT 2.1 -43.0 -73.1 -63.8 -40.2 72.1 -145.6 8.3 1.7 -71.1

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 12.9 12.9 12.9 16.1 16.1 16.1 16.1 16.1 16.1 16.1

MdxT 9.0 -27.1 -10.9 1.3 -33.8 -2.9 39.9 -39.9 -39.9 39.9

MdyT -108.2 -47.9 42.6 118.3 -76.8 -192.1 30.8 30.8 -30.8 -30.8

COMB ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.7 12.7 11.9 12.0 12.7 12.7 12.4 12.4 12.4 12.4

MdxT 44.6 -44.6 0.0 0.0 0.0 0.0 -1.0 31.0 4.1 16.7

MdyT 0.0 0.0 86.8 100.4 34.4 -34.4 171.2 73.4 -75.9 173.5

COMB ( 0 ) ( 0 ) ( 4 ) ( 13 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 10 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.4 12.4 12.4 12.4 12.0 12.0 12.7 12.7 12.7 12.0

MdxT -8.5 -18.6 -33.6 16.8 28.7 24.8 -2.8 26.8 5.0 -17.5

MdyT -76.7 169.0 71.4 -75.0 155.1 -71.5 282.9 96.8 -158.5 -62.7

COMB ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 6 ) ( 16 ) ( 18 ) ( 14 ) ( 18 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.0 11.3 11.3 12.7 12.4 12.7 12.7 12.1 12.1 11.4

MdxT -30.1 1.4 23.7 26.6 26.0 -2.2 4.9 28.6 -17.4 1.3

MdyT 161.1 33.5 29.8 113.2 72.4 242.1 -127.3 168.4 -74.3 46.8

COMB ( 16 ) ( 8 ) ( 8 ) ( 18 ) ( 10 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 17 )

CARR 31 32 33 34 35

FdzT 11.4 12.7 12.7 12.7 12.7

MdxT 24.0 31.6 -31.6 -31.6 31.6

MdyT 33.1 24.3 24.3 -24.3 -24.3

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P145

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.2 29.2 29.2 29.2 25.8 26.1 26.0 25.8 27.3 27.3

MdxT 61.4 -61.4 0.0 0.0 -40.9 28.3 -15.1 7.0 -4.5 -1.3

MdyT 0.0 0.0 78.9 -78.9 -6.9 -4.2 -2.8 -2.5 -70.4 3.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 2 ) ( 6 ) ( 3 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.8 24.8 26.0 25.5 25.5 28.0 28.0 23.5 23.5 27.1

MdxT -7.7 -1.3 53.3 -64.4 12.6 -3.6 -1.3 -7.4 -1.3 -41.2

MdyT 102.8 -12.9 -3.2 -7.8 -2.4 -113.8 7.6 102.8 -12.7 -7.0

COMB ( 18 ) ( 18 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 12 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.4 27.4 27.3 28.6 28.6 25.9 25.9 26.7 26.7 29.2

MdxT 29.5 -9.7 53.1 -4.8 -1.3 -7.0 -1.3 -64.7 12.5 -3.9

MdyT -4.2 -2.8 -3.2 -70.6 3.4 59.4 -8.8 -7.8 -2.5 -113.8

COMB ( 11 ) ( 11 ) ( 15 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 )

CARR 31 32 33 34

FdzT 29.2 29.2 29.2 29.2

MdxT -43.4 43.4 -43.4 43.4

MdyT 55.8 55.8 -55.8 -55.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.7 18.7 18.7 18.7 16.3 16.4 16.5 16.4 16.3 17.2

MdxT 65.6 -65.6 0.0 0.0 -24.9 48.0 -5.3 -38.9 41.2 -9.7

MdyT 0.0 0.0 50.6 -50.6 28.1 35.0 29.3 14.7 55.5 -53.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 6 ) ( 3 ) ( 2 ) ( 3 ) ( 18 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.2 17.2 15.7 15.7 15.7 16.1 16.1 17.5 17.5 17.5

MdxT 37.7 19.5 -11.6 40.6 22.1 -57.5 65.8 -8.7 36.7 18.2

MdyT 41.5 103.7 90.6 38.5 -39.6 10.5 37.9 -103.3 61.0 152.6

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.0 15.0 15.0 17.6 17.7 17.8 17.7 17.7 18.5 18.5

MdxT -12.0 40.8 22.5 -25.2 47.7 -6.7 -37.1 19.1 -7.8 38.8

MdyT 137.1 54.8 -86.5 25.3 32.2 26.3 16.5 32.2 -51.8 40.4

COMB ( 9 ) ( 9 ) ( 9 ) ( 15 ) ( 12 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.5 17.0 17.0 17.0 17.4 17.4 18.7 18.7 18.7 16.3

MdxT 19.2 -9.9 41.1 21.8 -55.7 65.5 -6.9 39.3 17.9 -10.4

MdyT 100.9 92.4 38.5 -42.4 12.2 35.1 -101.6 59.9 149.8 138.7

COMB ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43 44 45

FdzT 16.3 18.7 18.7 18.7 18.7

MdxT 22.3 46.4 -46.4 -46.4 46.4

MdyT -89.3 35.8 35.8 -35.8 -35.8

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.1 15.1 15.1 15.1 13.5 13.5 13.5 13.5 13.5 13.5

MdxT 52.9 -52.9 0.0 0.0 -21.3 -41.2 21.3 -2.2 28.3 8.8

MdyT 0.0 0.0 40.8 -40.8 -149.4 -143.5 23.2 -154.8 -83.0 24.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 3 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.5 13.7 13.7 13.7 13.3 13.3 13.3 13.3 13.3 13.3

MdxT 34.3 -19.5 36.9 20.3 -53.3 -40.3 27.9 12.9 -1.5 42.0

MdyT 21.8 -202.9 -93.9 69.6 -133.7 -66.7 -82.0 -153.2 24.6 19.9

COMB ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 7 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.7 13.7 13.7 12.9 12.9 14.9 14.9 14.9 14.9 14.9

MdxT -17.1 34.5 18.6 -40.2 21.8 -33.0 24.6 -13.2 11.6 -52.9

MdyT -232.5 -99.7 99.5 -54.7 -55.0 -158.8 18.6 -164.6 20.0 -153.0

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 14.9 15.1 15.1 15.1 14.7 14.7 14.7 14.7 14.7 15.0

MdxT 37.8 -31.2 -52.3 23.8 -64.8 30.8 1.4 1.8 45.4 -28.7

MdyT 17.1 -212.2 -101.4 65.0 -142.9 -89.4 -162.4 20.0 15.3 -241.8

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 16 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 17 )

CARR 41 42 43 44 45 46

FdzT 15.0 14.3 14.3 15.1 15.1 15.1

MdxT 22.0 -34.9 25.2 37.4 -37.4 37.4

MdyT 94.9 -63.6 -59.6 28.9 28.9 -28.9

COMB ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.9 4.0 4.0 4.0 4.0 3.3 3.3 3.3 3.3 3.3

MdxT 28.1 12.7 -12.7 0.0 0.0 -9.6 15.4 10.9 -16.0 -9.0

MdyT 0.0 0.0 0.0 19.6 -19.6 44.1 45.5 37.7 32.1 57.4

COMB ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 3 ) ( 3 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.3 3.4 3.4 3.3 3.2 3.2 3.4 3.4 3.9

MdxT -8.8 4.6 -10.5 3.8 -22.4 -4.9 7.9 -10.9 3.4 -19.3

MdyT 73.8 63.0 45.3 -12.9 31.9 30.5 96.8 46.0 -38.5 38.9

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.8 3.8 3.8

MdxT -7.7 17.2 4.2 10.5 -29.1 -11.6 23.9 -18.6 -7.4 17.6

MdyT 53.2 -21.3 53.2 -33.9 38.8 53.0 -8.7 37.9 51.9 16.7

COMB ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 4.0 4.0 4.0 3.9 3.9 3.9 3.9 3.8 3.8 3.8

MdxT -19.9 -8.0 16.8 9.5 5.9 -35.3 -14.1 -17.8 7.1 17.8

MdyT 40.2 84.0 -59.2 53.0 -41.7 38.6 52.8 37.2 56.0 42.3

COMB ( 18 ) ( 18 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 41 42 43

FdzT 4.0 4.0 4.0

MdxT 16.2 9.0 -9.0

MdyT -84.0 13.9 -13.9

COMB ( 18 ) ( 0 ) ( 0 )

### P146

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.7 14.7 13.9 13.6 14.4 14.2 14.7 14.7 13.8 13.8

MdxT 30.9 -30.9 0.0 0.0 0.0 0.0 0.0 0.0 -24.8 -47.0

MdyT 0.0 0.0 -2.5 22.4 -2.4 22.7 55.3 -55.3 -40.4 -28.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 10 ) ( 13 ) ( 0 ) ( 0 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.7 14.0 14.0 14.0 13.6 13.6 14.0 14.0 14.0 13.4

MdxT 76.2 44.8 23.2 -80.4 -0.8 -1.3 -5.5 -5.5 1.1 -80.2

MdyT -22.3 -24.8 -37.7 -27.6 36.7 -17.8 -106.5 -58.7 13.2 -28.0

COMB ( 7 ) ( 3 ) ( 3 ) ( 15 ) ( 4 ) ( 17 ) ( 9 ) ( 9 ) ( 9 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.4 13.4 13.7 13.1 13.1 13.1 14.3 14.3 14.3 14.5

MdxT -42.1 15.1 39.5 1.3 1.3 -1.3 -25.8 -49.1 76.0 44.7

MdyT -40.1 -1.8 -37.0 56.3 26.7 -17.8 -40.2 -27.9 -22.0 -24.5

COMB ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 11 ) ( 11 ) ( 16 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 14.5 14.5 14.2 14.6 14.6 14.7 14.0 14.3 13.6 13.6

MdxT 23.1 -9.2 -0.8 -5.6 -5.6 21.8 -42.2 39.5 1.1 -1.3

MdyT -39.2 -2.7 38.2 -106.3 -58.4 39.1 -39.7 -38.5 56.6 26.8

COMB ( 12 ) ( 12 ) ( 13 ) ( 18 ) ( 18 ) ( 0 ) ( 15 ) ( 16 ) ( 17 ) ( 17 )

CARR 41 42 43

FdzT 14.7 14.7 14.7

MdxT -21.8 -21.8 21.8

MdyT 39.1 -39.1 -39.1

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.0 11.0 11.0 11.0 10.1 10.2 10.1 10.1 10.3 10.3

MdxT 38.5 -38.5 0.0 0.0 -42.7 39.0 25.3 63.3 29.3 -13.7

MdyT 0.0 0.0 41.2 -41.2 -86.2 -102.2 -103.6 -82.7 -81.9 -99.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 15 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.3 9.9 10.4 10.4 9.7 9.7 9.7 10.1 10.1 9.4

MdxT -34.2 23.8 -12.0 34.5 -68.5 39.2 98.0 -27.2 -68.0 19.7

MdyT -78.5 54.9 -205.5 -226.0 -85.0 -101.9 -81.8 -94.3 -74.5 107.4

COMB ( 3 ) ( 4 ) ( 9 ) ( 9 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.7 10.7 10.6 10.6 10.6 10.9 10.8 10.8 10.3 10.9

MdxT -7.0 28.1 -43.7 26.0 65.1 34.5 -13.8 -34.4 23.4 -11.5

MdyT -83.9 -101.7 -86.0 -103.9 -82.7 -226.5 -99.5 -78.5 55.4 -205.2

COMB ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 18 ) ( 12 ) ( 12 ) ( 13 ) ( 18 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 11.0 10.2 10.2 10.5 10.5 9.8 11.0 11.0 11.0

MdxT 32.7 -67.9 97.6 -27.3 -68.3 20.6 27.2 -27.2 -27.2

MdyT -179.3 -84.7 -81.8 -94.6 -74.5 108.2 29.2 29.2 -29.2

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P147

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.0 19.0 18.8 18.0 19.0 19.0 18.9 19.0 19.0 18.8

MdxT 115.8 -115.8 0.0 0.0 0.0 0.0 -64.0 -100.0 81.9 112.4

MdyT 0.0 0.0 12.9 19.2 71.4 -71.4 51.0 -51.3 50.5 53.7

COMB ( 0 ) ( 0 ) ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 0 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.0 19.0 18.8 18.8 18.4 18.4 18.0 18.0 18.4 18.0

MdxT -6.4 -63.8 -7.6 -65.3 -87.1 62.9 93.8 -23.7 6.9 -7.6

MdyT 127.5 74.1 -125.9 -70.4 -49.7 108.1 54.8 2.8 188.6 -187.7

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 6 ) ( 8 ) ( 7 ) ( 7 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25

FdzT 18.0 18.9 18.4 19.0 19.0

MdxT -63.2 -64.5 -87.3 -81.9 81.9

MdyT -105.0 51.0 -49.7 50.5 -50.5

COMB ( 18 ) ( 10 ) ( 15 ) ( 0 ) ( 0 )

### P148

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.0 19.0 18.1 18.8 18.0 19.0 19.0 19.0 18.9 19.0

MdxT -115.8 115.8 -23.7 0.0 0.0 0.0 0.0 -62.9 -63.8 -63.2

MdyT 0.0 0.0 0.0 -9.4 -15.7 71.4 -71.4 -121.0 -67.7 -120.9

COMB ( 0 ) ( 0 ) ( 7 ) ( 4 ) ( 8 ) ( 0 ) ( 0 ) ( 5 ) ( 1 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.0 18.8 18.8 18.8 18.8 19.0 19.0 18.4 18.3 18.3

MdxT -98.4 36.0 109.9 -7.4 -65.1 -6.0 -81.9 -59.6 -87.5 22.5

MdyT -67.5 -113.3 -68.0 85.1 47.3 -208.2 50.5 -153.7 -64.3 0.7

COMB ( 2 ) ( 3 ) ( 3 ) ( 13 ) ( 13 ) ( 5 ) ( 0 ) ( 9 ) ( 15 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.1 18.1 18.0 18.0 18.4 18.4 18.9 19.0 19.0 19.0

MdxT 57.5 92.1 -7.4 -63.1 -5.2 -0.8 -64.3 -100.6 81.9 -6.2

MdyT -108.8 -65.3 147.7 82.3 -267.0 16.2 -67.6 -67.3 50.5 -208.0

COMB ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 0 ) ( 14 )

CARR 31 32

FdzT 18.4 18.4

MdxT -5.5 -60.2

MdyT -266.8 -153.6

COMB ( 18 ) ( 18 )

### P149

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.1 15.1 14.6 14.4 15.1 14.9 15.1 14.4 14.2 14.3

MdxT 31.7 -31.7 0.0 0.0 0.0 0.0 0.0 -4.8 -45.1 -40.7

MdyT 0.0 0.0 -6.2 -12.6 -56.7 -12.6 56.7 99.8 18.2 38.6

COMB ( 0 ) ( 0 ) ( 4 ) ( 8 ) ( 0 ) ( 17 ) ( 0 ) ( 8 ) ( 2 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.1 14.4 14.4 14.3 14.6 14.0 14.0 14.0 13.8 13.8

MdxT 74.9 44.4 22.9 -77.3 -3.4 2.2 -1.3 -1.5 -77.4 -40.8

MdyT 20.0 20.3 38.9 16.5 68.3 -63.3 -42.4 18.3 16.4 37.2

COMB ( 7 ) ( 3 ) ( 3 ) ( 15 ) ( 4 ) ( 18 ) ( 5 ) ( 18 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.8 14.1 13.5 13.5 14.9 14.7 14.7 14.7 14.9 14.9

MdxT 14.1 38.8 2.1 -1.5 -4.6 -46.9 -24.9 75.0 44.5 23.0

MdyT 3.4 38.2 -63.4 18.3 100.1 18.3 39.7 20.2 20.4 40.3

COMB ( 6 ) ( 7 ) ( 9 ) ( 9 ) ( 17 ) ( 11 ) ( 11 ) ( 16 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 14.9 15.1 14.6 14.6 14.7 15.1 15.1 15.1 15.1

MdxT -9.4 -3.2 0.8 -1.3 38.9 22.4 -22.4 -22.4 22.4

MdyT 2.8 68.5 -29.5 -42.4 39.6 40.1 40.1 -40.1 -40.1

COMB ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.4 11.4 11.4 11.4 10.7 10.5 10.5 10.5 10.8 10.9

MdxT 39.8 -39.8 0.0 0.0 22.4 -66.5 17.5 52.4 31.4 -22.8

MdyT 0.0 0.0 42.7 -42.7 75.9 63.0 74.5 63.7 61.9 199.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 2 ) ( 7 ) ( 3 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.8 11.0 11.0 10.3 10.1 10.1 10.1 10.5 10.9 9.8

MdxT -38.5 2.0 -23.0 21.7 -53.2 29.5 73.8 -26.6 -1.4 20.6

MdyT 61.6 129.9 151.1 -46.7 55.0 72.0 57.1 80.4 177.1 -100.6

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.1 11.1 10.9 10.9 10.9 11.2 11.2 11.2 11.4 11.4

MdxT 4.3 -23.2 -65.9 18.5 52.4 31.4 -23.6 -37.9 2.1 -23.9

MdyT 60.5 78.0 64.1 76.6 64.8 63.0 200.8 62.9 131.0 152.9

COMB ( 10 ) ( 10 ) ( 16 ) ( 11 ) ( 16 ) ( 12 ) ( 17 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.7 10.5 10.5 10.9 11.2 10.2 11.4 11.4 11.4 11.4

MdxT 22.6 29.7 74.3 -26.4 -1.7 21.4 28.2 -28.2 -28.2 28.2

MdyT -45.4 74.2 58.8 82.0 178.1 -99.8 30.2 30.2 -30.2 -30.2

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P15

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.7 18.7 18.7 18.7 17.9 17.9 18.7 17.2 17.2 17.2

MdxT 39.3 -39.3 0.0 0.0 49.8 -10.1 53.5 46.5 19.8 -20.2

MdyT 0.0 0.0 50.5 -50.5 8.3 7.8 98.6 -46.1 -46.1 -31.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 15 ) ( 3 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.5 17.3 17.3 17.3 16.4 16.4 16.6 16.6 17.2 16.5

MdxT 67.6 69.9 27.9 -56.0 43.8 -25.8 82.5 -85.5 47.2 44.5

MdyT -24.4 6.9 27.0 27.0 -81.9 -57.8 6.2 39.5 -45.8 -81.8

COMB ( 8 ) ( 14 ) ( 14 ) ( 14 ) ( 7 ) ( 7 ) ( 18 ) ( 18 ) ( 12 ) ( 16 )

CARR 21 22 23 24 25

FdzT 18.6 16.6 18.7 18.7 18.7

MdxT 46.8 -34.2 -27.8 -27.8 27.8

MdyT -24.4 39.5 35.7 -35.7 -35.7

COMB ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.9 12.9 12.9 12.9 12.5 12.5 12.5 12.8 12.9 12.8

MdxT 45.2 -45.2 0.0 0.0 10.1 26.2 -8.8 49.6 27.1 -62.9

MdyT 0.0 0.0 34.8 -34.8 83.6 -37.7 -94.4 113.8 -39.0 -129.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 17 ) ( 11 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.1 12.1 12.1 12.8 12.1 12.1 12.1 11.5 11.5 11.5

MdxT 9.8 25.4 -8.4 -16.4 -14.3 40.5 23.9 9.4 45.5 -8.0

MdyT 71.5 -36.6 -91.4 -46.3 61.9 -28.9 -72.2 58.7 -56.8 -88.3

COMB ( 12 ) ( 12 ) ( 12 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 16 ) ( 9 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.5 12.9 12.9 12.1 12.1 12.1 12.8 11.5 11.5 12.9

MdxT -30.4 10.4 -9.2 -13.9 40.1 23.7 27.0 -30.0 45.4 -31.9

MdyT 43.0 95.5 -97.4 62.4 -29.1 -72.8 -39.4 43.4 -57.3 24.6

COMB ( 9 ) ( 11 ) ( 11 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 18 ) ( 18 ) ( 0 )

CARR 31

FdzT 12.9

MdxT 31.9

MdyT -24.6

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 7.5 7.5 7.0 7.5 7.5 7.3 7.3 7.5 7.5 7.1

MdxT 26.4 -26.4 0.0 0.0 0.0 16.5 -13.9 20.2 -17.1 14.1

MdyT 0.0 0.0 121.0 20.4 -20.4 139.0 -110.9 165.3 -150.8 120.4

COMB ( 0 ) ( 0 ) ( 18 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 15 ) ( 15 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 7.1 7.1 7.4 7.4 7.1 7.1 7.1 6.8 6.8 6.8

MdxT 23.9 -11.5 32.3 -17.2 6.7 -18.9 -10.4 11.9 20.8 -9.5

MdyT 48.2 -82.6 147.4 -110.5 131.0 52.4 -111.2 103.2 41.3 -57.0

COMB ( 12 ) ( 12 ) ( 17 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28

FdzT 7.4 6.9 7.0 7.0 7.4 7.5 7.5 7.5

MdxT -18.9 -1.0 -14.8 -7.6 26.3 -18.7 -18.7 18.7

MdyT -103.3 119.8 48.4 -104.4 147.0 14.4 -14.4 -14.4

COMB ( 17 ) ( 9 ) ( 18 ) ( 18 ) ( 13 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.7 1.7 1.7 1.7 1.6 1.6 1.6 1.6 1.6 1.7

MdxT 5.4 -5.4 0.0 0.0 15.0 5.9 -13.4 -12.6 -14.7 19.6

MdyT 0.0 0.0 8.3 -8.3 -10.9 -58.7 -3.1 -34.3 48.7 -11.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 15 ) ( 10 ) ( 11 ) ( 16 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.7 1.7 1.6 1.6 1.6 1.6 1.6 1.7 1.7 1.7

MdxT 7.8 -16.4 10.1 -4.2 -10.5 -11.9 -5.9 22.5 9.0 -18.3

MdyT -16.6 -3.1 -10.5 -15.6 -2.9 -55.3 50.3 -11.3 -16.8 -3.4

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 1.6 1.6 1.6 1.6 1.6 1.6 1.7 1.7 1.7

MdxT 6.7 -3.4 -8.4 14.8 6.0 -14.3 3.8 -3.8 -3.8

MdyT -10.2 -15.3 -3.2 -10.8 -39.1 28.1 5.8 5.8 -5.8

COMB ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 11 ) ( 12 ) ( 0 ) ( 0 ) ( 0 )

### P150

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.5 35.2 38.1 33.9 38.1 35.9 38.1 38.1 36.5 35.2

MdxT 0.0 9.4 -80.0 15.7 80.0 0.0 0.0 0.0 -1.8 -47.7

MdyT 0.0 0.0 0.0 0.0 0.0 69.2 102.9 -102.9 -4.6 -7.4

COMB ( 10 ) ( 11 ) ( 0 ) ( 6 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 10 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.1 35.7 35.7 37.2 37.2 33.7 34.6 34.6 34.4 37.2

MdxT 56.6 -0.8 -0.8 -4.9 1.3 -78.3 1.8 1.8 -1.4 -4.9

MdyT -72.8 69.2 -4.5 -127.4 8.1 -9.1 118.4 68.0 -7.7 -73.2

COMB ( 0 ) ( 13 ) ( 13 ) ( 18 ) ( 18 ) ( 15 ) ( 8 ) ( 8 ) ( 17 ) ( 18 )

CARR 21 22 23 24

FdzT 37.7 38.1 38.1 38.1

MdxT 44.2 56.6 -56.6 -56.6

MdyT -2.0 72.8 72.8 -72.8

COMB ( 12 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.9 28.9 28.9 28.9 28.0 28.0 27.2 27.2 28.8 28.9

MdxT 101.3 -101.3 0.0 0.0 13.7 58.9 -44.7 91.7 60.4 -85.7

MdyT 0.0 0.0 78.1 -78.1 -154.3 -151.3 -152.6 -149.6 -183.5 -153.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 5 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.8 25.9 25.9 25.9 28.8 28.6 28.6 28.6 27.0 28.6

MdxT 11.6 -73.1 36.6 91.4 62.0 -13.4 -60.1 9.5 -48.9 -60.1

MdyT -187.3 -145.9 -143.0 -138.7 -151.6 -203.7 -199.4 -193.1 -152.2 -183.1

COMB ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 14 )

CARR 21 22 23 24 25 26 27 28

FdzT 25.7 25.7 25.7 28.4 28.4 28.9 28.9 28.9

MdxT -75.5 37.1 92.8 -16.0 10.6 71.6 -71.6 71.6

MdyT -145.6 -142.7 -138.3 -203.4 -192.6 55.2 55.2 -55.2

COMB ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.3 21.3 21.3 21.3 20.9 20.9 21.2 21.3 20.9 20.8

MdxT 74.5 -74.5 0.0 0.0 -59.1 26.6 -57.1 -52.6 -29.4 43.6

MdyT 0.0 0.0 57.4 -57.4 -52.6 25.8 -52.2 40.6 31.6 -43.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 14 ) ( 0 ) ( 4 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.2 21.2 20.4 20.4 20.3 20.3 20.3 20.8 20.8 20.8

MdxT -31.5 10.6 -76.4 37.0 -27.6 -51.1 8.4 -30.4 -55.4 10.4

MdyT -130.6 85.7 -52.2 26.7 86.8 34.7 -80.9 -182.3 -72.9 126.7

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 21.1 21.2 20.9 20.7 20.3 20.3 20.3 21.3 21.3

MdxT -56.1 -5.6 -30.2 43.6 -28.4 -52.3 9.9 52.6 52.6

MdyT -50.5 22.1 29.5 -45.4 84.7 33.9 -79.4 40.6 -40.6

COMB ( 10 ) ( 12 ) ( 13 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.4 3.4 3.2 3.4 3.4 3.2 3.2 3.2 3.2 3.2

MdxT 10.7 -10.7 0.0 0.0 0.0 15.5 20.3 20.2 9.4 18.9

MdyT 0.0 0.0 -80.9 9.1 -9.1 -80.9 -32.4 81.6 -81.1 -32.5

COMB ( 0 ) ( 0 ) ( 6 ) ( 0 ) ( 0 ) ( 12 ) ( 10 ) ( 12 ) ( 10 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.3 3.1 3.1 3.1 3.3 3.3 3.3 3.2 3.3

MdxT 19.9 24.9 10.2 20.3 19.6 10.2 20.3 19.5 17.2 20.7

MdyT -80.8 -32.3 -60.5 29.2 72.9 -101.4 -40.6 89.2 78.1 -80.6

COMB ( 16 ) ( 16 ) ( 4 ) ( 13 ) ( 13 ) ( 5 ) ( 14 ) ( 14 ) ( 15 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.3 3.1 3.1 3.1 3.4 3.4 3.4 3.2 3.2 3.1

MdxT 25.1 10.4 19.4 18.3 10.4 19.6 18.2 3.2 23.4 9.4

MdyT -32.3 -46.6 26.2 65.5 -114.9 -46.0 92.5 -81.2 32.6 -60.6

COMB ( 7 ) ( 8 ) ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 18 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36

FdzT 3.3 3.2 3.1 3.4 3.4 3.4

MdxT 9.4 -0.8 9.5 9.5 -7.6 -7.6

MdyT -101.5 -81.1 -46.8 -115.1 6.4 -6.4

COMB ( 14 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

### P151

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 46.9 46.9 46.9 46.9 46.6 46.9 46.0 46.4 45.8 46.9

MdxT 98.5 -98.5 0.0 0.0 -75.9 -69.6 -40.5 -6.2 -100.2 -69.6

MdyT 0.0 0.0 140.7 -140.7 -3.5 99.5 75.9 1.5 -5.0 -99.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 4 ) ( 3 ) ( 15 ) ( 0 )

CARR 11 12 13 14 15 16 17 18

FdzT 46.9 45.5 45.5 45.0 45.0 46.4 46.9 46.9

MdxT -11.1 16.0 -27.0 -41.3 -11.9 -43.1 69.6 69.6

MdyT 4.8 3.6 3.6 127.4 -4.9 -128.8 99.5 -99.5

COMB ( 5 ) ( 16 ) ( 16 ) ( 17 ) ( 8 ) ( 9 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.9 34.9 34.9 34.9 34.5 34.5 34.5 34.3 34.3 34.3

MdxT 135.4 -135.4 0.0 0.0 192.8 296.0 223.3 164.8 259.0 186.9

MdyT 0.0 0.0 104.7 -104.7 91.0 -50.0 -125.0 147.1 -72.8 -182.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 11 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 34.9 33.6 33.6 33.6 33.3 33.3 33.3 34.3 34.3 34.3

MdxT 263.2 209.4 316.0 245.1 162.4 254.2 184.0 261.1 189.3 164.5

MdyT -78.4 88.9 -50.4 -126.0 184.1 -97.4 -243.5 54.7 136.8 148.1

COMB ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 13 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.3 34.3 34.9 33.6 33.6 33.6 33.3 34.3 34.3 34.9

MdxT 258.7 186.6 262.9 209.2 315.7 244.9 162.1 260.9 189.1 95.7

MdyT -72.9 -182.3 -78.5 89.9 -50.5 -126.3 185.1 55.4 138.6 74.0

COMB ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 31 32

FdzT 34.9 34.9

MdxT -95.7 -95.7

MdyT 74.0 -74.0

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.6 21.6 21.6 21.6 21.6 21.6 21.2 21.2 21.3 21.3

MdxT 68.8 -68.8 0.0 0.0 -292.9 -38.6 -281.5 -28.0 -294.4 -45.2

MdyT 0.0 0.0 64.8 -64.8 192.1 -68.9 328.6 -184.7 185.4 -67.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 4 ) ( 4 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18

FdzT 20.7 20.7 21.3 21.6 21.6 21.6 21.6 21.6

MdxT -274.4 -26.7 -268.8 -293.4 -39.1 48.7 -48.7 48.7

MdyT 412.9 -260.5 -45.2 191.0 -67.5 45.8 -45.8 -45.8

COMB ( 8 ) ( 8 ) ( 18 ) ( 11 ) ( 11 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.1 4.1 4.1 4.1 4.0 4.0 4.1 4.0 4.0 4.0

MdxT 42.8 -42.8 0.0 0.0 -7.1 84.3 43.5 -7.3 115.2 -45.7

MdyT 0.0 0.0 12.2 -12.2 106.7 -212.5 -215.2 65.7 -204.3 -102.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 11 ) ( 5 ) ( 10 ) ( 6 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.1 4.0 4.0

MdxT -11.5 -7.4 145.2 -80.0 -44.8 -7.0 116.3 43.3 144.9 114.9

MdyT -214.2 64.0 -97.0 -98.1 -207.6 133.1 -101.5 -216.0 -97.5 -205.0

COMB ( 12 ) ( 6 ) ( 6 ) ( 16 ) ( 16 ) ( 8 ) ( 11 ) ( 14 ) ( 15 ) ( 15 )

CARR 21 22

FdzT 4.1 4.1

MdxT 30.2 -30.2

MdyT 8.6 8.6

COMB ( 0 ) ( 0 )

### P152

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 46.9 46.9 46.9 46.9 46.6 46.9 46.0 46.3 45.9 45.9

MdxT 98.4 -98.4 0.0 0.0 -75.9 -69.6 -41.2 -42.6 -100.2 3.5

MdyT 0.0 0.0 140.6 -140.6 -10.1 99.4 -84.3 120.8 -11.6 -0.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 14 ) ( 17 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18

FdzT 45.4 44.9 44.9 44.9 44.9 46.9 46.9 46.9

MdxT 15.5 -42.1 -42.1 -11.8 -11.8 69.6 -69.6 69.6

MdyT -2.9 -135.4 -79.1 5.3 5.2 99.4 -99.4 -99.4

COMB ( 7 ) ( 9 ) ( 9 ) ( 9 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.9 34.9 34.9 34.9 34.5 34.5 34.5 34.9 34.3 34.3

MdxT 135.3 -135.3 0.0 0.0 192.1 293.3 218.7 260.3 163.2 257.4

MdyT 0.0 0.0 104.6 -104.6 -115.6 55.0 137.5 77.4 -165.1 76.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 11 ) ( 11 ) ( 4 ) ( 5 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 34.3 33.7 33.7 33.7 34.3 34.3 33.2 33.2 33.2 34.5

MdxT 185.6 211.5 312.8 238.6 257.9 186.5 161.4 253.3 183.3 193.2

MdyT 190.3 -119.0 56.6 141.5 -59.2 -148.1 -200.9 92.6 231.6 -114.9

COMB ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 )

CARR 21 22 23 24 25 26

FdzT 33.7 33.3 33.3 34.9 34.9 34.9

MdxT 238.4 253.1 183.1 -95.7 -95.7 95.7

MdyT 141.5 93.3 233.2 74.0 -74.0 -74.0

COMB ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.6 21.6 21.2 21.6 21.6 21.6 21.6 21.2 21.2 21.3

MdxT 68.7 -68.7 0.0 0.0 0.0 -281.4 -53.2 -280.8 -26.5 -69.4

MdyT 0.0 0.0 61.6 64.7 -64.7 -185.4 63.3 -321.4 179.3 62.0

COMB ( 0 ) ( 0 ) ( 12 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 14 ) ( 14 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 20.7 20.7 21.2 20.7 21.4 21.2 20.7 21.6 21.6

MdxT -274.7 18.8 -264.3 -24.9 -26.7 -264.5 -24.8 48.6 48.6

MdyT -406.1 59.4 52.6 253.1 62.4 50.0 255.4 45.7 -45.7

COMB ( 18 ) ( 16 ) ( 8 ) ( 9 ) ( 10 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.1 4.1 4.1 4.1 4.0 4.0 4.0 4.0 4.0 4.1

MdxT 42.8 -42.8 0.0 0.0 -7.6 133.8 94.2 -67.8 -26.3 40.6

MdyT 0.0 0.0 12.2 -12.2 -67.5 209.6 216.0 204.4 212.7 216.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 6 ) ( 11 ) ( 16 ) ( 12 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.0 4.0 4.0 4.0 4.0 4.1 4.0 4.0 4.1 4.1

MdxT -7.1 162.4 -101.4 -7.0 -7.4 39.9 133.1 -102.1 -30.2 30.2

MdyT -107.5 99.0 97.1 -134.0 -67.6 216.7 210.0 97.0 -8.6 -8.6

COMB ( 14 ) ( 6 ) ( 7 ) ( 18 ) ( 11 ) ( 13 ) ( 15 ) ( 16 ) ( 0 ) ( 0 )

### P153

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 37.0 38.3 36.7 38.3 37.0 37.9 38.3 38.3 35.5 35.5

MdxT 0.0 -80.4 -0.6 80.4 0.0 0.0 0.0 0.0 -45.2 8.5

MdyT 0.0 0.0 0.0 0.0 -3.2 -4.5 103.3 -103.3 -5.5 0.6

COMB ( 1 ) ( 0 ) ( 10 ) ( 0 ) ( 1 ) ( 4 ) ( 0 ) ( 0 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.3 37.5 36.1 36.1 34.3 34.3 38.3 37.8 34.8 34.8

MdxT 56.8 -3.6 1.8 -1.1 -74.9 14.6 74.8 0.6 3.2 -1.5

MdyT -73.1 120.0 -77.0 5.0 -6.7 0.7 0.7 -7.6 -126.0 8.3

COMB ( 0 ) ( 17 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25

FdzT 36.7 34.1 38.3 38.3 38.3

MdxT -0.6 -75.0 56.8 -56.8 -56.8

MdyT -3.2 -6.6 73.1 73.1 -73.1

COMB ( 10 ) ( 15 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.2 29.2 29.2 29.2 28.4 28.4 27.3 27.3 29.2 29.2

MdxT 102.1 -102.1 0.0 0.0 10.8 59.6 -35.8 79.1 61.2 -84.0

MdyT 0.0 0.0 78.8 -78.8 141.7 138.9 136.4 133.7 170.7 144.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 4 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.2 26.1 26.1 26.1 29.0 29.0 29.0 28.1 28.1 28.9

MdxT 9.2 -59.2 30.0 74.9 7.8 60.9 7.4 9.8 59.1 -80.8

MdyT 174.3 127.5 125.0 121.2 191.1 -78.3 -195.7 142.4 139.6 145.4

COMB ( 4 ) ( 15 ) ( 15 ) ( 15 ) ( 8 ) ( 8 ) ( 8 ) ( 10 ) ( 10 ) ( 12 )

CARR 21 22 23 24 25 26

FdzT 28.9 28.9 28.8 29.2 29.2 29.2

MdxT 8.3 60.8 7.0 72.2 -72.2 72.2

MdyT 175.0 171.4 191.9 55.7 -55.7 -55.7

COMB ( 13 ) ( 13 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.3 21.3 21.3 21.3 20.9 21.0 20.8 21.2 21.3 21.2

MdxT 74.6 -74.6 0.0 0.0 -50.7 21.3 -24.1 44.6 -52.7 -25.6

MdyT 0.0 0.0 57.5 -57.5 54.2 -26.7 183.5 51.0 -40.7 132.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 2 ) ( 17 ) ( 3 ) ( 0 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.2 21.3 21.0 21.0 20.8 20.3 20.3 20.4 20.8 20.9

MdxT -48.9 7.0 -25.1 -49.8 43.7 -65.7 -26.3 31.4 -46.5 6.4

MdyT 53.0 -86.9 -27.2 52.6 48.0 53.2 53.2 -27.0 73.4 -127.4

COMB ( 13 ) ( 4 ) ( 5 ) ( 10 ) ( 7 ) ( 15 ) ( 15 ) ( 6 ) ( 17 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.3 20.3 20.2 20.9 21.2 20.9 20.3 20.7 20.8 20.2

MdxT -24.4 -46.6 9.4 23.9 9.0 -26.9 33.3 43.5 8.4 -26.2

MdyT -82.3 -32.9 77.6 -26.3 -86.5 -27.0 -26.6 48.0 -127.0 -82.2

COMB ( 9 ) ( 9 ) ( 18 ) ( 11 ) ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 18 )

CARR 31 32 33 34

FdzT 20.2 21.3 21.3 21.3

MdxT -49.1 52.7 -52.7 52.7

MdyT -32.9 40.7 40.7 -40.7

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.4 3.4 3.4 3.4 3.3 3.3 3.2 3.2 3.2 3.3

MdxT 10.7 -10.7 0.0 0.0 22.3 24.1 20.0 21.8 18.2 10.5

MdyT 0.0 0.0 9.1 -9.1 82.2 32.9 -79.9 -78.4 -81.6 101.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 10 ) ( 11 ) ( 12 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.3 3.1 3.1 3.1 3.2 3.2 3.4 3.4 3.3

MdxT 19.9 20.2 10.1 20.2 20.0 -1.4 21.8 10.8 19.3 18.9

MdyT 40.6 -88.5 60.3 -28.6 -71.4 79.4 31.9 115.1 46.0 -92.3

COMB ( 4 ) ( 13 ) ( 5 ) ( 14 ) ( 14 ) ( 6 ) ( 11 ) ( 8 ) ( 8 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.1 3.1 3.1 3.2 3.2 3.2 3.2 3.3 3.4 3.4

MdxT 10.1 19.2 18.6 8.8 20.4 22.3 -2.8 19.9 -7.6 -7.6

MdyT 46.5 -25.5 -63.8 80.6 32.3 -32.6 79.1 45.9 6.4 -6.4

COMB ( 9 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 12 ) ( 15 ) ( 17 ) ( 0 ) ( 0 )

### P154

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.2 24.2 19.7 24.2 24.2 22.1 22.3 22.5 21.8 21.8

MdxT 50.8 -50.8 0.0 0.0 0.0 -3.4 61.6 -10.6 -42.4 8.4

MdyT 0.0 0.0 11.9 65.3 -65.3 12.6 16.0 1.8 10.5 2.2

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 11 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.9 20.7 23.4 23.5 23.5 22.3 21.4 21.4 19.8 24.1

MdxT -5.9 -0.7 -0.8 -1.7 -1.7 -17.1 -68.5 14.7 -7.6 0.7

MdyT -57.3 8.0 82.5 48.0 -3.8 1.7 9.0 2.4 -104.0 128.8

COMB ( 13 ) ( 4 ) ( 5 ) ( 14 ) ( 14 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 24.1 24.2 20.9 24.2 24.2 24.2

MdxT -2.1 -35.9 -5.9 35.9 -35.9 35.9

MdyT 74.2 -46.2 -31.2 46.2 46.2 -46.2

COMB ( 9 ) ( 0 ) ( 13 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.3 15.3 14.3 15.3 15.3 14.3 14.2 14.4 14.5 14.4

MdxT 53.8 -53.8 0.0 0.0 0.0 30.1 5.9 64.1 15.5 -62.9

MdyT 0.0 0.0 2.2 41.4 -41.4 -36.7 -62.0 5.3 -36.6 -63.8

COMB ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 10 ) ( 1 ) ( 15 ) ( 11 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.2 14.1 13.5 13.5 15.1 15.1 14.9 13.9 13.9 12.9

MdxT -38.1 47.2 -1.0 28.4 1.5 31.6 5.7 -63.8 74.8 -2.0

MdyT 1.0 -61.3 -64.0 -42.9 68.2 -45.4 -112.8 1.1 -61.5 -106.8

COMB ( 12 ) ( 3 ) ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 5 ) ( 16 ) ( 16 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.9 12.9 15.3 15.3 15.3 14.3 14.5 14.5 14.2 13.6

MdxT 27.1 6.2 2.2 32.2 5.7 5.7 38.6 -35.6 47.0 28.7

MdyT -55.1 22.5 113.0 -58.9 -147.3 -62.6 3.5 -63.3 -61.9 -42.8

COMB ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36

FdzT 15.1 13.0 15.3 15.3 15.3 15.3

MdxT 5.6 27.3 38.0 -38.0 -38.0 38.0

MdyT -113.4 -55.0 29.3 29.3 -29.3 -29.3

COMB ( 14 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.1 12.1 12.1 12.1 11.7 11.6 11.7 11.8 11.8 11.6

MdxT 42.3 -42.3 0.0 0.0 -42.0 -24.4 27.4 25.9 -22.1 27.6

MdyT 0.0 0.0 32.6 -32.6 169.3 85.3 -40.5 169.1 -41.4 -39.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 1 ) ( 12 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.3 11.5 11.4 12.0 11.9 12.0 11.6 11.7 11.0 11.0

MdxT -5.9 -64.4 44.1 -9.0 -25.1 4.5 49.7 -38.8 -5.0 -23.1

MdyT 163.5 162.5 -37.8 174.6 83.5 -59.4 162.1 -40.0 153.3 84.8

COMB ( 4 ) ( 16 ) ( 7 ) ( 14 ) ( 5 ) ( 9 ) ( 6 ) ( 15 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.0 12.1 12.0 11.8 11.8 11.8 11.5 11.7 11.5 11.1

MdxT 1.1 -9.5 -25.3 -8.0 -24.7 2.5 -7.0 48.7 43.8 -6.2

MdyT -17.9 171.4 83.4 169.1 85.1 -41.0 163.8 162.4 -38.4 153.4

COMB ( 8 ) ( 18 ) ( 14 ) ( 10 ) ( 10 ) ( 10 ) ( 13 ) ( 15 ) ( 16 ) ( 17 )

CARR 31 32 33 34 35 36 37 38

FdzT 11.1 11.1 12.1 12.1 12.1 12.1 12.1 12.1

MdxT -23.3 0.8 -25.3 4.2 29.9 -29.9 -29.9 29.9

MdyT 84.6 -18.6 78.8 -59.9 23.0 23.0 -23.0 -23.0

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.7 2.8 2.8 2.8 2.7 2.7

MdxT 9.0 -9.0 0.0 0.0 -7.8 9.4 17.9 9.1 -19.5 17.1

MdyT 0.0 0.0 13.9 -13.9 -34.5 -125.4 -25.3 -35.3 -24.8 -10.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 9 ) ( 6 ) ( 6 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.8 2.7 2.7 2.7 2.8 2.8 2.8 2.8

MdxT 3.8 9.0 -16.4 -28.8 -11.5 22.3 3.5 8.7 -6.6 8.4

MdyT -129.1 53.5 -25.3 -24.6 -34.4 -9.5 98.5 97.6 -35.3 -129.7

COMB ( 9 ) ( 4 ) ( 12 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 12 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 20.9 7.7 -8.3 7.5 9.2 -25.9 -10.4 18.3 -6.4

MdyT -25.9 -53.1 -18.9 98.2 -36.0 -25.1 -34.9 -9.9 9.8

COMB ( 15 ) ( 13 ) ( 15 ) ( 17 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 0 )

### P155

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 25.8 25.8 21.8 25.8 25.8 24.0 24.2 24.2 25.3 25.3

MdxT 54.1 -54.1 0.0 0.0 0.0 -43.3 35.8 -10.4 -5.9 -0.8

MdyT 0.0 0.0 114.2 69.5 -69.5 -5.0 -2.7 -2.7 -73.1 3.2

COMB ( 0 ) ( 0 ) ( 18 ) ( 0 ) ( 0 ) ( 3 ) ( 11 ) ( 2 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.9 22.9 22.9 24.0 23.6 23.6 25.7 25.8 21.9 24.2

MdxT -1.5 -2.0 -2.0 62.3 -69.7 14.3 -7.4 -38.2 -2.2 35.8

MdyT 67.5 37.2 -8.3 0.8 -6.7 -2.2 -120.1 49.2 -12.0 -0.6

COMB ( 14 ) ( 14 ) ( 5 ) ( 6 ) ( 16 ) ( 7 ) ( 17 ) ( 0 ) ( 9 ) ( 11 )

CARR 21 22 23 24

FdzT 23.9 25.8 25.8 25.8

MdxT 30.5 38.2 -38.2 38.2

MdyT -2.7 49.2 -49.2 -49.2

COMB ( 15 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.7 15.7 15.7 15.7 14.8 14.8 14.9 14.9 14.8 14.8

MdxT 54.9 -54.9 0.0 0.0 44.5 44.7 35.1 -27.9 -34.4 17.8

MdyT 0.0 0.0 42.3 -42.3 51.7 51.2 10.4 47.2 6.2 33.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 12 ) ( 2 ) ( 2 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.7 15.7 15.7 14.2 14.2 14.1 14.5 14.5 14.6 14.5

MdxT -2.9 32.9 11.5 3.6 29.8 5.5 69.4 69.6 -54.0 -58.4

MdyT -89.9 53.5 133.7 66.2 39.3 -1.5 53.6 53.1 45.9 3.2

COMB ( 8 ) ( 8 ) ( 8 ) ( 5 ) ( 5 ) ( 14 ) ( 7 ) ( 16 ) ( 6 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.5 13.5 13.4 14.8 15.6 15.5 15.6 14.1 15.7 15.7

MdxT 4.9 28.3 4.1 -29.4 -3.2 32.5 11.6 3.4 38.8 -38.8

MdyT 103.6 48.5 -34.7 46.6 -89.7 39.7 133.3 66.4 29.9 29.9

COMB ( 9 ) ( 9 ) ( 18 ) ( 11 ) ( 17 ) ( 13 ) ( 17 ) ( 14 ) ( 0 ) ( 0 )

CARR 31 32

FdzT 15.7 15.7

MdxT -38.8 38.8

MdyT -29.9 -29.9

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.6 12.6 12.6 12.6 12.5 12.4 12.5 12.4 12.4 12.6

MdxT 44.3 -44.3 0.0 0.0 -44.1 -44.2 28.6 5.9 -13.7 -19.3

MdyT 0.0 0.0 34.1 -34.1 -128.0 -127.1 45.1 -124.7 42.1 -172.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 12 ) ( 3 ) ( 2 ) ( 2 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.6 12.6 12.2 12.2 12.2 12.1 12.1 12.1 12.5 12.5

MdxT -34.8 6.7 -60.6 -60.8 42.7 24.6 -11.8 -29.4 -19.2 6.4

MdyT -76.2 67.8 -124.0 -123.2 44.1 -118.6 -55.5 39.2 -197.8 82.0

COMB ( 4 ) ( 4 ) ( 7 ) ( 16 ) ( 7 ) ( 6 ) ( 6 ) ( 6 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.8 11.8 11.8 12.4 12.4 12.4 12.6 12.6 12.5 11.8

MdxT -16.8 -30.8 6.9 6.9 -14.7 28.6 -19.5 -35.0 -19.3 -16.9

MdyT -44.8 -26.4 1.3 -123.9 41.4 44.4 -171.4 -76.0 -197.0 -44.1

COMB ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 17 ) ( 18 )

CARR 31 32 33 34

FdzT 11.8 12.6 12.6 12.6

MdxT -31.0 31.3 -31.3 31.3

MdyT -26.2 24.1 24.1 -24.1

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P156

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.2 26.2 26.2 26.2 24.6 24.4 24.5 23.3 23.4 25.7

MdxT 55.0 -55.0 0.0 0.0 -6.9 52.6 -42.6 -6.3 -1.1 -7.7

MdyT 0.0 0.0 -70.7 70.7 10.9 15.7 7.8 -59.5 7.7 81.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 3 ) ( 13 ) ( 4 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.7 24.1 24.1 22.2 22.3 26.2 24.5 24.4 24.0 26.2

MdxT -0.6 -66.1 13.2 -5.5 -1.3 -8.0 -7.0 -42.7 -66.2 38.9

MdyT -3.6 5.7 2.4 -106.5 11.6 127.7 10.8 7.7 5.6 50.0

COMB ( 5 ) ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 10 ) ( 12 ) ( 16 ) ( 0 )

CARR 21 22 23

FdzT 26.2 26.2 26.2

MdxT -38.9 -38.9 38.9

MdyT 50.0 -50.0 -50.0

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.0 16.0 16.0 16.0 15.1 15.1 15.0 15.1 15.1 15.1

MdxT 55.9 -55.9 0.0 0.0 -21.6 44.0 43.8 52.8 -34.6 17.6

MdyT 0.0 0.0 43.1 -43.1 -46.6 -48.0 -48.7 -31.0 -7.7 -31.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 3 ) ( 12 ) ( 11 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.5 14.5 14.5 16.0 16.0 16.0 14.8 14.7 14.8 14.8

MdxT 0.7 30.4 9.2 -5.2 33.5 14.6 65.8 65.7 -43.3 -56.8

MdyT -65.4 -38.0 3.1 88.9 -52.4 -130.9 -49.3 -50.1 -46.5 -6.0

COMB ( 4 ) ( 4 ) ( 4 ) ( 9 ) ( 9 ) ( 9 ) ( 7 ) ( 16 ) ( 15 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.7 13.7 13.7 15.9 15.9 15.9 13.7 16.0 16.0 16.0

MdxT 1.8 28.9 8.0 -5.0 33.3 14.4 2.0 39.5 -39.5 -39.5

MdyT -102.1 -46.9 35.8 89.7 -52.6 -131.6 -101.2 30.5 30.5 -30.5

COMB ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 18 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

CARR 31

FdzT 16.0

MdxT 39.5

MdyT -30.5

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.9 12.9 12.6 12.9 12.9 12.7 12.7 12.7 12.6 12.7

MdxT 45.0 -45.0 0.0 0.0 0.0 -24.5 -41.6 13.2 -7.1 -41.7

MdyT 0.0 0.0 -42.1 34.7 -34.7 196.8 123.6 -82.5 124.7 85.1

COMB ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 0 ) ( 9 ) ( 3 ) ( 9 ) ( 2 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.6 12.7 12.4 12.4 12.4 12.9 12.9 12.9 12.3 12.3

MdxT 0.7 25.8 -52.4 -39.7 33.6 -24.8 -42.2 13.4 6.3 -25.8

MdyT -42.8 -42.3 118.3 39.6 -40.2 170.8 75.4 -67.6 120.3 55.7

COMB ( 2 ) ( 3 ) ( 7 ) ( 4 ) ( 7 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.3 12.0 12.0 12.0 12.8 12.8 12.0 12.0 12.0 12.9

MdxT -9.1 -21.6 -37.3 11.5 -24.9 -42.3 -21.7 -37.5 11.3 31.8

MdyT -41.2 41.7 25.5 1.1 170.0 75.2 40.9 25.3 1.8 24.6

COMB ( 6 ) ( 8 ) ( 8 ) ( 8 ) ( 14 ) ( 14 ) ( 17 ) ( 17 ) ( 17 ) ( 0 )

CARR 31 32

FdzT 12.9 12.9

MdxT -31.8 31.8

MdyT -24.6 -24.6

COMB ( 0 ) ( 0 )

### P157

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.3 19.7 22.8 22.8 20.4 18.9 17.7 19.7 21.2 18.2

MdxT 57.4 57.4 47.9 -47.9 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 -2.7 -8.5 -12.3 -2.7 3.2 -8.5

COMB ( 6 ) ( 15 ) ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 9 ) ( 10 ) ( 13 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.0 22.8 22.8 20.1 20.4 20.4 21.9 22.1 18.9 20.3

MdxT 0.0 0.0 0.0 -61.9 31.9 -8.1 -1.8 -0.6 -2.8 28.9

MdyT -12.5 61.5 -61.5 -10.2 -2.8 -2.8 -74.8 7.1 64.7 -2.9

COMB ( 18 ) ( 0 ) ( 0 ) ( 7 ) ( 2 ) ( 2 ) ( 4 ) ( 17 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.8 22.8 22.8 17.7 19.5 19.7 19.7 21.2 18.2 19.7

MdxT -1.4 -1.4 -33.8 -2.9 -61.9 33.5 -8.4 -1.8 -2.7 28.9

MdyT -121.4 -70.0 43.5 111.2 -10.4 -2.8 -2.8 -74.9 64.5 -2.9

COMB ( 8 ) ( 8 ) ( 0 ) ( 9 ) ( 16 ) ( 11 ) ( 11 ) ( 13 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36

FdzT 19.5 22.1 17.0 22.8 22.8 22.8

MdxT 13.3 -1.4 -2.9 33.8 -33.8 33.8

MdyT -2.4 -121.5 111.0 43.5 -43.5 -43.5

COMB ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.6 14.6 14.6 14.0 14.6 13.3 13.3 13.4 13.4 13.5

MdxT 51.3 -51.3 0.0 0.0 0.0 52.1 35.3 5.7 30.9 28.4

MdyT 0.0 0.0 -114.4 -113.5 39.5 -5.6 69.4 69.7 -5.0 47.6

COMB ( 0 ) ( 0 ) ( 8 ) ( 17 ) ( 0 ) ( 6 ) ( 3 ) ( 1 ) ( 2 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.3 13.3 14.2 14.2 14.2 12.6 12.4 13.1 13.1 14.6

MdxT -43.8 -27.7 1.3 29.9 7.1 35.6 55.0 -47.7 54.7 30.8

MdyT 70.3 -5.7 -70.3 47.9 119.7 68.7 68.3 -6.7 69.0 61.2

COMB ( 6 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 12 ) ( 16 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.6 11.8 11.8 11.8 12.6 12.7 12.7 12.7 12.7 12.6

MdxT 7.8 3.9 24.7 3.1 51.5 26.6 5.9 31.6 12.7 -43.5

MdyT 153.0 101.9 55.7 -13.6 -4.8 39.6 69.0 -4.2 40.0 69.6

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 15 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.6 13.5 13.5 11.8 12.4 14.0 14.0 11.1 11.1 11.1

MdxT -28.3 0.7 7.3 24.8 -48.3 29.3 8.0 3.4 23.3 3.4

MdyT -4.9 -69.4 119.0 43.9 -5.9 60.9 152.2 102.9 56.0 -14.3

COMB ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 14.6 14.6 14.6 14.6

MdxT 36.3 -36.3 -36.3 36.3

MdyT 28.0 28.0 -28.0 -28.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.7 11.7 11.7 11.7 11.2 11.2 11.2 11.3 11.6 11.6

MdxT 41.1 -41.1 0.0 0.0 -41.3 -36.0 29.7 23.7 -21.3 -36.7

MdyT 0.0 0.0 31.7 -31.7 -171.8 -85.6 42.8 -85.2 -175.6 -83.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 1 ) ( 3 ) ( 2 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.6 10.9 10.8 10.9 11.1 11.1 11.1 11.0 11.0 11.7

MdxT 16.9 -21.1 -35.3 16.4 13.7 26.1 -7.0 -53.8 37.8 16.7

MdyT 54.9 -175.7 -87.8 55.3 -162.4 -81.6 39.5 -165.6 41.3 61.6

COMB ( 4 ) ( 13 ) ( 5 ) ( 13 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.4 10.4 10.4 10.5 10.5 10.9 10.1 10.1 10.1 10.4

MdxT -41.2 -33.4 29.0 -35.2 22.0 -35.9 -20.6 -34.5 14.7 13.9

MdyT -171.9 -86.0 43.1 -85.5 -85.2 -83.3 -166.2 -87.7 30.0 -162.4

COMB ( 12 ) ( 9 ) ( 12 ) ( 10 ) ( 11 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.4 10.4 10.3 10.3 11.0 11.0 9.7 9.7 9.7 11.7

MdxT 25.8 -7.7 -53.6 37.2 -20.3 16.1 -19.5 -32.8 13.4 29.1

MdyT -81.5 39.9 -165.6 41.7 -171.9 62.0 -156.1 -85.8 19.6 22.4

COMB ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 41 42

FdzT 11.7 11.7

MdxT -29.1 29.1

MdyT 22.4 -22.4

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.7 2.7 2.6 2.3 2.7 2.7 2.6 2.7 2.6 2.7

MdxT 8.5 -8.5 0.0 0.0 0.0 0.0 -6.8 11.9 10.8 4.8

MdyT 0.0 0.0 12.6 19.6 13.0 -13.0 31.9 126.1 23.1 129.1

COMB ( 0 ) ( 0 ) ( 2 ) ( 13 ) ( 0 ) ( 0 ) ( 3 ) ( 8 ) ( 6 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.6 2.6 2.7 2.6 2.6 2.6 2.6 2.5 2.5 2.5

MdxT -16.9 19.3 -10.1 7.0 4.5 -23.7 -9.5 -2.8 -5.3 2.4

MdyT 22.8 11.2 23.5 56.3 -56.3 22.7 31.8 22.3 -100.9 -100.9

COMB ( 3 ) ( 7 ) ( 8 ) ( 5 ) ( 5 ) ( 7 ) ( 7 ) ( 9 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3

MdxT 19.7 -6.2 7.9 -16.0 -4.9 4.8 -2.7 -8.7 -14.7 8.3

MdyT 19.6 27.2 28.8 20.7 91.5 18.9 49.3 -94.1 19.0 18.1

COMB ( 15 ) ( 10 ) ( 15 ) ( 15 ) ( 13 ) ( 14 ) ( 14 ) ( 18 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36

FdzT 2.4 2.4 2.3 2.3 2.7 2.7

MdxT -5.0 0.8 6.2 -3.5 -6.0 6.0

MdyT 133.6 132.9 18.8 -94.1 -9.2 -9.2

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P158

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.9 23.9 21.9 20.6 23.1 23.9 23.9 21.9 22.3 22.2

MdxT 50.2 -50.2 0.0 0.0 0.0 0.0 0.0 2.2 68.2 -9.1

MdyT 0.0 0.0 2.1 -58.1 -3.8 64.6 -64.6 12.6 16.9 1.8

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 14 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.6 21.6 20.5 20.6 23.2 22.3 22.2 21.1 21.1 19.6

MdxT -37.5 9.7 0.8 0.8 4.8 34.7 -15.4 -64.1 16.0 -2.2

MdyT 9.9 2.4 -31.7 8.0 83.4 16.9 1.7 7.8 2.7 -105.6

COMB ( 3 ) ( 3 ) ( 13 ) ( 4 ) ( 5 ) ( 6 ) ( 15 ) ( 16 ) ( 16 ) ( 8 )

CARR 21 22 23 24 25 26 27

FdzT 19.6 19.5 23.9 23.9 23.9 23.9 23.9

MdxT -2.2 1.1 6.4 -35.5 35.5 -35.5 35.5

MdyT -58.5 12.0 130.5 -45.7 45.7 45.7 -45.7

COMB ( 8 ) ( 17 ) ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.5 15.1 15.1 15.1 15.1 14.2 14.2 14.1 14.3 14.3

MdxT -60.5 52.7 -52.7 0.0 0.0 72.5 -82.3 -10.1 72.8 -82.5

MdyT 0.0 0.0 0.0 40.7 -40.7 11.6 -68.3 -65.1 11.6 -68.2

COMB ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 15 ) ( 1 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.8 13.8 13.5 13.4 14.8 14.8 14.8 13.6 12.8 12.8

MdxT -33.7 33.7 62.9 -28.2 7.6 -31.0 -10.2 62.7 4.6 -26.9

MdyT 1.3 -63.4 -62.3 -42.7 71.5 -46.6 -116.5 -62.2 -105.6 -55.2

COMB ( 12 ) ( 12 ) ( 16 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.8 15.1 15.1 15.1 14.0 14.0 13.4 14.7 14.7 12.8

MdxT -9.7 8.0 -31.6 -10.2 -29.5 -9.8 -28.1 -30.9 -10.1 -26.8

MdyT 20.3 116.9 -60.3 -150.6 -37.2 -65.2 -42.7 -46.6 -116.6 -55.3

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 13 ) ( 14 ) ( 14 ) ( 17 )

CARR 31 32 33 34 35 36

FdzT 15.0 15.0 15.1 15.1 15.1 15.1

MdxT -31.5 -10.1 37.3 -37.3 -37.3 37.3

MdyT -60.3 -150.8 28.7 28.7 -28.7 -28.7

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.9 11.9 11.9 11.6 11.9 11.7 11.7 11.5 11.7 11.5

MdxT 41.8 -41.8 0.0 0.0 0.0 1.0 34.6 26.3 -25.1 -35.0

MdyT 0.0 0.0 166.0 155.0 -32.2 154.6 148.5 -38.8 -36.3 161.4

COMB ( 0 ) ( 0 ) ( 5 ) ( 10 ) ( 0 ) ( 1 ) ( 11 ) ( 12 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.4 11.4 11.3 11.9 11.9 11.7 11.7 11.3 11.3 11.1

MdxT 2.2 24.0 -0.8 25.0 3.1 58.9 -42.1 -58.2 43.4 3.1

MdyT 143.1 75.3 -26.6 80.3 -54.0 137.9 -33.7 159.6 -37.9 129.5

COMB ( 4 ) ( 4 ) ( 13 ) ( 5 ) ( 18 ) ( 6 ) ( 6 ) ( 16 ) ( 16 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.1 11.1 11.9 11.9 11.3 11.3 11.9 11.9 11.6 11.0

MdxT 23.2 -1.8 -2.4 25.1 1.1 23.8 -1.5 24.9 57.8 2.0

MdyT 70.6 -17.6 168.0 79.0 143.5 75.5 166.5 80.5 138.3 129.8

COMB ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 17 )

CARR 31 32 33 34 35

FdzT 11.0 11.9 11.9 11.9 11.9

MdxT 23.1 29.5 -29.5 -29.5 29.5

MdyT 70.8 22.8 22.8 -22.8 -22.8

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.7 2.7 2.7

MdxT 8.8 -8.8 0.0 0.0 11.5 -17.1 28.8 8.0 -21.1 -3.9

MdyT 0.0 0.0 13.6 -13.6 -72.7 -64.3 -24.9 -96.7 -63.4 -123.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 6 ) ( 6 ) ( 6 ) ( 5 ) ( 15 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7

MdxT 12.7 -7.3 -18.3 -8.0 31.8 -7.0 7.8 8.4 0.7 -3.2

MdyT -71.8 10.9 -24.4 -122.2 -24.6 45.2 -126.8 -24.4 -24.4 -125.9

COMB ( 15 ) ( 13 ) ( 7 ) ( 18 ) ( 15 ) ( 17 ) ( 9 ) ( 10 ) ( 12 ) ( 18 )

CARR 21 22

FdzT 2.8 2.8

MdxT 6.2 -6.2

MdyT 9.6 9.6

COMB ( 0 ) ( 0 )

### P159

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.7 21.7 19.9 21.1 18.8 21.7 21.7 19.9 20.2 20.3

MdxT 45.6 -45.6 0.0 0.0 0.0 0.0 0.0 2.5 41.2 -15.1

MdyT 0.0 0.0 -2.8 -75.2 -8.7 58.6 -58.6 -4.2 -3.1 -3.2

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 5 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.7 19.6 21.2 21.1 18.8 20.3 20.4 19.2 19.2 21.7

MdxT -37.8 9.5 0.7 0.7 5.3 69.7 35.8 -64.8 15.7 -2.1

MdyT -7.1 -2.7 -43.9 2.9 66.9 0.7 -3.2 -9.4 -2.5 -122.8

COMB ( 12 ) ( 3 ) ( 13 ) ( 4 ) ( 5 ) ( 6 ) ( 15 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27

FdzT 21.7 17.8 17.8 20.3 21.7 21.7 21.7

MdxT 32.2 7.0 -0.6 42.8 -32.2 -32.2 32.2

MdyT 41.5 114.1 -12.6 -1.1 41.5 -41.5 -41.5

COMB ( 0 ) ( 9 ) ( 9 ) ( 11 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.7 13.2 13.2 13.1 13.2 12.4 12.4 12.4 12.6 12.6

MdxT -56.0 46.1 -46.1 0.0 0.0 5.5 -26.1 -9.1 66.6 -46.6

MdyT 0.0 0.0 0.0 -98.8 35.6 4.9 37.8 59.9 7.0 57.0

COMB ( 7 ) ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 10 ) ( 10 ) ( 1 ) ( 15 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.2 12.1 12.1 12.9 12.9 12.9 11.8 11.8 12.6 11.7

MdxT -31.4 -12.5 30.2 2.0 -27.1 -5.5 9.0 -25.0 -74.3 56.6

MdyT 2.7 38.8 63.0 -56.7 44.2 110.6 66.1 43.3 55.3 65.5

COMB ( 12 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 14 ) ( 5 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.1 13.1 11.2 11.3 11.3 12.7 12.7 12.2 11.8 11.8

MdxT -27.5 -2.8 11.2 -27.9 -15.0 42.1 -48.3 -12.5 -24.9 56.6

MdyT 57.9 144.8 105.6 53.7 -24.2 7.0 56.7 38.8 43.3 65.2

COMB ( 8 ) ( 8 ) ( 9 ) ( 18 ) ( 18 ) ( 11 ) ( 11 ) ( 12 ) ( 14 ) ( 16 )

CARR 31 32 33 34 35 36 37

FdzT 13.2 13.2 11.3 13.2 13.2 13.2 13.2

MdxT -0.6 -27.7 11.1 32.6 -32.6 -32.6 32.6

MdyT -98.7 57.8 105.7 25.2 25.2 -25.2 -25.2

COMB ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.1 10.1 9.9 10.1 10.1 9.9 9.9 10.1 10.1 9.6

MdxT 35.5 -35.5 0.0 0.0 0.0 3.1 20.8 29.0 -21.8 -24.4

MdyT 0.0 0.0 41.6 61.5 -27.4 -131.2 -62.1 -125.4 38.9 -136.9

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 0 ) ( 10 ) ( 10 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.6 10.1 9.7 9.7 9.7 10.1 10.1 9.3 9.3 10.1

MdxT 22.5 1.8 4.3 20.4 -1.1 48.4 -38.2 -42.7 37.7 1.0

MdyT 44.4 -171.9 -90.4 -45.6 21.7 -116.5 35.3 -136.1 44.5 -194.3

COMB ( 3 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.0 9.3 9.3 9.3 10.1 10.1 9.7 9.3 10.1 10.1

MdxT 0.8 5.2 19.5 -1.5 30.4 -23.1 -24.2 19.6 25.1 -25.1

MdyT 73.1 -58.2 -32.3 6.7 -125.3 38.8 -137.1 -32.3 19.4 -19.4

COMB ( 8 ) ( 18 ) ( 9 ) ( 18 ) ( 11 ) ( 11 ) ( 12 ) ( 18 ) ( 0 ) ( 0 )

### P16

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.3 23.3 23.3 23.3 21.0 21.0 22.5 22.6 19.4 19.4

MdxT 49.0 -49.0 0.0 0.0 -30.0 42.7 -21.6 42.7 -38.6 17.1

MdyT 0.0 0.0 63.0 -63.0 2.5 -5.6 45.8 -50.0 -42.7 -42.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 2 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.3 20.1 20.1 22.0 22.0 23.2 23.3 18.0 17.8 19.2

MdxT 42.0 22.4 -25.6 -116.5 154.0 -14.8 41.2 -43.8 40.5 57.8

MdyT 39.1 6.4 13.3 -4.1 -36.7 77.8 -79.4 -73.1 69.0 8.8

COMB ( 3 ) ( 4 ) ( 4 ) ( 18 ) ( 18 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.2 22.0 22.6 19.4 20.2 23.3 23.3 18.0 19.3 23.3

MdxT -72.2 61.6 -21.3 42.7 22.4 -15.0 41.2 41.2 -28.7 34.7

MdyT 26.2 -36.7 47.7 38.9 6.3 77.7 -31.8 68.9 26.2 44.6

COMB ( 8 ) ( 18 ) ( 11 ) ( 12 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 0 )

CARR 31 32

FdzT 23.3 23.3

MdxT -34.7 -34.7

MdyT 44.6 -44.6

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.3 15.7 15.7 13.2 15.7 15.7 14.3 14.3 15.4 15.4

MdxT -36.7 55.0 -55.0 0.0 0.0 0.0 -35.6 51.0 -34.4 51.8

MdyT 0.0 0.0 0.0 62.3 42.4 -42.4 85.8 -102.3 171.9 -196.3

COMB ( 12 ) ( 0 ) ( 0 ) ( 17 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.2 13.3 13.9 13.9 14.7 14.7 15.7 15.7 12.1 12.1

MdxT -35.7 50.3 -15.3 34.2 -68.2 78.5 -32.5 51.8 -35.1 19.3

MdyT -0.7 -8.1 74.3 -90.0 100.8 -121.5 224.8 -257.9 -62.4 -25.0

COMB ( 3 ) ( 12 ) ( 13 ) ( 13 ) ( 18 ) ( 18 ) ( 15 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.1 13.1 13.2 13.2 13.3 14.8 14.8 12.2 12.2 12.2

MdxT 48.3 0.6 39.3 22.4 20.1 -55.9 67.9 -36.3 19.7 49.1

MdyT 56.6 61.7 -32.3 -80.8 -8.1 97.4 -114.5 -62.0 -24.8 55.6

COMB ( 7 ) ( 8 ) ( 17 ) ( 17 ) ( 12 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 16 )

CARR 31 32 33

FdzT 15.7 15.7 15.7

MdxT 38.9 -38.9 -38.9

MdyT 30.0 30.0 -30.0

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.1 9.1 9.1 9.1 8.5 8.5 8.9 8.9 8.0 8.0

MdxT 32.0 -32.0 0.0 0.0 -37.1 28.1 -36.0 26.5 -38.2 29.8

MdyT 0.0 0.0 24.6 -24.6 115.4 -84.6 171.5 -138.7 59.2 -30.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.2 8.2 8.2 8.7 8.7 9.1 9.1 7.6 7.6 7.5

MdxT -8.0 -17.3 3.8 -66.2 52.4 -34.0 23.8 -37.8 -15.1 28.4

MdyT 112.1 44.9 -86.7 118.7 -82.6 205.4 -169.7 18.1 18.1 12.9

COMB ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 7.9 7.9 8.7 8.7 7.6 8.0 8.0 9.1 9.1

MdxT 13.9 -14.8 -84.6 67.1 29.4 12.7 -13.9 22.6 -22.6

MdyT 104.3 -80.9 117.2 -76.0 10.9 106.3 -82.9 17.4 -17.4

COMB ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.9 1.9 1.9 1.9 1.8 1.8 1.8 1.8 1.8 1.8

MdxT 6.0 -6.0 0.0 0.0 -24.4 27.9 30.4 25.9 32.6 31.2

MdyT 0.0 0.0 9.3 -9.3 -13.0 -75.7 -7.4 -121.5 106.7 61.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 11 ) ( 10 ) ( 15 ) ( 7 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.8 1.8 1.8 1.9 1.9 1.9 1.8 1.7 1.7 1.7

MdxT -10.4 11.0 25.2 -32.9 14.2 35.4 10.4 -2.7 11.9 21.6

MdyT -12.5 -18.2 -8.8 -13.7 -19.9 -5.9 -121.5 -12.0 -17.7 -9.9

COMB ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 17 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.9 1.9 1.9 1.8 1.8 1.8 1.8 1.9 1.9 1.9

MdxT -40.3 -16.1 38.5 -21.7 12.2 11.1 34.2 4.3 -4.3 4.3

MdyT -14.0 -20.3 -5.0 -13.0 -19.0 -78.4 106.5 6.6 6.6 -6.6

COMB ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 11 ) ( 16 ) ( 0 ) ( 0 ) ( 0 )

### P160

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.6 21.6 19.7 21.6 21.6 19.7 20.2 20.2 19.4 19.4

MdxT 45.3 -45.3 0.0 0.0 0.0 0.8 60.2 -7.3 -36.7 9.1

MdyT 0.0 0.0 10.6 58.2 -58.2 10.6 15.4 2.1 7.7 2.7

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 11 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.6 18.6 21.0 21.0 20.2 19.0 19.0 17.6 17.6 21.4

MdxT 0.8 0.7 -1.8 1.1 -12.9 -60.6 14.6 2.0 0.6 -2.4

MdyT -60.5 8.3 81.8 -3.5 1.8 5.5 2.8 -107.9 12.0 128.9

COMB ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 6 ) ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27

FdzT 21.6 19.8 20.3 17.7 21.6 21.6 21.6

MdxT 32.0 -0.6 60.1 1.8 32.0 -32.0 -32.0

MdyT -41.2 10.6 15.5 -107.9 41.2 41.2 -41.2

COMB ( 0 ) ( 10 ) ( 15 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 13.0 13.0 13.0 13.0 12.3 12.3 12.5 12.5 11.9

MdxT 4.3 45.6 -45.6 0.0 0.0 -25.7 -7.0 60.3 -63.7 -29.4

MdyT 0.0 0.0 0.0 103.5 -35.2 -38.0 -63.6 6.6 -65.9 -3.2

COMB ( 1 ) ( 0 ) ( 0 ) ( 18 ) ( 0 ) ( 10 ) ( 10 ) ( 15 ) ( 15 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.0 11.9 11.5 11.6 12.8 12.8 12.8 11.5 11.0 11.0

MdxT -11.8 27.3 50.1 -24.3 1.7 -27.0 -3.9 -52.1 8.5 -23.3

MdyT -38.6 -62.0 -61.5 -41.8 61.5 -45.7 -114.2 -4.2 -100.9 -52.2

COMB ( 12 ) ( 3 ) ( 7 ) ( 4 ) ( 14 ) ( 14 ) ( 14 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.0 13.0 13.0 12.5 12.5 12.0 11.6 11.7 11.1 11.1

MdxT -11.9 -27.3 -1.8 38.1 -41.0 27.2 50.0 -24.5 -23.6 -12.0

MdyT 20.9 -59.3 -148.3 3.4 -64.8 -62.4 -61.9 -41.7 -52.1 20.6

COMB ( 8 ) ( 18 ) ( 18 ) ( 11 ) ( 11 ) ( 12 ) ( 16 ) ( 13 ) ( 17 ) ( 17 )

CARR 31 32 33 34

FdzT 13.0 13.0 13.0 13.0

MdxT 32.2 -32.2 -32.2 32.2

MdyT 24.9 24.9 -24.9 -24.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.0 10.0 9.1 10.0 10.0 9.7 9.7 9.7 10.0 9.9

MdxT 34.9 -34.9 0.0 0.0 0.0 -2.1 20.5 5.0 17.2 30.4

MdyT 0.0 0.0 61.2 26.9 -26.9 135.0 63.7 -43.3 132.6 125.7

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 10 ) ( 1 ) ( 11 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.0 9.5 9.5 9.5 9.9 10.0 9.9 9.9 9.1 9.1

MdxT -9.0 -21.3 18.8 20.0 -3.9 20.9 6.2 -18.5 -33.7 27.6

MdyT -42.4 137.5 -44.2 47.1 198.5 80.4 -75.2 -39.9 134.1 -43.0

COMB ( 11 ) ( 3 ) ( 3 ) ( 13 ) ( 9 ) ( 14 ) ( 9 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.2 9.7 9.7 10.0 9.5 9.5 9.9 9.9 9.2 9.2

MdxT 19.2 -1.8 4.9 30.1 -21.0 18.6 -3.6 5.9 -33.5 27.4

MdyT 33.7 135.1 -43.4 62.6 137.8 -44.4 198.8 -75.3 134.4 -43.1

COMB ( 17 ) ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 18 ) ( 18 ) ( 16 ) ( 16 )

CARR 31 32 33 34

FdzT 9.2 10.0 10.0 10.0

MdxT 0.6 -24.7 -24.7 24.7

MdyT 61.3 19.0 -19.0 -19.0

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P161

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.3 24.3 23.6 21.2 24.3 20.1 24.3 22.3 22.5 22.3

MdxT 51.1 -51.1 0.0 0.0 0.0 0.0 0.0 1.1 35.7 -35.1

MdyT 0.0 0.0 3.4 64.8 65.7 111.9 -65.7 -6.0 -2.9 -9.2

COMB ( 0 ) ( 0 ) ( 4 ) ( 14 ) ( 0 ) ( 9 ) ( 0 ) ( 1 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.0 22.2 23.6 21.2 21.1 22.5 21.9 22.0 24.2 20.2

MdxT -59.2 8.7 1.8 0.7 0.7 61.3 -59.2 14.0 2.2 0.8

MdyT -11.5 -2.4 -76.9 35.5 -8.5 -0.7 -11.6 -2.2 -124.2 -12.5

COMB ( 16 ) ( 3 ) ( 4 ) ( 14 ) ( 5 ) ( 6 ) ( 7 ) ( 16 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28

FdzT 22.6 22.5 24.3 20.2 24.3 24.3 24.3 24.3

MdxT 37.2 -12.9 2.2 0.8 36.1 -36.1 -36.1 36.1

MdyT -2.8 -2.9 -71.5 62.1 46.5 46.5 -46.5 -46.5

COMB ( 11 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.3 15.4 15.4 15.4 15.4 14.1 14.3 14.6 14.4 14.1

MdxT 4.1 53.8 -53.8 0.0 0.0 48.3 -2.9 34.7 -32.5 -47.3

MdyT 0.0 0.0 0.0 41.5 -41.5 64.3 60.5 1.8 58.4 -2.9

COMB ( 1 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 1 ) ( 11 ) ( 2 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.2 15.0 15.0 15.0 13.8 13.7 13.7 14.3 14.3 14.0

MdxT 27.9 3.8 31.5 -2.4 4.3 28.8 -3.6 55.4 -54.6 -47.2

MdyT 62.7 -66.6 44.9 112.1 67.5 44.0 9.0 1.5 57.0 -2.9

COMB ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 14 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.0 15.2 15.2 15.2 13.2 13.1 13.1 14.4 14.6 14.4

MdxT 48.2 3.6 32.0 -2.2 4.6 27.5 -4.2 47.5 -33.6 28.0

MdyT 64.5 -112.4 58.7 146.7 111.0 56.4 -25.2 37.1 58.0 62.4

COMB ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 9 ) ( 12 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 13.8 14.5 15.4 13.2 13.2 15.4 15.4 15.4 15.4

MdxT 29.0 55.3 32.2 27.8 -4.1 38.0 -38.0 -38.0 38.0

MdyT 44.0 1.7 58.6 56.4 -25.5 29.3 29.3 -29.3 -29.3

COMB ( 14 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 12.2 12.2 12.2 11.8 11.8 11.7 11.9 12.1 12.1

MdxT 42.9 -42.9 0.0 0.0 -35.0 28.7 37.9 5.6 -14.3 29.4

MdyT 0.0 0.0 33.0 -33.0 -160.4 -75.9 38.5 -140.4 -160.6 -77.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 1 ) ( 16 ) ( 2 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.1 11.6 11.6 11.6 11.7 11.7 11.7 12.1 12.1 11.2

MdxT 15.7 -47.9 27.9 37.7 21.1 36.6 -8.7 -13.6 15.1 -13.3

MdyT 46.3 -161.4 -74.0 39.1 -127.3 -64.8 28.8 -161.7 51.9 -127.0

COMB ( 4 ) ( 7 ) ( 5 ) ( 7 ) ( 6 ) ( 6 ) ( 6 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.2 11.2 11.9 12.0 12.0 11.9 12.2 12.2 12.2 11.9

MdxT 26.1 13.7 -37.5 -30.9 3.9 29.4 -16.9 -31.3 16.0 18.6

MdyT -69.8 16.0 -158.9 -75.2 -138.3 38.1 -159.0 -77.1 45.8 -125.7

COMB ( 9 ) ( 9 ) ( 12 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 11.9 11.9 11.7 12.2 12.2 11.4 11.4 11.4 12.2 12.2

MdxT 33.4 -8.4 -50.5 -16.1 15.4 -15.8 -29.2 14.0 30.3 -30.3

MdyT -64.1 28.4 -159.9 -160.3 51.5 -125.4 -69.1 15.4 23.4 23.4

COMB ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41

FdzT 12.2

MdxT 30.3

MdyT -23.4

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.9 2.9 2.8 2.9 2.9 2.8 2.8 2.8 2.8 2.8

MdxT 9.2 -9.2 0.0 0.0 0.0 19.3 -15.8 7.7 -5.8 -6.7

MdyT 0.0 0.0 25.1 14.1 -14.1 25.3 67.5 75.8 100.8 -46.8

COMB ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 6 ) ( 6 ) ( 6 ) ( 4 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.8 2.8 2.9 2.8 2.9 2.8 2.9 2.9

MdxT -15.1 -6.0 8.5 -5.8 23.8 -8.3 -22.1 -6.9 -13.0 9.5

MdyT 25.1 34.9 14.4 132.1 26.2 94.5 67.5 128.7 -46.9 76.2

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 15 ) ( 13 ) ( 15 ) ( 17 ) ( 18 ) ( 15 )

CARR 21 22 23 24

FdzT 2.8 2.8 2.8 2.9

MdxT -10.8 3.9 -2.7 6.5

MdyT 25.9 25.8 132.5 -10.0

COMB ( 16 ) ( 17 ) ( 17 ) ( 0 )

### P162

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.3 14.5 13.7 17.7 17.7 17.6 17.7 15.4 14.5 16.3

MdxT -1.7 -11.3 -17.6 37.1 -37.1 0.0 0.0 -5.2 33.3 -43.7

MdyT 0.0 0.0 0.0 0.0 0.0 137.6 -58.4 6.6 11.1 2.1

COMB ( 1 ) ( 11 ) ( 6 ) ( 0 ) ( 0 ) ( 9 ) ( 0 ) ( 10 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.3 13.9 13.9 16.8 16.7 13.7 13.8 16.7 16.7 12.9

MdxT 7.8 -7.8 -1.3 -2.2 -2.1 58.9 58.8 -69.2 14.3 -9.8

MdyT 0.7 -72.4 4.2 85.4 -3.2 13.7 13.9 -1.1 0.7 -125.0

COMB ( 12 ) ( 4 ) ( 4 ) ( 14 ) ( 5 ) ( 6 ) ( 15 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 13.0 17.7 17.7 14.0 16.9 13.0 17.7 17.7 17.7

MdxT -1.0 -2.4 -26.3 -8.0 -69.3 -9.9 26.3 -26.3 26.3

MdyT 6.7 80.3 -41.3 -72.2 -1.0 -124.9 41.3 41.3 -41.3

COMB ( 17 ) ( 18 ) ( 0 ) ( 13 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.9 11.9 11.4 11.9 11.9 10.5 10.5 10.5 10.1 10.1

MdxT 41.8 -41.8 0.0 0.0 0.0 -2.2 26.3 14.1 37.9 15.2

MdyT 0.0 0.0 104.0 39.4 -39.4 27.2 -23.6 -57.4 37.9 -27.5

COMB ( 0 ) ( 0 ) ( 14 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.1 11.0 11.0 9.6 9.6 11.3 11.4 11.3 9.5 9.5

MdxT -27.9 -42.8 56.7 -56.0 28.4 1.0 85.7 12.2 65.2 26.1

MdyT -68.7 18.5 -47.9 -74.6 -33.4 101.9 -43.4 -102.5 40.7 -29.1

COMB ( 11 ) ( 3 ) ( 3 ) ( 15 ) ( 4 ) ( 5 ) ( 16 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.5 11.4 11.3 9.0 9.0 9.0 11.8 11.9 11.9 10.6

MdxT -56.6 -70.6 34.0 -7.7 29.7 17.5 2.9 25.1 11.6 -2.7

MdyT -72.7 13.9 -20.1 -98.4 -51.8 18.2 150.9 61.2 -134.1 29.3

COMB ( 6 ) ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 18 ) ( 18 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.6 10.6 11.1 11.1 9.7 9.7 11.4 11.4 9.6 9.1

MdxT 26.9 14.6 -43.4 57.1 -5.9 29.0 24.8 12.7 64.8 -8.3

MdyT -23.9 -59.4 20.6 -50.0 -45.5 -33.0 -41.8 -104.4 42.7 -96.3

COMB ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 17 )

CARR 41 42 43 44 45 46 47

FdzT 9.1 9.1 11.9 11.9 11.9 11.9 11.9

MdxT 30.4 17.9 2.4 29.6 -29.6 -29.6 29.6

MdyT -51.4 16.1 152.9 27.9 27.9 -27.9 -27.9

COMB ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.7 8.7 8.7 8.7 8.1 8.1 8.1 7.8 7.8 8.3

MdxT 30.4 -30.4 0.0 0.0 -11.6 -21.2 4.5 25.1 -16.8 -47.5

MdyT 0.0 0.0 28.7 -28.7 44.7 17.9 -29.1 44.2 -33.0 39.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 2 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.3 7.6 7.5 7.7 8.5 8.5 8.5 7.5 8.4 8.4

MdxT 25.8 -31.1 -31.5 2.8 -13.4 -24.0 6.3 50.7 -71.1 39.9

MdyT -25.3 -35.6 -32.1 -9.2 118.6 51.5 -49.1 47.9 34.7 -22.7

COMB ( 12 ) ( 15 ) ( 6 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 6 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.3 7.3 7.3 8.7 8.7 8.7 7.8 7.7 7.7 7.6

MdxT -6.0 -15.3 1.1 -14.4 -25.5 7.3 24.1 -9.9 -18.6 48.2

MdyT -84.7 -47.7 7.7 167.4 75.5 -62.4 50.3 -29.3 -21.3 53.5

COMB ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 13 ) ( 13 ) ( 15 )

CARR 31 32 33 34 35 36

FdzT 7.3 7.3 7.3 8.7 8.7 8.7

MdxT -8.5 -16.5 1.5 21.5 -21.5 21.5

MdyT -79.1 -45.8 4.1 20.3 -20.3 -20.3

COMB ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.0 3.2 3.2 3.1 3.1 3.1 3.0

MdxT 24.6 10.3 -10.3 0.0 0.0 0.0 -11.3 5.8 14.6 5.7

MdyT 0.0 0.0 0.0 -12.7 10.7 -10.7 40.6 23.0 -3.5 47.5

COMB ( 7 ) ( 0 ) ( 0 ) ( 15 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.0 3.0 3.2 3.2 3.0 3.2 3.2 3.2 3.0 3.0

MdxT 9.6 16.8 -26.2 20.7 -11.9 -10.9 5.0 12.5 15.5 13.5

MdyT 23.1 -9.5 38.9 -1.1 22.4 58.9 36.3 2.4 48.2 22.9

COMB ( 2 ) ( 4 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 15 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.2 2.9 2.9 3.2 3.2 3.2 3.1 3.1 3.1 3.0

MdxT -36.1 -12.2 18.1 -10.6 4.3 10.8 -9.1 4.2 10.5 8.9

MdyT 37.4 9.8 -13.4 70.7 45.0 6.4 45.8 23.9 -8.8 24.0

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 3.0 3.2 3.2 3.0 3.2 3.2 3.2 3.0 3.0 3.2

MdxT 12.7 -24.1 16.7 -9.7 -8.7 -34.0 20.7 -10.1 14.1 -8.4

MdyT -14.8 44.1 -6.4 27.6 64.1 42.4 -4.8 14.8 -18.6 75.7

COMB ( 13 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43

FdzT 3.2 3.2 3.2

MdxT 7.3 -7.3 7.3

MdyT 7.6 -7.6 -7.6

COMB ( 0 ) ( 0 ) ( 0 )

### P163

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 37.9 40.7 40.7 40.7 40.7 38.9 38.0 38.0 39.9 40.2

MdxT -1.8 85.4 -85.4 0.0 0.0 -2.9 36.1 -10.6 -42.0 14.4

MdyT 0.0 0.0 0.0 134.2 -134.2 17.4 21.8 3.6 12.9 4.1

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.7 37.8 36.9 37.0 40.3 36.5 36.5 36.7 40.1 37.8

MdxT -7.0 -1.8 62.2 -16.9 -68.2 1.0 -2.1 -2.1 -5.3 -0.6

MdyT -116.5 97.6 24.6 3.5 9.5 150.8 89.7 -1.8 -62.7 97.6

COMB ( 8 ) ( 14 ) ( 15 ) ( 6 ) ( 7 ) ( 18 ) ( 18 ) ( 9 ) ( 13 ) ( 14 )

CARR 21 22 23 24 25

FdzT 40.2 40.7 40.7 40.7 40.7

MdxT -68.0 60.4 -60.4 -60.4 60.4

MdyT 9.7 94.9 94.9 -94.9 -94.9

COMB ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.9 27.9 27.9 27.9 27.1 27.2 27.2 26.5 26.5 26.5

MdxT 97.8 -97.8 0.0 0.0 1.8 57.2 8.8 44.1 77.8 -30.2

MdyT 0.0 0.0 92.2 -92.2 55.3 -174.2 -325.8 64.7 -177.7 -339.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.9 27.8 27.8 27.9 26.4 26.5 26.5 25.7 25.6 25.7

MdxT -69.2 83.6 47.7 -7.0 6.7 55.7 4.3 72.0 53.8 -56.0

MdyT 65.2 -171.3 -314.6 -113.0 156.2 -187.0 -414.3 73.1 -194.5 -346.4

COMB ( 0 ) ( 3 ) ( 3 ) ( 8 ) ( 14 ) ( 5 ) ( 5 ) ( 15 ) ( 9 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.8 27.8 25.5 25.6 27.1 27.1 27.7 27.7 27.7 26.4

MdxT -69.3 73.9 9.8 1.5 56.9 8.5 -40.6 83.1 47.5 55.4

MdyT 39.5 -306.9 225.4 -472.9 -174.7 -328.0 45.9 -171.7 -316.8 -187.3

COMB ( 7 ) ( 7 ) ( 18 ) ( 9 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 12 ) ( 14 )

CARR 31 32 33 34 35 36 37

FdzT 26.4 27.6 27.6 25.5 25.5 27.9 27.9

MdxT 4.1 -69.0 73.6 53.5 1.3 69.2 -69.2

MdyT -416.4 41.7 -309.1 -194.9 -475.2 65.2 -65.2

COMB ( 14 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.1 24.1 24.1 24.1 23.7 23.7 23.7 23.4 23.4 23.3

MdxT 84.3 -84.3 0.0 0.0 -18.2 -49.9 5.6 -19.9 -49.2 -4.3

MdyT 0.0 0.0 79.4 -79.4 407.1 203.6 -101.8 498.1 206.2 -109.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 5 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.0 24.0 24.0 24.1 23.4 23.4 22.7 22.8 22.7 23.8

MdxT -16.8 -50.5 15.0 -50.5 -49.2 6.6 -20.4 -47.8 -10.8 50.0

MdyT 399.6 200.8 -97.4 162.7 244.4 -136.1 544.9 201.3 -109.1 192.2

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 5 ) ( 9 ) ( 6 ) ( 15 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.8 22.7 22.7 23.6 23.9 23.9 23.3 23.3 23.3 23.7

MdxT 20.9 -47.8 6.9 -49.6 -50.3 14.3 -19.2 -49.0 5.7 49.8

MdyT -90.6 264.9 -155.1 205.4 202.7 -101.1 503.7 246.3 -139.9 194.0

COMB ( 7 ) ( 9 ) ( 9 ) ( 10 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 14 ) ( 16 )

CARR 31 32 33 34 35 36 37 38

FdzT 23.7 22.7 22.7 22.7 24.1 24.1 24.1 24.1

MdxT 20.2 -19.6 -47.6 6.2 59.6 -59.6 -59.6 59.6

MdyT -94.4 550.3 266.6 -158.9 56.2 56.2 -56.2 -56.2

COMB ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.1 5.1 5.0 5.1 4.9 5.0 4.9 4.9 5.0 5.0

MdxT 53.4 -53.4 0.0 0.0 9.8 66.8 -80.2 -128.4 115.9 9.4

MdyT 0.0 0.0 -462.1 16.7 216.3 -462.0 -476.1 -465.4 -445.3 183.5

COMB ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 15 ) ( 3 ) ( 11 ) ( 15 ) ( 7 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.0 4.9 4.9 4.9 4.9 5.0 5.0 5.1 5.1 4.8

MdxT 51.4 9.1 65.8 -13.3 -166.0 156.4 9.5 51.9 4.2 -16.8

MdyT -203.9 252.0 -467.2 -476.1 -192.7 -185.1 169.7 -201.3 -445.5 -465.2

COMB ( 4 ) ( 9 ) ( 12 ) ( 14 ) ( 15 ) ( 7 ) ( 17 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.9 4.9 5.0 4.9 4.9 4.9 5.0 5.0 4.8 5.1

MdxT 9.5 -7.3 -1.3 49.8 155.2 114.9 51.7 3.2 9.0 37.7

MdyT 216.3 -471.7 -467.2 -190.5 -186.1 -450.2 -202.4 -450.4 256.6 11.8

COMB ( 11 ) ( 10 ) ( 13 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 )

CARR 31 32

FdzT 5.1 5.1

MdxT -37.7 -37.7

MdyT 11.8 -11.8

COMB ( 0 ) ( 0 )

### P164

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 46.2 46.2 46.2 45.2 46.2 45.6 45.0 46.2 44.4 44.4

MdxT 97.1 -97.1 0.0 0.0 0.0 93.4 35.8 68.7 -22.8 25.3

MdyT 0.0 0.0 152.6 7.1 -152.6 18.6 91.1 -107.9 4.6 5.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 7 ) ( 4 ) ( 0 ) ( 6 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 45.6 44.0 44.0 46.1 46.2 45.6 46.1 46.2 46.2

MdxT -6.0 36.3 9.2 34.3 68.7 93.2 34.2 -68.7 -68.7

MdyT 4.3 144.3 -1.1 -121.1 107.9 18.6 -121.2 107.9 -107.9

COMB ( 16 ) ( 8 ) ( 8 ) ( 9 ) ( 0 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.7 31.7 31.7 31.7 31.7 31.5 31.5 30.9 30.9 30.9

MdxT 345.0 -345.0 0.0 0.0 243.9 -408.2 -230.3 41.9 -380.3 -194.6

MdyT 0.0 0.0 104.6 -104.6 74.0 -207.6 -379.1 132.9 -213.6 -444.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.7 30.5 30.5 30.5 31.0 31.0 31.0 30.1 30.1 30.1

MdxT 243.9 29.1 -333.2 -127.8 48.2 -420.1 -253.1 39.6 -373.9 -193.8

MdyT -74.0 38.4 -204.6 -366.5 57.4 -206.9 -383.0 196.3 -216.9 -492.4

COMB ( 0 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 31.4 31.5 31.5 30.9 30.9 30.5 30.5 31.0 31.0 30.1

MdxT 37.7 -408.3 -230.4 -380.6 -194.9 -333.4 -128.1 -420.3 -253.4 -374.1

MdyT -100.5 -207.6 -379.0 -213.6 -444.5 -204.5 -366.4 -206.8 -382.9 -216.9

COMB ( 18 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 31 32

FdzT 30.1 31.7

MdxT -193.9 -243.9

MdyT -492.2 74.0

COMB ( 17 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.2 28.2 28.2 28.2 28.2 28.2 28.2 27.8 27.8 27.8

MdxT 306.9 -306.9 0.0 0.0 320.0 487.8 51.8 286.9 459.9 46.2

MdyT 0.0 0.0 93.0 -93.0 476.4 248.5 -93.4 558.0 285.5 -123.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.2 27.2 27.2 27.7 27.7 27.7 28.2 28.2 27.8 27.8

MdxT 280.6 448.4 43.5 335.9 494.8 52.9 320.3 488.0 287.0 460.0

MdyT 599.9 304.0 -139.9 464.1 242.4 -90.2 476.3 248.5 557.9 285.5

COMB ( 8 ) ( 8 ) ( 8 ) ( 7 ) ( 7 ) ( 7 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 21 22 23 24 25 26 27

FdzT 27.7 27.7 27.2 27.2 28.2 28.2 28.2

MdxT 336.0 494.9 280.7 448.5 -217.0 -217.0 217.0

MdyT 463.8 242.2 599.8 303.9 65.8 -65.8 -65.8

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.1 5.1 5.1 5.1 5.0 5.1 5.1 5.0 5.0 5.0

MdxT 53.7 -53.7 0.0 0.0 -10.1 -66.2 -22.3 -52.2 -8.1 -79.8

MdyT 0.0 0.0 16.8 -16.8 221.1 -273.6 -586.2 -264.6 -585.5 -262.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 14 ) ( 14 ) ( 2 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.1 5.1

MdxT -35.6 -9.9 2.2 -88.7 -44.4 -9.8 -63.0 -20.0 -10.1 -66.4

MdyT -585.1 242.2 -568.4 -252.0 -567.4 256.8 -237.3 -566.7 178.6 -270.1

COMB ( 12 ) ( 13 ) ( 6 ) ( 16 ) ( 16 ) ( 8 ) ( 17 ) ( 17 ) ( 9 ) ( 18 )

CARR 21 22 23 24

FdzT 5.0 5.1 5.1 5.1

MdxT 2.0 38.0 -38.0 38.0

MdyT -568.5 11.9 11.9 -11.9

COMB ( 15 ) ( 0 ) ( 0 ) ( 0 )

### P165

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 46.0 46.0 46.0 46.0 45.3 44.7 46.0 46.0 44.0 43.7

MdxT 96.5 -96.5 0.0 0.0 35.3 35.7 68.2 68.2 -19.6 36.1

MdyT 0.0 0.0 -151.7 151.7 -18.5 -98.1 -107.2 107.2 -25.3 -151.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 14 ) ( 0 ) ( 0 ) ( 6 ) ( 18 )

CARR 11 12 13 14 15 16

FdzT 45.5 45.5 45.8 43.7 46.0 46.0

MdxT 90.2 -6.2 34.6 9.4 -68.2 -68.2

MdyT -11.2 -4.6 114.5 1.4 107.2 -107.2

COMB ( 16 ) ( 7 ) ( 17 ) ( 9 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.5 31.5 31.5 31.5 31.1 31.1 31.1 30.7 30.7 30.7

MdxT 342.5 -342.5 0.0 0.0 40.9 -381.8 -194.0 41.3 -378.6 -194.5

MdyT 0.0 0.0 103.8 -103.8 -52.2 206.3 378.7 -141.4 213.1 449.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 10 ) ( 10 ) ( 5 ) ( 14 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.5 31.3 31.3 31.5 29.9 30.2 30.2 30.9 30.9 30.9

MdxT 242.2 -410.1 -234.5 242.2 39.1 -328.0 -124.3 47.3 -423.7 -259.1

MdyT -73.4 205.2 373.4 73.4 -204.1 207.0 387.7 -47.3 203.1 370.0

COMB ( 0 ) ( 12 ) ( 12 ) ( 0 ) ( 18 ) ( 15 ) ( 15 ) ( 7 ) ( 16 ) ( 7 )

CARR 21 22 23 24 25 26

FdzT 31.2 29.9 29.9 29.9 31.2 31.5

MdxT 37.4 39.1 -371.4 -192.5 37.2 -242.2

MdyT 92.8 -204.1 216.5 496.9 93.0 -73.4

COMB ( 8 ) ( 9 ) ( 18 ) ( 18 ) ( 17 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.0 28.0 28.0 28.0 27.6 27.8 27.6 27.6 27.6 27.6

MdxT 305.0 -305.0 0.0 0.0 284.5 457.4 45.6 245.8 456.2 45.5

MdyT 0.0 0.0 92.5 -92.5 -564.2 -247.1 128.0 -482.9 -287.3 128.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 1 ) ( 5 ) ( 2 ) ( 5 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.0 28.0 28.0 27.0 27.0 27.0 27.6 27.6 27.6 27.8

MdxT 323.8 488.4 51.1 276.9 443.9 43.0 342.4 497.5 52.1 457.4

MdyT -468.3 -244.2 92.0 -605.6 -305.6 144.5 -445.9 -233.8 84.4 -247.1

COMB ( 12 ) ( 12 ) ( 3 ) ( 9 ) ( 9 ) ( 9 ) ( 7 ) ( 7 ) ( 7 ) ( 10 )

CARR 21 22 23 24

FdzT 27.6 28.0 28.0 28.0

MdxT 497.5 215.6 -215.6 -215.6

MdyT -233.8 65.4 65.4 -65.4

COMB ( 16 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.1 5.1 5.1 5.1 5.0 5.0 5.0 5.0 5.0 5.1

MdxT 53.5 -53.5 0.0 0.0 -9.9 -73.8 -29.8 -9.8 -10.1 -64.0

MdyT 0.0 0.0 16.8 -16.8 -218.3 258.9 576.4 -256.2 -217.6 267.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 12 ) ( 12 ) ( 9 ) ( 3 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.0 5.0 5.1 5.1 5.1 5.0 5.0 5.0 5.1 5.1

MdxT -80.3 -36.1 -10.1 -64.2 -20.3 -61.5 -18.8 -9.8 37.8 -37.8

MdyT 249.9 560.4 -177.9 264.2 559.0 231.6 556.6 -218.8 11.9 -11.9

COMB ( 16 ) ( 16 ) ( 8 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 11 ) ( 0 ) ( 0 )

CARR 21

FdzT 5.1

MdxT 37.8

MdyT -11.9

COMB ( 0 )

### P166

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 40.7 40.7 40.7 40.2 40.7 39.2 38.5 38.3 39.7 39.9

MdxT 85.4 -85.4 0.0 0.0 0.0 -6.0 27.4 -9.1 -64.4 7.7

MdyT 0.0 0.0 -134.3 -7.4 134.3 -9.9 -6.0 -4.3 -16.8 -3.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 0 ) ( 1 ) ( 2 ) ( 11 ) ( 16 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 37.8 40.5 37.6 37.6 39.9 36.8 36.8 39.0 38.3 40.2

MdxT -5.2 -7.6 52.6 -14.7 13.3 -4.2 -1.0 -6.2 29.0 -7.1

MdyT -90.0 123.5 -4.5 -4.5 -3.6 -143.6 1.5 -9.8 -5.7 70.3

COMB ( 13 ) ( 18 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 ) ( 10 ) ( 11 ) ( 14 )

CARR 21 22 23 24

FdzT 40.7 40.7 40.7 40.7

MdxT 60.4 -60.4 -60.4 60.4

MdyT 94.9 94.9 -94.9 -94.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.9 27.9 27.9 27.9 27.1 27.4 27.3 26.7 26.7 26.7

MdxT 97.8 -97.8 0.0 0.0 1.5 68.3 67.8 42.4 75.7 -23.5

MdyT 0.0 0.0 92.2 -92.2 -43.8 313.2 315.1 -40.5 169.6 309.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 7 ) ( 16 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.4 27.6 27.6 26.4 26.5 26.5 27.9 27.9 27.9 26.0

MdxT -67.5 80.3 45.4 5.5 55.7 7.0 -5.9 58.6 15.1 69.3

MdyT -49.8 168.8 311.4 -144.8 181.8 398.0 123.9 156.3 221.1 -40.9

COMB ( 7 ) ( 3 ) ( 3 ) ( 13 ) ( 4 ) ( 4 ) ( 9 ) ( 5 ) ( 5 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.0 26.0 25.5 25.6 25.6 27.9 27.9 27.1 27.1 27.5

MdxT 27.7 -46.2 7.7 53.8 4.5 58.7 18.1 56.9 10.6 79.4

MdyT 169.0 308.8 -214.6 189.4 457.4 147.1 162.5 169.5 311.6 169.2

COMB ( 15 ) ( 15 ) ( 17 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 26.4 26.4 27.3 25.5 25.5 27.9 27.9 27.9 27.9

MdxT 55.4 6.6 -67.1 53.5 4.1 69.2 -69.2 -69.2 69.2

MdyT 182.2 400.1 -51.9 189.8 459.5 65.2 65.2 -65.2 -65.2

COMB ( 13 ) ( 13 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.0 24.0 24.0 24.0 23.7 23.9 23.7 23.4 23.5 23.5

MdxT 84.1 -84.1 0.0 0.0 -23.8 -50.2 11.6 -35.6 -64.2 12.2

MdyT 0.0 0.0 79.2 -79.2 -386.8 -198.8 93.1 -383.6 -191.2 89.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 3 ) ( 1 ) ( 11 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.9 23.9 23.4 23.4 23.4 24.0 24.0 24.0 22.9 22.9

MdxT -11.5 10.9 -25.2 -49.5 12.0 -22.4 -50.4 11.2 -43.3 -74.0

MdyT -395.6 96.5 -477.8 -235.7 127.4 -296.0 -154.1 58.7 -359.5 -182.1

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.9 23.8 23.6 23.8 22.7 22.7 22.7 23.8 23.4 23.3

MdxT 11.9 -10.9 49.6 10.4 -25.1 -48.9 11.6 -50.0 -64.1 -24.6

MdyT 84.1 -401.1 -195.0 100.1 -525.7 -256.6 147.0 -200.6 -192.8 -483.4

COMB ( 6 ) ( 12 ) ( 7 ) ( 12 ) ( 8 ) ( 8 ) ( 8 ) ( 12 ) ( 11 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 23.3 23.3 22.8 22.8 23.5 22.6 22.6 22.6 24.0 24.0

MdxT -48.8 11.3 -42.7 -73.2 49.4 -24.5 -48.1 10.9 59.4 -59.4

MdyT -237.6 131.2 -364.8 -183.8 -196.9 -531.0 -258.4 150.6 56.0 56.0

COMB ( 13 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

CARR 41 42

FdzT 24.0 24.0

MdxT -59.4 59.4

MdyT -56.0 -56.0

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.1 5.1 5.1 5.1 4.9 4.9 4.9 4.9 4.9 4.9

MdxT 53.3 -53.3 0.0 0.0 9.2 69.2 -79.1 9.5 -127.5 9.7

MdyT 0.0 0.0 16.7 -16.7 -208.6 453.6 472.2 -208.2 463.1 -206.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 3 ) ( 11 ) ( 11 ) ( 15 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.9 4.9 4.9 4.9 5.0 5.0 5.0 4.9 4.9 4.8

MdxT 118.4 9.1 67.5 -11.2 9.8 51.3 1.1 -165.2 158.6 -14.4

MdyT 435.5 -246.4 458.6 470.0 -202.0 202.4 455.8 195.2 179.8 459.5

COMB ( 7 ) ( 8 ) ( 12 ) ( 13 ) ( 6 ) ( 5 ) ( 5 ) ( 15 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 5.1 5.1 5.1 4.9 4.9 5.0 4.9 4.9 4.8 5.0

MdxT 9.5 51.9 5.0 8.8 49.8 -0.6 156.8 116.8 9.0 9.4

MdyT -159.3 199.8 439.2 -209.2 188.1 460.9 180.9 440.4 -251.2 -163.9

COMB ( 9 ) ( 9 ) ( 9 ) ( 12 ) ( 13 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 18 )

CARR 31 32 33 34 35

FdzT 5.0 5.0 5.1 5.1 5.1

MdxT 51.5 3.5 -37.7 -37.7 37.7

MdyT 201.0 444.2 11.8 -11.8 -11.8

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P167

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.6 17.7 17.7 17.7 17.7 15.3 15.3 14.6 14.6 16.2

MdxT 12.3 37.2 -37.2 0.0 0.0 -5.3 -5.3 30.2 -9.2 -41.0

MdyT 0.0 0.0 0.0 58.4 -58.4 0.6 -0.8 4.6 -1.1 -3.4

COMB ( 7 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.1 16.8 16.8 13.9 13.9 13.8 13.9 16.7 16.7 17.6

MdxT 6.9 -4.5 -1.3 -6.3 -1.1 54.0 -14.6 -64.7 -33.9 -3.8

MdyT -0.6 -78.1 2.8 79.4 -4.6 7.0 -1.4 -6.3 -6.3 -130.9

COMB ( 3 ) ( 13 ) ( 13 ) ( 14 ) ( 5 ) ( 6 ) ( 15 ) ( 16 ) ( 16 ) ( 8 )

CARR 21 22 23 24 25 26 27

FdzT 17.7 12.8 12.8 13.9 17.7 17.7 17.7

MdxT -26.3 -6.9 -1.1 53.9 26.3 -26.3 26.3

MdyT 41.3 131.6 -7.1 7.0 41.3 -41.3 -41.3

COMB ( 0 ) ( 9 ) ( 9 ) ( 15 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.0 12.0 10.5 11.5 12.0 12.0 10.6 10.6 10.2 10.2

MdxT 42.0 -42.0 0.0 0.0 0.0 0.0 33.9 19.7 31.4 15.1

MdyT 0.0 0.0 -19.2 -95.8 39.6 -39.6 23.8 53.6 -20.2 24.8

COMB ( 0 ) ( 0 ) ( 1 ) ( 13 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.2 11.1 11.1 11.4 11.5 11.5 9.7 9.7 9.7 9.7

MdxT -9.4 -33.5 49.0 1.0 33.0 18.6 -1.8 33.9 53.5 -29.7

MdyT 54.7 -22.0 52.6 -93.8 39.4 98.6 55.4 36.0 -17.2 53.6

COMB ( 11 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 13 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.3 11.3 11.9 12.0 12.0 9.0 9.0 9.0 10.6 9.8

MdxT -55.3 68.0 1.8 32.1 17.6 -2.9 21.3 20.7 -1.1 52.8

MdyT -22.1 51.9 -143.2 -58.0 128.4 105.6 54.2 -23.0 -21.0 -19.0

COMB ( 16 ) ( 16 ) ( 8 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 15 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 9.8 9.8 12.0 9.1 9.1 9.1 12.0 12.0 12.0

MdxT 21.1 -29.0 1.1 -3.5 21.7 21.4 29.7 -29.7 -29.7

MdyT 25.6 55.4 -145.0 103.7 53.8 -21.0 28.0 28.0 -28.0

COMB ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 7.6 8.7 8.7 8.7 8.7 8.1 8.1 7.9 7.9 7.9

MdxT 20.3 30.6 -30.6 0.0 0.0 -31.5 21.6 -11.5 21.5 11.9

MdyT 0.0 0.0 0.0 28.8 -28.8 -32.8 23.4 -24.5 -24.5 21.3

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.3 8.3 8.5 8.5 7.6 7.6 7.7 8.4 8.4 8.7

MdxT -51.5 31.1 -31.4 21.8 -27.3 7.3 16.1 -63.6 36.5 -30.1

MdyT -41.0 25.5 -106.7 43.4 46.9 -13.6 20.0 -46.6 27.3 -156.2

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 5 ) ( 6 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.7 7.3 7.3 7.7 7.7 7.7 7.3 7.3 8.7 8.7

MdxT 21.0 -26.2 19.2 -31.5 21.3 3.2 -30.2 20.0 21.6 -21.6

MdyT 57.0 95.9 -13.2 41.2 3.4 -19.3 90.3 -9.7 20.4 20.4

COMB ( 17 ) ( 9 ) ( 9 ) ( 14 ) ( 14 ) ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 31

FdzT 8.7

MdxT 21.6

MdyT -20.4

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.1 3.2 3.2 3.2 3.2 3.1 3.1 3.0 3.0 3.0

MdxT 18.8 10.3 -10.3 0.0 0.0 -13.9 11.2 -3.2 6.5 3.9

MdyT 0.0 0.0 0.0 10.7 -10.7 -38.5 5.5 -38.2 -18.7 10.6

COMB ( 3 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.1 3.2 3.2 3.0 3.0 3.0 3.0 3.0 3.2 3.2

MdxT -25.1 -14.8 23.8 -12.9 10.8 9.5 7.8 -9.2 -32.5 -15.4

MdyT -38.9 -56.6 -3.5 -20.4 11.6 -43.1 -16.9 19.9 -38.9 -68.5

COMB ( 3 ) ( 4 ) ( 7 ) ( 5 ) ( 5 ) ( 15 ) ( 6 ) ( 15 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.2 2.9 2.9 2.9 3.1 3.1 3.0 3.0 3.0 3.1

MdxT 12.0 -12.2 -4.9 10.4 -9.2 3.2 2.0 -7.1 -4.3 -20.4

MdyT -4.8 -8.1 6.2 15.5 -44.1 11.2 -43.7 -19.6 16.5 -44.5

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 3.1 3.2 3.2 3.0 3.0 3.2 3.2 3.2 3.2 2.9

MdxT 10.8 -10.2 3.6 -8.3 2.7 -27.9 16.0 -10.8 7.3 -7.6

MdyT 5.9 -62.2 5.2 -26.0 17.4 -44.4 2.1 -73.9 7.6 -13.6

COMB ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 18 )

CARR 41 42 43 44

FdzT 2.9 2.9 3.2 3.2

MdxT -3.5 2.5 -7.3 7.3

MdyT 8.5 21.1 7.6 -7.6

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P168

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 2.5 2.5 2.5 2.5 2.4 2.4

MdxT 12.1 -12.1 0.0 0.0 -12.8 17.6 -22.3 33.8 -6.4 0.7

MdyT 0.0 0.0 8.7 -8.7 -5.5 -11.1 -5.4 -12.9 -7.8 -9.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.9 2.9 2.1 2.1 2.6 2.6 2.4 2.4 3.2 3.2

MdxT -9.6 12.8 -16.0 22.5 -29.4 45.9 3.9 -10.6 -7.4 9.6

MdyT 36.8 -94.9 -47.7 72.6 -5.0 -14.1 -5.7 -7.9 65.0 -150.7

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.8 1.8 1.9 1.9 1.9 1.9 1.8 1.8 2.3 2.3

MdxT -18.1 25.9 -4.6 -1.8 -10.8 15.1 9.1 -18.8 2.4 -6.8

MdyT -75.9 128.5 -39.7 -44.9 -31.8 -46.7 -32.1 -42.8 10.2 -73.0

COMB ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 2.3 1.4 1.4 2.0 2.0 1.8 1.8 2.6 2.6 1.2

MdxT -6.7 -4.0 3.0 -17.8 26.9 15.5 -29.6 4.2 -9.4 -6.6

MdyT -128.5 -74.3 39.0 -31.1 -47.7 -31.6 -41.5 39.1 -184.3 -101.8

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43 44 45

FdzT 1.2 1.2 3.2 3.2 3.2

MdxT 2.7 6.7 8.6 -8.6 -8.6

MdyT -40.7 94.9 6.1 6.1 -6.1

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P169

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.0 2.2 2.2 1.8 2.2 2.2 2.0 2.0 2.0 2.0

MdxT -22.8 8.4 -8.4 0.0 0.0 0.0 2.7 -5.7 -8.9 5.4

MdyT 0.0 0.0 0.0 27.9 6.0 -6.0 4.0 13.9 5.7 14.1

COMB ( 15 ) ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 6 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.9 1.9 1.8 1.8 2.1 2.1 2.0 1.9 1.9 1.7

MdxT 9.4 -17.3 -4.0 -1.5 5.4 -9.9 13.9 13.8 -24.5 -2.2

MdyT 3.0 13.8 -16.5 -41.2 -19.8 68.9 13.8 2.4 13.3 43.8

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.7 1.7 2.2 2.2 1.0 1.0 1.0 1.0 1.0 1.0

MdxT -4.9 1.7 6.9 -12.3 25.2 -17.3 -43.2 18.5 -12.6 -31.6

MdyT -31.2 -78.1 -35.6 105.2 46.5 27.6 -0.8 47.5 28.3 -0.7

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.0 1.0 1.0 0.8 0.8 0.8 1.1 1.1 1.0 1.0

MdxT 31.9 -21.9 -54.8 22.5 -15.6 -39.0 27.9 -47.4 13.3 -9.1

MdyT 45.5 26.9 -1.0 70.4 28.2 -55.8 22.7 54.3 47.5 28.6

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 1.0 1.0 1.0 0.7 0.7 1.3 1.3 2.2 2.2

MdxT 35.8 -24.5 -61.3 20.0 -35.1 29.1 -49.1 5.9 -5.9

MdyT 44.2 26.3 -0.5 85.5 -91.9 6.0 91.6 4.2 -4.2

COMB ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P17

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.7 32.9 33.5 33.5 32.9 32.6 32.1 32.1 33.5 33.5

MdxT 0.0 2.4 -70.5 70.5 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 5.6 -6.0 -135.4 9.4 90.6 -90.6

COMB ( 10 ) ( 1 ) ( 0 ) ( 0 ) ( 11 ) ( 3 ) ( 6 ) ( 6 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 32.9 32.4 32.0 32.2 33.5 31.2 31.2 31.3 30.4 30.5

MdxT 0.8 4.2 -37.0 7.7 49.8 5.2 5.2 -0.7 -63.3 12.9

MdyT -80.6 82.5 11.5 -1.0 -64.1 137.2 78.5 -9.8 18.8 -1.3

COMB ( 11 ) ( 12 ) ( 13 ) ( 4 ) ( 0 ) ( 16 ) ( 16 ) ( 7 ) ( 17 ) ( 8 )

CARR 21 22 23 24 25 26 27

FdzT 32.9 32.7 33.5 31.9 31.9 33.5 33.5

MdxT 68.0 -13.0 -49.8 0.6 0.6 49.8 -49.8

MdyT -17.1 1.1 64.1 -77.1 9.5 64.1 -64.1

COMB ( 9 ) ( 18 ) ( 0 ) ( 15 ) ( 15 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 25.5 25.5 25.5 25.5 25.1 25.2 25.1 25.1 24.8 24.8

MdxT 87.8 -87.8 0.0 0.0 -18.8 -53.0 18.9 52.6 -37.1 -65.9

MdyT 0.0 0.0 90.0 -68.8 212.4 63.0 -161.0 85.0 120.8 48.3

COMB ( 0 ) ( 0 ) ( 5 ) ( 0 ) ( 3 ) ( 2 ) ( 3 ) ( 3 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.8 25.5 25.5 24.1 24.1 24.1 23.8 23.8 23.8 23.4

MdxT 30.2 62.1 62.1 -17.4 -50.7 16.8 -17.9 50.1 18.8 -48.4

MdyT -61.5 48.7 -48.7 -80.5 58.6 146.6 275.5 110.2 -234.9 123.1

COMB ( 4 ) ( 0 ) ( 0 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.4 23.4 24.5 24.5 24.5 25.0 23.9 23.9 23.9 24.3

MdxT -79.8 37.7 13.2 51.5 -2.1 -17.8 -16.8 -50.3 16.4 51.1

MdyT 49.2 -69.2 71.7 35.4 -19.0 -14.3 -93.1 59.9 149.7 59.2

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 15 ) ( 15 ) ( 15 ) ( 18 )

CARR 31 32

FdzT 25.5 25.5

MdxT -62.1 -62.1

MdyT 48.7 -48.7

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.7 11.5 11.5 11.5 11.5 11.3 11.3 11.3 11.2 11.2

MdxT 26.7 41.1 -41.1 0.0 0.0 -43.8 -17.5 38.1 -39.0 -30.8

MdyT 0.0 0.0 0.0 31.1 -31.1 47.7 -48.3 -112.3 -49.6 -44.5

COMB ( 15 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 4 ) ( 14 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.3 11.5 11.5 11.5 10.9 10.9 11.3 11.3 11.3 11.0

MdxT 29.4 -34.0 -13.6 28.7 -32.9 28.0 -32.6 -13.0 26.9 -48.7

MdyT -41.3 127.5 -72.0 -180.0 -101.1 17.5 180.7 -87.5 -218.7 47.7

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.0 11.0 11.1 11.1 11.1 11.3 11.3 10.7 11.1 11.1

MdxT -19.5 42.6 -42.0 37.0 -16.8 -32.3 27.6 -31.2 -30.9 25.8

MdyT -44.3 -105.7 114.9 -130.2 -52.1 194.7 -198.0 -36.3 245.4 -235.8

COMB ( 8 ) ( 8 ) ( 13 ) ( 13 ) ( 13 ) ( 12 ) ( 12 ) ( 15 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36 37

FdzT 10.8 10.8 11.0 11.0 11.5 11.5 11.5

MdxT -47.0 41.3 -15.0 11.2 29.0 -29.0 29.0

MdyT 112.4 -122.9 96.6 -112.4 22.0 -22.0 -22.0

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P170

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 2.0 2.0 2.1 3.3 3.3 2.0 2.0 2.0

MdxT 12.3 -12.3 0.0 0.0 0.0 0.0 0.0 3.5 -6.8 -4.4

MdyT 0.0 0.0 6.2 -10.9 -1.0 8.8 -8.8 71.4 -32.3 -104.0

COMB ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 11 ) ( 0 ) ( 0 ) ( 8 ) ( 4 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.7 2.7 1.2 1.2 2.0 3.3 3.3 0.7 0.7 2.0

MdxT -7.2 15.1 10.6 -18.8 3.9 -13.6 27.7 16.5 -30.4 -0.7

MdyT 18.5 -38.1 43.5 -53.9 -4.4 9.2 -32.4 51.9 -59.3 -10.2

COMB ( 2 ) ( 2 ) ( 3 ) ( 3 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.0 2.0 1.3 1.3 1.3 2.1 0.5 0.5 0.5 1.3

MdxT 4.8 1.8 10.4 -4.9 -14.8 6.4 17.8 -11.9 -29.7 9.9

MdyT 4.9 12.3 52.9 4.7 -69.7 -2.7 24.7 9.9 -18.8 36.3

COMB ( 9 ) ( 9 ) ( 17 ) ( 10 ) ( 17 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.3 1.3 1.3 2.6 2.6 2.6 0.0 0.0 0.0 1.3

MdxT -14.1 7.6 -10.4 -6.7 7.7 17.3 23.5 -16.3 -40.8 6.4

MdyT -45.7 -12.8 24.2 -9.2 -4.8 1.8 33.4 13.4 -25.0 -28.7

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 18 )

CARR 41 42 43

FdzT 1.3 3.3 3.3

MdxT -8.6 8.7 -8.7

MdyT 46.7 6.3 -6.3

COMB ( 18 ) ( 0 ) ( 0 )

### P171

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.5 3.5 2.1 3.5 3.5 2.0 2.0 2.0 2.8 2.8

MdxT 13.1 -13.1 0.0 0.0 0.0 1.8 4.7 -1.8 -8.2 17.6

MdyT 0.0 0.0 10.1 9.4 -9.4 -36.8 21.6 53.9 -9.9 28.4

COMB ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.1 1.1 2.1 2.1 2.1 1.8 1.8 3.5 3.5 3.5

MdxT 12.6 -22.2 -1.0 6.3 2.9 4.9 -6.6 -16.0 13.0 32.3

MdyT -64.8 80.5 -4.5 3.3 8.2 -68.9 99.5 10.4 10.1 9.6

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 0.5 0.5 2.2 2.2 1.8 1.8 1.2 1.2 1.2 2.1

MdxT 19.5 -35.6 -3.2 6.0 6.7 -9.6 10.2 -6.0 -15.0 6.6

MdyT -83.3 97.9 17.1 -22.2 -90.0 129.7 -18.1 -7.3 17.8 4.0

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 2.1 0.3 0.3 0.3 1.3 1.3 1.1 1.1 2.7 2.7

MdxT 5.4 21.0 -14.2 -35.4 7.4 -10.2 13.3 -19.7 -7.7 8.6

MdyT -8.7 -46.2 -18.5 44.4 14.1 -27.7 -50.2 63.5 28.7 11.5

COMB ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 2.7 -0.3 -0.3 -0.3 1.4 1.4 1.0 1.0 3.5 3.5

MdxT 19.5 27.7 -19.4 -48.4 5.0 -6.6 15.0 -22.3 -9.2 9.2

MdyT -25.7 -65.0 -26.0 62.7 35.4 -57.5 -71.7 94.4 -6.6 -6.6

COMB ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

\*\* AVISO \*\* PILAR TRACIONADO, FN(tf)= -0.27

### P18

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 46.4 47.6 47.6 47.6 47.6 46.5 46.2 46.1 47.6 47.6

MdxT -5.3 100.0 -100.0 0.0 0.0 -95.9 32.2 -15.3 -70.7 70.7

MdyT 0.0 0.0 0.0 128.5 -128.5 19.6 13.3 3.9 90.9 90.9

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 2 ) ( 11 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 47.6 46.4 44.2 44.2 46.1 44.6 44.6 46.1 47.6

MdxT -70.7 -9.4 66.4 -22.8 -23.0 -6.4 -6.3 34.2 70.7

MdyT -90.9 65.7 11.8 3.9 -67.8 99.0 -3.1 13.2 -90.9

COMB ( 0 ) ( 5 ) ( 6 ) ( 6 ) ( 17 ) ( 9 ) ( 9 ) ( 11 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.5 34.5 34.5 34.5 34.4 34.4 33.8 34.5 34.5 34.5

MdxT 120.7 -120.7 0.0 0.0 -104.2 99.0 87.7 -104.6 -41.8 99.3

MdyT 0.0 0.0 93.1 -93.1 60.6 -90.4 -81.5 60.1 -90.0 -90.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 12 ) ( 2 ) ( 3 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 34.5 33.9 33.9 32.3 32.3 33.2 33.0 33.2 33.0 32.2

MdxT -85.4 -68.9 71.3 -63.1 68.9 -122.6 -73.2 115.5 74.5 68.6

MdyT -65.8 132.6 -154.6 180.5 -200.3 59.6 -73.1 -92.8 29.4 -200.9

COMB ( 0 ) ( 5 ) ( 5 ) ( 9 ) ( 9 ) ( 7 ) ( 8 ) ( 7 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.0 34.0 33.7 34.4 33.8 33.8 33.8 33.2 33.2 32.2

MdxT -71.5 72.7 85.7 -41.7 -68.5 118.4 71.0 -122.2 115.2 -62.7

MdyT 57.1 -86.1 -81.8 -90.4 133.1 -62.0 -155.0 60.1 -93.2 180.9

COMB ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 14 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 18 )

CARR 31 32

FdzT 34.5 34.5

MdxT 85.4 -85.4

MdyT 65.8 65.8

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.0 16.0 16.0 16.0 16.0 16.0 16.0 15.9 15.9 15.9

MdxT 56.2 -56.2 0.0 0.0 -68.0 28.3 70.8 -50.8 24.1 60.2

MdyT 0.0 0.0 43.3 -43.3 98.7 39.5 -54.7 131.7 52.7 -78.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 3 ) ( 5 ) ( 5 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.5 15.5 15.5 15.8 15.8 15.7 16.0 16.0 16.0 15.9

MdxT -48.6 22.5 56.1 -77.3 73.9 22.5 -67.6 27.9 69.9 -50.5

MdyT 154.0 61.6 -94.2 98.8 -54.0 31.6 100.8 40.3 -56.1 134.0

COMB ( 9 ) ( 9 ) ( 9 ) ( 7 ) ( 7 ) ( 8 ) ( 12 ) ( 12 ) ( 12 ) ( 14 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 15.9 15.9 15.7 15.7 15.5 15.5 15.5 16.0 16.0

MdxT 23.7 59.2 -77.0 73.1 -48.3 22.1 55.3 39.7 -39.7

MdyT 53.6 -80.2 100.9 -55.4 156.0 62.4 -95.6 30.6 -30.6

COMB ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P19

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 40.7 40.6 39.1 42.0 42.0 42.0 42.0 40.5 40.6 39.3

MdxT 4.5 -5.7 -10.8 88.2 -88.2 0.0 0.0 44.7 44.8 5.9

MdyT 0.0 0.0 0.0 0.0 0.0 113.5 -113.5 -5.6 -5.3 64.7

COMB ( 10 ) ( 13 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 13 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 39.1 42.0 42.0 40.8 37.0 37.0 37.0 41.5 41.5 39.5

MdxT 71.7 62.4 62.4 -36.0 6.9 6.9 1.3 2.5 2.5 -62.9

MdyT -9.7 -80.2 80.2 5.0 107.2 59.6 -11.9 -108.8 9.8 8.0

COMB ( 8 ) ( 0 ) ( 0 ) ( 5 ) ( 15 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 9 )

CARR 21 22 23 24 25 26 27

FdzT 39.5 42.0 40.8 39.1 39.5 42.0 42.0

MdxT 14.6 3.1 -35.8 71.8 -62.7 -62.4 -62.4

MdyT -2.0 -64.8 5.2 -9.5 8.1 80.2 -80.2

COMB ( 9 ) ( 12 ) ( 14 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.5 31.5 31.5 31.5 30.7 30.7 30.7 30.1 30.1 30.1

MdxT 108.4 -108.4 0.0 0.0 50.0 -93.1 -54.6 30.4 -73.1 -40.0

MdyT 0.0 0.0 85.0 -85.0 -153.6 -61.4 116.3 -65.1 -65.1 33.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 4 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.5 31.5 31.5 28.2 28.2 30.5 30.5 30.5 29.3 29.3

MdxT 30.5 -75.1 -40.9 29.5 -71.0 29.4 -73.9 -40.5 61.9 -25.3

MdyT -226.2 -90.5 185.6 3.6 -25.2 -271.5 -108.6 234.9 -150.4 -60.1

COMB ( 3 ) ( 3 ) ( 3 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.3 29.5 29.5 30.1 30.1 30.1 31.5 31.5 31.5 30.7

MdxT -63.3 -3.2 -61.9 30.8 -73.5 -40.3 30.8 -75.4 -41.2 50.3

MdyT 119.4 -117.9 -47.2 -61.0 -61.0 29.4 -225.7 -90.3 185.1 -153.0

COMB ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 30.7 30.7 30.5 30.5 30.5 29.3 29.3 29.3 29.5 31.5

MdxT -93.3 -54.7 29.7 -74.3 -40.7 62.2 -25.4 -63.6 -61.9 76.7

MdyT -61.2 115.9 -270.9 -108.4 234.4 -149.8 -59.9 119.0 -46.9 60.1

COMB ( 13 ) ( 13 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 )

CARR 41 42 43

FdzT 31.5 31.5 31.5

MdxT -76.7 -76.7 76.7

MdyT 60.1 -60.1 -60.1

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.1 14.1 14.1 14.1 13.8 13.8 13.8 13.4 13.5 13.4

MdxT 50.1 -50.1 0.0 0.0 48.2 15.3 -41.3 53.5 37.4 -45.9

MdyT 0.0 0.0 38.0 -38.0 -154.6 60.8 152.6 -150.6 56.1 142.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 1 ) ( 4 ) ( 8 ) ( 9 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.1 14.1 13.8 13.0 13.0 13.0 13.9 13.9 14.1 14.1

MdxT 38.2 -31.8 48.2 36.8 14.7 -30.2 37.0 -30.0 38.6 -32.1

MdyT -212.5 189.8 60.5 -42.1 31.2 78.1 -247.2 204.4 -210.7 188.2

COMB ( 3 ) ( 3 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 12 ) ( 12 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.8 13.8 13.8 13.0 13.0 13.0 13.9 13.9 13.4 13.4

MdxT 48.6 -41.6 48.6 37.2 14.9 -30.7 37.4 -30.4 53.9 -46.2

MdyT -152.7 150.9 59.9 -40.5 30.6 76.4 -245.6 202.7 -149.0 140.6

COMB ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 31 32 33 34

FdzT 13.5 14.1 14.1 14.1

MdxT 38.0 35.4 -35.4 -35.4

MdyT 55.4 26.9 26.9 -26.9

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P2

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.8 23.2 23.2 23.2 23.2 21.9 22.9 23.2 21.0 21.0

MdxT 48.7 48.7 -48.7 0.0 0.0 -6.7 -5.2 -34.4 -8.3 -8.3

MdyT 0.0 0.0 0.0 62.6 -62.6 18.8 91.8 -44.3 -57.7 -29.5

COMB ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 0 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.1 21.5 21.5 22.3 22.5 23.1 23.1 19.9 19.9 19.9

MdxT -1.1 26.6 -8.8 -62.0 6.0 -4.1 -2.0 -9.2 -9.2 -0.8

MdyT 12.9 7.3 6.3 38.4 3.6 146.4 -8.3 -108.4 -57.7 18.3

COMB ( 12 ) ( 4 ) ( 4 ) ( 9 ) ( 14 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.8 20.8 22.3 22.3 23.0 21.1 21.6 20.0 23.2 23.2

MdxT 23.7 -13.7 -32.8 10.9 -5.0 -8.1 26.6 -9.1 34.4 -34.4

MdyT 7.3 7.3 38.4 2.9 95.1 -57.8 7.1 -108.5 44.3 44.3

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 13 ) ( 16 ) ( 0 ) ( 0 )

CARR 31

FdzT 23.2

MdxT 34.4

MdyT -44.3

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.5 16.5 15.9 16.5 16.5 15.9 15.8 16.4 16.5 16.5

MdxT 57.8 -57.8 0.0 0.0 0.0 33.4 23.0 2.1 34.7 3.6

MdyT 0.0 0.0 183.7 44.6 -44.6 -82.2 -213.1 270.2 -98.8 -247.0

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 10 ) ( 18 ) ( 6 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.3 15.3 15.3 15.7 15.7 15.7 16.1 16.1 16.1 16.5

MdxT -2.1 32.2 6.6 15.3 33.0 -5.7 -16.1 -33.8 15.7 34.6

MdyT 126.0 -65.5 -163.7 172.5 -79.8 -197.8 194.7 -84.4 -211.1 -109.1

COMB ( 12 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 4 ) ( 14 ) ( 14 ) ( 14 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.5 14.5 14.5 14.5 15.1 15.1 15.1 15.8 15.8 15.7

MdxT 2.9 -3.1 30.5 7.7 25.5 44.8 -12.6 -26.5 -46.6 14.8

MdyT -272.9 77.8 -53.5 -133.8 155.5 -76.8 -192.1 192.6 -85.2 172.6

COMB ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 13 )

CARR 31 32 33 34 35 36 37

FdzT 15.7 15.2 15.2 16.5 16.5 16.5 16.5

MdxT -5.5 44.3 -12.5 40.9 -40.9 -40.9 40.9

MdyT -199.5 -77.4 -193.6 31.5 31.5 -31.5 -31.5

COMB ( 13 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.1 10.1 9.5 9.2 10.1 10.1 9.8 9.8 9.6 10.1

MdxT 35.4 -35.4 0.0 0.0 0.0 0.0 1.4 -20.5 -8.3 2.7

MdyT 0.0 0.0 109.2 64.4 27.3 -27.3 166.6 -67.8 -164.2 255.5

COMB ( 0 ) ( 0 ) ( 12 ) ( 16 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 4 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.1 10.1 9.5 9.5 9.7 9.7 9.8 9.8 9.8 9.1

MdxT -21.3 -3.2 -19.9 -11.9 11.2 21.6 -15.3 -20.7 3.2 -1.0

MdyT 102.2 -214.3 -54.2 -152.6 160.0 -67.8 170.8 69.2 -169.4 60.3

COMB ( 15 ) ( 15 ) ( 12 ) ( 8 ) ( 13 ) ( 13 ) ( 18 ) ( 14 ) ( 14 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.2 9.2 9.5 9.5 9.7 9.7 9.8 9.7 10.0 9.8

MdxT -19.3 -1.5 17.5 30.1 -15.8 -28.1 7.1 -8.1 2.2 -8.4

MdyT -40.4 -101.1 149.2 -63.2 166.7 66.7 -157.6 -169.5 223.9 173.0

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 18 ) ( 13 ) ( 11 ) ( 14 )

CARR 31 32 33 34 35 36

FdzT 9.5 9.8 10.1 10.1 10.1 10.1

MdxT -11.8 -27.3 25.1 -25.1 -25.1 25.1

MdyT -157.9 68.3 19.3 19.3 -19.3 -19.3

COMB ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.4 3.4 3.2 3.4 3.4 3.3 3.2 3.3 3.3 3.1

MdxT 10.7 -10.7 0.0 0.0 0.0 -12.9 7.7 -5.5 7.8 -4.8

MdyT 0.0 0.0 114.9 9.1 -9.1 115.1 -149.8 136.2 -152.2 93.8

COMB ( 0 ) ( 0 ) ( 13 ) ( 0 ) ( 0 ) ( 18 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.1 3.2 3.2 3.4 3.4 3.1 3.1 3.2 3.2 3.2

MdxT 7.4 4.8 10.5 -5.6 8.0 -4.6 7.1 2.8 6.7 2.7

MdyT -147.6 -153.4 -146.3 150.1 -151.9 79.4 -144.3 109.3 -59.5 -154.0

COMB ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 17 )

CARR 21 22 23 24 25 26 27

FdzT 3.3 3.3 3.2 3.2 3.4 3.4 3.4

MdxT -5.2 12.5 -9.7 2.7 7.6 -7.6 -7.6

MdyT -56.8 -142.1 115.2 114.5 6.4 6.4 -6.4

COMB ( 18 ) ( 18 ) ( 14 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P20

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.2 41.2 41.2 41.2 39.6 40.0 38.9 38.9 41.2 41.2

MdxT 86.5 -86.5 0.0 0.0 -5.2 2.5 -49.3 12.9 61.1 -61.1

MdyT 0.0 0.0 111.2 -111.2 -62.9 -13.0 -11.3 -3.4 -78.6 -78.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 1 ) ( 2 ) ( 11 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.3 39.6 36.8 36.8 40.5 40.5 39.1 39.1 38.1 38.1

MdxT 2.9 3.4 -84.4 19.9 83.7 -14.7 6.4 1.3 -7.1 3.9

MdyT 36.8 1.1 -10.1 -3.5 -16.0 -2.7 70.0 -10.2 -96.0 4.1

COMB ( 4 ) ( 5 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 18 )

CARR 21 22 23 24 25 26

FdzT 39.7 38.9 40.6 38.1 41.2 41.2

MdxT -5.3 -51.7 -14.6 -7.3 61.1 -61.1

MdyT -62.7 -11.2 -2.7 -95.9 78.6 78.6

COMB ( 14 ) ( 11 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.1 31.1 31.1 31.1 30.4 30.4 30.4 29.7 29.7 29.7

MdxT 108.7 -108.7 0.0 0.0 79.9 32.0 -67.2 53.1 92.0 -44.9

MdyT 0.0 0.0 83.8 -83.8 -26.9 52.5 52.5 -26.7 53.6 53.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.0 31.1 31.1 30.5 30.5 30.3 30.3 28.0 28.0 28.0

MdxT 108.1 76.9 -90.6 81.8 -68.5 78.1 -65.8 28.3 58.8 -26.2

MdyT -25.1 59.3 50.5 46.9 -12.0 -99.7 116.3 -27.3 56.3 56.3

COMB ( 3 ) ( 0 ) ( 12 ) ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 30.1 30.1 29.2 29.2 28.7 28.7 28.8 29.8 29.8 29.8

MdxT 121.9 -103.9 78.1 -67.3 72.1 28.8 -62.9 51.8 90.4 -44.0

MdyT -24.4 49.7 96.5 -54.2 -146.2 63.4 159.3 -27.9 54.5 54.5

COMB ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 18 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 31.1 31.1 30.6 30.1 28.8 28.8 31.1 31.1 31.1

MdxT 107.9 43.2 -68.6 48.8 72.0 28.8 -76.9 -76.9 76.9

MdyT -26.0 50.5 -11.3 49.7 -147.1 63.7 59.3 -59.3 -59.3

COMB ( 12 ) ( 12 ) ( 13 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.8 13.8 13.8 13.8 13.6 13.6 13.6 13.3 13.3 13.3

MdxT 48.3 -48.3 0.0 0.0 80.9 -33.7 -84.3 29.8 -57.8 -43.0

MdyT 0.0 0.0 37.2 -37.2 -35.8 -35.8 7.6 -35.3 -39.3 6.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 16 ) ( 16 ) ( 2 ) ( 8 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.8 13.8 13.8 13.6 13.6 13.5 13.5 12.8 12.8 12.8

MdxT 69.6 -30.7 -76.9 50.8 -61.0 47.7 -58.1 13.4 -44.5 -26.6

MdyT -34.6 -36.4 8.3 0.8 -20.6 -70.7 35.7 -35.3 -18.6 6.3

COMB ( 3 ) ( 12 ) ( 12 ) ( 4 ) ( 4 ) ( 5 ) ( 14 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.6 13.6 13.6 13.3 13.3 13.2 13.1 13.2 13.6 13.6

MdxT 81.1 -33.7 -84.3 49.7 -57.8 44.7 -21.2 -52.9 49.1 -59.5

MdyT -34.0 -34.0 6.0 24.9 -37.8 -96.0 -37.7 53.2 -36.7 8.4

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 17 ) ( 18 ) ( 9 ) ( 18 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 13.3 13.3 13.8 13.6 13.5 12.9 12.9 12.9 13.8 13.8

MdxT 28.8 -42.3 69.4 -61.0 47.6 13.3 -44.3 -26.5 34.2 -34.2

MdyT -37.1 8.4 -36.4 -18.9 -72.5 -37.1 -19.1 7.8 26.3 26.3

COMB ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 0 ) ( 0 )

CARR 41

FdzT 13.8

MdxT -34.2

MdyT -26.3

COMB ( 0 )

### P21

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 49.7 48.2 50.3 50.3 50.3 50.3 49.7 49.2 49.1 50.3

MdxT -5.6 -10.6 105.6 -105.6 0.0 0.0 44.9 6.4 2.5 74.6

MdyT 0.0 0.0 0.0 0.0 135.7 -135.7 -5.5 63.3 -110.6 -96.0

COMB ( 4 ) ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 11 ) ( 7 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 50.3 50.3 47.5 47.5 48.2 48.6 50.1 49.5 49.7 48.0

MdxT 74.6 -74.6 7.6 1.5 72.0 -62.6 3.1 45.1 -35.6 72.1

MdyT 96.0 96.0 106.5 -9.8 -8.0 3.9 -66.8 -5.2 2.0 -7.8

COMB ( 0 ) ( 0 ) ( 15 ) ( 15 ) ( 8 ) ( 9 ) ( 12 ) ( 13 ) ( 14 ) ( 17 )

CARR 21 22

FdzT 48.4 50.3

MdxT -62.4 -74.6

MdyT 4.1 -96.0

COMB ( 18 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 35.8 35.8 35.8 35.8 35.8 35.0 35.8 35.0 35.8 35.8

MdxT 123.2 -123.2 0.0 0.0 87.1 -77.2 -87.1 30.2 28.7 -39.9

MdyT 0.0 0.0 96.6 -96.6 -68.3 -68.3 68.3 53.9 -166.2 167.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 11 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.4 33.4 33.4 33.4 34.5 34.5 34.5 34.0 34.0 34.0

MdxT -95.7 29.7 -75.9 -40.7 27.4 -74.1 -39.1 60.6 -106.2 -62.9

MdyT -60.5 130.2 -59.0 -147.6 -235.3 97.6 243.9 -59.4 -59.4 54.7

COMB ( 4 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 35.6 35.6 35.6 35.3 35.3 34.3 34.3 34.3 33.8 33.8

MdxT -76.5 29.3 -40.3 49.3 -96.2 28.0 -74.6 -39.5 61.2 -106.6

MdyT 66.4 -164.6 165.9 -59.1 -59.1 -233.9 97.2 242.9 -58.0 -58.0

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 31 32 33

FdzT 33.8 35.8 35.8

MdxT -63.3 87.1 -87.1

MdyT 53.9 68.3 -68.3

COMB ( 17 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.1 17.1 17.1 17.1 16.8 16.9 16.9 16.6 16.5 17.1

MdxT 60.8 -60.8 0.0 0.0 41.6 -43.8 -32.6 45.6 -37.7 22.3

MdyT 0.0 0.0 46.1 -46.1 -69.6 25.0 65.4 25.9 62.9 -128.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 1 ) ( 4 ) ( 11 ) ( 8 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 17.1 16.9 16.1 16.1 16.1 16.9 16.9 16.9 16.5

MdxT -43.0 -22.5 56.8 24.4 44.9 -23.8 20.9 -40.5 -20.9 38.8

MdyT -51.4 118.7 26.2 78.8 32.2 -37.8 -176.4 -70.6 151.8 -55.4

COMB ( 3 ) ( 3 ) ( 4 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.6 16.8 17.0 17.0 17.0 16.8 16.8 16.8 16.8 16.8

MdxT 24.6 -44.8 23.0 -44.1 -23.4 33.7 57.9 -33.5 21.7 -21.6

MdyT 25.9 24.0 -125.7 -50.3 116.2 -53.2 25.1 62.9 -173.9 149.4

COMB ( 11 ) ( 10 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35

FdzT 16.5 16.5 17.1 17.1 17.1

MdxT 39.5 -38.4 43.0 -43.0 43.0

MdyT -52.9 60.5 32.6 32.6 -32.6

COMB ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P22

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.0 30.0 28.4 28.7 30.0 30.0 28.5 28.4 27.4 27.7

MdxT 62.9 -62.9 0.0 0.0 0.0 0.0 1.0 -2.9 49.3 -13.3

MdyT 0.0 0.0 59.9 59.6 80.9 -80.9 9.5 59.9 7.4 2.1

COMB ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.5 29.7 28.6 28.6 25.7 25.7 29.5 27.7 27.7 27.7

MdxT -84.0 7.3 1.7 -2.9 84.1 -20.2 14.1 1.1 -3.1 -3.1

MdyT 13.3 2.0 -40.9 -40.9 5.9 2.2 1.8 -74.3 -74.3 9.0

COMB ( 7 ) ( 3 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.4 27.4 27.4 28.8 28.7 27.7 30.0 30.0 28.9 28.9

MdxT -1.0 -2.9 -2.9 1.1 -2.9 51.5 -49.4 44.5 1.7 -3.1

MdyT 93.5 54.2 -4.9 9.4 59.6 7.1 11.5 57.2 -41.0 -41.0

COMB ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 14 ) ( 11 ) ( 12 ) ( 0 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 28.9 26.0 26.0 28.0 28.0 28.0 27.7 27.7 30.0 30.0

MdxT -3.1 84.3 -20.2 1.3 -3.1 -3.1 -0.8 -2.9 -44.5 -44.5

MdyT 6.2 5.6 2.2 -74.6 -74.6 9.0 93.2 54.0 57.2 -57.2

COMB ( 13 ) ( 15 ) ( 15 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41

FdzT 30.0

MdxT 44.5

MdyT -57.2

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.4 22.4 22.4 22.4 21.4 21.5 21.6 20.7 20.9 20.7

MdxT 78.3 -78.3 0.0 0.0 -75.0 -75.2 104.2 -70.4 -70.7 66.9

MdyT 0.0 0.0 60.4 -60.4 95.9 -54.6 -29.7 142.4 -108.4 -134.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 4 ) ( 7 ) ( 18 ) ( 17 ) ( 18 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.1 22.1 22.1 21.5 21.4 19.5 19.5 21.6 20.6 20.6

MdxT -101.6 -40.7 91.4 69.7 69.2 -26.6 55.0 -114.8 -70.8 68.0

MdyT 24.1 -26.7 -26.7 44.9 -90.6 13.3 -16.5 24.6 -106.4 89.9

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.5 20.5 21.8 21.1 21.1 21.1 22.4 22.4 22.4 21.8

MdxT -70.6 66.9 -75.0 -48.6 -19.4 47.5 -101.5 -55.4 91.4 69.7

MdyT 144.3 -135.9 -56.4 15.4 -17.2 -17.2 22.1 -42.7 -25.2 46.5

COMB ( 9 ) ( 9 ) ( 13 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 0 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 21.7 21.7 19.7 19.7 19.7 21.9 21.9 20.9 22.4 22.4

MdxT -74.9 69.2 -26.5 55.2 30.8 -114.8 104.2 68.0 55.4 -55.4

MdyT 93.9 -88.9 11.3 -15.0 -15.0 22.7 -28.1 91.4 42.7 42.7

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 )

CARR 41

FdzT 22.4

MdxT 55.4

MdyT -42.7

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.4 9.4 9.4 9.4 9.1 9.0 9.1 8.9 8.9 8.9

MdxT 33.0 -33.0 0.0 0.0 -56.8 62.3 66.4 -53.8 62.4 61.0

MdyT 0.0 0.0 25.5 -25.5 35.7 35.0 -15.8 96.3 32.6 -61.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 17 ) ( 1 ) ( 9 ) ( 8 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.3 9.3 9.3 9.1 9.1 9.1 9.1 9.1 8.5 8.5

MdxT -89.6 37.4 93.4 -57.1 66.8 -56.4 26.4 65.9 -19.2 12.0

MdyT 39.6 16.4 -18.3 -1.3 12.3 72.5 29.0 -44.1 30.1 13.8

COMB ( 7 ) ( 7 ) ( 7 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.5 8.9 8.9 8.9 9.2 9.2 9.2 9.4 9.4 9.4

MdxT 30.1 -55.0 25.0 24.4 -56.6 66.5 66.1 -89.3 37.3 93.2

MdyT -10.6 -26.6 13.0 38.5 32.9 14.8 -13.3 37.0 15.8 -16.0

COMB ( 6 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 13 ) ( 10 ) ( 16 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 9.2 9.2 9.2 9.2 8.6 8.6 8.6 9.0 9.0 9.0

MdxT -57.0 -56.3 26.3 65.7 -19.0 11.9 29.8 -54.7 -53.6 24.3

MdyT -3.9 69.7 27.9 -41.6 27.4 13.2 -8.1 -29.3 93.7 37.5

COMB ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 9.0 9.4 9.4 9.4

MdxT 60.8 23.4 -23.4 23.4

MdyT -59.1 18.0 -18.0 -18.0

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P23

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.9 36.5 36.9 36.0 36.9 36.9 36.9 36.9 36.4 36.4

MdxT -77.6 6.7 77.6 0.0 0.0 0.0 -2.4 -54.9 1.0 -1.1

MdyT 0.0 0.0 0.0 8.5 99.8 -99.8 -74.1 70.5 67.2 67.2

COMB ( 0 ) ( 4 ) ( 0 ) ( 6 ) ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.5 36.9 35.9 35.9 35.0 35.0 35.2 35.2 35.7 35.7

MdxT -41.4 54.9 -3.5 -3.5 2.0 2.0 -68.6 11.8 67.1 -13.4

MdyT -8.7 70.5 -120.5 -68.9 114.5 65.3 -11.6 0.7 5.6 -0.7

COMB ( 13 ) ( 0 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 9 ) ( 9 )

CARR 21 22 23

FdzT 34.9 36.9 36.9

MdxT -1.4 -54.9 54.9

MdyT -8.5 -70.5 -70.5

COMB ( 16 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.3 27.3 27.3 27.3 27.2 27.3 27.2 27.1 27.1 27.0

MdxT 94.1 -94.1 0.0 0.0 -20.7 66.5 26.3 -39.9 71.7 -20.0

MdyT 0.0 0.0 73.8 -73.8 112.3 52.2 -84.1 103.3 41.3 211.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 1 ) ( 4 ) ( 4 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.0 27.0 27.1 26.3 26.3 26.3 25.7 25.7 25.7 25.9

MdxT 56.7 26.0 40.3 -21.0 55.2 26.5 -18.8 54.0 25.2 -51.9

MdyT 84.6 -191.9 -74.6 -60.3 39.3 98.3 270.5 108.2 -261.0 90.0

COMB ( 3 ) ( 3 ) ( 4 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.9 25.9 26.1 26.1 26.1 26.2 26.2 26.2 26.0 27.3

MdxT -86.1 49.1 12.0 54.7 2.5 -20.6 55.0 26.2 12.5 -66.5

MdyT 36.0 -65.2 120.0 48.0 -97.3 -61.6 39.5 98.8 118.7 52.2

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 0 )

CARR 31 32

FdzT 27.3 27.3

MdxT -66.5 66.5

MdyT -52.2 -52.2

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.6 12.6 12.6 12.6 12.5 12.5 12.5 12.5 12.5 12.5

MdxT 44.7 -44.7 0.0 0.0 -32.9 -40.2 26.9 -43.0 -17.2 36.3

MdyT 0.0 0.0 33.9 -33.9 128.1 -58.3 -139.7 121.4 -53.5 -133.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 1 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.6 12.6 12.0 12.2 12.1 12.3 12.3 12.2 12.2 12.2

MdxT -32.6 26.3 -32.3 -28.5 40.6 -31.2 24.5 -48.4 -29.3 41.2

MdyT 209.2 -206.9 -13.0 -55.3 -118.4 256.9 -242.3 110.6 -56.1 -120.3

COMB ( 3 ) ( 3 ) ( 6 ) ( 18 ) ( 17 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 8 )

CARR 21 22 23 24

FdzT 12.2 12.2 12.0 12.6

MdxT -15.1 9.8 -31.8 31.6

MdyT 133.1 -140.1 -15.1 24.0

COMB ( 9 ) ( 9 ) ( 15 ) ( 0 )

### P24

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 43.2 43.2 43.2 43.2 42.1 41.8 41.0 41.1 43.2 43.2

MdxT 90.8 -90.8 0.0 0.0 -1.4 2.9 -50.8 12.7 64.2 -64.2

MdyT 0.0 0.0 116.7 -116.7 -15.0 -65.2 -12.7 -3.8 -82.5 -82.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 2 ) ( 11 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 42.4 42.4 41.9 38.9 38.8 42.5 41.1 41.1 40.2 40.2

MdxT -5.7 85.7 1.5 -86.8 19.7 -15.1 -7.7 3.6 6.6 1.0

MdyT 35.4 -18.9 0.6 -11.1 -3.8 -3.5 68.9 -10.8 -98.8 3.4

COMB ( 13 ) ( 7 ) ( 14 ) ( 15 ) ( 6 ) ( 16 ) ( 17 ) ( 17 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25

FdzT 42.1 41.1 43.2 43.2 43.2

MdxT -1.5 -53.2 -8.1 64.2 -64.2

MdyT -14.8 -12.6 -3.6 82.5 82.5

COMB ( 10 ) ( 11 ) ( 12 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.5 32.5 32.5 32.5 31.8 31.9 31.8 31.4 31.3 31.5

MdxT 113.9 -113.9 0.0 0.0 82.9 32.0 -70.1 119.0 95.4 -100.9

MdyT 0.0 0.0 87.8 -87.8 -137.6 85.8 148.4 -70.6 80.9 94.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 1 ) ( 14 ) ( 7 ) ( 2 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 32.5 32.5 32.5 32.0 31.8 29.5 29.5 29.5 30.6 30.6

MdxT 106.3 80.5 -88.8 77.0 33.2 31.2 62.0 -29.5 70.1 -60.6

MdyT -71.3 62.1 91.7 3.8 59.0 -56.8 77.7 77.7 54.5 -17.5

COMB ( 3 ) ( 0 ) ( 12 ) ( 4 ) ( 5 ) ( 15 ) ( 15 ) ( 15 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 30.3 30.3 30.3 31.3 32.5 32.5 31.8 31.8 31.5 32.5

MdxT 79.9 32.0 -69.7 93.8 106.1 42.4 82.7 33.1 118.9 -80.5

MdyT -182.0 75.7 189.1 81.5 -72.4 36.7 -138.6 59.4 -71.5 -62.1

COMB ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 16 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.6 14.6 14.6 14.6 14.3 14.3 14.3 14.1 14.1 14.1

MdxT 51.0 -51.0 0.0 0.0 50.5 -24.8 -61.9 28.8 -17.2 -43.1

MdyT 0.0 0.0 39.3 -39.3 -139.4 -56.4 94.5 -99.8 -39.9 61.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 14 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.6 14.5 14.5 13.6 13.6 13.6 14.4 14.3 14.3 13.9

MdxT 69.6 -31.5 -78.8 11.9 -44.2 -25.9 81.5 -34.7 -86.8 49.7

MdyT -108.9 -43.0 68.0 -95.8 -38.3 57.0 -108.6 -42.8 66.1 -160.6

COMB ( 12 ) ( 3 ) ( 3 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 7 ) ( 7 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.9 13.9 14.1 14.1 14.1 14.6 14.6 14.3 14.4 14.4

MdxT -23.5 -58.7 27.9 -16.9 -42.3 -31.5 -78.7 50.4 -34.7 -86.7

MdyT -64.2 107.7 -101.4 -40.5 63.1 -43.6 69.6 -141.1 -43.5 67.6

COMB ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 14 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35

FdzT 14.0 14.0 14.0 14.6 14.6

MdxT 49.6 -23.4 -58.5 36.1 -36.1

MdyT -162.1 -64.8 109.1 27.8 -27.8

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P25

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 48.2 50.5 50.5 50.5 50.5 49.2 47.7 47.7 50.5 50.5

MdxT 15.1 106.0 -106.0 0.0 0.0 6.2 8.1 2.1 74.9 74.9

MdyT 0.0 0.0 0.0 136.3 -136.3 -1.7 64.3 -7.8 -96.4 96.4

COMB ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 11 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 48.6 48.8 49.5 49.5 45.2 45.4 49.8 49.8 46.8 47.0

MdxT 47.2 -5.3 -34.6 9.9 9.2 2.0 3.4 2.8 74.3 -10.4

MdyT 4.6 -2.1 -7.8 -0.8 107.4 -12.3 -111.9 9.2 8.0 -2.7

COMB ( 13 ) ( 4 ) ( 5 ) ( 5 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 8 )

CARR 21 22 23 24 25 26

FdzT 48.2 49.0 50.3 49.6 50.5 50.5

MdxT -61.7 6.3 4.6 3.5 -74.9 -74.9

MdyT -12.3 -1.5 -67.2 -111.6 96.4 -96.4

COMB ( 9 ) ( 10 ) ( 12 ) ( 16 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.8 36.8 34.8 36.8 36.8 36.1 36.1 36.1 35.8 35.5

MdxT 126.8 -126.8 0.0 0.0 0.0 31.1 -83.2 -44.8 50.0 -83.6

MdyT 0.0 0.0 -121.0 99.4 -99.4 -115.2 -46.1 114.7 -107.5 44.0

COMB ( 0 ) ( 0 ) ( 9 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 13 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.8 36.8 36.8 36.0 36.0 36.0 36.3 36.3 36.1 33.2

MdxT 30.4 -82.7 -44.2 49.4 -100.7 -57.7 12.9 -76.2 -32.3 31.8

MdyT -194.9 -78.0 188.7 -107.8 43.5 108.8 -122.6 -49.1 120.5 24.4

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 14 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 33.2 33.2 35.7 35.7 35.5 34.3 34.3 34.3 34.8 34.8

MdxT -82.5 -45.5 28.8 -80.7 -43.7 60.5 -110.0 -65.7 -73.0 -22.8

MdyT 24.4 -10.9 -241.4 -96.5 235.8 -96.0 41.0 102.6 48.9 122.2

COMB ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 35.9 35.9 35.9 35.3 35.3 36.6 36.6 36.6 35.8 35.8

MdxT 31.6 -83.7 -45.2 32.3 -84.1 30.9 -83.2 -44.7 -101.2 -58.1

MdyT -114.9 -46.0 114.5 -35.4 40.6 -194.6 -77.8 188.6 43.5 108.6

COMB ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 36.1 35.5 35.5 34.1 34.1 34.1 34.6 36.8 36.8 36.8

MdxT 13.4 29.4 -81.2 61.0 -110.5 -66.1 -23.2 89.6 -89.6 -89.6

MdyT -122.4 -241.1 -96.4 -95.9 41.0 102.5 122.1 70.3 70.3 -70.3

COMB ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

CARR 51

FdzT 36.8

MdxT 89.6

MdyT -70.3

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.0 17.0 17.0 17.0 16.7 16.7 16.7 16.4 16.5 16.6

MdxT 60.6 -60.6 0.0 0.0 32.9 56.7 -27.9 34.5 57.4 -37.9

MdyT 0.0 0.0 46.0 -46.0 -94.4 -37.7 86.9 -39.2 21.7 84.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 9 ) ( 2 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.0 17.0 17.0 16.7 16.7 16.8 16.8 16.8 15.9 15.9

MdxT 32.2 56.0 -27.2 42.8 -37.4 30.5 53.7 -25.2 56.3 -27.7

MdyT -152.2 -60.9 121.1 -90.2 85.0 -187.6 -75.0 137.9 24.1 24.1

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 7 ) ( 7 ) ( 7 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.3 16.3 16.4 16.4 16.7 16.7 16.7 17.0 17.0 17.0

MdxT 48.3 -42.1 15.4 -10.8 33.6 57.6 -28.6 32.8 56.7 -27.9

MdyT -84.4 77.7 -98.0 84.3 -93.7 -37.5 86.2 -151.5 -60.6 120.4

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 16.6 15.8 16.8 16.8 16.8 16.2 16.2 16.4 16.4 17.0

MdxT 43.5 -28.3 31.2 54.5 -25.9 49.0 -42.7 16.0 -11.3 42.9

MdyT -89.5 23.5 -187.0 -74.8 137.3 -83.7 77.1 -97.4 83.6 32.5

COMB ( 13 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 41 42

FdzT 17.0 17.0

MdxT -42.9 -42.9

MdyT 32.5 -32.5

COMB ( 0 ) ( 0 )

### P26

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.8 31.8 31.8 31.8 30.7 30.8 29.6 29.7 31.5 31.8

MdxT 66.9 -66.9 0.0 0.0 1.7 -3.2 55.6 -14.1 -93.0 47.3

MdyT 0.0 0.0 86.0 -86.0 10.1 61.0 8.1 2.4 13.3 60.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 5 ) ( 2 ) ( 11 ) ( 16 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.7 30.5 30.9 27.8 27.8 31.3 31.3 29.5 29.4 29.8

MdxT 6.7 -3.9 -2.0 94.6 -21.6 -93.1 15.7 9.1 -4.6 -7.4

MdyT -41.2 6.3 -2.0 6.7 2.5 13.4 2.0 -75.0 9.1 94.9

COMB ( 13 ) ( 4 ) ( 14 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28

FdzT 29.8 29.9 30.8 29.7 27.9 31.8 31.8 31.8

MdxT -7.4 -1.3 1.8 58.2 94.8 -47.3 -47.3 47.3

MdyT 55.1 -4.8 9.8 7.7 6.4 60.8 -60.8 -60.8

COMB ( 9 ) ( 18 ) ( 10 ) ( 11 ) ( 15 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.3 24.3 24.3 24.3 23.8 23.5 23.8 23.0 23.1 23.0

MdxT 85.0 -85.0 0.0 0.0 -86.2 -78.0 75.9 -84.0 -23.3 76.2

MdyT 0.0 0.0 65.5 -65.5 100.5 -47.7 -94.5 143.8 -27.4 -135.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 13 ) ( 5 ) ( 18 ) ( 2 ) ( 18 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.2 24.3 24.2 23.4 23.5 21.6 21.6 23.5 23.5 22.3

MdxT -107.1 -60.1 90.3 -31.2 68.2 -35.6 67.9 -118.9 100.2 -70.3

MdyT 30.8 -46.3 -33.9 -44.7 35.7 20.9 -25.3 30.5 -36.3 -98.3

COMB ( 3 ) ( 0 ) ( 3 ) ( 4 ) ( 13 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28

FdzT 22.3 22.8 22.8 23.7 21.7 24.3 24.3 24.3

MdxT 63.4 -84.0 76.3 -32.8 68.0 60.1 -60.1 60.1

MdyT 78.1 146.7 -137.5 -28.1 -23.1 46.3 46.3 -46.3

COMB ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 15 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.6 10.6 10.6 10.6 10.4 10.4 10.4 10.2 10.2 10.2

MdxT 37.2 -37.2 0.0 0.0 -55.9 24.8 61.9 -55.0 23.5 58.7

MdyT 0.0 0.0 28.6 -28.6 93.7 37.5 -60.8 118.0 47.2 -79.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 5 ) ( 9 ) ( 9 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.6 10.6 10.6 10.3 9.7 9.7 9.7 10.4 10.4 10.0

MdxT -72.2 30.4 75.9 58.9 -21.1 12.2 30.4 -82.2 81.9 -48.3

MdyT 56.7 22.7 -29.7 2.8 50.7 20.3 -25.5 56.3 -28.0 -11.1

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26

FdzT 10.0 10.4 9.8 10.1 10.1 10.6

MdxT 53.6 58.8 12.2 -48.2 53.5 -26.3

MdyT 26.2 6.9 19.3 -15.1 30.0 -20.3

COMB ( 8 ) ( 13 ) ( 15 ) ( 17 ) ( 17 ) ( 0 )

### P27

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 45.7 45.7 45.7 45.7 43.8 44.1 42.4 42.4 45.6 45.7

MdxT 96.0 -96.0 0.0 0.0 4.8 4.1 -67.6 18.1 71.4 -67.9

MdyT 0.0 0.0 123.4 -123.4 84.8 4.5 21.8 4.5 18.1 87.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 1 ) ( 11 ) ( 11 ) ( 12 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 43.8 44.2 39.9 39.9 40.1 45.2 42.4 42.8 43.0 42.8

MdxT -3.1 6.9 -113.4 -57.1 27.3 118.4 -5.7 10.8 10.8 2.8

MdyT 84.8 -45.4 23.0 23.0 4.5 16.7 128.2 -88.5 -88.6 13.6

COMB ( 13 ) ( 5 ) ( 15 ) ( 15 ) ( 6 ) ( 16 ) ( 17 ) ( 18 ) ( 9 ) ( 18 )

CARR 21 22 23

FdzT 45.7 45.7 45.7

MdxT 67.9 -67.9 67.9

MdyT 87.3 -87.3 -87.3

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.9 32.9 32.9 32.9 31.9 31.9 31.9 31.1 31.1 31.1

MdxT 115.3 -115.3 0.0 0.0 56.1 -104.9 -61.7 21.4 -65.4 -30.1

MdyT 0.0 0.0 88.9 -88.9 177.4 -84.6 -211.4 96.6 -42.1 -105.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 4 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 32.9 32.9 32.9 32.2 29.1 29.1 29.1 32.2 32.2 32.2

MdxT 84.8 81.6 -84.7 -92.3 -4.2 -61.0 -9.4 103.7 41.5 -102.3

MdyT 110.2 -62.9 -117.0 29.0 86.1 -40.3 -100.7 109.3 -48.3 -120.8

COMB ( 3 ) ( 0 ) ( 3 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 30.4 30.4 30.7 30.9 30.7 32.8 32.8 31.7 32.0 32.0

MdxT 55.9 -64.0 44.0 -85.7 -85.6 85.0 34.0 56.3 103.9 41.6

MdyT 221.5 -278.0 -26.6 56.6 57.1 109.5 -46.5 176.7 108.8 -48.1

COMB ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 18 ) ( 12 ) ( 12 ) ( 13 ) ( 16 ) ( 16 )

CARR 31 32 33

FdzT 30.2 30.2 32.9

MdxT 56.0 -64.0 -81.6

MdyT 220.8 -277.5 62.9

COMB ( 17 ) ( 17 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.9 15.9 15.9 15.9 15.4 15.4 15.4 15.0 15.1 15.0

MdxT 55.5 -55.5 0.0 0.0 37.1 -16.9 -42.1 36.3 -39.3 -38.9

MdyT 0.0 0.0 42.8 -42.8 237.9 45.9 -91.8 316.8 115.1 -286.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 1 ) ( 1 ) ( 8 ) ( 9 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.9 15.9 15.9 15.4 15.4 15.4 15.4 14.2 14.2 14.2

MdxT 70.4 -29.1 -72.8 -16.8 -42.0 35.8 -42.3 -22.1 -39.7 13.0

MdyT 110.9 44.4 -85.7 95.1 -212.2 -8.3 28.4 119.1 47.7 -96.6

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.8 15.8 15.0 15.1 14.9 15.8 15.8 15.8 15.3 15.3

MdxT 91.7 -90.4 -15.6 34.0 -31.3 69.6 -28.7 -71.7 36.4 -16.4

MdyT 105.1 -75.3 126.7 -93.4 47.8 111.6 44.6 -86.5 238.6 95.4

COMB ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38

FdzT 15.3 15.7 15.7 15.0 15.0 15.0 15.9 15.9

MdxT -40.9 90.9 -89.3 35.6 -15.2 -37.9 -39.2 39.2

MdyT -212.9 106.0 -76.0 317.7 127.1 -286.9 30.3 -30.3

COMB ( 13 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

### P28

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.3 41.7 41.7 41.7 41.7 38.7 38.5 36.2 36.2 41.3

MdxT -0.7 87.6 -87.6 0.0 0.0 2.2 -88.9 4.2 -0.8 0.7

MdyT 0.0 0.0 0.0 125.1 -125.1 -30.4 -51.1 73.4 -12.2 -134.0

COMB ( 3 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 9 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 41.7 38.1 38.0 39.4 39.4 33.2 33.2 33.1 41.7 41.7

MdxT -0.8 57.0 -10.1 -52.2 8.5 5.0 5.0 -1.0 -0.8 -61.9

MdyT -202.4 -17.4 -5.7 -43.3 -6.4 143.2 79.5 -16.1 -119.8 88.5

COMB ( 7 ) ( 13 ) ( 4 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 6 ) ( 7 ) ( 0 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 36.2 36.2 36.2 38.5 38.8 36.3 41.7 41.7 41.7

MdxT 92.8 49.1 -16.4 14.7 2.4 93.1 61.9 -61.9 61.9

MdyT -8.0 -8.0 -5.3 -6.6 -30.2 -7.8 88.5 -88.5 -88.5

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.4 30.4 30.4 30.4 28.6 28.5 28.6 27.0 27.0 27.0

MdxT 106.4 -106.4 0.0 0.0 -33.7 73.5 39.3 -33.2 71.5 39.2

MdyT 0.0 0.0 91.1 -91.1 -125.6 141.5 169.1 -64.8 39.5 98.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 18 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.4 30.4 30.4 28.0 28.0 28.0 29.3 29.3 29.3 24.5

MdxT -34.3 73.8 39.3 -12.0 58.8 18.2 -55.4 101.3 60.5 -31.2

MdyT -189.3 97.4 243.6 -129.4 75.0 186.6 -121.9 60.6 151.6 -14.4

COMB ( 3 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 24.5 30.2 30.2 30.2 26.3 26.3 26.2 28.5 28.7 28.7

MdxT 68.3 -33.0 72.3 38.4 4.3 55.2 2.9 -68.3 -33.5 39.2

MdyT 47.3 -226.4 117.0 292.6 -129.4 80.0 199.1 -114.2 -128.5 170.0

COMB ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 8 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 26.9 30.4 28.0 28.0 29.3 29.3 29.3 24.5 24.5 30.2

MdxT -32.9 -34.0 -11.8 18.1 -55.2 101.1 60.3 -30.9 68.1 -32.9

MdyT -65.0 -192.2 -132.2 187.5 -124.9 61.0 152.5 -17.4 48.2 -229.2

COMB ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 )

CARR 41 42 43 44 45 46 47 48

FdzT 30.2 30.2 26.3 28.5 30.4 30.4 30.4 30.4

MdxT 72.2 38.2 2.8 -68.0 75.2 -75.2 -75.2 75.2

MdyT 117.4 293.4 199.9 -117.2 64.4 64.4 -64.4 -64.4

COMB ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 12.2 12.2 12.2 11.6 11.6 11.2 11.1 11.2 12.1

MdxT 42.6 -42.6 0.0 0.0 -94.1 103.9 -32.5 -37.1 30.9 -38.1

MdyT 0.0 0.0 36.5 -36.5 -251.4 374.6 -127.1 189.6 188.2 -452.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 9 ) ( 2 ) ( 8 ) ( 2 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.1 11.5 11.5 11.5 11.8 11.8 10.6 10.6 10.6 11.1

MdxT 41.0 1.3 -24.2 -7.0 -71.1 77.6 -29.3 -11.7 25.8 26.6

MdyT 476.0 -242.2 97.6 243.9 -256.2 354.9 -27.0 42.2 88.3 -228.1

COMB ( 7 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 8 )

CARR 21 22 23 24 25 26 27

FdzT 11.6 11.5 11.5 11.2 11.2 12.2 12.2

MdxT 41.6 2.2 -8.0 27.6 -37.9 -30.1 30.1

MdyT 149.9 -237.3 236.2 -223.4 182.1 25.8 -25.8

COMB ( 9 ) ( 13 ) ( 13 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

### P29

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.3 37.4 37.4 34.6 34.1 37.4 37.4 34.4 34.6 34.2

MdxT -0.7 78.5 -78.5 0.0 0.0 0.0 0.0 -7.3 -8.5 -6.0

MdyT 0.0 0.0 0.0 9.9 12.7 112.1 -112.1 25.2 -84.6 135.2

COMB ( 3 ) ( 0 ) ( 0 ) ( 11 ) ( 6 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.6 36.6 32.4 32.4 34.1 34.0 33.3 33.4 37.3 37.4

MdxT -58.9 9.5 44.5 -10.6 -9.2 -9.4 -5.2 -0.8 -93.4 -55.5

MdyT 18.1 6.2 32.3 4.2 -159.0 -158.8 207.6 -2.8 12.3 79.3

COMB ( 13 ) ( 13 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 17 ) ( 0 )

CARR 21 22 23 24 25 26 27 28

FdzT 37.4 30.2 30.2 32.3 34.0 30.1 37.4 37.4

MdxT 55.5 79.0 -17.5 44.4 -9.4 78.8 -55.5 55.5

MdyT 79.3 36.3 3.2 32.5 -90.2 36.4 -79.3 -79.3

COMB ( 0 ) ( 9 ) ( 9 ) ( 14 ) ( 15 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.3 21.3 21.3 21.3 20.1 20.0 20.2 20.3 20.2 19.5

MdxT 74.5 -74.5 0.0 0.0 -42.2 -4.6 -3.1 -42.7 -8.1 -11.8

MdyT 0.0 0.0 63.8 -63.8 -92.0 -103.5 -141.5 -77.0 19.0 102.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 6 ) ( 1 ) ( 11 ) ( 2 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.6 19.6 21.1 21.1 18.9 18.9 18.9 20.1 20.0 18.8

MdxT -41.2 -1.3 -52.0 8.1 13.4 -39.7 -17.4 0.7 -9.8 -14.0

MdyT -94.7 -225.5 -70.6 -81.3 13.4 -70.0 -125.6 -219.9 100.4 187.9

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.9 18.9 21.3 21.3 21.3 17.7 17.7 17.7 19.9 20.2

MdxT -39.6 1.5 -41.0 -69.8 17.2 27.9 49.8 -25.3 -4.8 -42.5

MdyT -122.8 -306.9 -73.2 -70.5 -66.5 39.9 -68.2 -140.3 -103.0 -77.3

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 19.5 21.0 18.8 18.8 21.2 21.2 17.6 17.6 21.3 21.3

MdxT -1.4 -52.3 13.2 -17.5 -41.2 -69.9 27.7 -25.5 52.7 -52.7

MdyT -225.1 -69.9 14.4 -125.2 -72.2 -69.8 41.0 -139.9 45.1 45.1

COMB ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41

FdzT 21.3

MdxT 52.7

MdyT -45.1

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.4 12.4 12.4 12.4 12.0 12.0 12.3 12.4 12.2 11.8

MdxT 43.4 -43.4 0.0 0.0 -4.1 25.3 -5.0 43.3 8.0 -3.4

MdyT 0.0 0.0 37.2 -37.2 21.3 -26.2 -161.7 -71.5 49.3 130.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 6 ) ( 8 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.8 11.8 12.4 11.7 12.3 12.3 11.5 11.5 11.5 12.4

MdxT 24.8 7.7 51.1 -29.4 25.7 7.1 -2.8 24.1 6.7 15.7

MdyT 52.4 -105.3 -30.3 14.8 -64.7 106.7 203.6 81.4 -156.7 31.6

COMB ( 3 ) ( 3 ) ( 8 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.4 12.2 12.2 12.2 12.2 12.4 12.4 11.3 12.4 12.4

MdxT -43.7 7.7 -3.2 25.7 6.7 17.5 51.7 -43.1 30.7 -30.7

MdyT 21.7 60.2 -166.0 -66.4 114.1 27.3 -27.6 29.0 26.3 26.3

COMB ( 9 ) ( 11 ) ( 15 ) ( 15 ) ( 15 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

CARR 31

FdzT 12.4

MdxT -30.7

MdyT -26.3

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.2 3.2 3.2 3.3 3.3 3.3

MdxT 35.0 -35.0 0.0 0.0 5.6 189.7 118.3 6.6 34.5 7.0

MdyT 0.0 0.0 10.0 -10.0 38.4 -69.3 -70.3 31.1 -35.4 -62.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 8 ) ( 4 ) ( 9 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.1 3.2 3.1 3.2 3.2 3.3 3.2 3.3 3.3 3.1

MdxT 5.5 193.6 15.0 5.0 6.2 -168.4 -96.5 33.8 3.8 5.3

MdyT 73.8 -62.4 -76.3 42.7 34.0 -65.0 -67.8 -41.3 -55.0 97.3

COMB ( 3 ) ( 17 ) ( 3 ) ( 4 ) ( 5 ) ( 9 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.1 3.1 3.2 3.3 3.3 3.3 3.1 3.1 3.3 3.3

MdxT 44.4 17.4 206.0 -186.3 38.7 10.8 46.4 19.0 35.7 7.7

MdyT 38.9 -79.2 -27.7 -26.5 -34.5 -54.7 -27.7 -69.3 -39.9 -48.2

COMB ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35 36

FdzT 3.1 3.1 3.2 3.3 3.3 3.3

MdxT 48.5 21.4 209.5 24.8 -24.8 -24.8

MdyT 36.2 -72.4 -25.0 7.1 7.1 -7.1

COMB ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

### P3

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.2 29.6 30.1 30.1 28.5 29.7 28.9 30.1 30.1 28.5

MdxT -7.3 -7.3 63.2 -63.2 0.0 0.0 0.0 0.0 0.0 -0.6

MdyT 0.0 0.0 0.0 0.0 -0.6 11.5 -0.8 81.3 -81.3 -1.0

COMB ( 5 ) ( 14 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 10 ) ( 0 ) ( 0 ) ( 1 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.7 27.4 27.4 27.4 27.8 27.8 28.9 29.7 25.9 25.9

MdxT -3.2 1.1 1.1 -0.7 -35.8 6.3 58.4 -3.2 2.1 2.1

MdyT -128.7 75.3 42.1 -7.8 8.8 -1.5 -17.6 -72.6 125.9 70.4

COMB ( 6 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.9 26.7 26.7 26.7 28.9 28.9 30.1 27.8 27.8 28.3

MdxT -0.8 -59.5 -31.3 10.9 -11.9 -0.6 -3.2 1.1 -0.7 -35.8

MdyT -12.7 14.8 14.8 -2.2 0.8 -1.7 -129.2 74.6 -8.1 8.1

COMB ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 15 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 28.3 29.4 30.1 26.4 26.4 26.4 27.1 27.1 27.1 29.4

MdxT 6.4 58.4 -3.2 2.1 2.1 -0.8 -59.5 -31.3 10.9 -11.9

MdyT -1.7 -18.3 -73.1 125.2 69.9 -13.0 14.1 14.1 -2.5 0.6

COMB ( 13 ) ( 18 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43 44

FdzT 30.1 30.1 30.1 30.1

MdxT 44.7 -44.7 -44.7 44.7

MdyT 57.5 57.5 -57.5 -57.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.7 21.7 21.7 21.7 20.6 20.6 20.6 21.2 21.2 21.2

MdxT 76.0 -76.0 0.0 0.0 -15.7 43.3 19.7 -18.5 44.9 22.8

MdyT 0.0 0.0 58.6 -58.6 -186.1 -74.4 106.0 -247.5 -99.0 158.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.2 20.2 20.2 21.1 21.0 21.0 21.0 18.9 18.9 18.9

MdxT -36.4 64.8 37.8 5.0 -20.0 47.6 24.8 -10.1 39.7 13.9

MdyT -179.3 -71.7 101.1 -192.8 -281.0 -112.4 195.0 -66.8 -35.5 11.3

COMB ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.3 19.3 20.7 20.7 20.7 21.7 21.7 21.7 20.7 20.7

MdxT -49.7 49.6 19.5 43.4 -11.1 -18.5 45.6 22.8 -36.3 65.2

MdyT -162.8 95.2 -185.1 -74.0 111.3 -224.7 -89.9 155.5 -153.7 -61.5

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 20.7 21.5 21.4 21.4 21.4 19.4 19.7 19.7 21.1 21.1

MdxT 37.8 5.2 -20.0 47.6 24.6 40.7 -49.6 49.4 19.6 -11.1

MdyT 95.6 -167.2 -255.9 -102.4 189.7 -41.9 -137.8 89.7 -160.2 106.0

COMB ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 21.7 21.7 21.7 21.7

MdxT 53.8 -53.8 -53.8 53.8

MdyT 41.5 41.5 -41.5 -41.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 12.2 12.2 12.2 11.6 11.5 11.6 11.8 11.8 11.8

MdxT 42.7 -42.7 0.0 0.0 -36.4 -29.1 27.3 -28.6 -32.1 14.8

MdyT 0.0 0.0 33.0 -33.0 -192.2 68.9 198.4 -209.4 91.5 228.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 1 ) ( 17 ) ( 13 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.4 11.3 11.4 11.4 11.7 11.0 11.0 11.1 11.1 11.1

MdxT -28.4 -26.6 22.3 -11.4 24.5 -24.0 10.9 -36.3 -14.5 27.3

MdyT -77.4 64.3 169.7 70.8 69.9 56.0 88.5 -64.0 67.0 154.3

COMB ( 4 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.6 11.6 12.0 12.0 12.0 12.2 12.2 12.2 11.8 12.1

MdxT 6.2 -1.5 -15.8 -29.5 13.6 -17.9 -32.6 14.8 22.3 25.4

MdyT -100.7 162.8 -220.4 -88.1 217.6 -300.2 -120.1 272.7 214.9 -92.6

COMB ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 15 ) ( 15 ) ( 15 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37

FdzT 11.4 11.6 12.0 12.0 12.2 12.2 12.2

MdxT -12.5 -14.6 6.0 -1.5 30.2 -30.2 30.2

MdyT -120.8 79.4 -228.9 206.9 23.3 23.3 -23.3

COMB ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.0 3.0 3.0 3.0 2.9 2.9 2.9 2.9 2.9 2.9

MdxT 9.5 -9.5 0.0 0.0 -5.7 3.4 7.8 -11.1 8.7 12.9

MdyT 0.0 0.0 27.4 -14.7 26.7 75.4 -2.8 26.3 42.6 42.3

COMB ( 0 ) ( 0 ) ( 14 ) ( 0 ) ( 1 ) ( 15 ) ( 1 ) ( 4 ) ( 6 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.0 3.0 3.0 2.9 3.0 2.9 3.0 3.0 3.0 2.9

MdxT -5.2 6.3 7.1 13.3 7.2 8.4 -4.8 2.7 6.7 -14.6

MdyT 27.3 38.6 -29.7 18.2 37.7 66.6 27.6 47.2 -47.2 25.9

COMB ( 3 ) ( 18 ) ( 3 ) ( 8 ) ( 5 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.9 2.9 2.9 2.9 2.9 3.0 3.0 2.9 2.9 3.0

MdxT -5.8 -5.3 7.4 -10.6 8.0 6.7 -4.3 -14.1 -5.7 6.8

MdyT 36.1 27.0 22.1 26.5 49.1 38.1 27.9 26.2 52.3 10.4

COMB ( 8 ) ( 10 ) ( 10 ) ( 13 ) ( 11 ) ( 14 ) ( 16 ) ( 17 ) ( 17 ) ( 0 )

CARR 31 32 33

FdzT 3.0 3.0 3.0

MdxT -6.8 -6.8 6.8

MdyT 10.4 -10.4 -10.4

COMB ( 0 ) ( 0 ) ( 0 )

### P30

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.8 24.8 24.8 24.8 24.0 24.2 24.2 24.0 24.8 24.6

MdxT 52.0 -52.0 0.0 0.0 -26.7 -26.7 -26.6 -20.2 36.8 -114.9

MdyT 0.0 0.0 66.8 -66.8 45.5 -57.0 -54.7 45.5 -47.3 30.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 11 ) ( 2 ) ( 3 ) ( 0 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.5 23.5 23.5 23.7 23.7 23.5 23.5 24.6 22.5 22.5

MdxT -46.5 -47.0 26.7 -26.6 -25.9 -19.0 -26.0 -61.9 -62.9 63.1

MdyT 16.5 -34.0 -33.9 -77.7 -87.9 72.8 71.0 30.1 24.4 -49.8

COMB ( 5 ) ( 14 ) ( 5 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 24.0 23.5 23.5 23.7 23.4 24.6 22.5 22.5 24.8 24.8

MdxT -26.9 -47.0 26.6 -26.6 -19.6 -115.1 -63.3 -25.3 36.8 -36.8

MdyT 45.4 16.4 -34.0 -62.4 72.7 30.0 24.2 -49.8 47.3 47.3

COMB ( 12 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 31

FdzT 24.8

MdxT -36.8

MdyT -47.3

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.6 16.6 16.6 16.6 16.2 16.2 16.2 16.2 16.1 16.1

MdxT 57.2 -57.2 0.0 0.0 -20.2 39.6 21.3 -21.0 38.3 -19.3

MdyT 0.0 0.0 44.8 -44.8 63.4 35.4 -58.4 35.4 -37.3 92.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 1 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.1 16.6 16.6 16.6 15.8 15.8 15.8 15.7 15.6 15.6

MdxT 20.9 -46.3 22.3 55.9 5.9 -33.2 -13.2 38.9 -17.9 36.8

MdyT -93.2 32.8 32.8 -27.3 94.1 37.6 -89.6 10.9 108.5 -46.1

COMB ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.6 16.3 16.3 15.0 15.0 15.0 16.2 16.2 16.2 16.2

MdxT 20.0 -62.9 78.3 24.2 -14.7 -36.7 -20.4 21.4 -21.3 39.8

MdyT -115.2 8.5 -5.3 110.9 44.4 -109.2 62.9 -58.0 33.6 33.6

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 16.1 16.1 16.1 16.6 16.6 15.7 15.5 15.5 15.5 16.3

MdxT -19.6 38.5 21.0 -46.6 22.3 39.1 -18.2 37.0 20.2 -63.1

MdyT 92.3 -37.1 -92.7 32.2 32.2 10.4 108.1 -45.9 -114.7 8.1

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 )

CARR 41 42 43

FdzT 16.6 16.6 16.6

MdxT 40.4 -40.4 40.4

MdyT 31.7 -31.7 -31.7

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.3 8.3 8.3 8.3 8.2 8.2 8.2 8.2 8.3 8.3

MdxT 29.6 -29.6 0.0 0.0 -26.2 25.6 -40.9 35.8 -25.5 25.1

MdyT 0.0 0.0 22.5 -22.5 63.3 -60.5 40.6 -45.1 109.2 -104.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 17 ) ( 17 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.3 8.3 8.3 8.2 8.1 8.2 8.0 8.0 8.0 8.2

MdxT -35.4 -14.2 32.3 -24.1 7.6 23.2 -26.6 -10.6 25.9 -40.5

MdyT 51.7 -21.7 -54.2 137.2 30.0 -129.1 -16.4 17.5 17.5 41.4

COMB ( 4 ) ( 4 ) ( 4 ) ( 7 ) ( 5 ) ( 7 ) ( 15 ) ( 15 ) ( 15 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.2 8.2 7.9 7.9 7.9 8.2 8.2 8.1 8.1 8.3

MdxT -16.2 35.4 -9.8 23.9 13.3 -26.6 26.2 -27.3 26.7 -25.9

MdyT -18.3 -45.8 80.2 32.1 -66.5 62.4 -59.6 16.7 -15.8 108.2

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 8.3 8.3 8.3 8.3 8.2 8.1 8.2 8.2 7.9 7.9

MdxT 25.5 -35.8 -14.3 32.8 -24.5 7.8 23.7 -16.4 -10.2 24.2

MdyT -103.3 50.8 -21.3 -53.3 136.4 29.6 -128.4 -18.0 79.4 31.8

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 16 ) ( 14 ) ( 16 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43

FdzT 7.9 8.3 8.3

MdxT 13.6 20.9 -20.9

MdyT -65.8 15.9 -15.9

COMB ( 18 ) ( 0 ) ( 0 )

### P31

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.3 28.3 26.9 28.3 28.3 27.5 27.5 27.1 27.1 26.2

MdxT 59.5 -59.5 0.0 0.0 0.0 -8.3 -8.3 -9.5 -9.5 -64.1

MdyT 0.0 0.0 58.5 76.4 -76.4 -67.8 62.0 95.8 -43.9 1.5

COMB ( 0 ) ( 0 ) ( 3 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 15 ) ( 15 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 26.2 28.3 28.3 27.0 26.1 26.1 26.1 24.9 24.9 28.3

MdxT 72.2 104.7 -135.8 -2.5 2.2 2.2 -2.1 -105.0 124.3 -54.3

MdyT -12.7 -14.7 50.4 -109.8 100.8 40.3 -74.1 5.6 -28.7 50.4

COMB ( 4 ) ( 9 ) ( 18 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28

FdzT 27.5 26.2 26.2 26.2 28.3 28.3 28.3 28.3

MdxT -2.7 -64.3 -2.5 -2.5 42.0 -42.0 -42.0 42.0

MdyT -67.8 1.4 40.3 -73.9 54.1 54.1 -54.1 -54.1

COMB ( 11 ) ( 13 ) ( 16 ) ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.7 18.7 18.7 18.7 18.1 18.1 18.2 18.2 18.0 18.0

MdxT 65.4 -65.4 0.0 0.0 57.5 -71.4 60.3 -74.3 55.7 -69.4

MdyT 0.0 0.0 50.5 -50.5 29.0 -29.5 -104.0 124.9 161.4 -182.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.3 17.3 18.7 18.7 17.6 17.6 17.3 17.3 16.5 16.5

MdxT 52.5 -67.3 72.9 -82.5 58.5 -73.9 51.5 -66.4 28.8 -51.2

MdyT 246.8 -283.6 10.8 -11.1 -194.2 227.2 247.7 -284.9 57.4 -60.2

COMB ( 16 ) ( 16 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.5 18.5 18.5 18.1 18.1 18.0 18.0 17.5 17.5 18.7

MdxT 81.2 -35.6 -89.0 58.5 -72.2 56.7 -70.3 43.1 -61.2 73.9

MdyT -4.1 -4.1 2.7 28.1 -28.3 160.6 -181.6 46.3 -46.8 9.9

COMB ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37

FdzT 18.7 18.7 16.5 16.5 18.7 18.7 18.7

MdxT -46.3 -83.4 29.8 -52.1 46.3 -46.3 46.3

MdyT 35.7 -9.8 56.6 -58.9 35.7 -35.7 -35.7

COMB ( 0 ) ( 14 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.6 9.6 9.6 9.6 9.4 9.4 9.4 9.2 9.2 9.5

MdxT 33.6 -33.6 0.0 0.0 56.8 22.7 -54.0 57.5 -53.5 57.4

MdyT 0.0 0.0 25.9 -25.9 40.0 -17.2 -43.1 -82.7 62.0 160.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.5 9.1 9.1 9.6 9.6 8.9 8.9 9.5 9.5 8.8

MdxT -55.6 26.3 -20.3 87.4 -87.6 55.0 -49.0 55.7 -53.3 3.9

MdyT -145.7 46.1 -45.5 34.0 -40.6 -164.5 133.6 239.0 -211.0 48.3

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.8 9.6 9.6 9.4 9.4 9.4 9.5 9.5 9.1 9.1

MdxT 18.5 105.7 -106.8 58.1 23.2 -55.0 58.7 -56.6 27.6 -21.3

MdyT 19.3 28.3 -35.7 37.5 -16.2 -40.6 157.9 -143.2 43.5 -43.1

COMB ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 9.6 9.6 9.5 9.5 8.8 8.8 9.6 9.6 9.6 9.6

MdxT 88.6 -88.6 56.8 -54.2 5.0 18.6 106.8 -107.8 -23.8 23.8

MdyT 31.5 -38.1 236.5 -208.6 45.9 18.4 25.9 -33.3 18.3 -18.3

COMB ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P32

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 38.7 37.6 39.5 39.5 39.5 39.5 38.8 39.4 39.5 38.7

MdxT -10.2 -15.8 82.9 -82.9 0.0 0.0 -10.5 -7.7 -58.6 -6.6

MdyT 0.0 0.0 0.0 0.0 106.6 -106.6 -85.1 76.6 -75.4 135.1

COMB ( 4 ) ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 2 ) ( 0 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.7 39.5 39.5 37.6 37.6 37.6 37.5 38.8 39.4 38.7

MdxT 30.2 -58.6 58.6 -11.3 -11.3 -1.3 56.4 -74.2 -7.6 -10.4

MdyT -15.3 75.4 -75.4 -140.4 -80.6 9.1 -23.9 18.6 80.1 -85.3

COMB ( 13 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 7 ) ( 17 ) ( 9 ) ( 11 ) ( 12 )

CARR 21 22

FdzT 37.5 39.5

MdxT -11.2 58.6

MdyT -140.6 75.4

COMB ( 16 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.4 28.4 28.4 28.4 27.9 28.2 28.4 28.4 28.4 28.0

MdxT 99.4 -99.4 0.0 0.0 -5.5 59.2 -70.3 70.3 70.3 58.7

MdyT 0.0 0.0 76.6 -76.6 -164.8 70.4 54.2 54.2 -54.2 72.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 1 ) ( 0 ) ( 0 ) ( 0 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.0 28.0 28.4 27.6 27.6 27.5 26.8 26.9 26.9 26.9

MdxT 9.2 12.2 -70.3 -3.5 57.9 8.7 -5.6 56.5 9.8 22.8

MdyT 181.3 -78.5 -54.2 118.0 47.2 -116.2 -231.8 101.6 254.1 -88.6

COMB ( 3 ) ( 4 ) ( 0 ) ( 6 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.9 26.9 27.5 27.6 28.1 28.3 27.9 27.9 27.5 26.8

MdxT 56.5 -2.8 -31.9 -60.2 -5.0 59.5 9.4 11.1 -4.5 21.8

MdyT 40.0 100.1 -24.9 38.5 -59.9 44.8 180.5 -79.1 117.5 -89.2

COMB ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 15 ) ( 17 )

CARR 31

FdzT 27.5

MdxT -61.6

MdyT 37.7

COMB ( 18 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.2 16.2 16.2 16.2 15.9 16.2 15.9 15.9 16.2 15.9

MdxT 56.6 -56.6 0.0 0.0 9.5 -40.0 -7.1 12.7 -40.0 2.1

MdyT 0.0 0.0 43.6 -43.6 -130.9 -30.8 105.8 89.3 30.8 -133.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 0 ) ( 12 ) ( 15 ) ( 0 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.9 15.9 15.9 16.2 16.2 16.2 16.0 15.7 15.7 15.7

MdxT -33.5 -4.8 -6.3 13.3 40.0 -5.2 -33.6 0.8 -32.9 -4.1

MdyT -53.4 110.3 -59.9 -44.1 30.8 49.0 34.6 -185.5 -74.2 146.0

COMB ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 0 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.6 15.9 16.0 16.0 16.0 15.9 16.1 16.1 16.1 15.9

MdxT -6.3 33.4 47.1 10.9 33.6 -8.3 33.8 20.7 -7.6 33.5

MdyT 141.7 -52.4 39.3 -49.1 -19.7 49.1 32.3 -41.3 44.5 35.7

COMB ( 16 ) ( 12 ) ( 18 ) ( 10 ) ( 10 ) ( 13 ) ( 11 ) ( 14 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35

FdzT 15.9 15.6 15.6 15.6 16.2

MdxT -8.8 8.1 32.8 -8.3 40.0

MdyT -55.2 -182.7 -73.1 46.9 -30.8

COMB ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2

MdxT 44.6 -44.6 0.0 0.0 43.3 126.3 91.7 8.8 46.7 10.1

MdyT 0.0 0.0 11.4 -11.4 -41.3 21.2 52.9 -40.6 17.5 27.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 9 ) ( 9 ) ( 4 ) ( 6 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.2 4.1 4.1 4.2 4.2 4.2 4.2 4.2 4.2 4.1

MdxT 8.4 52.5 16.8 -75.8 -40.7 7.0 9.1 -107.9 -73.9 53.8

MdyT -103.2 -39.4 82.3 18.8 47.0 87.2 -40.3 18.1 45.2 -29.4

COMB ( 7 ) ( 16 ) ( 16 ) ( 4 ) ( 4 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 12 )

CARR 21 22 23 24 25

FdzT 4.1 4.2 4.2 4.2 4.2

MdxT 17.9 135.3 101.5 -31.5 31.5

MdyT 67.2 19.2 47.9 -8.1 -8.1

COMB ( 12 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P33

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 47.4 47.4 47.4 47.4 46.2 47.4 47.4 45.8 45.9 47.4

MdxT 99.5 -99.5 0.0 0.0 -19.6 -70.4 70.4 34.6 -15.5 -70.4

MdyT 0.0 0.0 127.9 -127.9 -67.9 -90.5 -90.5 -16.5 -3.6 90.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 0 ) ( 0 ) ( 12 ) ( 3 ) ( 0 )

CARR 11 12 13 14 15 16 17 18

FdzT 45.9 46.4 46.4 43.9 43.9 44.5 44.5 47.4

MdxT -6.4 -96.5 14.6 66.8 -23.1 -23.4 -2.2 70.4

MdyT 72.8 -13.0 -4.2 -17.2 -3.5 -102.9 3.6 90.5

COMB ( 8 ) ( 15 ) ( 15 ) ( 16 ) ( 7 ) ( 18 ) ( 9 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.3 34.3 34.3 34.3 33.7 33.7 34.2 34.3 34.3 33.7

MdxT 119.9 -119.9 0.0 0.0 -74.5 75.9 -101.9 -40.5 97.3 -73.6

MdyT 0.0 0.0 92.5 -92.5 -145.5 168.3 -59.9 89.9 89.9 -145.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 11 ) ( 2 ) ( 2 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 33.5 34.3 34.1 33.1 32.8 33.1 32.1 32.1 31.8 32.8

MdxT 86.7 -84.8 117.0 -120.3 -60.9 114.4 -73.2 76.7 28.8 66.5

MdyT 90.0 65.4 24.8 -57.0 83.7 90.3 -199.9 220.9 90.7 -39.9

COMB ( 3 ) ( 0 ) ( 4 ) ( 6 ) ( 8 ) ( 6 ) ( 9 ) ( 9 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 32.1 34.2 34.2 33.0 32.1 31.8 32.7 32.7 34.3 34.3

MdxT 30.7 -40.8 98.1 -119.6 -72.5 66.7 111.4 66.2 -84.8 84.8

MdyT 88.4 89.7 89.7 -57.3 -200.2 36.2 83.6 -40.0 -65.4 -65.4

COMB ( 9 ) ( 11 ) ( 11 ) ( 15 ) ( 18 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.0 16.0 16.0 16.0 15.8 15.8 15.8 16.0 16.0 15.7

MdxT 55.9 -55.9 0.0 0.0 -57.4 24.5 61.3 -73.4 72.2 -38.5

MdyT 0.0 0.0 43.1 -43.1 -131.2 -52.5 73.8 -88.3 40.6 -90.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 14 ) ( 14 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.8 15.7 15.7 15.7 15.4 15.4 15.4 15.6 15.6 15.8

MdxT 24.5 49.8 -82.9 75.7 -56.3 23.0 57.4 22.9 56.8 61.2

MdyT -37.0 43.8 -85.3 36.5 -156.7 -62.7 92.0 -19.5 -13.0 42.6

COMB ( 10 ) ( 3 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 18 ) ( 17 ) ( 8 ) ( 10 )

CARR 21 22 23

FdzT 15.6 16.0 16.0

MdxT 57.3 -39.6 39.6

MdyT -12.5 30.5 -30.5

COMB ( 17 ) ( 0 ) ( 0 )

### P34

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.3 39.3 39.3 39.3 38.0 38.0 38.8 38.9 36.9 36.9

MdxT 82.5 -82.5 0.0 0.0 3.5 -2.8 -83.0 14.7 54.9 -13.2

MdyT 0.0 0.0 106.1 -106.1 -12.3 -2.7 -12.6 -3.2 -12.2 -2.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 6 ) ( 15 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.7 38.9 37.5 38.0 35.0 35.0 35.0 37.8 36.0 36.0

MdxT -1.8 -83.2 7.6 -4.3 88.2 44.9 -20.2 -1.3 9.4 -4.3

MdyT 42.8 -12.5 -67.2 79.2 -12.3 -12.3 -2.2 -10.1 -104.0 4.6

COMB ( 13 ) ( 15 ) ( 5 ) ( 17 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 39.3 39.3 38.7 37.6 39.3 39.3

MdxT -58.4 58.4 -0.7 7.6 58.4 -58.4

MdyT -75.0 -75.0 42.8 -67.1 75.0 75.0

COMB ( 0 ) ( 0 ) ( 13 ) ( 14 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.3 28.3 28.3 28.3 27.5 27.5 28.3 28.3 26.9 26.9

MdxT 99.1 -99.1 0.0 0.0 -80.6 65.7 -107.1 87.4 -53.9 -90.9

MdyT 0.0 0.0 76.4 -76.4 -109.8 81.9 -104.7 77.8 -115.1 -46.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 26.9 27.6 27.6 27.3 27.3 27.4 27.4 25.4 25.4 25.4

MdxT 43.7 -120.0 99.8 -78.7 64.4 -120.1 100.1 -31.1 -59.1 27.0

MdyT 86.2 -94.2 73.9 -182.0 147.3 -93.8 73.5 -111.6 -44.6 87.9

COMB ( 3 ) ( 15 ) ( 15 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.8 26.8 26.0 26.0 27.7 27.7 27.1 27.9 27.9 27.5

MdxT -78.8 65.5 -72.5 61.6 -80.4 65.4 -90.7 -82.3 66.6 -78.5

MdyT 17.8 -28.3 -223.2 189.8 -110.0 82.2 -46.2 -37.8 16.8 -182.4

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 27.5 25.5 25.5 25.5 26.2 26.2 28.3 28.3

MdxT 64.3 -30.9 -59.0 26.7 -72.2 61.3 -70.1 70.1

MdyT 147.6 -112.0 -44.8 88.2 -223.6 190.1 54.0 -54.0

COMB ( 14 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.4 14.4 14.4 14.4 14.1 14.1 14.3 14.3 13.9 13.9

MdxT 50.4 -50.4 0.0 0.0 -43.8 56.3 -64.1 73.6 -22.7 38.1

MdyT 0.0 0.0 38.9 -38.9 -104.7 108.5 -104.3 108.5 -105.3 108.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.0 14.0 14.0 14.2 14.2 13.4 13.4 13.4 13.9 13.6

MdxT -42.6 22.1 55.2 -77.1 82.5 -6.7 38.7 21.8 -44.2 -39.8

MdyT -145.0 -58.0 141.1 -100.5 101.5 -102.3 -40.9 101.2 -34.3 -168.6

COMB ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26

FdzT 13.6 13.6 14.4 14.4 14.4 14.4

MdxT 20.1 50.3 -64.4 74.1 -35.6 35.6

MdyT -67.4 155.8 -103.2 107.1 27.5 -27.5

COMB ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 0 ) ( 0 )

### P35

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.5 34.5 33.7 34.2 35.1 35.1 34.4 34.6 33.2 33.2

MdxT 0.0 -1.7 -1.8 8.4 73.6 -73.6 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 -5.2 6.0 136.1 -9.2

COMB ( 1 ) ( 1 ) ( 10 ) ( 14 ) ( 0 ) ( 0 ) ( 2 ) ( 3 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 33.6 33.8 32.4 32.4 32.8 35.1 35.1 34.4 34.6 33.9

MdxT 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -0.6 -2.8 40.0

MdyT -5.3 6.2 136.5 -9.0 10.1 94.7 -94.7 77.8 -81.9 -10.5

COMB ( 11 ) ( 12 ) ( 15 ) ( 15 ) ( 16 ) ( 0 ) ( 0 ) ( 2 ) ( 3 ) ( 4 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.2 35.1 35.1 33.6 33.6 33.6 32.4 32.4 34.3 34.3

MdxT -43.5 -52.1 52.1 -3.5 -3.5 0.6 67.9 -13.7 -70.8 14.0

MdyT 10.5 67.0 -67.0 -136.1 -77.7 9.9 -17.1 1.7 17.1 -1.0

COMB ( 14 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 33.6 33.1 33.1 32.8 32.8 31.6 31.6 31.6 33.5 33.5

MdxT -0.7 39.8 -8.1 -3.6 -3.6 67.8 35.2 -13.7 -71.0 -37.0

MdyT 81.8 -10.1 1.3 -135.7 -77.4 -16.7 -16.7 1.8 17.5 17.5

COMB ( 11 ) ( 13 ) ( 13 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43

FdzT 33.5 35.1 35.1

MdxT 14.0 52.1 -52.1

MdyT -0.8 67.0 -67.0

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.3 26.3 26.3 26.3 26.0 26.0 26.0 25.7 25.7 25.7

MdxT 90.5 -90.5 0.0 0.0 17.6 -54.7 -18.5 37.1 66.4 -31.2

MdyT 0.0 0.0 70.9 -70.9 214.3 85.7 -173.6 101.8 40.7 -53.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 2 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 26.3 26.3 24.9 24.9 24.9 24.8 24.8 24.4 24.4 24.4

MdxT -4.1 -55.2 17.2 -52.4 -18.6 13.4 -14.6 49.7 82.1 -39.6

MdyT 126.3 50.5 281.4 112.6 -252.7 -68.0 126.8 86.4 34.6 -44.7

COMB ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.3 25.3 25.3 25.2 25.2 25.2 25.1 24.9 24.9 24.9

MdxT -18.9 -53.2 6.6 17.4 -52.9 -18.3 15.0 36.8 65.5 -30.9

MdyT 127.1 50.8 -81.5 199.9 80.0 -173.0 -9.7 82.9 33.2 -48.2

COMB ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 25.4 24.1 24.1 24.1 24.0 24.0 23.6 23.6 23.6 24.5

MdxT -53.4 16.9 -50.6 -18.3 13.2 -14.3 49.3 81.0 -39.5 -19.2

MdyT 43.0 262.9 105.2 -247.5 -86.5 132.2 67.9 27.2 -39.3 108.8

COMB ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 41 42 43 44 45 46

FdzT 24.5 24.5 26.3 26.3 26.3 26.3

MdxT -51.5 6.7 64.0 -64.0 -64.0 64.0

MdyT 43.5 -76.2 50.2 50.2 -50.2 -50.2

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.8 12.8 12.8 12.8 12.5 12.5 12.5 12.8 12.8 12.8

MdxT 45.4 -45.4 0.0 0.0 36.4 18.9 -30.5 37.8 15.1 -31.8

MdyT 0.0 0.0 34.4 -34.4 37.9 -42.6 -95.1 125.7 -66.0 -165.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.2 12.2 12.5 12.5 12.5 12.5 12.5 12.7 12.7 12.7

MdxT 34.9 -45.9 47.2 -40.7 25.5 43.5 -20.3 37.5 15.0 -31.1

MdyT -54.0 -82.9 32.1 -92.4 43.7 -41.2 -97.9 188.4 -83.7 -209.3

COMB ( 3 ) ( 8 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.7 11.7 12.2 12.2 12.2 11.7 11.7 12.0 12.0 11.4

MdxT 32.3 -26.6 53.1 16.8 -11.9 34.2 -29.3 35.7 -30.7 50.8

MdyT -117.7 34.6 25.8 45.1 -92.0 121.9 -126.0 213.6 -199.1 107.5

COMB ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 17 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 11.4 11.4 11.7 11.7 11.7 11.7 11.7 11.9 11.9 11.0

MdxT 20.3 -44.7 44.9 -39.5 23.2 40.0 -19.0 35.3 -30.0 30.2

MdyT -45.2 -113.1 116.1 -123.2 127.7 -51.5 -128.7 270.2 -239.5 -36.0

COMB ( 17 ) ( 17 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 )

CARR 41 42 43 44 45 46

FdzT 11.0 11.5 11.5 12.8 12.8 12.8

MdxT -25.3 14.7 -10.6 -32.1 -32.1 32.1

MdyT 4.3 126.8 -122.1 24.3 -24.3 -24.3

COMB ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P36

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.5 40.2 42.6 42.6 42.6 42.6 41.3 42.6 42.6 39.9

MdxT -10.1 -15.5 89.4 -89.4 0.0 0.0 -5.2 -63.2 -63.2 -3.6

MdyT 0.0 0.0 0.0 0.0 115.0 -115.0 -1.0 -81.3 81.3 65.4

COMB ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 39.9 41.1 41.0 41.5 42.1 42.1 37.5 37.6 39.4 39.5

MdxT -2.1 -47.5 6.2 37.1 -7.7 -1.7 -2.8 -2.2 -75.7 11.6

MdyT -7.6 5.7 -1.5 -4.9 -108.1 9.8 107.9 -11.9 8.8 -2.1

COMB ( 3 ) ( 4 ) ( 13 ) ( 5 ) ( 15 ) ( 6 ) ( 16 ) ( 7 ) ( 17 ) ( 8 )

CARR 21 22 23 24 25

FdzT 40.2 41.0 40.2 42.6 42.6

MdxT 65.1 -47.3 65.1 63.2 63.2

MdyT -9.1 5.9 -9.0 81.3 -81.3

COMB ( 9 ) ( 13 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 32.2 32.2 32.2 32.2 31.2 31.2 31.2 32.1 32.1 32.1

MdxT 110.8 -110.8 0.0 0.0 -28.0 74.3 40.5 -28.4 75.0 40.6

MdyT 0.0 0.0 86.8 -86.8 -266.3 -106.5 232.1 -221.1 -88.4 182.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 15 ) ( 15 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.7 30.7 30.7 31.3 31.3 31.3 31.6 31.6 31.6 28.8

MdxT -26.3 70.7 38.1 -49.1 94.4 55.3 -4.9 66.3 22.8 -24.4

MdyT -57.0 -57.0 27.4 -131.0 -52.4 98.6 -147.1 -58.9 111.7 7.3

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 5 ) ( 5 ) ( 5 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 28.8 29.8 29.8 29.8 30.2 30.2 30.2 32.2 32.2 32.2

MdxT 67.3 -62.4 26.0 65.0 10.8 63.4 11.9 78.4 -78.4 -78.4

MdyT -27.0 -116.2 -46.5 91.6 -142.9 -57.2 113.7 61.4 61.4 -61.4

COMB ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

CARR 31

FdzT 32.2

MdxT 78.4

MdyT -61.4

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.9 13.9 13.9 13.9 13.6 13.6 13.9 13.9 13.3 13.3

MdxT 49.6 -49.6 0.0 0.0 -38.1 41.2 -40.3 33.2 -55.0 -14.7

MdyT 0.0 0.0 37.6 -37.6 -150.1 148.7 -211.0 185.6 -139.9 44.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 11 ) ( 11 ) ( 8 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.3 13.6 13.6 13.8 13.8 12.8 12.8 12.8 13.3 13.6

MdxT 46.5 -49.0 -19.6 -39.1 31.8 -34.4 -13.8 26.7 -18.6 -38.9

MdyT 138.5 -147.6 59.5 -247.0 201.3 -40.7 29.8 74.6 -148.0 -149.1

COMB ( 8 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 9 ) ( 10 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.3 13.6 13.6 13.6 13.8 13.8 12.8 12.8 12.8 13.3

MdxT -15.0 -49.8 -19.9 42.0 -39.9 32.6 -35.3 -14.1 27.6 -55.9

MdyT 43.8 -146.7 59.1 147.8 -246.1 200.8 -40.0 29.6 73.9 -139.0

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 )

CARR 31 32 33 34 35

FdzT 13.3 13.3 13.9 13.9 13.9

MdxT 47.3 -19.3 35.0 -35.0 35.0

MdyT 137.8 -147.1 26.6 26.6 -26.6

COMB ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P37

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 37.5 37.5 37.5 37.5 36.3 36.0 37.5 37.5 35.4 35.2

MdxT 78.7 -78.7 0.0 0.0 -2.0 4.9 55.7 -55.7 -52.4 13.0

MdyT 0.0 0.0 101.2 -101.2 13.7 102.5 71.6 71.6 16.0 3.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 18 ) ( 0 ) ( 0 ) ( 12 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.9 35.9 36.9 36.7 37.0 37.0 33.6 33.4 33.6 34.4

MdxT -5.5 4.8 2.0 2.0 83.0 -14.4 -85.1 -43.1 20.0 -6.9

MdyT -39.5 102.3 67.2 -0.8 10.4 3.5 16.9 16.8 3.5 -75.3

COMB ( 4 ) ( 9 ) ( 14 ) ( 5 ) ( 15 ) ( 15 ) ( 16 ) ( 7 ) ( 16 ) ( 8 )

CARR 21 22 23 24 25 26 27 28

FdzT 34.4 35.9 36.4 36.4 36.9 34.6 37.5 37.5

MdxT 4.1 1.4 -1.8 2.7 1.7 -6.9 -55.7 55.7

MdyT 10.6 -3.8 13.9 13.9 67.2 -75.2 -71.6 -71.6

COMB ( 8 ) ( 9 ) ( 10 ) ( 10 ) ( 14 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.2 27.2 27.2 27.2 26.3 26.3 26.7 27.0 27.2 27.0

MdxT 95.3 -95.3 0.0 0.0 120.8 76.9 -68.7 105.8 67.4 -89.3

MdyT 0.0 0.0 73.5 -73.5 -17.4 -97.9 -131.3 -15.3 -51.9 -40.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 6 ) ( 4 ) ( 5 ) ( 2 ) ( 0 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.9 25.8 26.3 26.7 26.7 26.3 24.6 24.4 24.4 25.0

MdxT 86.5 -67.6 -65.5 81.2 32.5 -103.7 27.6 53.6 -26.3 70.7

MdyT -54.9 -189.3 36.8 79.1 -52.5 -36.5 3.8 -61.9 -61.9 -154.6

COMB ( 3 ) ( 9 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 16 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.1 25.8 25.8 26.6 27.2 27.2 27.2 26.1 26.9 24.6

MdxT -62.3 77.8 31.1 79.0 107.0 42.8 -90.3 -43.8 81.1 53.6

MdyT 91.0 140.4 -75.7 -8.8 -15.0 -39.6 -39.6 -54.7 79.7 -61.7

COMB ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 14 ) ( 16 )

CARR 31 32 33 34

FdzT 25.9 27.2 27.2 27.2

MdxT 77.7 67.4 -67.4 -67.4

MdyT 141.0 51.9 51.9 -51.9

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.2 13.2 13.2 13.2 13.1 13.0 13.2 13.2 12.8 12.9

MdxT 46.4 -46.4 0.0 0.0 49.1 -82.9 68.0 -74.6 47.9 -57.3

MdyT 0.0 0.0 35.7 -35.7 55.7 54.2 6.7 51.9 85.7 78.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 6 ) ( 11 ) ( 2 ) ( 9 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.9 13.0 12.3 12.3 12.5 12.5 12.8 13.2 13.1 13.1

MdxT 46.9 79.9 12.2 -42.1 44.2 -52.5 -55.4 -75.2 48.7 79.7

MdyT -30.8 2.7 24.6 31.8 -58.4 97.2 -11.2 51.5 56.6 3.5

COMB ( 4 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 11 ) ( 14 ) ( 15 )

CARR 21 22 23 24 25

FdzT 12.4 12.9 12.9 13.2 13.2

MdxT 11.9 47.6 -55.2 -32.8 32.8

MdyT 25.3 86.5 -11.8 -25.3 -25.3

COMB ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P38

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 60.3 60.3 58.9 56.2 60.3 60.3 60.3 59.5 60.3 58.7

MdxT 126.6 -126.6 0.0 0.0 0.0 0.0 89.5 -48.6 1.4 6.9

MdyT 0.0 0.0 -11.8 -15.1 162.8 -162.8 -115.1 -18.3 -69.9 30.5

COMB ( 0 ) ( 0 ) ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 4 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 57.5 57.1 58.5 58.5 56.0 59.5 57.3 60.3 60.3 60.3

MdxT 90.9 -83.4 -1.3 1.8 9.0 56.1 91.0 89.5 -89.5 -89.5

MdyT -22.1 -17.2 -103.0 -103.0 63.8 -21.0 -22.0 115.1 115.1 -115.1

COMB ( 6 ) ( 7 ) ( 8 ) ( 8 ) ( 18 ) ( 11 ) ( 15 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 47.9 47.9 47.9 47.9 47.9 47.7 47.5 47.5 47.9 47.9

MdxT 167.6 -167.6 0.0 0.0 100.5 -40.0 -99.7 9.5 118.5 -14.8

MdyT 0.0 0.0 129.3 -129.3 126.2 164.4 124.4 162.4 -91.4 215.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 2 ) ( 3 ) ( 3 ) ( 0 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 47.0 47.2 45.3 45.5 45.1 45.1 45.8 45.8 45.8 44.6

MdxT 18.6 99.2 117.9 -57.7 -94.8 26.6 14.6 96.2 -13.9 18.5

MdyT 142.2 129.0 121.8 166.3 121.5 163.1 -67.3 124.3 252.0 182.8

COMB ( 14 ) ( 5 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 44.8 47.4 47.5 47.3 47.7 47.7 47.0 45.3 45.6 45.6

MdxT 94.0 99.5 -41.3 -99.2 16.5 -15.0 98.8 -58.0 14.8 95.9

MdyT 139.9 124.6 163.5 124.5 -7.1 214.9 129.4 165.5 -66.1 124.3

COMB ( 9 ) ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 17 ) ( 17 )

CARR 31 32 33 34 35 36

FdzT 45.6 44.6 44.6 47.9 47.9 47.9

MdxT -14.1 93.6 -17.4 118.5 -118.5 -118.5

MdyT 251.2 140.3 76.6 91.4 91.4 -91.4

COMB ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.5 20.5 20.2 20.5 20.5 20.5 20.4 20.2 20.4 20.3

MdxT 71.8 -71.8 0.0 0.0 0.0 59.7 -42.8 -17.8 -34.0 -42.6

MdyT 0.0 0.0 -123.1 55.4 -55.4 -78.3 -79.2 -150.6 -116.3 -83.4

COMB ( 0 ) ( 0 ) ( 12 ) ( 0 ) ( 0 ) ( 2 ) ( 1 ) ( 14 ) ( 11 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.3 20.5 20.2 20.0 20.0 20.0 19.6 19.6 20.0 19.6

MdxT 1.0 -43.0 17.5 46.6 18.9 -44.5 -41.2 13.6 13.2 17.6

MdyT -120.8 -75.1 17.4 -28.7 -73.0 -104.6 -76.6 -113.7 -84.8 38.2

COMB ( 3 ) ( 4 ) ( 14 ) ( 6 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.6 19.6 20.3 20.4 20.0 19.5 19.9 19.6 20.5 20.5

MdxT 41.2 -17.4 -42.6 61.7 47.2 13.0 13.9 41.1 50.8 -50.8

MdyT -81.7 -161.7 -79.2 -78.1 -25.6 -115.6 -81.8 -81.7 39.1 39.1

COMB ( 9 ) ( 18 ) ( 10 ) ( 11 ) ( 15 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

CARR 31

FdzT 20.5

MdxT -50.8

MdyT -39.1

COMB ( 0 )

### P39

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 46.5 46.5 44.3 46.5 46.5 45.8 45.5 45.4 46.5 45.0

MdxT 97.7 -97.7 0.0 0.0 0.0 -6.3 -6.0 -0.8 -69.1 37.2

MdyT 0.0 0.0 9.9 125.6 -125.6 7.8 75.2 -3.6 -88.8 13.6

COMB ( 0 ) ( 0 ) ( 7 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 11 ) ( 0 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 45.0 46.5 46.5 43.3 43.2 44.3 42.5 42.6 45.0 45.4

MdxT -78.3 -69.1 69.1 -5.5 -0.8 -6.4 66.4 -14.7 -78.3 -5.7

MdyT 2.1 88.8 88.8 125.0 -7.0 -109.6 17.1 0.8 -1.1 78.7

COMB ( 9 ) ( 0 ) ( 0 ) ( 6 ) ( 15 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 11 )

CARR 21 22 23 24

FdzT 46.4 43.2 45.0 46.5

MdxT -49.4 -5.3 -78.1 69.1

MdyT 2.9 125.4 2.1 -88.8

COMB ( 14 ) ( 15 ) ( 18 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.2 39.2 39.2 39.2 38.6 38.6 38.6 39.0 39.0 38.5

MdxT 134.9 -134.9 0.0 0.0 97.8 -30.7 54.3 48.9 -24.6 69.7

MdyT 0.0 0.0 105.7 -105.7 -45.0 -112.6 94.8 -106.3 104.6 6.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 11 ) ( 3 ) ( 3 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.5 38.5 38.9 36.5 36.5 36.5 37.2 37.2 37.2 36.3

MdxT 118.3 -38.4 91.2 52.5 94.1 -30.9 43.7 82.1 -21.3 78.0

MdyT -18.1 -18.1 -104.0 160.2 -74.1 -185.2 -173.2 70.2 175.6 13.0

COMB ( 13 ) ( 13 ) ( 12 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 36.3 37.4 38.9 38.9 37.1 37.1 37.1 39.2 39.2 39.2

MdxT -43.8 78.5 49.4 -25.1 44.4 83.1 -21.7 95.4 -95.4 -95.4

MdyT -27.7 -25.9 -104.0 103.2 -171.2 69.7 174.2 74.8 74.8 -74.8

COMB ( 17 ) ( 9 ) ( 12 ) ( 12 ) ( 16 ) ( 16 ) ( 16 ) ( 0 ) ( 0 ) ( 0 )

CARR 31

FdzT 39.2

MdxT 95.4

MdyT -74.8

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.6 15.6 15.6 15.6 15.5 15.5 15.4 15.3 15.3 15.1

MdxT 55.5 -55.5 0.0 0.0 104.0 -93.4 -91.1 114.1 -104.2 100.0

MdyT 0.0 0.0 42.1 -42.1 176.4 -102.9 34.6 104.0 -42.3 226.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 3 ) ( 13 ) ( 13 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.1 14.9 14.8 14.9 14.8 15.4 14.8 14.8 15.6 15.6

MdxT -88.3 95.8 116.8 -85.5 -106.3 -92.4 96.9 -86.8 -39.2 39.2

MdyT -144.9 -45.8 105.4 81.8 -43.8 31.2 -41.9 78.5 29.8 -29.8

COMB ( 15 ) ( 7 ) ( 17 ) ( 7 ) ( 17 ) ( 12 ) ( 16 ) ( 16 ) ( 0 ) ( 0 )

### P4

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 33.0 33.0 33.0 33.0 31.3 33.0 32.6 29.7 29.8 31.7

MdxT 69.3 -69.3 0.0 0.0 -4.5 -7.0 -1.1 -2.8 -1.7 -39.3

MdyT 0.0 0.0 89.0 -89.0 -7.8 -115.8 4.9 57.0 -8.0 -2.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 15 ) ( 2 ) ( 3 ) ( 12 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 31.6 30.8 30.8 33.0 33.0 28.0 28.0 28.0 31.1 31.2

MdxT 5.5 30.7 -8.3 -7.0 -49.0 -1.8 -2.0 -2.0 -62.7 -62.7

MdyT -2.0 -13.0 -0.8 -65.7 63.0 100.0 55.0 -12.5 1.0 -2.4

COMB ( 4 ) ( 5 ) ( 5 ) ( 15 ) ( 0 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 17 )

CARR 21 22 23 24 25 26 27 28

FdzT 30.9 29.9 29.8 32.7 31.2 33.0 33.0 33.0

MdxT 30.5 53.9 -12.9 -1.0 10.1 49.0 -49.0 49.0

MdyT -13.2 -16.9 -0.6 5.2 -2.4 63.0 -63.0 -63.0

COMB ( 14 ) ( 18 ) ( 9 ) ( 11 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.3 23.3 23.3 23.3 22.5 22.5 22.5 23.1 23.1 23.1

MdxT 81.5 -81.5 0.0 0.0 -25.5 59.9 32.9 -27.2 63.3 35.1

MdyT 0.0 0.0 62.8 -62.8 -136.5 -54.6 90.0 -265.7 -106.3 218.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 15 ) ( 15 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.6 21.7 21.7 22.7 22.7 22.7 22.2 22.2 22.2 20.3

MdxT -23.9 57.2 31.4 -45.9 20.2 50.4 -5.0 46.6 15.5 -21.8

MdyT -52.6 -53.1 12.0 -126.0 -50.5 80.9 -146.7 -58.7 99.1 12.9

COMB ( 3 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.3 22.2 22.2 21.3 21.3 21.3 23.3 23.3 23.3 21.7

MdxT 54.3 -58.5 61.5 9.5 44.7 3.4 -27.0 62.7 34.6 -23.8

MdyT -41.6 -109.8 73.5 -143.6 -57.5 103.7 -219.9 -88.0 167.9 -53.1

COMB ( 7 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34

FdzT 22.7 23.3 23.3 23.3

MdxT -45.8 57.6 -57.6 -57.6

MdyT -126.3 44.4 44.4 -44.4

COMB ( 13 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.1 13.1 13.1 13.1 12.8 12.8 12.8 13.0 13.0 13.0

MdxT 45.9 -45.9 0.0 0.0 -25.6 -45.4 22.3 -26.9 -45.0 23.1

MdyT 0.0 0.0 35.4 -35.4 -230.3 -214.9 217.8 -296.4 -118.6 247.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 8 ) ( 1 ) ( 6 ) ( 6 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.5 12.5 12.5 12.9 12.9 12.7 12.7 12.7 13.0 12.1

MdxT -24.4 -41.4 21.3 -38.1 30.5 -13.3 27.1 13.9 22.5 -22.5

MdyT -184.8 74.6 186.5 -227.1 217.0 -233.7 -93.5 218.7 255.2 -144.5

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.1 12.1 12.8 12.4 12.5 12.4 12.8 12.8 13.1 12.6

MdxT -38.7 19.3 34.7 -4.1 26.2 7.0 -25.5 22.1 23.0 -24.2

MdyT 60.3 150.8 203.3 -226.0 -91.2 204.5 -232.7 219.7 251.0 -187.0

COMB ( 7 ) ( 7 ) ( 17 ) ( 9 ) ( 18 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.6 12.6 12.9 12.9 12.7 12.7 12.7 13.1 13.1 13.1

MdxT -41.2 21.1 -37.8 30.4 -13.0 26.9 13.7 -26.7 -44.9 22.4

MdyT 75.3 188.3 -229.3 218.8 -235.9 -94.4 220.5 -298.5 -119.4 257.0

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 12.2 12.2 12.2 12.8 12.5 12.5 13.1 13.1 13.1

MdxT -22.4 -38.6 19.2 -45.2 -3.9 6.9 32.4 -32.4 32.4

MdyT -146.7 61.0 152.5 -217.1 -228.1 206.2 25.0 25.0 -25.0

COMB ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.9 2.9 2.9 2.9 2.9 2.8 2.8 2.8 2.9 2.9

MdxT 9.3 -9.3 0.0 0.0 -18.2 16.0 16.2 15.4 8.7 16.9

MdyT 0.0 0.0 14.3 -14.3 26.7 44.0 13.4 66.2 37.1 -40.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 11 ) ( 1 ) ( 6 ) ( 17 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.9 2.8 2.8 2.8 2.9 2.9 2.9 2.9 2.8 2.8

MdxT 19.6 -9.2 -8.8 6.2 -9.9 6.8 21.7 16.4 15.5 6.2

MdyT 11.6 25.8 25.3 74.6 26.5 40.0 10.6 12.5 65.2 73.8

COMB ( 4 ) ( 11 ) ( 6 ) ( 6 ) ( 7 ) ( 16 ) ( 8 ) ( 10 ) ( 15 ) ( 15 )

CARR 21 22

FdzT 2.9 2.9

MdxT 21.8 -6.5

MdyT 9.7 -10.1

COMB ( 17 ) ( 0 )

### P40

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.7 31.7 31.7 31.7 30.4 30.5 31.5 31.7 29.4 29.4

MdxT 66.5 -66.5 0.0 0.0 -6.0 2.9 52.6 -47.0 -57.8 14.1

MdyT 0.0 0.0 85.5 -85.5 65.4 10.1 9.8 60.5 10.4 1.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 1 ) ( 2 ) ( 0 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.7 30.4 31.2 31.3 27.7 27.7 29.7 29.5 29.3 31.7

MdxT 3.4 4.1 93.5 -15.7 -94.6 21.7 7.3 1.3 -8.3 55.0

MdyT -45.5 -2.2 9.5 2.4 10.6 1.8 -82.2 9.4 102.2 9.5

COMB ( 13 ) ( 5 ) ( 6 ) ( 15 ) ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 11 )

CARR 21 22 23 24

FdzT 30.6 31.7 31.7 31.7

MdxT 3.9 47.0 -47.0 47.0

MdyT -2.4 60.5 -60.5 -60.5

COMB ( 14 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.0 24.0 24.0 24.0 23.3 23.3 23.8 23.8 22.8 22.8

MdxT 84.0 -84.0 0.0 0.0 80.2 -70.0 104.0 -87.2 55.4 -51.8

MdyT 0.0 0.0 64.8 -64.8 29.0 -26.6 21.8 -19.6 36.5 -33.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.4 23.4 23.4 23.4 23.2 23.2 21.3 21.3 22.3 22.3

MdxT 84.0 -73.2 76.6 -66.8 116.8 -98.0 34.0 -65.5 81.6 -73.1

MdyT -48.6 42.8 104.0 -93.9 14.1 -14.8 39.2 -39.2 -100.8 87.2

COMB ( 13 ) ( 13 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.4 22.4 23.5 24.0 24.0 22.9 23.3 21.5 24.0 24.0

MdxT 69.2 -62.6 80.4 105.1 -88.1 -51.9 116.8 -65.6 59.4 -59.4

MdyT 151.8 -139.3 26.5 18.9 -17.2 -31.8 11.8 -37.1 45.8 45.8

COMB ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 15 ) ( 16 ) ( 0 ) ( 0 )

CARR 31 32

FdzT 24.0 24.0

MdxT -59.4 59.4

MdyT -45.8 -45.8

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.6 10.6 10.6 10.6 10.3 10.3 10.3 10.5 10.5 10.5

MdxT 37.0 -37.0 0.0 0.0 55.9 -24.2 -60.6 73.6 -30.2 -75.6

MdyT 0.0 0.0 28.5 -28.5 50.1 20.0 -27.3 47.2 18.9 -24.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.1 10.1 10.1 10.4 10.3 10.3 10.3 10.3 10.4 9.7

MdxT 50.5 -58.5 -54.3 84.6 -61.9 54.0 -23.7 -59.4 -82.3 22.5

MdyT 120.8 40.6 -86.0 44.0 14.4 93.2 37.3 -63.7 -20.9 54.0

COMB ( 9 ) ( 17 ) ( 9 ) ( 6 ) ( 13 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.7 9.7 10.1 10.0 10.1 10.4 10.6 10.6 10.6 10.3

MdxT -12.2 -30.4 56.6 -23.4 -21.7 -24.2 74.3 -30.5 -76.2 -24.8

MdyT 21.6 -29.5 -28.0 14.2 48.3 18.1 41.9 17.4 -19.3 14.4

COMB ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 13 )

CARR 31 32

FdzT 10.6 10.6

MdxT -26.1 26.1

MdyT 20.2 -20.2

COMB ( 0 ) ( 0 )

### P41

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 47.9 46.4 49.5 49.5 49.5 49.5 48.0 47.9 49.5 49.5

MdxT 6.2 11.6 103.9 -103.9 0.0 0.0 -4.8 -49.0 -73.5 -73.5

MdyT 0.0 0.0 0.0 0.0 133.6 -133.6 3.1 -3.2 -94.5 94.5

COMB ( 13 ) ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 13 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 46.8 46.8 48.4 48.6 48.8 44.3 44.5 46.2 46.9 46.9

MdxT -4.6 -2.2 39.5 -5.3 -1.8 -4.5 -2.4 -78.5 68.9 -15.8

MdyT 68.9 -7.3 9.4 -107.0 9.8 112.1 -11.6 -8.0 13.0 -1.8

COMB ( 12 ) ( 12 ) ( 5 ) ( 15 ) ( 6 ) ( 16 ) ( 7 ) ( 17 ) ( 9 ) ( 9 )

CARR 21 22

FdzT 49.5 49.5

MdxT 73.5 73.5

MdyT 94.5 -94.5

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.9 36.9 34.7 36.9 36.9 36.0 36.0 36.0 36.7 36.7

MdxT 127.2 -127.2 0.0 0.0 0.0 -51.2 98.3 55.9 -34.9 84.5

MdyT 0.0 0.0 -82.3 99.6 -99.6 -113.0 -45.2 95.1 -183.5 -73.4

COMB ( 0 ) ( 0 ) ( 9 ) ( 0 ) ( 0 ) ( 13 ) ( 13 ) ( 13 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.7 35.6 35.6 35.6 36.3 33.6 33.6 34.4 34.4 34.4

MdxT 45.5 -35.0 84.8 46.2 76.2 -27.9 73.2 -62.4 107.4 63.6

MdyT 160.2 -230.0 -92.0 207.2 -94.8 35.4 -39.6 -112.4 -45.0 98.7

COMB ( 11 ) ( 15 ) ( 15 ) ( 15 ) ( 5 ) ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.7 35.4 35.4 35.4 36.1 33.3 33.3 34.5 36.9 36.9

MdxT 72.9 -30.7 77.6 41.2 75.8 -28.1 73.5 72.5 89.9 -89.9

MdyT -82.3 -24.5 -24.5 12.2 -95.1 35.1 -39.3 -82.6 70.5 70.5

COMB ( 9 ) ( 12 ) ( 12 ) ( 12 ) ( 14 ) ( 16 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

CARR 31 32

FdzT 36.9 36.9

MdxT -89.9 89.9

MdyT -70.5 -70.5

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.6 16.6 16.6 16.6 16.3 16.3 16.3 16.5 16.5 16.5

MdxT 59.0 -59.0 0.0 0.0 -43.4 -56.2 41.4 -33.6 -57.4 31.6

MdyT 0.0 0.0 44.7 -44.7 -96.6 -74.0 88.9 -149.1 -59.6 120.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 15 ) ( 4 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.9 16.0 15.9 16.4 16.4 16.4 15.5 15.5 16.2 15.9

MdxT -49.6 -55.0 47.2 -32.1 -55.3 29.4 -52.7 28.4 -56.6 -55.8

MdyT -97.2 20.7 85.1 -185.1 -74.0 137.6 23.2 23.2 -36.5 20.5

COMB ( 8 ) ( 3 ) ( 8 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 10 ) ( 12 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.2 16.2 16.3 16.3 15.4 15.4 15.8 15.8 16.6 16.6

MdxT -44.1 42.3 -32.8 30.1 -53.6 29.1 -50.4 47.9 41.7 -41.7

MdyT -96.3 88.5 -184.9 137.2 23.0 23.0 -97.0 84.8 31.6 31.6

COMB ( 13 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

CARR 31

FdzT 16.6

MdxT 41.7

MdyT -31.6

COMB ( 0 )

### P42

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 47.1 47.1 47.1 47.1 45.8 47.0 47.1 45.1 45.1 46.4

MdxT 99.0 -99.0 0.0 0.0 -20.3 -78.8 70.0 44.8 -17.6 -13.9

MdyT 0.0 0.0 127.3 -127.3 81.6 20.3 90.0 19.9 4.6 -41.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 11 ) ( 0 ) ( 3 ) ( 3 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 46.3 46.3 46.3 43.0 43.0 44.2 44.4 45.0 45.0 45.0

MdxT -120.3 -64.1 20.0 85.8 -27.3 -22.7 -2.7 -11.8 -4.6 44.7

MdyT 20.3 20.3 4.9 19.9 4.6 122.6 -5.7 -82.3 15.3 20.2

COMB ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 9 ) ( 12 )

CARR 21 22 23 24 25 26

FdzT 45.8 42.9 44.9 47.1 47.1 47.1

MdxT -2.9 85.7 -11.9 -70.0 -70.0 70.0

MdyT -1.5 20.0 -82.2 90.0 -90.0 -90.0

COMB ( 13 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.0 34.0 34.0 34.0 33.5 33.5 34.0 34.0 34.0 33.2

MdxT 119.0 -119.0 0.0 0.0 -72.4 76.3 -106.8 -84.1 105.8 -71.1

MdyT 0.0 0.0 91.7 -91.7 75.2 -98.3 69.9 -64.9 -93.2 206.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 0 ) ( 2 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 32.9 33.2 33.3 33.3 33.6 33.6 32.9 32.9 31.1 31.1

MdxT 126.4 74.6 -72.1 75.0 -72.7 77.6 -128.7 -51.5 -8.5 65.3

MdyT -89.6 -241.5 208.0 -242.2 -57.7 45.6 61.6 -35.8 80.2 -42.7

COMB ( 6 ) ( 13 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 31.1 31.7 31.7 32.3 32.3 32.3 33.9 33.9 33.5 33.5

MdxT 23.4 -68.2 72.9 -69.2 30.8 77.0 -107.5 106.8 -71.8 77.1

MdyT -106.8 292.3 -338.2 -150.5 -60.2 141.7 68.3 -92.4 -58.9 46.5

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 14 ) ( 14 )

CARR 31 32 33 34

FdzT 32.1 32.1 32.1 34.0

MdxT -68.2 30.6 76.6 84.1

MdyT -151.6 -60.6 142.4 64.9

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.1 16.1 16.1 16.1 15.8 15.8 15.8 16.0 16.1 15.4

MdxT 56.3 -56.3 0.0 0.0 -50.1 20.0 49.4 -77.8 70.4 -47.7

MdyT 0.0 0.0 43.4 -43.4 106.4 42.6 -165.9 105.0 -64.7 287.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 13 ) ( 11 ) ( 2 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.6 15.5 15.8 15.9 15.9 15.9 15.8 15.8 15.9 15.1

MdxT 48.5 44.7 -49.6 19.4 48.4 -49.3 51.0 -94.9 82.7 -2.1

MdyT 43.2 -229.6 216.6 86.0 -166.6 -5.2 36.3 101.6 -59.8 106.4

COMB ( 12 ) ( 8 ) ( 13 ) ( 4 ) ( 4 ) ( 5 ) ( 14 ) ( 15 ) ( 6 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.1 15.1 15.5 15.4 15.8 16.0 15.8 15.8 15.8 15.1

MdxT 31.8 9.1 -48.0 48.2 50.1 72.2 -50.5 20.4 83.7 31.7

MdyT 41.9 -62.4 -81.1 107.9 -64.8 -64.0 -3.6 36.3 -59.1 42.6

COMB ( 7 ) ( 7 ) ( 9 ) ( 18 ) ( 10 ) ( 11 ) ( 14 ) ( 14 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35

FdzT 15.1 15.4 15.4 16.1 16.1

MdxT 9.9 45.6 -49.4 39.8 -39.8

MdyT -61.9 -229.0 -79.5 30.7 -30.7

COMB ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

### P43

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.6 35.5 35.5 33.7 35.2 31.9 29.6 35.5 33.7 35.4

MdxT 83.4 74.6 -74.6 0.0 0.0 0.0 0.0 0.0 1.0 1.0

MdyT 0.0 0.0 0.0 -6.7 -154.8 81.2 139.4 95.9 -6.7 -90.9

COMB ( 18 ) ( 0 ) ( 0 ) ( 1 ) ( 15 ) ( 3 ) ( 7 ) ( 0 ) ( 1 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.5 31.9 31.7 33.9 33.9 33.3 33.0 35.2 29.6 29.6

MdxT 52.7 0.8 0.8 -50.8 11.2 50.0 -84.3 1.0 1.0 1.0

MdyT 67.8 81.2 -10.1 -13.4 -1.4 -2.0 -17.2 -88.3 77.5 -15.4

COMB ( 0 ) ( 3 ) ( 12 ) ( 13 ) ( 13 ) ( 5 ) ( 17 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 31.8 31.8 31.6 33.5 35.2 31.7 31.7 33.0 29.3 31.6

MdxT 83.6 43.7 -16.1 0.8 -0.6 -0.6 0.8 49.7 0.8 43.6

MdyT 1.7 -2.4 -2.8 -8.1 -95.9 79.8 79.8 -2.8 -15.8 -2.8

COMB ( 9 ) ( 9 ) ( 18 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 14 ) ( 16 ) ( 18 )

CARR 31 32 33

FdzT 35.5 35.5 35.5

MdxT -52.7 -52.7 52.7

MdyT 67.8 -67.8 -67.8

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.8 26.8 26.8 26.8 25.8 25.8 25.8 26.8 26.8 26.8

MdxT 92.2 -92.2 0.0 0.0 24.1 -60.5 -32.8 26.9 -65.3 -35.8

MdyT 0.0 0.0 72.3 -72.3 -206.8 -82.7 179.1 -290.8 -116.3 261.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.8 24.8 24.8 26.1 26.3 26.1 25.5 25.5 25.5 26.3

MdxT 21.3 -55.3 -29.5 -8.8 -67.2 0.7 57.1 -26.4 -66.1 28.0

MdyT -118.9 -47.5 93.0 -202.4 -136.7 173.0 -211.3 -84.5 185.2 -341.7

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 6 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.3 22.9 22.9 22.9 25.1 25.1 25.1 24.1 24.1 24.1

MdxT -37.4 18.5 -50.4 -26.7 -31.6 -58.5 23.5 78.1 -35.1 -87.6

MdyT 319.3 -48.9 -48.9 32.2 -188.0 -75.2 165.8 -202.7 -81.1 185.9

COMB ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 25.5 24.5 24.5 24.5 25.8 25.8 25.2 25.2 26.1 26.1

MdxT -59.9 20.9 -54.8 -29.3 -9.2 1.0 56.7 -65.8 27.6 -66.6

MdyT -68.7 -83.9 33.9 84.7 -167.3 164.8 -176.1 177.0 -307.3 124.5

COMB ( 10 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 26.1 22.7 22.7 24.8 24.8 24.8 23.9 23.9 26.8 26.8

MdxT -37.1 18.1 -49.6 -32.1 -58.9 23.9 77.8 -87.4 65.2 -65.2

MdyT 311.2 -14.4 24.1 -153.6 63.1 157.6 -168.3 177.8 51.1 51.1

COMB ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 51

FdzT 26.8

MdxT 65.2

MdyT -51.1

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 12.2 11.6 12.2 12.2 11.7 11.6 11.7 12.2 12.2

MdxT 43.6 -43.6 0.0 0.0 0.0 31.6 24.3 -27.0 32.9 13.2

MdyT 0.0 0.0 144.6 33.0 -33.0 -77.6 57.8 144.3 -168.4 81.4

COMB ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.2 11.2 11.2 11.2 11.5 11.8 11.8 11.8 12.2 12.2

MdxT -27.9 33.9 18.9 -26.2 58.9 60.5 24.2 -53.9 32.8 13.1

MdyT 203.4 53.2 133.0 82.5 -223.6 -74.2 57.6 144.1 -231.3 94.2

COMB ( 2 ) ( 8 ) ( 8 ) ( 3 ) ( 14 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.2 10.5 10.5 11.2 11.5 11.5 11.5 11.4 11.4 11.9

MdxT -27.2 28.4 -24.2 -17.4 78.5 31.4 -70.3 30.2 -26.2 31.5

MdyT 235.6 85.5 29.7 -78.5 -67.3 52.9 132.3 -226.9 192.2 -322.0

COMB ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 11.9 10.9 10.9 11.3 11.3 11.5 12.0 12.0 10.3 10.3

MdxT -27.0 29.0 -25.3 1.4 0.6 -52.9 31.2 -26.3 27.0 10.8

MdyT 254.0 -131.9 130.5 -230.3 192.5 192.1 -377.7 282.7 -60.9 30.7

COMB ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 10.3 11.0 11.0 11.0 11.3 11.3 12.2 12.2 12.2

MdxT -23.4 -18.8 34.8 19.7 77.1 -69.4 30.8 -30.8 -30.8

MdyT 76.7 -225.0 -90.0 180.2 -213.8 179.3 23.4 23.4 -23.4

COMB ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P44

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.3 23.9 23.9 23.9 23.9 23.1 23.0 23.0 23.2 23.8

MdxT -12.2 50.2 -50.2 0.0 0.0 -9.7 -9.9 -9.9 -9.4 -58.0

MdyT 0.0 0.0 0.0 71.7 -71.7 9.4 -100.9 -58.5 119.7 1.1

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.9 23.9 22.3 22.5 22.5 22.5 22.8 22.7 23.8 21.5

MdxT -35.5 35.5 38.9 -9.9 -9.9 -1.8 -9.1 -1.3 -90.2 71.1

MdyT 50.7 50.7 17.4 -175.0 -101.8 8.1 192.9 -7.1 -4.9 22.5

COMB ( 0 ) ( 0 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 16 ) ( 7 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25

FdzT 21.4 22.4 23.9 23.9 23.9

MdxT -19.2 38.8 -90.3 -35.5 35.5

MdyT -0.7 17.5 -4.8 -50.7 -50.7

COMB ( 9 ) ( 14 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.7 17.7 17.7 17.7 17.1 17.2 17.1 17.1 17.2 17.4

MdxT 61.0 -61.0 0.0 0.0 -5.7 -36.2 1.7 -35.9 -5.3 -36.4

MdyT 0.0 0.0 53.1 -53.1 -277.8 69.2 302.8 121.1 -153.9 43.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 10 ) ( 11 ) ( 11 ) ( 10 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.2 17.5 17.5 17.5 16.7 16.7 16.7 16.5 16.5 16.5

MdxT 1.7 -59.9 -24.6 46.2 30.1 51.2 -25.3 -4.1 -34.7 1.8

MdyT 173.0 -229.7 94.1 235.3 -106.7 52.1 130.3 -353.8 152.2 380.5

COMB ( 10 ) ( 8 ) ( 17 ) ( 17 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.9 15.9 15.9 15.9 17.5 17.7 17.7 16.5 17.0 15.9

MdxT 1.5 53.3 21.3 -43.0 -61.5 -15.7 28.4 -5.5 2.0 20.7

MdyT -52.4 -64.5 37.2 93.0 -227.4 86.3 215.7 -351.5 -52.2 37.2

COMB ( 7 ) ( 9 ) ( 9 ) ( 9 ) ( 17 ) ( 13 ) ( 13 ) ( 15 ) ( 16 ) ( 18 )

CARR 31 32 33

FdzT 15.9 17.7 17.7

MdxT -42.6 -43.1 43.1

MdyT 93.1 37.6 -37.6

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.7 10.7 10.1 10.2 10.7 10.7 10.2 10.2 10.1 10.1

MdxT 38.0 -38.0 0.0 0.0 0.0 0.0 -2.4 -21.4 6.0 21.3

MdyT 0.0 0.0 86.4 -111.2 32.0 -32.0 -51.9 -26.0 -166.2 -66.5

COMB ( 0 ) ( 0 ) ( 2 ) ( 16 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.2 10.2 10.2 10.5 10.5 9.8 9.8 9.8 10.0 10.0

MdxT -8.5 -21.5 0.7 9.4 24.5 -9.5 -25.2 -13.3 8.5 20.9

MdyT 136.5 -25.6 -64.0 -42.4 -28.1 -64.5 -27.0 42.4 -237.3 -94.9

COMB ( 7 ) ( 3 ) ( 3 ) ( 13 ) ( 4 ) ( 5 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.0 10.2 10.7 9.5 9.5 9.5 10.2 10.3 9.8 10.2

MdxT -2.2 -21.4 35.4 -14.3 -31.5 -21.8 21.4 -21.5 -5.0 -21.4

MdyT 145.0 54.6 -28.3 -69.9 -27.9 57.0 -25.5 -23.4 -67.5 53.4

COMB ( 15 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 18 ) ( 10 ) ( 12 ) ( 14 ) ( 16 )

CARR 31 32 33 34 35 36

FdzT 10.7 9.5 9.5 10.7 10.7 10.7

MdxT 34.0 -9.8 -30.0 26.8 -26.8 -26.8

MdyT -31.1 -72.9 -29.2 22.6 22.6 -22.6

COMB ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.9 2.9 2.9 2.9 2.8 2.8 2.8 2.8 2.9 2.9

MdxT 30.1 -30.1 0.0 0.0 61.5 108.5 37.5 4.5 4.9 28.6

MdyT 0.0 0.0 8.6 -8.6 -33.3 19.5 41.3 -50.7 48.4 27.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 13 ) ( 15 ) ( 2 ) ( 7 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.8 2.8 2.8 2.8 2.9 2.8 2.8 2.8 2.8

MdxT 5.0 165.8 -147.2 -130.5 4.3 -21.3 180.4 31.6 55.9 36.8

MdyT -29.1 17.2 -9.4 19.2 -83.0 -6.1 6.9 33.9 -23.2 14.4

COMB ( 18 ) ( 17 ) ( 9 ) ( 9 ) ( 15 ) ( 0 ) ( 17 ) ( 11 ) ( 11 ) ( 12 )

CARR 21 22 23 24 25 26

FdzT 2.8 2.8 2.8 2.9 2.9 2.9

MdxT 4.8 -140.2 -122.8 29.4 -21.3 21.3

MdyT -25.8 -11.6 25.6 26.3 6.1 -6.1

COMB ( 14 ) ( 18 ) ( 18 ) ( 16 ) ( 0 ) ( 0 )

### P45

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.7 24.7 24.7 24.7 24.1 24.1 24.1 24.7 24.5 23.5

MdxT 51.8 -51.8 0.0 0.0 26.0 24.5 32.8 36.7 75.9 36.8

MdyT 0.0 0.0 66.7 -66.7 9.5 56.0 -39.2 47.1 -27.7 -68.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 3 ) ( 0 ) ( 8 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.5 23.5 23.6 23.6 23.5 24.5 24.5 22.6 22.6 22.6

MdxT 28.0 -4.2 26.0 14.3 18.2 13.2 50.5 31.1 31.9 -24.9

MdyT 31.8 31.8 79.9 86.5 -66.1 14.7 -27.7 -10.9 46.2 46.2

COMB ( 14 ) ( 14 ) ( 15 ) ( 6 ) ( 7 ) ( 17 ) ( 8 ) ( 9 ) ( 18 ) ( 18 )

CARR 21 22 23 24 25 26 27 28

FdzT 24.1 24.1 24.1 23.6 22.6 24.7 24.7 24.7

MdxT 25.9 24.5 32.8 26.0 31.9 -36.7 -36.7 36.7

MdyT 9.7 42.4 -39.1 69.9 -10.8 47.1 -47.1 -47.1

COMB ( 10 ) ( 11 ) ( 12 ) ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.5 16.5 16.5 16.5 16.2 16.2 16.2 16.2 16.5 16.5

MdxT 57.0 -57.0 0.0 0.0 60.1 -39.3 -68.6 -40.9 44.8 -40.3

MdyT 0.0 0.0 44.7 -44.7 91.6 18.7 -91.1 -29.9 75.6 31.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 8 ) ( 1 ) ( 8 ) ( 2 ) ( 4 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.5 15.8 15.8 15.8 15.6 15.6 15.6 15.6 15.6 16.2

MdxT -50.1 -3.6 33.2 7.0 22.1 -40.9 -23.0 17.2 -35.5 -27.4

MdyT -72.0 17.8 17.8 -12.0 91.7 -39.3 -98.3 -5.2 15.8 36.6

COMB ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 16 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25

FdzT 15.0 15.0 15.8 15.6 16.5

MdxT -20.7 45.6 7.1 -35.3 40.3

MdyT -5.0 8.8 -11.9 16.0 -31.6

COMB ( 18 ) ( 18 ) ( 14 ) ( 16 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.3 8.3 8.3 8.3 8.2 8.2 8.2 8.2 8.2 8.2

MdxT 29.4 -29.4 0.0 0.0 27.6 -27.9 -11.1 43.5 -40.7 43.0

MdyT 0.0 0.0 22.3 -22.3 106.4 -104.7 42.6 73.8 -62.7 73.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 11 ) ( 17 ) ( 17 ) ( 8 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.3 8.1 8.1 8.2 8.2 7.9 7.9 7.9 8.2 7.9

MdxT -36.3 16.0 -18.6 26.3 -26.7 25.1 -20.0 -25.2 -40.0 7.8

MdyT -64.7 51.7 -57.7 134.4 -129.5 -17.8 -20.4 15.8 -62.7 43.0

COMB ( 13 ) ( 5 ) ( 14 ) ( 6 ) ( 15 ) ( 16 ) ( 9 ) ( 16 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.9 8.1 8.1 8.1 8.2 7.8 7.8 7.8 8.3 8.3

MdxT -10.5 26.5 -27.0 16.5 26.9 8.4 -20.9 -11.2 -20.8 20.8

MdyT -51.1 15.3 -17.5 51.5 134.3 42.8 -20.4 -51.0 15.8 -15.8

COMB ( 9 ) ( 12 ) ( 12 ) ( 14 ) ( 15 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P46

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.7 28.2 28.2 27.1 28.2 28.2 26.9 26.9 26.9 27.3

MdxT 74.9 59.3 -59.3 0.0 0.0 0.0 9.5 -4.2 9.5 4.3

MdyT 0.0 0.0 0.0 3.9 76.3 -76.3 -59.2 66.8 66.8 -58.9

COMB ( 8 ) ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.3 26.0 26.0 28.2 28.2 26.1 26.1 26.1 26.9 26.9

MdxT 0.8 45.5 -50.1 -76.4 96.9 -7.8 11.9 11.9 6.3 -2.1

MdyT 41.7 1.8 13.2 7.3 -44.9 108.4 43.3 -92.5 -101.2 75.7

COMB ( 3 ) ( 4 ) ( 4 ) ( 18 ) ( 18 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27

FdzT 24.7 28.2 27.3 27.3 28.2 28.2 28.2

MdxT -86.9 41.9 4.2 1.5 41.9 -41.9 -41.9

MdyT 28.1 -53.9 -58.9 41.6 53.9 53.9 -53.9

COMB ( 8 ) ( 0 ) ( 12 ) ( 12 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.6 18.6 18.6 18.6 17.9 18.0 17.9 18.0 18.0 17.2

MdxT 64.1 -64.1 0.0 0.0 -50.1 70.3 69.6 -48.7 70.3 -48.3

MdyT 0.0 0.0 50.3 -50.3 186.2 -54.2 -207.6 -79.1 100.0 271.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 10 ) ( 11 ) ( 3 ) ( 3 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.2 18.6 18.6 18.6 17.2 17.5 17.5 16.3 16.3 18.4

MdxT 67.9 -81.2 45.4 100.1 26.8 -47.3 69.4 5.2 36.7 -100.0

MdyT -309.1 67.8 35.5 -67.9 -123.4 -170.2 203.1 27.4 -30.5 74.3

COMB ( 15 ) ( 14 ) ( 0 ) ( 14 ) ( 6 ) ( 16 ) ( 7 ) ( 8 ) ( 17 ) ( 18 )

CARR 21 22 23 24 25 26 27

FdzT 18.4 18.0 18.1 18.1 17.5 16.3 18.6

MdxT 118.6 -49.8 -49.6 71.1 70.3 4.3 -45.4

MdyT -76.3 53.6 -79.0 99.4 202.6 27.6 -35.5

COMB ( 18 ) ( 10 ) ( 12 ) ( 12 ) ( 16 ) ( 17 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.5 9.5 8.8 9.5 9.5 9.3 9.3 9.5 9.5 9.1

MdxT 33.9 -33.9 0.0 0.0 0.0 -56.6 46.6 -56.4 46.6 -55.2

MdyT 0.0 0.0 -37.8 25.7 -25.7 42.8 -39.9 163.7 -142.8 -78.8

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.1 9.1 9.1 9.5 9.5 9.4 9.4 8.8 8.8 8.8

MdxT 45.1 -29.7 20.9 -99.5 72.2 -54.3 44.0 -53.3 42.4 -9.8

MdyT 64.4 40.9 -40.9 44.9 -38.9 242.9 -208.9 -160.9 135.7 38.1

COMB ( 3 ) ( 13 ) ( 13 ) ( 18 ) ( 14 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 9.5 9.1 9.1 9.5 8.9 8.9 8.8 9.5 9.5

MdxT 86.7 -56.8 46.5 -83.6 -55.0 43.8 1.1 23.9 -23.9

MdyT -35.6 -78.1 63.1 44.9 -160.2 134.4 -39.1 18.2 -18.2

COMB ( 18 ) ( 12 ) ( 12 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 )

### P47

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.7 18.9 21.5 21.5 21.5 21.5 19.7 18.5 18.5 20.8

MdxT -17.6 -17.6 45.2 -45.2 0.0 0.0 -12.0 -11.3 -2.9 -12.9

MdyT 0.0 0.0 0.0 0.0 58.1 -58.1 -5.6 68.6 -9.4 -83.2

COMB ( 8 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.8 20.8 19.3 19.3 19.9 19.9 19.9 17.4 17.4 21.3

MdxT -12.9 -1.8 28.0 -11.5 -79.0 -42.2 12.9 -10.8 -3.2 -13.4

MdyT -47.7 5.6 -17.6 -0.8 14.1 14.1 -4.1 123.5 -14.8 -135.1

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 9 ) ( 9 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.3 21.3 18.7 18.7 19.9 18.7 18.7 21.1 19.5 20.2

MdxT -13.4 -1.4 54.7 25.8 -12.3 -11.6 -2.9 -1.8 27.7 -79.2

MdyT -76.8 10.6 -25.8 -25.8 -5.9 71.7 -9.8 5.6 -17.8 14.0

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 18 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 20.2 20.2 17.6 17.6 21.5 21.5 21.5 18.9 18.9 21.5

MdxT -42.4 12.9 -11.1 -3.4 -13.7 -13.7 -31.9 54.5 25.6 31.9

MdyT 14.0 -4.1 123.2 -14.8 -135.4 -77.0 41.1 -26.0 -26.0 41.1

COMB ( 18 ) ( 18 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 0 ) ( 17 ) ( 17 ) ( 0 )

CARR 41 42

FdzT 21.5 21.5

MdxT -31.9 31.9

MdyT -41.1 -41.1

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.0 15.0 13.2 15.0 15.0 14.0 14.1 14.0 13.3 13.3

MdxT 52.5 -52.5 0.0 0.0 0.0 -16.9 44.2 21.8 -21.0 45.6

MdyT 0.0 0.0 130.8 40.5 -40.5 -106.4 95.3 114.8 -43.4 25.3

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 9 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.3 14.6 14.6 14.6 13.7 13.7 13.7 14.2 14.2 14.2

MdxT 27.2 -12.6 31.7 16.2 2.2 28.7 8.4 -36.1 -14.4 35.1

MdyT 63.3 -172.3 -68.9 168.8 -120.5 50.2 125.4 -92.3 41.7 104.3

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.5 12.5 14.8 14.8 14.8 13.2 13.2 14.1 14.1 14.2

MdxT -23.5 31.1 -9.1 31.0 12.7 15.5 29.8 -48.3 -19.3 -15.4

MdyT 8.8 23.1 -210.8 -84.3 203.0 -124.6 52.3 -77.4 38.1 -108.6

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 14.2 13.5 13.5 13.5 14.9 15.0 14.9 13.9 13.9 13.9

MdxT 21.4 -19.7 45.6 27.0 -11.1 31.5 16.0 3.8 29.2 8.1

MdyT 115.5 -42.8 24.6 61.5 -174.6 -85.2 169.4 -122.9 50.4 126.0

COMB ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 16 ) ( 12 ) ( 13 ) ( 13 ) ( 13 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 14.5 14.5 12.7 12.7 15.0 15.0 13.4 13.4 13.4 14.3

MdxT -34.6 34.9 -22.0 30.8 -7.6 12.3 17.1 32.2 -0.7 -46.8

MdyT -94.5 104.9 6.6 23.7 -213.1 203.6 -126.8 52.5 131.2 -79.5

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 51 52 53 54 55 56

FdzT 14.3 14.3 15.0 15.0 15.0 15.0

MdxT -18.7 43.8 37.1 -37.1 -37.1 37.1

MdyT 38.4 95.9 28.6 28.6 -28.6 -28.6

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.4 9.4 8.8 8.5 9.1 8.3 9.4 9.4 8.8 8.8

MdxT 33.0 -33.0 0.0 0.0 0.0 0.0 0.0 0.0 9.9 18.5

MdyT 0.0 0.0 100.8 64.1 139.0 30.1 25.4 -25.4 -106.8 40.3

COMB ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 3 ) ( 6 ) ( 0 ) ( 0 ) ( 13 ) ( 1 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.6 8.5 9.1 9.1 8.6 9.1 9.1 9.1 8.3 9.2

MdxT 20.0 18.0 5.2 19.1 -9.4 -11.6 -21.9 9.0 17.4 6.0

MdyT -106.7 25.6 -160.6 -64.2 101.2 -92.4 40.1 100.2 21.2 -197.1

COMB ( 17 ) ( 2 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.2 9.2 8.3 8.3 9.1 9.1 9.0 8.8 8.8 8.8

MdxT 19.3 -0.6 28.8 -15.7 -22.0 14.8 -5.3 -6.9 -18.4 2.1

MdyT -78.8 157.6 -105.8 94.6 -83.3 93.0 -100.1 -38.6 24.4 60.9

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 9.3 9.3 9.3 8.8 8.8 9.3 9.3 8.5 8.5 9.4

MdxT -3.6 -20.6 2.0 19.3 -7.1 -8.2 11.2 -17.8 2.0 -2.7

MdyT -161.6 -93.2 137.5 -42.7 99.7 39.5 98.7 19.9 28.6 -197.8

COMB ( 12 ) ( 14 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 )

CARR 41 42 43 44 45 46 47 48

FdzT 9.3 9.4 8.6 9.3 9.3 9.4 9.4 9.4

MdxT -30.7 1.5 -13.6 -12.3 17.1 23.3 -23.3 23.3

MdyT -84.1 156.0 93.1 36.5 91.3 18.0 18.0 -18.0

COMB ( 18 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 3.0 3.0 2.9 2.9 3.0 3.0

MdxT 10.3 -10.3 0.0 0.0 -14.4 21.8 -17.1 25.2 -11.6 18.2

MdyT 0.0 0.0 8.7 -8.7 -67.3 86.7 -44.2 80.8 -91.4 93.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.9 2.9 3.1 3.1 2.8 2.8 3.1 3.1 3.1 2.8

MdxT -7.0 17.4 -21.8 26.2 -19.0 27.6 -9.8 6.3 15.7 -2.0

MdyT -67.5 85.0 -67.1 88.5 -26.7 75.5 -107.2 -42.9 96.2 -67.3

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.8 3.1 3.1 3.1 3.1 3.0 3.0 3.1 3.1 3.0

MdxT 14.4 -26.7 29.0 -22.8 29.1 -25.6 32.6 -20.2 25.5 -15.4

MdyT 82.9 -66.6 88.6 -65.2 83.6 -41.0 77.4 -89.3 89.9 -65.4

COMB ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 3.0 3.2 3.2 2.9 2.9 3.2 3.2 3.2 2.9 3.2

MdxT 24.8 -30.2 33.5 -27.3 34.7 -18.1 9.1 22.8 -10.4 -35.1

MdyT 81.9 -65.0 85.4 -24.6 72.4 -105.1 -42.1 93.1 -65.2 -64.5

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 18 )

CARR 41 42

FdzT 3.2 3.2

MdxT 36.1 -7.2

MdyT 85.7 6.1

COMB ( 18 ) ( 0 )

### P48

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.2 14.5 14.6 18.4 18.4 18.4 18.4 15.6 14.0 14.0

MdxT -96.0 -22.1 -22.3 38.5 -38.5 0.0 0.0 -15.0 -14.7 -14.7

MdyT 0.0 0.0 0.0 0.0 0.0 49.6 -49.6 13.7 -88.9 -49.8

COMB ( 8 ) ( 9 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.0 17.4 17.3 16.1 16.1 16.2 15.0 15.0 12.5 12.5

MdxT -3.5 -16.1 -2.1 -63.7 -34.6 16.7 33.6 -14.4 -14.0 -14.0

MdyT 9.0 116.8 -5.2 5.9 5.9 3.4 21.4 1.0 -158.1 -89.4

COMB ( 11 ) ( 12 ) ( 3 ) ( 4 ) ( 4 ) ( 8 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.5 18.4 18.4 14.5 15.7 16.2 16.2 15.2 15.2 12.7

MdxT -3.8 -16.4 -27.3 65.9 -15.4 -64.0 -34.9 33.2 -14.4 -14.3

MdyT 13.6 184.9 -35.0 26.3 13.9 6.0 6.0 21.6 1.0 -157.9

COMB ( 6 ) ( 16 ) ( 0 ) ( 9 ) ( 10 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36 37

FdzT 12.7 12.7 16.4 14.6 18.4 18.4 18.4

MdxT -14.3 -3.9 -96.3 65.7 27.3 -27.3 27.3

MdyT -89.3 13.6 0.6 26.3 35.0 35.0 -35.0

COMB ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.5 10.7 12.4 12.4 12.4 12.4 11.0 11.0 10.2 10.2

MdxT -4.3 -4.5 43.4 -43.4 0.0 0.0 -15.1 31.6 -17.6 35.3

MdyT 0.0 0.0 0.0 0.0 33.5 -33.5 -16.4 19.5 -65.8 -26.3

COMB ( 5 ) ( 14 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.2 11.9 11.9 11.9 11.5 11.5 10.5 9.3 9.3 9.3

MdxT 21.1 -12.3 27.3 14.3 -57.4 54.6 22.1 -18.8 9.5 23.7

MdyT 53.9 35.4 14.7 -16.4 -55.6 49.8 7.8 -101.6 -40.7 76.7

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 8 ) ( 8 ) ( 5 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.2 12.2 12.2 10.0 10.0 11.2 11.2 10.3 10.3 10.3

MdxT -9.8 25.7 12.0 28.8 -18.9 -13.6 31.3 -16.2 35.3 21.0

MdyT 70.8 28.3 -43.1 24.8 -16.2 -15.8 20.2 -67.5 -27.0 56.0

COMB ( 7 ) ( 7 ) ( 7 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 12.0 12.0 12.0 11.6 10.7 9.5 9.5 9.5 12.4 12.4

MdxT -10.8 27.0 14.0 15.8 23.8 -17.2 9.4 23.5 -8.3 26.0

MdyT 36.0 15.3 -15.8 -16.0 8.3 -101.1 -40.4 77.3 71.4 28.6

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 12.4 11.7 11.7 10.2 10.2 12.4 12.4 12.4 12.4

MdxT 11.8 -55.9 54.5 30.4 -19.2 30.7 -30.7 -30.7 30.7

MdyT -42.6 -55.0 50.4 25.3 -15.7 23.7 23.7 -23.7 -23.7

COMB ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 7.9 7.9 7.9 7.9 7.1 7.1 7.1 6.8 6.8 7.4

MdxT 27.5 -27.5 0.0 0.0 4.2 14.9 2.7 5.0 14.3 3.4

MdyT 0.0 0.0 21.2 -21.2 28.1 -19.6 -49.0 -25.2 -18.9 84.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 7.4 7.4 7.5 7.5 7.5 6.7 6.7 6.7 6.6 6.6

MdxT 15.5 3.2 -25.9 -10.4 23.0 34.4 13.8 -17.6 5.5 13.8

MdyT -36.2 -90.4 30.8 -23.6 -59.1 25.5 -15.6 -38.9 -66.1 -30.3

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 6.6 7.5 7.5 7.5 7.7 7.7 7.7 6.4 6.4 6.4

MdxT 1.4 2.7 15.8 3.1 -46.2 -18.5 36.0 54.3 21.7 -31.6

MdyT 23.4 120.0 48.0 -114.7 31.4 -25.0 -62.4 22.4 -11.5 -28.7

COMB ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 7.3 7.3 7.3 7.0 7.0 7.0 7.6 7.6 7.6 6.9

MdxT -6.0 -15.3 4.8 -5.0 -14.7 4.3 -6.9 -15.9 5.3 24.2

MdyT 27.2 -18.4 -46.1 -28.7 -19.1 -4.6 83.0 -35.0 -87.5 24.5

COMB ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 6.9 6.8 6.8 7.7 7.7 7.7 7.9 7.9 7.9 6.6

MdxT -15.4 -4.5 3.5 -7.4 -16.1 5.2 -56.1 -22.5 38.1 44.4

MdyT -36.0 -67.1 26.3 119.0 47.6 -111.7 30.4 -23.8 -59.5 21.4

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 51 52 53

FdzT 6.6 6.6 7.9

MdxT 17.8 -29.5 19.5

MdyT -10.3 -25.8 15.0

COMB ( 18 ) ( 18 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.6 2.8 2.8 2.5 2.5 2.5 2.5 2.6

MdxT 9.0 -9.0 0.0 0.0 0.0 -13.0 19.7 -20.7 30.4 -4.9

MdyT 0.0 0.0 53.5 7.6 -7.6 22.7 -37.5 4.9 -33.0 41.2

COMB ( 0 ) ( 0 ) ( 7 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.6 2.7 2.7 2.7 2.4 2.4 2.5 2.5 2.6 2.6

MdxT 8.5 -21.8 -8.7 21.0 -4.2 18.5 -26.6 38.1 5.4 1.1

MdyT -42.3 24.6 -14.9 -37.2 20.6 -37.9 -8.3 -28.8 21.4 -44.8

COMB ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.7 2.7 2.7 2.3 2.3 2.6 2.6 2.6 2.6 2.6

MdxT -27.7 -11.1 21.7 1.5 17.5 -21.6 26.6 -29.7 37.8 -13.6

MdyT 26.0 -14.5 -36.3 19.3 -37.5 17.9 -32.1 -0.7 -27.3 36.4

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 2.7 2.7 2.7 2.5 2.5 2.5 2.7 2.7 2.7 2.8

MdxT -30.4 -12.2 27.9 -12.9 -35.0 44.9 -8.0 3.2 8.0 -36.1

MdyT 19.9 -12.7 -31.8 15.8 -12.9 -23.5 48.9 19.5 -39.5 21.3

COMB ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 )

CARR 41 42 43 44 45

FdzT 2.8 2.8 2.4 2.4 2.8

MdxT -14.4 28.6 -6.9 24.4 6.4

MdyT -12.4 -30.9 14.6 -32.1 5.4

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

### P49

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 25.1 25.1 22.5 21.0 24.1 19.4 23.0 21.4 24.6 19.9

MdxT 52.7 -52.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 -3.2 -10.2 4.2 -15.5 -3.5 -10.8 3.8 -15.8

COMB ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 3 ) ( 6 ) ( 10 ) ( 11 ) ( 12 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.1 25.1 22.5 21.0 24.1 24.1 21.6 21.6 23.4 23.5

MdxT 0.0 0.0 -2.9 -2.8 -3.1 -3.1 40.6 -8.5 -46.5 14.6

MdyT 67.8 -67.8 -12.3 60.6 -88.5 -51.4 -23.0 -2.5 -3.8 -4.3

COMB ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.4 24.6 24.6 24.6 20.5 20.5 20.5 23.5 23.5 23.0

MdxT -2.7 -3.1 -3.2 0.6 69.6 36.0 -14.3 -75.5 -39.5 -3.1

MdyT 114.2 -139.7 -89.6 9.0 -30.4 -30.4 -2.2 5.2 5.2 -13.4

COMB ( 6 ) ( 7 ) ( 12 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 21.4 24.6 22.1 22.1 23.9 24.0 19.9 25.1 25.1 25.1

MdxT -2.9 -3.2 40.3 -8.5 -46.6 14.6 -2.8 -3.4 -3.4 37.3

MdyT 62.7 -52.2 -24.1 -2.8 -4.2 -4.8 113.1 -140.8 -81.0 47.9

COMB ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 18 ) ( 15 ) ( 16 ) ( 16 ) ( 0 )

CARR 41 42 43 44 45 46 47 48

FdzT 21.0 21.0 21.0 24.0 24.0 25.1 25.1 25.1

MdxT 69.4 36.0 -14.3 -75.6 -39.5 -37.3 -37.3 37.3

MdyT -31.5 -31.5 -2.5 3.9 -4.8 47.9 -47.9 -47.9

COMB ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.2 18.2 18.2 18.2 16.5 16.5 16.6 15.6 15.6 15.6

MdxT 63.8 -63.8 0.0 0.0 10.2 -34.7 -36.7 9.0 -32.7 -13.0

MdyT 0.0 0.0 49.2 -49.2 -190.7 -76.3 182.7 -124.6 -49.8 119.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 13 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.6 17.6 17.6 16.1 16.1 16.1 17.0 17.0 17.0 14.3

MdxT 11.5 -36.9 -15.5 36.4 -14.8 -37.0 -16.0 -35.7 8.4 7.6

MdyT -259.7 -103.9 229.2 -206.2 -82.5 188.9 -175.0 -70.0 157.2 -64.8

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.3 14.3 17.8 17.8 17.8 15.3 15.3 16.8 16.8 16.8

MdxT -30.1 -11.6 11.9 -37.3 -16.0 53.3 -51.7 -33.9 -57.1 23.9

MdyT 30.7 76.9 -295.0 -118.0 263.9 -205.9 196.7 -153.9 -61.5 143.9

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 17.0 17.0 17.0 18.0 18.0 18.0 16.6 16.6 17.5 17.5

MdxT 9.9 -35.7 -14.0 11.3 -37.9 -15.4 36.1 -14.7 -16.1 -36.7

MdyT -160.0 66.8 166.9 -229.0 -91.6 223.0 -175.7 73.1 -144.3 60.4

COMB ( 10 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 17.5 14.8 14.8 14.8 18.2 18.2 18.2 15.8 15.8 15.8

MdxT 8.7 7.4 -31.1 -11.3 11.6 -38.3 -15.8 53.2 21.3 -51.4

MdyT 151.1 -34.9 28.5 70.7 -265.0 -106.0 257.7 -175.8 76.2 190.5

COMB ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 51 52 53 54 55 56 57

FdzT 17.3 17.3 17.3 18.2 18.2 18.2 18.2

MdxT -34.0 -57.6 24.2 45.1 -45.1 -45.1 45.1

MdyT -123.8 55.2 137.9 34.8 34.8 -34.8 -34.8

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.9 10.9 10.9 10.9 9.6 9.7 9.6 9.1 9.1 9.1

MdxT 38.2 -38.2 0.0 0.0 38.4 33.0 -30.5 20.0 8.0 -17.5

MdyT 0.0 0.0 29.5 -29.5 -119.0 67.0 171.1 -91.3 54.5 136.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 1 ) ( 4 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.3 10.3 10.3 9.6 9.8 9.8 9.8 8.6 8.6 8.6

MdxT 19.2 32.9 -16.4 15.3 48.4 -38.8 -3.5 19.5 7.8 -16.9

MdyT -136.9 80.0 199.9 68.4 -293.7 215.0 163.8 -68.6 40.3 100.7

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 17 ) ( 17 ) ( 5 ) ( 6 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.5 10.5 10.5 9.4 9.4 9.4 9.7 9.7 10.0 10.1

MdxT 17.9 31.4 -15.0 50.0 20.0 -38.5 -12.5 6.6 36.7 31.1

MdyT -146.3 83.7 209.2 -116.5 64.4 161.0 -98.3 148.8 -299.7 -117.7

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 13 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.0 9.5 9.5 10.7 10.7 10.7 10.2 10.2 10.2 9.0

MdxT -30.8 18.5 -17.8 17.5 31.0 -16.7 -0.7 -21.3 -3.8 17.9

MdyT 226.2 -271.0 190.1 -317.5 -127.0 255.1 -288.8 -115.5 219.0 -245.8

COMB ( 13 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 14 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 9.0 9.0 10.9 10.9 10.9 10.1 10.1 10.1 10.9 10.9

MdxT 30.3 -17.2 16.4 29.6 -15.3 -14.1 -26.0 6.3 27.0 -27.0

MdyT -98.3 154.7 -323.5 -129.4 263.2 -275.5 -110.2 202.9 20.8 20.8

COMB ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 51

FdzT 10.9

MdxT -27.0

MdyT -20.8

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 1.8 1.2 1.7 3.3 3.3 1.8 1.2 2.4

MdxT 10.6 -10.6 0.0 0.0 0.0 0.0 0.0 -3.9 -6.0 1.0

MdyT 0.0 0.0 -1.7 45.6 -26.7 9.0 -9.0 -13.4 -94.5 -51.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 9 ) ( 0 ) ( 0 ) ( 1 ) ( 15 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.4 2.4 1.8 1.8 1.8 1.7 1.7 1.7 0.7 0.7

MdxT -6.3 -3.9 5.9 -2.5 -6.3 -5.3 -5.8 -1.7 -1.0 -3.9

MdyT -20.4 35.7 -10.2 -8.2 -5.2 7.0 -10.2 -21.7 80.9 -94.8

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.9 2.9 2.9 1.8 1.8 1.7 1.7 2.3 2.3 2.3

MdxT 1.4 -6.4 -3.9 9.5 -7.7 -9.1 -9.1 2.1 -2.8 -6.0

MdyT -83.9 -33.5 69.2 -15.8 0.8 13.0 -10.8 -38.4 -28.4 -13.4

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.6 1.6 2.9 2.9 2.9 2.3 2.3 2.3 2.2 2.2

MdxT 1.4 -6.0 2.8 -9.2 -6.0 11.2 -3.4 -8.4 -3.5 -6.0

MdyT 11.1 -62.7 -87.8 -38.4 35.7 -51.7 -30.2 -5.2 -29.7 -26.5

COMB ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 17 ) ( 13 ) ( 13 ) ( 14 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 1.2 3.3 3.3 3.3 2.3 2.2 2.2 3.3 3.3 3.3

MdxT 0.7 3.1 -9.4 -6.0 -9.8 -7.8 -2.1 7.5 -7.5 7.5

MdyT 45.1 -119.7 -47.9 69.4 1.3 -24.9 -26.3 6.4 6.4 -6.4

COMB ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P5

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.1 39.1 39.1 39.1 38.1 39.1 39.1 37.1 37.2 38.0

MdxT 82.1 -82.1 0.0 0.0 -43.4 -7.8 -58.1 -10.8 -66.1 24.9

MdyT 0.0 0.0 105.6 -105.6 23.2 74.8 -74.6 -41.0 26.3 13.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 2 ) ( 0 ) ( 3 ) ( 18 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.8 35.4 35.4 37.0 37.0 39.1 37.0 39.1 39.1 39.1

MdxT -6.7 -11.9 -1.5 47.6 -14.0 -7.7 -10.8 58.1 -58.1 58.1

MdyT 116.6 -80.6 14.3 9.8 3.2 77.4 -40.9 74.6 74.6 -74.6

COMB ( 15 ) ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 11 ) ( 12 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.2 28.2 28.2 28.2 27.7 27.7 27.7 28.2 28.2 28.2

MdxT 98.7 -98.7 0.0 0.0 -26.5 58.4 29.7 -6.9 59.2 13.6

MdyT 0.0 0.0 76.1 -76.1 173.3 69.3 -104.6 242.2 96.9 -165.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 14 ) ( 14 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.1 27.1 27.1 27.6 27.6 27.6 27.6 25.7 25.7 26.6

MdxT -10.4 56.9 17.4 9.5 -5.5 58.0 12.5 -11.2 54.1 21.7

MdyT 95.9 43.5 -34.7 164.5 278.3 111.2 -208.5 34.7 34.4 149.2

COMB ( 12 ) ( 3 ) ( 12 ) ( 4 ) ( 15 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.8 26.6 26.8 26.8 27.1 27.6 27.6 25.7 26.6 28.2

MdxT 71.3 -8.3 -38.1 39.2 56.8 9.2 58.0 54.0 21.4 69.8

MdyT 65.5 -91.8 163.7 -106.4 43.7 164.8 111.3 34.7 149.5 53.8

COMB ( 18 ) ( 8 ) ( 18 ) ( 18 ) ( 12 ) ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 0 )

CARR 31 32 33

FdzT 28.2 28.2 28.2

MdxT -69.8 -69.8 69.8

MdyT 53.8 -53.8 -53.8

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.6 15.6 15.6 15.6 15.4 15.4 15.4 15.6 15.6 15.6

MdxT 54.7 -54.7 0.0 0.0 -16.9 -33.5 10.4 -4.6 -32.8 2.7

MdyT 0.0 0.0 42.2 -42.2 299.7 -124.5 -311.4 333.3 132.9 -331.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 14 ) ( 11 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.2 15.2 15.2 15.4 15.4 15.4 15.5 15.5 14.8 14.8

MdxT -24.2 -43.2 14.3 5.3 32.3 -3.2 -3.4 -32.6 -8.1 -31.0

MdyT 289.5 -116.9 -292.3 290.4 -122.2 -305.5 346.4 138.5 217.0 -99.5

COMB ( 9 ) ( 9 ) ( 9 ) ( 4 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.8 15.1 15.1 15.1 15.6 15.4 15.4 15.4 15.5 14.8

MdxT 5.3 12.7 31.7 -7.8 -32.8 32.3 -2.9 -17.2 -3.8 -8.5

MdyT -248.8 273.8 -113.1 -282.7 133.3 -122.2 -305.6 299.2 345.8 216.3

COMB ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 11 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 14.8 15.1 15.2 15.2 15.2 15.6 15.6 15.6 15.6

MdxT -31.0 31.7 -24.6 -43.7 14.6 38.7 -38.7 -38.7 38.7

MdyT -99.5 -113.1 288.8 -116.9 -292.2 29.8 29.8 -29.8 -29.8

COMB ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 10.3 -10.3 0.0 0.0 -14.6 12.7 12.9 -6.6 12.6 -11.5

MdyT 0.0 0.0 -30.7 15.9 -30.7 -75.3 -45.5 -30.8 -94.9 -30.7

COMB ( 0 ) ( 0 ) ( 17 ) ( 0 ) ( 18 ) ( 11 ) ( 10 ) ( 15 ) ( 15 ) ( 14 )

CARR 11 12 13 14 15 16 17 18

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 15.3 -6.2 5.0 12.6 16.8 13.0 7.3 -7.3

MdyT -45.2 -30.9 -103.6 6.0 -44.7 4.8 11.3 11.3

COMB ( 14 ) ( 6 ) ( 15 ) ( 7 ) ( 18 ) ( 16 ) ( 0 ) ( 0 )

### P50

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.9 41.9 41.9 41.9 41.1 40.3 40.3 41.5 41.9 41.9

MdxT 88.0 -88.0 0.0 0.0 17.1 -33.0 15.0 100.9 -62.2 62.2

MdyT 0.0 0.0 125.7 -125.7 -16.0 -15.4 -3.9 -16.7 -88.9 88.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 16 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.3 40.4 39.0 39.0 41.9 39.0 39.0 41.8 39.0 41.5

MdxT 12.2 5.3 -66.5 22.3 62.2 9.0 6.2 -6.7 -66.4 25.6

MdyT -70.6 1.0 -15.0 -3.9 -88.9 -107.0 4.1 -3.8 -15.1 75.0

COMB ( 14 ) ( 5 ) ( 6 ) ( 6 ) ( 0 ) ( 18 ) ( 9 ) ( 12 ) ( 15 ) ( 17 )

CARR 21

FdzT 41.9

MdxT -62.2

MdyT 88.9

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.5 28.5 28.5 28.5 27.9 27.9 27.7 27.9 27.7 28.5

MdxT 99.8 -99.8 0.0 0.0 129.1 -123.2 70.8 -123.1 -76.4 109.9

MdyT 0.0 0.0 85.5 -85.5 -125.2 169.3 -275.9 170.2 314.3 -128.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 5 ) ( 16 ) ( 5 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.5 28.5 28.5 28.5 26.6 26.6 26.6 27.9 27.9 26.6

MdxT 44.0 -106.3 78.7 -81.8 64.0 -73.5 -73.4 77.0 -82.3 -29.4

MdyT 65.6 164.1 25.6 -1.7 -370.4 419.6 420.6 132.3 -107.0 167.8

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 9 ) ( 18 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 27.9 28.4 28.4 28.4 27.7 27.7 26.6 28.5 28.5

MdxT 128.2 109.1 43.6 -106.1 70.0 -76.3 63.1 70.5 -70.5

MdyT -128.0 -131.6 66.1 165.2 -278.9 315.3 -373.2 60.4 -60.4

COMB ( 16 ) ( 12 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.7 16.7 16.7 16.7 16.5 16.3 16.7 16.7 16.5 16.3

MdxT 58.3 -58.3 0.0 0.0 125.3 -88.1 113.4 -94.5 108.5 109.1

MdyT 0.0 0.0 50.0 -50.0 -87.1 91.6 -79.2 59.8 88.8 -179.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 16 ) ( 5 ) ( 3 ) ( 3 ) ( 17 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.0 16.0 16.6 16.5 16.5 16.6 16.6 16.3 16.5 16.0

MdxT 104.2 -82.6 -93.2 100.4 -84.1 -97.0 111.6 -90.6 -95.8 -85.0

MdyT -244.6 113.3 60.5 94.2 -21.8 55.7 20.9 87.5 56.6 109.3

COMB ( 18 ) ( 9 ) ( 7 ) ( 8 ) ( 17 ) ( 12 ) ( 13 ) ( 14 ) ( 16 ) ( 18 )

CARR 21

FdzT 16.7

MdxT -41.2

MdyT -35.3

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.5 3.5 3.5 3.5 3.4 3.4 3.4 3.4 3.4 3.4

MdxT 36.4 -36.4 0.0 0.0 -6.2 -70.4 -53.3 -50.7 -20.7 -6.0

MdyT 0.0 0.0 10.4 -10.4 -23.4 66.4 125.3 80.1 125.3 -54.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 3 ) ( 7 ) ( 4 ) ( 4 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.4 3.4 3.4 3.4 3.4 3.4 3.5 3.4 3.4 3.4

MdxT -50.1 -20.6 -6.2 -34.3 12.7 -83.0 -20.3 -34.5 13.7 55.0

MdyT 50.7 109.5 -2.8 62.1 105.4 65.8 128.5 60.6 98.8 57.4

COMB ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 10 ) ( 11 ) ( 15 )

CARR 21 22 23 24 25

FdzT 3.4 3.3 3.5 3.5 3.5

MdxT 26.9 -6.2 25.8 -25.8 25.8

MdyT 93.0 89.9 7.3 -7.3 -7.3

COMB ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P51

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 35.1 36.4 36.4 36.4 36.4 35.0 33.4 33.4 36.2 36.4

MdxT -12.5 76.4 -76.4 0.0 0.0 77.0 4.8 1.8 4.3 54.0

MdyT 0.0 0.0 0.0 98.2 -98.2 -16.8 56.7 -7.7 -72.7 69.4

COMB ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 11 ) ( 11 ) ( 12 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.4 35.5 34.2 34.2 31.7 31.6 31.7 36.4 35.0 33.0

MdxT 48.0 -6.7 -38.9 10.6 5.0 5.0 1.8 4.2 41.2 -67.8

MdyT -13.2 -0.6 -2.7 -1.8 99.8 55.0 -12.2 -115.9 -16.8 0.8

COMB ( 13 ) ( 4 ) ( 5 ) ( 14 ) ( 6 ) ( 15 ) ( 6 ) ( 7 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25

FdzT 32.9 33.0 36.4 36.4 36.4

MdxT -67.8 16.5 -54.0 -54.0 54.0

MdyT -2.2 -2.2 69.4 -69.4 -69.4

COMB ( 18 ) ( 9 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 25.8 25.8 24.6 25.8 25.8 24.9 25.0 24.9 24.3 24.3

MdxT 90.3 -90.3 0.0 0.0 0.0 67.3 -69.4 -75.2 26.5 -70.0

MdyT 0.0 0.0 -123.9 69.6 -69.6 -134.1 -52.5 91.7 -50.7 -50.7

COMB ( 0 ) ( 0 ) ( 14 ) ( 0 ) ( 0 ) ( 17 ) ( 10 ) ( 17 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.3 25.8 25.8 25.8 25.4 25.4 25.4 24.6 24.6 22.9

MdxT -39.5 25.2 -68.6 -37.7 51.4 -66.6 -60.9 -51.7 -16.4 26.0

MdyT 8.7 -214.8 -86.1 161.3 -138.3 -104.6 89.2 -49.4 77.4 18.3

COMB ( 2 ) ( 3 ) ( 12 ) ( 12 ) ( 4 ) ( 16 ) ( 13 ) ( 5 ) ( 14 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.9 25.5 25.4 24.9 23.5 23.5 23.5 24.3 24.3 25.8

MdxT -69.1 23.8 -36.4 -30.1 -17.6 -49.4 -1.0 -70.2 -39.6 25.1

MdyT -48.0 -261.1 211.8 -53.6 -109.3 -43.6 72.1 -47.6 5.5 -215.2

COMB ( 6 ) ( 7 ) ( 16 ) ( 17 ) ( 18 ) ( 9 ) ( 18 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38

FdzT 25.4 24.6 22.9 25.4 23.5 25.8 25.8 25.8

MdxT 51.2 -51.7 -69.4 23.7 -49.4 63.9 -63.9 63.9

MdyT -138.7 -49.6 -47.9 -261.5 -43.7 49.2 49.2 -49.2

COMB ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.3 14.3 14.3 14.3 14.2 14.1 13.8 13.8 13.8 14.3

MdxT 50.2 -50.2 0.0 0.0 52.1 -29.4 34.3 13.7 -29.3 32.8

MdyT 0.0 0.0 38.7 -38.7 -224.6 212.8 -182.1 73.0 182.4 -267.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 10 ) ( 2 ) ( 2 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.3 14.2 14.2 13.9 13.9 13.4 13.4 13.4 14.3 14.3

MdxT -28.1 51.5 -42.0 -31.9 -16.7 34.3 13.7 -29.7 30.7 -25.8

MdyT 243.7 -224.4 211.3 -89.4 214.3 -141.3 58.6 146.6 -286.7 249.8

COMB ( 12 ) ( 4 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.1 14.1 13.6 13.6 13.6 13.8 13.8 13.8 13.9 14.3

MdxT 63.0 -48.9 2.1 -28.6 -6.6 34.9 13.9 -30.5 15.5 35.5

MdyT -214.9 195.7 -213.1 -85.2 200.6 -180.3 72.7 181.9 -223.4 27.4

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 11 ) ( 11 ) ( 14 ) ( 0 )

CARR 31

FdzT 14.3

MdxT -35.5

MdyT -27.4

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.1 3.0 3.0

MdxT 9.9 -9.9 0.0 0.0 24.6 -9.2 -27.2 -23.0 13.9 -20.9

MdyT 0.0 0.0 15.2 -15.2 29.0 45.1 18.3 -45.1 28.1 74.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 6 ) ( 17 ) ( 6 ) ( 12 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.0 3.1 3.1 3.0 3.0 3.1 3.0 3.1 3.1 3.1

MdxT -22.3 -10.5 18.5 -8.3 15.7 -10.9 -23.8 -26.2 -10.4 7.0

MdyT 50.5 43.7 29.0 83.0 28.4 40.1 15.1 -43.7 39.7 -10.8

COMB ( 12 ) ( 15 ) ( 15 ) ( 16 ) ( 10 ) ( 17 ) ( 10 ) ( 15 ) ( 13 ) ( 0 )

### P52

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 34.1 34.1 34.1 34.1 33.0 31.9 32.0 33.9 34.1 32.9

MdxT 71.5 -71.5 0.0 0.0 -9.1 -8.8 -79.9 -9.4 -50.6 33.6

MdyT 0.0 0.0 92.0 -92.0 -19.9 39.3 -12.6 -118.4 65.0 -24.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 9 ) ( 7 ) ( 0 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 32.9 30.4 30.4 34.0 33.9 32.1 32.1 34.0 34.1 34.1

MdxT -51.7 -8.5 -1.7 -9.5 -1.3 62.0 -16.4 -9.5 50.6 -50.6

MdyT -15.7 79.1 -14.4 -118.3 9.4 -26.6 -1.5 -67.2 65.0 -65.0

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 16 ) ( 0 ) ( 0 )

CARR 21

FdzT 34.1

MdxT 50.6

MdyT -65.0

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.8 24.2 24.2 24.2 24.2 23.5 23.5 23.7 22.8 22.8

MdxT 2.1 84.8 -84.8 0.0 0.0 29.3 55.4 4.9 43.4 74.1

MdyT 0.0 0.0 0.0 65.4 -65.4 -184.5 -73.8 217.1 -175.1 -70.1

COMB ( 15 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 7 ) ( 17 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.7 24.1 24.2 24.2 23.5 23.6 23.5 21.8 23.7 23.7

MdxT 35.4 5.7 50.8 4.1 -16.2 -17.2 22.1 45.9 4.8 49.8

MdyT 100.4 -251.7 -100.7 174.9 114.5 -173.3 104.9 -44.5 -287.3 -114.9

COMB ( 9 ) ( 3 ) ( 12 ) ( 12 ) ( 4 ) ( 14 ) ( 5 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 22.7 22.7 22.7 22.9 23.0 22.9 23.6 23.6 21.8 23.8

MdxT 44.0 74.7 -28.6 -33.0 48.3 35.7 54.7 22.4 6.0 50.0

MdyT -175.1 -70.1 116.5 -156.4 -45.9 100.2 -73.8 104.7 -44.5 -114.9

COMB ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 11 ) ( 18 ) ( 13 ) ( 14 ) ( 15 ) ( 16 )

CARR 31 32 33 34 35

FdzT 23.8 24.2 24.2 24.2 24.2

MdxT 5.2 59.9 -59.9 -59.9 59.9

MdyT 217.0 46.2 46.2 -46.2 -46.2

COMB ( 16 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.1 14.1 13.6 14.1 14.1 13.8 13.8 13.9 13.6 13.7

MdxT 49.5 -49.5 0.0 0.0 0.0 27.9 -48.2 -29.4 38.2 -35.4

MdyT 0.0 0.0 296.7 38.2 -38.2 -311.6 128.6 321.4 -300.2 300.6

COMB ( 0 ) ( 0 ) ( 9 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 13 ) ( 8 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.6 14.1 14.1 14.1 13.8 13.2 13.3 13.3 14.0 14.0

MdxT -34.9 10.1 -33.0 -17.9 -5.6 12.0 -35.4 -19.5 8.7 -30.3

MdyT 300.6 -346.4 -138.5 343.4 -304.9 -231.1 104.1 260.3 -358.0 -143.2

COMB ( 8 ) ( 3 ) ( 3 ) ( 12 ) ( 5 ) ( 6 ) ( 15 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.6 13.6 13.7 14.1 13.9 14.1 13.7 13.7 14.1 14.1

MdxT 15.3 -17.5 -36.2 -33.8 -5.9 -31.2 15.2 -17.8 35.0 -35.0

MdyT 120.2 -288.8 118.9 -138.3 -304.2 -142.9 120.2 -288.1 27.0 27.0

COMB ( 8 ) ( 9 ) ( 11 ) ( 12 ) ( 14 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

CARR 31 32

FdzT 14.1 14.1

MdxT -35.0 35.0

MdyT -27.0 -27.0

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9

MdxT 9.2 -9.2 0.0 0.0 9.8 7.6 7.9 -7.8 4.5 -3.1

MdyT 0.0 0.0 26.3 -14.2 44.9 93.8 43.3 26.3 -18.6 43.1

COMB ( 0 ) ( 0 ) ( 3 ) ( 0 ) ( 17 ) ( 16 ) ( 4 ) ( 9 ) ( 6 ) ( 9 )

CARR 11 12 13 14 15 16 17 18

FdzT 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9

MdxT 3.6 7.0 7.8 9.8 -6.2 -2.5 -6.5 6.5

MdyT 92.5 74.3 44.6 26.6 26.5 44.4 -10.1 -10.1

COMB ( 7 ) ( 12 ) ( 13 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P53

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 56.8 59.2 59.2 59.2 59.2 58.1 59.2 58.0 58.1 59.2

MdxT -75.0 124.3 -124.3 0.0 0.0 0.0 -87.9 -4.8 -4.8 87.9

MdyT 0.0 0.0 0.0 -159.8 159.8 9.8 -113.0 53.5 -105.8 -113.0

COMB ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 0 ) ( 11 ) ( 7 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 58.4 56.2 56.5 57.7 57.7 56.8 56.6 59.0 57.8 59.2

MdxT -46.8 -4.9 -0.8 65.4 -15.5 -75.0 14.4 -4.8 -4.9 87.9

MdyT -2.7 93.1 -13.6 -12.5 -1.4 -2.4 -2.4 -65.8 -105.7 113.0

COMB ( 5 ) ( 15 ) ( 6 ) ( 8 ) ( 8 ) ( 9 ) ( 18 ) ( 12 ) ( 16 ) ( 0 )

CARR 21

FdzT 59.2

MdxT -87.9

MdyT 113.0

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 42.8 42.8 42.8 42.8 42.8 42.6 42.6 42.2 42.2 42.2

MdxT 149.9 -149.9 0.0 0.0 -106.0 -109.2 26.7 -81.5 -138.6 44.8

MdyT 0.0 0.0 115.6 -115.6 -81.7 112.7 112.7 -7.0 53.8 53.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.7 40.7 41.3 41.3 41.3 41.4 41.2 40.6 40.6 42.4

MdxT -101.8 25.1 -55.7 -103.5 25.8 -87.0 -86.6 -92.8 56.0 -59.1

MdyT 99.0 -36.0 -116.5 59.8 149.4 62.2 63.0 -4.6 51.1 -9.8

COMB ( 6 ) ( 6 ) ( 16 ) ( 16 ) ( 16 ) ( 8 ) ( 17 ) ( 18 ) ( 18 ) ( 10 )

CARR 21 22 23 24 25 26 27

FdzT 42.4 42.4 40.5 40.5 41.2 42.8 42.8

MdxT -108.8 26.6 -102.4 25.3 -4.9 106.0 106.0

MdyT 57.4 57.4 97.7 -35.1 63.0 81.7 -81.7

COMB ( 10 ) ( 10 ) ( 15 ) ( 15 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.4 23.4 23.4 23.4 23.4 23.4 23.4 23.4 23.2 23.2

MdxT 81.8 -81.8 0.0 0.0 -34.0 22.7 56.7 78.7 -50.1 66.2

MdyT 0.0 0.0 63.1 -63.1 -243.9 -103.0 108.4 -88.4 -191.5 77.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.8 22.9 22.8 23.0 23.0 23.0 23.2 23.2 23.2 23.2

MdxT -59.5 64.0 69.3 -32.6 21.4 53.5 77.3 -33.7 22.3 55.9

MdyT -178.9 -87.3 70.6 -266.1 -110.9 122.1 -89.1 -246.3 -103.7 110.2

COMB ( 9 ) ( 17 ) ( 9 ) ( 7 ) ( 7 ) ( 7 ) ( 13 ) ( 12 ) ( 12 ) ( 12 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.1 23.1 22.9 22.9 22.9 22.7 22.7 22.7 23.4 23.4

MdxT -49.8 65.2 -32.2 21.0 52.5 -59.2 27.3 68.3 -57.9 -57.9

MdyT -193.9 79.1 -268.2 -111.4 123.8 -181.0 -79.8 72.1 44.6 -44.6

COMB ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.4 4.4 4.5

MdxT 14.2 -14.2 0.0 0.0 -17.2 9.1 22.8 -22.7 -9.1 8.3

MdyT 0.0 0.0 21.9 -21.9 46.1 96.9 81.5 45.9 69.7 97.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 7 ) ( 9 ) ( 9 ) ( 16 )

CARR 11 12 13 14

FdzT 4.5 4.4 4.5 4.5

MdxT 20.7 -8.7 -10.0 10.0

MdyT 81.8 70.0 -15.5 -15.5

COMB ( 16 ) ( 18 ) ( 0 ) ( 0 )

### P54

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 66.5 65.7 67.2 67.2 67.2 67.2 65.4 64.6 64.6 67.2

MdxT 12.7 3.9 141.2 -141.2 0.0 0.0 54.9 12.9 3.8 99.9

MdyT 0.0 0.0 0.0 0.0 181.6 -181.6 6.3 67.5 -6.9 -128.4

COMB ( 5 ) ( 10 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 11 ) ( 11 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 67.2 66.1 66.5 62.1 62.4 66.2 66.2 63.4 63.7 64.9

MdxT 99.9 -29.8 -30.0 13.4 3.8 12.2 4.2 83.6 -10.9 -57.8

MdyT 128.4 -2.8 -3.2 110.9 -11.3 -108.4 10.4 9.1 -1.5 -6.4

COMB ( 0 ) ( 14 ) ( 5 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 8 ) ( 9 )

CARR 21 22 23 24

FdzT 64.5 65.8 67.2 67.2

MdxT 18.9 12.3 -99.9 -99.9

MdyT 0.6 -108.1 128.4 -128.4

COMB ( 18 ) ( 16 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 52.0 52.0 52.0 52.0 51.5 51.1 51.4 50.3 50.3 52.0

MdxT 182.1 -182.1 0.0 0.0 163.8 164.5 -100.9 121.0 -103.5 128.8

MdyT 0.0 0.0 140.4 -140.4 44.5 44.0 39.3 64.8 -14.8 -99.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 1 ) ( 11 ) ( 11 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 52.0 52.0 51.2 51.7 51.7 48.1 48.1 50.6 50.6 50.6

MdxT 128.8 -128.8 -120.7 118.6 -100.2 116.1 -102.3 111.3 44.5 -95.9

MdyT 99.3 99.3 34.3 -56.0 92.7 106.4 -51.7 -95.5 128.1 128.1

COMB ( 0 ) ( 0 ) ( 4 ) ( 12 ) ( 12 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 49.0 49.8 49.3 49.8 49.8 51.0 51.7 50.9 50.9 50.9

MdxT 153.6 133.9 -131.6 73.8 -65.8 -101.8 47.4 143.5 57.4 -121.5

MdyT 15.3 46.9 30.0 -4.2 46.9 38.9 92.7 10.1 33.7 33.7

COMB ( 17 ) ( 9 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 12 ) ( 13 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38

FdzT 50.3 50.3 50.3 49.4 49.0 49.4 49.4 52.0

MdxT 112.0 44.8 -96.7 134.6 -132.4 74.5 -66.6 -128.8

MdyT -94.8 127.4 127.4 46.3 29.4 -3.5 46.3 -99.3

COMB ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.1 24.1 24.1 24.1 23.9 23.9 23.9 23.8 23.8 23.8

MdxT 84.5 -84.5 0.0 0.0 107.9 -52.0 -130.1 124.7 -55.8 -139.4

MdyT 0.0 0.0 65.2 -65.2 -244.9 -100.3 116.6 -189.4 -84.1 73.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 12 ) ( 12 ) ( 4 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.1 24.1 24.1 23.1 23.1 23.1 23.9 23.9 23.9 23.4

MdxT 106.4 -51.1 -127.7 133.4 -56.7 -141.8 101.2 -48.0 -120.0 131.9

MdyT -246.4 -100.7 117.7 -172.1 -78.0 63.1 -268.5 -107.4 137.6 -173.7

COMB ( 3 ) ( 3 ) ( 3 ) ( 17 ) ( 17 ) ( 17 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 23.4 23.4 23.7 23.7 23.7 23.7 23.7 23.7 23.6 23.6

MdxT -55.8 -139.6 102.6 -48.9 -122.2 109.5 -52.5 -131.2 126.4 -56.7

MdyT -78.5 64.4 -266.8 -106.7 136.5 -196.4 -86.9 77.4 -187.9 -83.7

COMB ( 8 ) ( 8 ) ( 16 ) ( 16 ) ( 16 ) ( 10 ) ( 10 ) ( 10 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 23.6 22.8 22.8 22.8 23.3 23.3 23.3 24.1 24.1

MdxT -141.8 107.8 -50.4 -126.0 77.0 -42.6 -106.4 59.8 -59.8

MdyT 72.7 -105.8 -61.3 5.6 -200.6 -88.8 78.8 46.1 -46.1

COMB ( 13 ) ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.9 4.0 4.0 4.0 4.0 3.9 3.9 3.9 3.9 3.9

MdxT -63.0 12.6 -12.6 0.0 0.0 37.0 -57.8 -61.0 41.3 -57.0

MdyT 0.0 0.0 0.0 19.4 -19.4 39.6 59.1 78.3 39.5 78.7

COMB ( 11 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 3 ) ( 16 ) ( 4 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9

MdxT -58.8 -23.1 32.5 -58.7 -22.8 44.0 41.7 -62.0 -63.4 -25.2

MdyT 1.5 73.1 39.8 -19.3 91.8 39.3 38.8 58.7 33.3 53.0

COMB ( 2 ) ( 3 ) ( 5 ) ( 6 ) ( 7 ) ( 8 ) ( 15 ) ( 12 ) ( 13 ) ( 11 )

CARR 21 22 23 24 25 26 27

FdzT 3.9 3.9 3.9 3.9 3.9 3.9 4.0

MdxT 40.2 -24.8 47.9 -62.7 -24.4 -63.3 8.9

MdyT 38.9 72.5 38.6 -19.7 91.2 36.3 -13.7

COMB ( 12 ) ( 12 ) ( 17 ) ( 15 ) ( 16 ) ( 17 ) ( 0 )

### P55

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.5 31.5 31.5 31.5 30.0 29.2 29.2 31.1 31.1 30.3

MdxT 66.2 -66.2 0.0 0.0 -55.9 -12.7 -84.4 -14.0 -2.7 29.5

MdyT 0.0 0.0 85.2 -85.2 -26.0 36.8 -29.3 -121.7 4.9 -16.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 2 ) ( 9 ) ( 7 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.8 27.8 31.1 31.1 29.7 29.6 29.2 30.4 29.5 29.5

MdxT -12.6 -2.9 -14.0 -2.5 57.8 -84.3 12.0 -55.7 -12.6 -2.8

MdyT 79.9 -14.1 -69.2 9.5 -12.3 -29.1 -1.4 -25.9 39.6 -9.4

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 18 ) ( 9 ) ( 14 ) ( 11 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 31.5 31.5 30.7 28.2 28.2 31.5 31.5 30.1 31.5 31.5

MdxT -13.9 -46.8 29.5 -12.6 -2.9 -13.9 -2.5 57.8 46.8 -46.8

MdyT -121.5 60.2 -15.8 80.1 -14.1 -69.2 9.4 -12.2 60.2 -60.2

COMB ( 16 ) ( 0 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 )

CARR 31

FdzT 31.5

MdxT 46.8

MdyT -60.2

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.9 21.9 21.9 21.9 21.0 21.0 20.6 20.6 21.6 21.6

MdxT 76.8 -76.8 0.0 0.0 -71.3 61.3 -84.0 73.4 -49.3 43.3

MdyT 0.0 0.0 59.2 -59.2 -199.4 123.1 -189.3 125.4 -263.6 220.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 18 ) ( 18 ) ( 3 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.4 19.4 21.3 21.3 20.3 20.4 20.3 21.9 21.9 21.3

MdxT -42.8 37.8 -47.9 44.0 -84.6 42.9 74.1 -48.6 42.6 -70.6

MdyT -62.6 11.3 -296.5 220.9 -189.4 -67.8 125.4 -263.5 180.5 -199.2

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 8 ) ( 9 ) ( 12 ) ( 12 ) ( 14 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.3 19.8 19.8 21.6 20.8 20.8 20.8 21.9 21.9 21.9

MdxT 60.6 -42.3 37.1 -47.3 -5.6 43.6 7.0 54.3 -54.3 -54.3

MdyT 123.1 -62.4 11.3 -296.4 -169.4 -67.8 106.7 41.9 41.9 -41.9

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

CARR 31

FdzT 21.9

MdxT 54.3

MdyT -41.9

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.4 13.4 13.4 13.4 12.9 12.9 12.7 12.7 13.2 13.2

MdxT 46.9 -46.9 0.0 0.0 -48.7 47.6 -58.8 52.5 -33.0 38.1

MdyT 0.0 0.0 36.2 -36.2 -315.0 343.0 -303.1 321.2 -347.9 366.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 9 ) ( 9 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.9 12.9 12.4 12.4 13.1 12.8 12.7 13.4 13.4 13.2

MdxT 50.3 -19.5 -29.0 33.0 -32.8 -2.9 -23.5 -31.4 35.7 45.4

MdyT 321.4 137.2 -238.1 277.6 -357.8 -293.0 128.5 -347.8 366.5 343.3

COMB ( 18 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 9 ) ( 12 ) ( 12 ) ( 14 )

CARR 21 22 23 24 25 26 27 28

FdzT 13.2 13.2 13.3 12.9 12.9 13.4 13.4 13.4

MdxT -47.0 -18.8 -31.1 -57.3 -22.9 -33.2 -33.2 33.2

MdyT -314.9 137.3 -357.7 -303.0 128.6 25.6 -25.6 -25.6

COMB ( 14 ) ( 14 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.0 3.0 3.0 3.0 2.9 2.9 2.9 2.9 2.9 2.9

MdxT 9.4 -9.4 0.0 0.0 -13.0 31.4 31.1 -12.2 -21.0 -8.3

MdyT 0.0 0.0 14.5 -14.5 26.3 102.5 77.8 26.3 26.2 26.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 3 ) ( 2 ) ( 9 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 3.0 2.9

MdxT 31.8 28.6 12.9 -9.7 27.7 27.3 -14.4 28.0 24.8 12.1

MdyT 44.0 -20.9 108.6 27.3 102.8 78.1 27.2 44.2 -20.6 109.3

COMB ( 9 ) ( 6 ) ( 7 ) ( 10 ) ( 16 ) ( 12 ) ( 14 ) ( 18 ) ( 15 ) ( 16 )

CARR 21 22 23

FdzT 3.0 2.9 3.0

MdxT -2.0 -17.6 -6.7

MdyT 27.4 27.0 -10.3

COMB ( 17 ) ( 18 ) ( 0 )

### P56

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 42.5 41.7 43.8 43.8 43.8 43.8 42.0 40.4 40.4 43.8

MdxT 11.2 17.1 92.0 -92.0 0.0 0.0 6.2 6.6 2.1 65.0

MdyT 0.0 0.0 0.0 0.0 118.2 -118.2 -9.4 56.3 -7.6 -83.6

COMB ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 43.8 41.9 41.5 42.2 38.7 38.7 43.8 40.8 40.8 40.8

MdxT 65.0 49.0 -65.0 -36.5 7.0 2.1 5.6 77.6 77.6 -12.5

MdyT 83.6 -3.4 -19.3 -15.4 100.1 -11.9 -118.7 0.8 -2.1 -2.1

COMB ( 0 ) ( 4 ) ( 18 ) ( 14 ) ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 ) ( 8 )

CARR 21 22 23

FdzT 40.6 43.8 43.8

MdxT 77.4 -65.0 -65.0

MdyT -2.1 83.6 -83.6

COMB ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.8 30.8 30.8 30.8 29.9 29.9 29.7 29.1 29.1 30.8

MdxT 107.8 -107.8 0.0 0.0 30.9 -78.8 -43.1 32.9 -81.5 29.0

MdyT 0.0 0.0 83.1 -83.1 -79.5 -79.5 51.4 -1.7 -19.3 -161.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 10 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.8 30.6 29.8 29.8 29.6 30.2 29.8 27.6 27.6 30.4

MdxT -76.0 -40.7 53.8 -104.0 -62.3 26.2 -23.9 33.2 -81.7 26.5

MdyT -64.4 125.2 -71.7 -71.7 44.8 -210.0 58.1 61.7 -72.0 -209.7

COMB ( 3 ) ( 12 ) ( 4 ) ( 4 ) ( 13 ) ( 16 ) ( 14 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 30.4 30.2 28.8 28.8 28.8 29.0 29.2 29.2 29.7 29.7

MdxT -72.6 -38.5 67.8 -29.8 -74.5 -8.5 -61.2 -10.6 30.7 -78.7

MdyT -83.9 174.0 -60.9 -60.9 39.9 -87.4 -34.8 61.9 -79.9 -79.9

COMB ( 7 ) ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 28.9 28.9 30.6 30.6 29.6 29.8 30.2 28.6 28.6 28.6

MdxT 32.6 -81.3 28.6 -75.9 53.3 7.8 -72.5 67.5 -29.7 -74.3

MdyT 1.4 -22.3 -161.4 -64.6 -72.1 -87.8 -84.0 -61.2 -61.2 40.0

COMB ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45 46

FdzT 29.0 29.0 30.8 30.8 30.8 30.8

MdxT -60.9 -10.5 76.2 -76.2 -76.2 76.2

MdyT -34.9 62.2 58.7 58.7 -58.7 -58.7

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.5 17.5 17.5 17.5 17.0 17.0 16.7 16.7 17.4 17.4

MdxT 61.2 -61.2 0.0 0.0 39.2 -35.8 65.8 -51.8 37.9 -34.7

MdyT 0.0 0.0 47.2 -47.2 -168.8 157.5 -154.0 143.1 -207.3 184.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 17 ) ( 17 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.0 17.0 17.1 17.1 17.1 16.3 16.3 16.3 17.3 17.3

MdxT 56.0 -46.5 22.4 -45.8 -25.2 39.9 16.0 -35.8 35.7 59.8

MdyT -163.9 154.8 -173.9 -69.6 160.2 -98.1 41.0 102.5 -226.4 -90.6

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28

FdzT 17.3 16.8 17.0 16.7 16.8 17.5 17.5 17.5

MdxT -32.1 9.8 -35.6 16.2 -35.4 43.3 -43.3 -43.3

MdyT 192.5 -170.5 -67.6 52.2 -68.2 33.4 33.4 -33.4

COMB ( 16 ) ( 18 ) ( 9 ) ( 11 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3

MdxT 10.6 -10.6 0.0 0.0 23.5 -22.3 -23.1 16.7 -21.6 -24.4

MdyT 0.0 0.0 16.3 -16.3 31.8 48.6 12.0 31.6 73.2 -48.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 8 ) ( 3 ) ( 1 ) ( 2 ) ( 7 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3

MdxT 15.1 -8.9 -24.8 14.4 -8.6 25.3 -24.6 -25.5 -23.8 -26.6

MdyT 31.8 60.3 11.8 31.9 83.7 31.2 48.7 12.2 73.4 -48.3

COMB ( 3 ) ( 3 ) ( 8 ) ( 7 ) ( 7 ) ( 17 ) ( 12 ) ( 10 ) ( 16 ) ( 15 )

CARR 21 22 23 24 25 26

FdzT 3.3 3.3 3.3 3.3 3.3 3.3

MdxT 16.9 -9.9 -27.2 18.9 -9.5 7.5

MdyT 31.2 60.2 11.9 31.1 83.7 -11.5

COMB ( 12 ) ( 12 ) ( 17 ) ( 15 ) ( 16 ) ( 0 )

### P57

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.4 30.4 30.4 30.4 29.6 28.6 28.6 30.1 30.1 30.4

MdxT 63.7 -63.7 0.0 0.0 -49.4 -6.4 -1.1 -6.4 -6.4 -45.1

MdyT 0.0 0.0 82.0 -82.0 -27.0 46.1 -10.1 -134.4 -77.1 57.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 11 ) ( 11 ) ( 7 ) ( 7 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.2 29.0 29.6 27.2 27.1 30.1 28.3 28.3 28.3 30.4

MdxT 36.5 -78.1 7.8 -6.4 -1.3 -0.7 65.2 32.9 -15.7 45.1

MdyT -16.4 -30.2 -2.1 91.4 -15.0 9.0 -12.6 -12.6 -4.3 57.9

COMB ( 4 ) ( 9 ) ( 5 ) ( 15 ) ( 6 ) ( 7 ) ( 17 ) ( 17 ) ( 17 ) ( 0 )

CARR 21 22

FdzT 30.4 30.4

MdxT -45.1 45.1

MdyT -57.9 -57.9

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.2 22.2 22.2 22.2 21.7 21.7 21.7 21.3 21.3 21.3

MdxT 77.8 -77.8 0.0 0.0 -12.3 -45.6 10.4 -48.7 -44.7 39.6

MdyT 0.0 0.0 60.0 -60.0 -282.1 -112.8 211.7 -185.8 -47.2 136.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 7 ) ( 9 ) ( 2 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.2 22.2 22.2 21.5 21.5 21.5 21.9 21.9 21.9 20.2

MdxT -11.6 -46.5 8.7 14.1 45.1 -13.6 -33.5 -60.3 26.3 -5.7

MdyT -250.3 -100.1 176.5 -172.8 -69.1 112.7 -192.5 -77.0 131.3 -56.6

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.2 20.2 20.6 20.6 20.6 22.2 21.5 21.5 21.5 20.2

MdxT -42.4 2.5 30.7 55.6 -26.9 -46.7 14.6 45.2 -14.1 -42.5

MdyT -22.6 29.8 -152.9 -61.2 105.1 -100.1 -172.6 -69.0 112.4 -22.6

COMB ( 6 ) ( 6 ) ( 8 ) ( 8 ) ( 8 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 15 )

CARR 31 32 33 34 35 36 37 38

FdzT 21.8 20.6 20.6 20.6 22.2 22.2 22.2 22.2

MdxT -45.7 31.1 56.2 -27.4 55.0 -55.0 -55.0 55.0

MdyT -112.8 -152.6 -61.0 104.9 42.4 42.4 -42.4 -42.4

COMB ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.3 12.3 11.9 11.6 11.6 12.2 12.3 12.3 12.2 12.1

MdxT 43.2 -43.2 0.0 0.0 0.0 0.0 0.0 0.0 -18.9 25.4

MdyT 0.0 0.0 -297.1 -263.8 277.9 -322.7 -349.6 346.6 -327.3 131.7

COMB ( 0 ) ( 0 ) ( 2 ) ( 6 ) ( 6 ) ( 10 ) ( 12 ) ( 12 ) ( 5 ) ( 1 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.2 12.1 11.9 12.2 12.3 12.3 12.0 12.1 12.2 11.6

MdxT 13.3 32.7 1.0 -2.2 -25.8 1.7 16.8 -12.7 -33.9 24.4

MdyT 329.4 131.6 312.5 -353.4 -139.9 346.6 -318.2 329.0 131.8 111.2

COMB ( 5 ) ( 13 ) ( 2 ) ( 7 ) ( 3 ) ( 3 ) ( 4 ) ( 13 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.2 11.8 11.8 11.8 12.1 12.1 12.2 12.3 12.1 12.2

MdxT -25.7 28.6 11.9 -21.0 -30.8 21.0 -0.7 25.9 18.1 -32.0

MdyT -141.3 -301.0 122.6 306.6 -316.1 307.3 329.1 -139.8 -318.1 131.8

COMB ( 7 ) ( 8 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 12 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 11.6 11.6 11.6 12.3 11.8 12.3 12.3 12.3

MdxT 1.4 -24.5 -1.5 -25.8 29.8 30.5 -30.5 30.5

MdyT -263.6 111.2 277.9 -141.3 -300.9 23.6 -23.6 -23.6

COMB ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.8

MdxT 9.0 -9.0 0.0 0.0 0.0 -9.5 10.8 -1.4 5.7 11.2

MdyT 0.0 0.0 25.2 13.8 -13.8 25.5 109.8 24.9 114.7 45.5

COMB ( 0 ) ( 0 ) ( 6 ) ( 0 ) ( 0 ) ( 9 ) ( 7 ) ( 3 ) ( 7 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 2.8 2.8 2.8 2.8 2.8 2.7 2.8 2.8 2.8

MdxT 8.3 7.6 12.2 3.5 4.8 11.3 -6.4 -6.3 6.3

MdyT -19.7 114.5 45.1 54.9 -20.0 54.0 25.6 -9.8 -9.8

COMB ( 6 ) ( 16 ) ( 9 ) ( 14 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

### P58

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 43.3 43.3 43.3 43.3 42.2 41.2 41.2 43.0 43.3 41.5

MdxT 91.0 -91.0 0.0 0.0 -15.0 48.2 -18.5 -120.8 64.3 -11.8

MdyT 0.0 0.0 130.0 -130.0 -20.7 -19.3 -5.0 -23.0 -91.9 -87.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 16 ) ( 0 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 41.6 42.7 39.8 39.8 43.1 40.2 40.3 40.3 39.7 43.0

MdxT -5.5 -20.7 90.2 -27.6 17.8 -9.9 -9.8 -5.9 90.0 -65.4

MdyT 1.3 90.7 -18.3 -5.2 -4.3 -131.9 -76.9 5.3 -18.5 -23.0

COMB ( 4 ) ( 9 ) ( 6 ) ( 6 ) ( 7 ) ( 17 ) ( 8 ) ( 8 ) ( 15 ) ( 16 )

CARR 21 22 23

FdzT 43.3 43.3 43.3

MdxT 64.3 -64.3 -64.3

MdyT 91.9 91.9 -91.9

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.5 29.5 29.5 29.5 29.0 29.0 28.5 28.4 28.4 29.5

MdxT 103.2 -103.2 0.0 0.0 -129.1 126.7 -65.7 75.1 74.3 -106.0

MdyT 0.0 0.0 88.4 -88.4 -111.9 164.1 -297.6 44.5 364.3 -109.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 4 ) ( 2 ) ( 13 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.4 29.4 28.5 29.4 27.1 27.3 27.2 28.8 27.3 28.8

MdxT -65.2 105.6 29.7 70.8 6.7 74.6 74.5 -61.2 -62.0 68.9

MdyT 104.4 150.8 145.5 -103.0 -72.0 519.7 520.1 244.9 -425.2 -258.4

COMB ( 5 ) ( 12 ) ( 4 ) ( 5 ) ( 15 ) ( 8 ) ( 17 ) ( 9 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27

FdzT 29.4 28.4 28.9 28.9 27.2 29.5 29.5

MdxT -105.0 -64.8 -128.2 126.6 -61.0 -73.0 73.0

MdyT -113.1 -301.1 -115.2 164.5 -428.5 62.5 -62.5

COMB ( 12 ) ( 13 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.2 17.2 17.2 17.2 16.8 17.0 16.7 16.8 17.0 17.1

MdxT 60.2 -60.2 0.0 0.0 -120.1 119.4 -122.1 97.3 -141.3 116.9

MdyT 0.0 0.0 51.5 -51.5 -83.6 73.4 -257.2 163.4 -90.9 83.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 16 ) ( 13 ) ( 4 ) ( 16 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 17.0 16.3 16.4 17.0 16.9 16.8 16.7 17.0 16.2

MdxT -108.6 97.0 -119.1 92.3 -103.2 89.9 98.4 99.8 -118.0 -90.3

MdyT 96.0 -37.9 -371.6 221.9 213.1 -106.5 57.5 153.2 90.0 -73.6

COMB ( 5 ) ( 14 ) ( 17 ) ( 8 ) ( 9 ) ( 18 ) ( 10 ) ( 13 ) ( 14 ) ( 15 )

CARR 21 22

FdzT 16.3 16.9

MdxT 94.6 -112.4

MdyT 212.0 207.2

COMB ( 17 ) ( 18 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.6 3.6 3.6 3.6 3.5 3.6 3.6 3.5 3.5 3.6

MdxT 37.8 -37.8 0.0 0.0 6.4 108.3 79.0 -54.9 -25.6 6.3

MdyT 0.0 0.0 10.8 -10.8 -54.0 74.2 154.3 54.4 77.3 -28.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 7 ) ( 7 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.5 3.5 3.5 3.6 3.5 3.5 3.5 3.5 3.5 3.5

MdxT 65.9 35.0 -82.6 6.2 6.3 35.7 35.2 -6.9 -2.9 6.7

MdyT 59.9 105.4 47.3 -45.9 -88.3 51.9 29.7 71.8 79.0 56.8

COMB ( 12 ) ( 12 ) ( 6 ) ( 7 ) ( 8 ) ( 10 ) ( 13 ) ( 13 ) ( 14 ) ( 15 )

CARR 21 22 23 24 25 26

FdzT 3.5 3.4 3.6 3.6 3.6 3.6

MdxT -98.5 -8.0 -1.3 -26.7 -26.7 26.7

MdyT 43.8 68.5 80.4 7.6 -7.6 -7.6

COMB ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P59

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 27.0 27.0 23.4 21.0 27.0 27.0 23.4 21.0 21.0 25.9

MdxT 56.6 -56.6 0.0 0.0 0.0 0.0 -4.8 -4.2 -4.2 -5.5

MdyT 0.0 0.0 5.0 13.3 72.8 -72.8 15.5 -71.8 -37.8 103.0

COMB ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 25.8 24.9 24.9 24.9 21.9 22.0 18.8 18.8 18.8 27.0

MdxT 0.6 -58.0 -30.4 11.1 48.6 -10.9 -3.4 -3.6 -0.7 -5.7

MdyT -3.8 8.8 8.8 5.0 21.0 4.9 -131.0 -129.6 18.9 162.0

COMB ( 3 ) ( 13 ) ( 13 ) ( 13 ) ( 5 ) ( 14 ) ( 6 ) ( 15 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.0 25.3 25.3 25.3 20.4 20.5 22.0 18.8 27.0 20.5

MdxT 40.1 -93.2 -48.6 18.3 84.1 -18.2 48.4 -3.6 1.0 83.9

MdyT -51.5 4.8 5.0 5.0 25.9 5.0 22.4 -70.2 -8.8 27.3

COMB ( 0 ) ( 17 ) ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 14 ) ( 15 ) ( 16 ) ( 18 )

CARR 31 32 33

FdzT 27.0 27.0 27.0

MdxT 40.1 -40.1 -40.1

MdyT 51.5 51.5 -51.5

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.6 19.6 19.6 19.6 17.4 17.4 17.4 15.9 15.9 15.9

MdxT 68.6 -68.6 0.0 0.0 18.9 -45.2 -24.6 18.9 -44.6 -24.9

MdyT 0.0 0.0 52.9 -52.9 191.9 76.8 -171.4 98.6 39.4 -87.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.0 19.0 19.0 18.2 18.2 18.2 16.6 16.6 16.6 14.2

MdxT 18.8 -45.8 -24.4 -16.7 -40.9 8.8 54.3 -23.2 -58.1 18.3

MdyT 289.5 115.8 -258.9 179.9 161.1 -158.2 203.8 81.5 -184.5 18.6

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 8 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.2 19.5 19.5 19.5 18.2 15.5 15.5 15.5 17.4 15.9

MdxT -43.0 18.2 -45.1 -23.7 31.6 77.4 -31.9 -79.8 -44.9 -44.2

MdyT -24.5 343.8 137.5 -315.8 -148.3 201.2 80.5 -192.1 -66.1 -31.1

COMB ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.3 18.3 14.3 19.6 18.3 18.3 19.6 19.6 19.6 19.6

MdxT -38.4 9.1 18.1 -44.8 -41.2 31.9 48.5 -48.5 -48.5 48.5

MdyT -60.8 -152.0 -17.5 -123.9 125.0 -142.1 37.4 37.4 -37.4 -37.4

COMB ( 13 ) ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.7 11.7 11.7 11.7 10.3 10.3 10.3 9.4 9.4 9.4

MdxT 40.8 -40.8 0.0 0.0 34.4 9.0 -19.2 23.4 9.4 -20.6

MdyT 0.0 0.0 31.5 -31.5 123.4 -68.5 -232.5 74.6 -53.1 -192.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 1 ) ( 10 ) ( 2 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.2 11.2 11.2 10.5 10.5 10.5 10.1 10.1 10.1 8.7

MdxT 33.6 36.3 -17.8 -11.6 -22.0 23.5 54.2 21.7 -44.1 23.2

MdyT 135.6 -84.6 -272.7 312.9 -67.1 -212.5 99.4 -69.9 -235.9 47.6

COMB ( 12 ) ( 3 ) ( 12 ) ( 13 ) ( 4 ) ( 17 ) ( 5 ) ( 5 ) ( 14 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.7 8.7 11.6 11.6 11.7 10.5 10.5 9.8 9.8 9.8

MdxT 9.3 -20.3 19.6 34.5 -15.8 -33.7 24.2 74.6 29.8 -59.6

MdyT -36.5 -151.2 149.2 -90.0 -285.0 306.6 -152.5 91.1 -65.5 -223.7

COMB ( 6 ) ( 15 ) ( 7 ) ( 7 ) ( 16 ) ( 17 ) ( 8 ) ( 9 ) ( 9 ) ( 18 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.3 9.4 11.2 10.5 10.5 10.1 8.7 11.7 11.7 9.8

MdxT 20.3 21.4 19.2 -22.7 5.7 52.2 21.3 17.6 31.8 72.5

MdyT 308.4 277.9 338.9 125.2 -229.2 304.1 248.5 350.1 140.1 291.9

COMB ( 10 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 18 )

CARR 41 42

FdzT 11.7 11.7

MdxT -28.9 -28.9

MdyT 22.3 -22.3

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.7 3.7 1.6 3.7 3.7 1.8 1.8 1.0 1.0 2.6

MdxT 11.8 -11.8 0.0 0.0 0.0 4.1 -8.1 5.7 -10.8 2.4

MdyT 0.0 0.0 44.0 10.0 -10.0 5.7 6.7 -53.1 64.8 67.2

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.6 2.6 1.7 1.7 1.7 1.9 1.9 0.3 0.3 3.1

MdxT -8.3 -5.5 -6.3 -7.3 -3.4 14.6 -13.0 6.7 -12.6 6.3

MdyT 26.9 -54.2 -12.7 12.5 29.3 24.2 -15.8 -97.2 107.7 109.1

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 12 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.2 3.2 1.6 1.6 1.9 1.9 2.3 2.3 2.3 1.4

MdxT -6.7 -3.5 -13.6 -8.2 21.3 -16.1 8.0 -5.0 -12.6 9.7

MdyT 43.1 -95.1 -25.5 17.6 36.1 -31.2 47.6 31.2 6.7 -13.9

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.4 3.1 3.1 2.2 2.2 2.4 2.4 0.9 0.9 3.7

MdxT -15.3 -3.9 -9.8 -8.3 -7.8 18.3 -17.4 10.5 -16.9 4.8

MdyT 67.5 43.8 -54.2 29.2 29.3 66.1 -15.8 -56.0 107.4 148.8

COMB ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 3.7 3.7 2.1 2.1 2.4 2.4 3.7 3.7 3.7

MdxT -11.7 -7.7 -10.4 -4.3 25.1 -20.3 8.3 -8.3 8.3

MdyT 59.5 -95.3 32.4 43.7 77.1 -31.5 7.1 -7.1 -7.1

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P6

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.7 42.4 42.4 42.4 42.4 40.9 42.3 42.4 39.7 39.7

MdxT -64.7 89.0 -89.0 0.0 0.0 -7.3 -9.5 -62.9 -5.7 -2.5

MdyT 0.0 0.0 0.0 114.4 -114.4 -5.9 -107.5 80.9 55.3 -8.1

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 15 ) ( 0 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.7 41.2 42.3 37.9 37.8 39.8 40.5 39.6 41.1 37.8

MdxT -41.6 27.3 -1.5 -4.9 -2.8 9.7 50.1 -5.9 27.2 -5.0

MdyT -2.4 -9.2 9.5 95.8 -12.7 -2.1 -11.6 55.0 -9.4 95.6

COMB ( 13 ) ( 5 ) ( 15 ) ( 7 ) ( 16 ) ( 8 ) ( 9 ) ( 12 ) ( 14 ) ( 16 )

CARR 21 22 23 24 25

FdzT 39.7 40.4 42.4 42.4 42.4

MdxT -64.7 50.0 62.9 -62.9 62.9

MdyT -2.1 -11.9 80.9 -80.9 -80.9

COMB ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.9 28.9 28.9 28.9 28.1 28.1 28.1 28.9 28.9 28.9

MdxT 101.2 -101.2 0.0 0.0 -28.7 75.1 41.3 -29.4 76.6 42.0

MdyT 0.0 0.0 78.0 -78.0 -102.6 -41.0 84.8 -179.8 -71.9 155.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.1 27.3 27.1 28.0 28.0 28.0 28.2 28.5 28.2 28.5

MdxT -58.2 73.8 65.4 -47.0 94.7 56.1 -10.5 76.2 26.6 -28.8

MdyT -91.1 -25.5 78.5 -99.7 -39.9 81.9 -105.7 -89.8 87.9 -224.6

COMB ( 17 ) ( 12 ) ( 17 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 14 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 28.6 28.5 26.0 26.0 27.1 27.5 27.5 27.4 28.2 26.0

MdxT 75.8 41.9 -26.5 71.2 26.2 2.9 57.7 16.2 59.2 -26.7

MdyT -89.7 201.0 32.9 -34.4 -36.5 -100.7 -40.3 88.5 -42.3 32.5

COMB ( 6 ) ( 15 ) ( 7 ) ( 7 ) ( 17 ) ( 9 ) ( 9 ) ( 18 ) ( 14 ) ( 16 )

CARR 31 32 33 34 35 36

FdzT 26.0 27.4 27.4 28.9 28.9 28.9

MdxT 71.6 2.7 57.6 71.6 -71.6 -71.6

MdyT -34.2 -101.1 -40.4 55.2 55.2 -55.2

COMB ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.6 16.6 16.6 16.6 16.3 16.3 16.3 16.6 16.6 16.6

MdxT 58.1 -58.1 0.0 0.0 -28.3 -49.4 22.7 -29.3 -50.9 23.2

MdyT 0.0 0.0 44.8 -44.8 -150.1 -60.0 130.1 -196.7 -78.7 163.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.0 16.0 16.0 16.2 16.2 16.3 16.3 16.5 16.5 16.5

MdxT -46.1 -48.0 32.9 -39.5 29.7 -17.1 15.8 -28.8 -50.3 22.3

MdyT -136.1 -41.3 116.1 -145.5 126.8 -154.7 133.3 -221.6 -88.6 176.3

COMB ( 17 ) ( 12 ) ( 17 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 15.5 15.5 15.5 16.1 16.1 16.1 16.6 16.6 16.6

MdxT -25.9 -45.7 20.6 -8.7 33.9 33.8 41.1 -41.1 41.1

MdyT -65.8 26.5 66.4 -151.5 -60.3 -60.6 31.7 31.7 -31.7

COMB ( 16 ) ( 16 ) ( 16 ) ( 18 ) ( 9 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.3 3.2 3.2 3.3 3.2 3.3

MdxT 10.4 -10.4 0.0 0.0 -12.0 19.0 23.8 -19.6 7.6 19.3

MdyT 0.0 0.0 16.1 -16.1 31.2 58.0 7.6 31.1 69.0 36.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 15 ) ( 17 ) ( 8 ) ( 15 ) ( 11 )

CARR 11 12 13 14 15 16 17

FdzT 3.3 3.3 3.3 3.3 3.3 3.2 3.3

MdxT -11.9 19.3 8.6 7.3 19.9 -20.3 -7.4

MdyT 31.2 -46.1 42.9 68.8 -45.9 30.9 -11.4

COMB ( 3 ) ( 7 ) ( 4 ) ( 6 ) ( 16 ) ( 17 ) ( 0 )

### P60

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.7 18.7 18.7 18.7 18.2 18.1 17.5 18.7 18.7 18.7

MdxT 39.4 -39.4 0.0 0.0 109.1 28.7 23.4 24.1 38.0 47.3

MdyT 0.0 0.0 50.6 -50.6 -25.9 9.7 48.4 -97.2 -80.2 -54.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 17 ) ( 10 ) ( 11 ) ( 16 ) ( 16 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.3 17.8 17.8 17.8 16.7 16.7 18.1 17.3 17.3 17.3

MdxT 76.3 43.8 18.6 -20.9 23.5 23.5 -11.1 58.2 23.1 -53.8

MdyT -11.6 -10.9 30.8 30.8 84.4 80.1 1.5 -14.3 44.7 44.7

COMB ( 4 ) ( 5 ) ( 14 ) ( 5 ) ( 15 ) ( 15 ) ( 8 ) ( 18 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26 27 28

FdzT 17.5 18.3 17.8 18.2 18.2 18.7 18.7 18.7

MdxT 23.4 77.3 44.2 -10.6 61.2 27.8 -27.8 -27.8

MdyT 48.3 -11.5 -10.8 1.7 -25.9 35.8 35.8 -35.8

COMB ( 11 ) ( 13 ) ( 14 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.1 13.1 13.1 13.1 12.7 12.7 12.7 12.3 12.3 12.3

MdxT 45.7 -45.7 0.0 0.0 11.3 -84.1 -18.1 13.0 -35.1 -19.7

MdyT 0.0 0.0 35.2 -35.2 -96.7 71.0 108.4 -84.8 42.2 105.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 17 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.1 13.1 13.1 12.9 12.9 12.5 12.5 12.5 11.7 11.7

MdxT 9.7 -31.2 -16.5 40.7 -58.0 -18.2 38.2 22.0 13.7 -35.7

MdyT -108.6 44.5 111.3 -74.5 86.8 -119.0 51.8 129.5 -71.7 40.9

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 5 ) ( 5 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.7 13.0 13.0 12.7 12.6 12.0 12.0 12.5 12.5 12.0

MdxT -20.4 8.3 -15.0 60.1 -33.5 -38.2 49.0 37.9 21.7 -38.1

MdyT 102.2 -111.3 111.7 -54.5 28.3 -128.1 142.5 52.0 129.9 -128.5

COMB ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 8 ) ( 9 ) ( 9 ) ( 14 ) ( 14 ) ( 18 )

CARR 31 32 33 34 35

FdzT 12.0 13.1 13.1 13.1 13.1

MdxT 48.7 32.3 -32.3 -32.3 32.3

MdyT 142.9 24.9 24.9 -24.9 -24.9

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 7.6 7.6 7.6 7.6 7.4 7.4 7.2 7.2 7.6 7.6

MdxT 26.6 -26.6 0.0 0.0 22.1 -19.9 21.1 -18.1 22.1 -20.2

MdyT 0.0 0.0 20.5 -20.5 -139.9 106.7 -121.7 79.4 -158.5 135.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 2 ) ( 2 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 7.5 7.5 7.3 7.3 7.3 7.0 7.0 7.6 7.6 7.4

MdxT 37.5 -27.0 6.7 -22.4 -12.9 21.3 -18.6 21.4 -19.6 47.0

MdyT -130.9 105.6 -149.0 -59.6 107.9 -104.2 53.1 -166.0 146.9 -120.3

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 7.4 7.1 7.1 7.1 7.2 7.2 7.1 7.6 7.6

MdxT -31.1 -5.3 -14.9 -7.3 22.1 -19.7 -4.5 18.8 -18.8

MdyT 98.0 -149.5 -60.0 101.9 -121.4 78.5 -150.1 14.5 -14.5

COMB ( 17 ) ( 9 ) ( 18 ) ( 18 ) ( 11 ) ( 11 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.6 1.6

MdxT 5.4 -5.4 0.0 0.0 19.6 7.7 -14.8 -18.5 6.6 -13.7

MdyT 0.0 0.0 8.4 -8.4 11.1 28.4 33.9 -49.1 58.4 55.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 11 ) ( 12 ) ( 15 ) ( 16 ) ( 16 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.7 1.7 1.7 1.6 1.6 1.6 1.7 1.6 1.6 1.7

MdxT 23.2 9.3 -15.0 13.3 -5.9 -14.7 7.8 5.6 -10.9 26.5

MdyT 11.3 16.8 3.1 10.6 15.8 2.5 -50.7 58.4 55.0 11.6

COMB ( 13 ) ( 13 ) ( 4 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.7 1.7 1.6 1.6 1.6 1.7 1.7 1.7 1.7 1.7

MdxT 10.6 -18.9 9.7 -5.4 -13.4 7.3 -16.2 -17.8 6.9 -17.9

MdyT 17.1 3.4 10.4 15.5 2.5 16.4 2.7 -28.4 38.8 2.9

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33

FdzT 1.7 1.7 1.7

MdxT -3.8 -3.8 3.8

MdyT 5.9 -5.9 -5.9

COMB ( 0 ) ( 0 ) ( 0 )

### P61

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.2 22.4 22.9 23.2 23.2 23.2 23.2 21.2 19.7 19.7

MdxT 0.0 -62.6 -104.9 48.7 -48.7 0.0 0.0 4.3 -7.8 -7.8

MdyT 0.0 0.0 0.0 0.0 0.0 62.7 -62.7 -12.3 43.3 -21.6

COMB ( 10 ) ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.8 22.7 22.5 19.9 19.8 22.6 18.3 18.3 18.5 23.2

MdxT 7.0 8.5 1.5 62.9 -69.0 77.6 -14.3 -14.3 8.7 13.3

MdyT -56.0 -44.5 31.6 0.6 8.7 -33.0 75.0 -33.9 -85.0 -74.5

COMB ( 11 ) ( 12 ) ( 3 ) ( 13 ) ( 4 ) ( 14 ) ( 6 ) ( 6 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.6 18.5 23.1 19.8 19.8 22.7 22.6 18.5 23.1 23.2

MdxT 103.9 -117.9 126.4 -7.7 -7.7 1.8 31.0 -13.7 50.6 34.5

MdyT 0.7 22.7 -46.6 45.2 -22.4 31.5 -33.0 -34.0 -46.6 44.3

COMB ( 17 ) ( 8 ) ( 18 ) ( 11 ) ( 11 ) ( 12 ) ( 14 ) ( 15 ) ( 18 ) ( 0 )

CARR 31 32

FdzT 23.2 23.2

MdxT -34.5 -34.5

MdyT 44.3 -44.3

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.7 15.7 15.7 15.7 14.5 14.5 13.8 13.7 13.8 15.5

MdxT 55.1 -55.1 0.0 0.0 -47.6 72.9 -51.2 45.4 76.0 -44.2

MdyT 0.0 0.0 42.5 -42.5 -65.0 83.9 21.1 101.1 -11.2 -152.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 4 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.5 13.7 13.7 15.4 15.3 12.6 12.6 12.6 15.7 15.7

MdxT 71.1 -14.7 21.3 -80.6 100.5 -51.9 30.4 76.0 -40.6 68.6

MdyT 178.9 -80.5 40.4 -50.4 66.8 83.6 33.4 -75.0 -207.3 241.6

COMB ( 12 ) ( 4 ) ( 4 ) ( 14 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 12.8 12.8 12.8 15.6 15.4 14.6 14.6 13.8 13.8 15.4

MdxT 8.7 43.7 26.0 -101.2 117.9 -47.7 73.6 -14.8 46.1 101.2

MdyT -87.2 44.7 111.9 -36.4 54.7 -65.8 83.9 -81.3 100.9 66.6

COMB ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 9 ) ( 10 ) ( 10 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 12.8 12.8 12.9 12.9 12.9 15.6 15.7 15.7

MdxT -52.1 76.7 8.5 44.7 26.7 118.6 -38.9 38.9

MdyT 82.7 -75.2 -88.1 44.7 111.7 54.6 30.0 -30.0

COMB ( 15 ) ( 15 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.1 9.1 9.1 9.1 8.5 8.5 8.2 8.2 8.8 8.8

MdxT 31.9 -31.9 0.0 0.0 -42.6 33.0 -44.8 36.7 -40.2 29.3

MdyT 0.0 0.0 24.6 -24.6 -110.9 87.2 -58.8 35.8 -165.2 141.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.1 8.1 8.9 8.9 7.8 7.8 8.9 8.9 7.8 7.8

MdxT -10.8 8.0 -74.3 58.2 -45.1 37.5 -37.1 24.8 12.0 21.6

MdyT -116.3 87.6 -105.3 86.9 -16.5 -7.7 -197.8 171.4 -116.3 -46.5

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.8 9.0 9.0 8.6 8.6 8.3 8.3 9.0 9.0 8.2

MdxT -10.8 -94.1 73.1 -43.5 35.4 -45.9 39.2 -41.2 31.6 -11.6

MdyT 82.3 -98.0 81.2 -107.4 85.5 -53.1 31.8 -161.8 139.3 -112.8

COMB ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 8.2 9.0 9.0 7.9 7.9 9.1 9.1 7.9 7.9 7.9

MdxT 10.4 -75.3 60.6 -45.9 39.8 -37.9 27.0 11.1 20.4 -8.5

MdyT 85.8 -101.9 85.3 -13.2 -9.5 -194.5 169.5 -113.0 -45.2 80.5

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 41 42 43 44

FdzT 9.1 9.1 9.1 9.1

MdxT -95.1 75.3 -22.6 22.6

MdyT -94.6 79.5 17.4 -17.4

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.0 2.0 2.0 2.0 1.8 1.8 1.8 1.9 1.9 1.9

MdxT 6.4 -6.4 0.0 0.0 -26.7 34.3 36.1 -34.3 18.0 44.9

MdyT 0.0 0.0 9.9 -9.9 13.0 83.7 6.6 13.7 -64.4 -63.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 12 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.8 1.8 1.8 1.7 1.7 1.7 1.9 1.9 1.9 1.9

MdxT -19.5 27.7 27.0 -16.2 12.5 34.9 -40.7 16.4 41.0 51.1

MdyT 12.5 132.4 79.8 12.0 17.7 10.4 14.4 20.5 6.7 -115.1

COMB ( 16 ) ( 16 ) ( 3 ) ( 4 ) ( 4 ) ( 17 ) ( 11 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.7 1.7 1.7 1.7 1.7 2.0 2.0 2.0 1.9 1.9

MdxT -13.4 20.6 -8.8 13.2 27.9 -45.6 -17.7 48.3 17.4 43.4

MdyT 11.9 128.5 11.2 16.6 6.4 14.8 21.4 10.8 19.9 10.6

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 15 ) ( 9 ) ( 14 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.9 1.8 1.8 1.8 1.8 2.0 2.0 2.0 2.0 2.0

MdxT 52.5 13.7 -22.3 15.4 38.5 19.3 58.2 -50.3 20.4 51.1

MdyT -62.3 85.7 12.6 18.5 10.5 21.4 -111.0 15.5 22.4 10.8

COMB ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 15 ) ( 18 ) ( 18 ) ( 18 )

CARR 41 42

FdzT 2.0 2.0

MdxT -4.5 4.5

MdyT -7.0 -7.0

COMB ( 0 ) ( 0 )

### P62

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.8 13.8 7.9 8.0 13.8 13.8 9.4 9.4 6.3 6.3

MdxT 29.0 -29.0 0.0 0.0 0.0 0.0 -42.8 9.7 45.4 22.7

MdyT 0.0 0.0 -14.8 -15.8 37.3 -37.3 -14.4 -2.4 -15.1 -15.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 10 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 6.3 4.4 4.4 4.4 11.5 11.5 11.4 10.5 10.5 5.3

MdxT -11.2 3.9 3.9 -1.5 -3.5 -3.5 0.6 -74.9 17.4 75.3

MdyT -1.8 49.7 26.8 -7.6 -80.4 -46.9 3.2 -13.9 -2.5 -14.8

COMB ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 5 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 5.3 2.2 2.2 13.8 13.8 13.8 9.6 9.6 6.4 6.4

MdxT -18.3 6.3 -2.4 -6.0 -6.0 20.5 -44.8 10.2 45.4 22.7

MdyT -1.7 93.2 -11.1 -122.9 -71.0 26.3 -15.5 -2.5 -16.2 -16.2

COMB ( 7 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 0 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 6.4 4.6 4.6 4.6 10.7 10.7 5.4 5.4 2.3 2.3

MdxT -11.2 3.9 3.9 -1.5 -74.9 17.4 75.2 -18.3 6.3 -2.2

MdyT -2.0 48.7 26.2 -7.6 -14.8 -2.7 -16.0 -1.7 92.1 -11.2

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 41 42 43

FdzT 13.8 13.8 13.8

MdxT -20.5 -20.5 20.5

MdyT 26.3 -26.3 -26.3

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.9 8.9 8.9 8.9 5.1 5.1 5.1 5.9 5.9 5.9

MdxT 31.1 -31.1 0.0 0.0 -7.6 16.7 9.8 -40.2 16.2 40.5

MdyT 0.0 0.0 24.0 -24.0 30.9 15.7 -7.3 32.2 16.7 -6.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.3 4.3 2.9 2.9 2.9 7.3 7.3 7.3 6.4 6.4

MdxT 26.6 -22.3 -5.5 3.0 7.6 -9.5 21.3 12.0 -64.1 63.0

MdyT 29.7 -8.1 89.2 35.7 -68.3 -27.3 21.6 53.9 30.9 -4.1

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.9 3.9 1.5 1.5 1.5 8.8 8.8 8.8 5.2 5.2

MdxT 49.7 -44.0 -3.9 2.4 5.9 -10.6 24.0 13.3 -7.6 16.8

MdyT 26.6 -6.9 125.9 50.3 -107.2 -68.3 38.5 96.3 28.4 14.3

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 5.2 6.0 6.0 6.0 4.4 4.4 3.0 3.0 3.0 7.4

MdxT 9.8 -41.7 16.7 41.9 26.6 -22.3 -5.5 3.0 7.6 -9.5

MdyT -6.9 29.7 15.4 -6.0 27.0 -7.7 86.7 34.7 -67.9 -30.0

COMB ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 7.4 7.4 6.5 6.5 3.9 3.9 1.6 1.6 1.6 8.9

MdxT 21.4 12.0 -64.1 63.0 49.7 -43.8 -3.8 2.4 5.9 -10.6

MdyT 21.7 54.3 28.4 -3.6 24.1 -6.4 123.3 49.3 -106.8 -70.8

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 51 52 53 54 55

FdzT 8.9 8.9 8.9 8.9 8.9

MdxT 24.1 13.3 -22.0 -22.0 22.0

MdyT 38.7 96.7 17.0 -17.0 -17.0

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 6.2 7.0 7.0 7.0 7.0 5.1 5.1 5.1 5.3 5.3

MdxT 1.0 24.0 -24.0 0.0 0.0 -1.1 -10.6 -1.4 -22.3 -8.9

MdyT 0.0 0.0 0.0 18.8 -18.8 44.9 -19.9 -49.7 40.6 -18.8

COMB ( 14 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.3 4.8 4.8 4.8 3.9 3.9 3.9 6.2 6.2 5.5

MdxT 12.0 21.1 8.5 -15.5 3.1 -8.2 -3.8 -13.0 1.0 -37.9

MdyT -47.0 49.6 -21.0 -52.5 105.4 42.2 -94.2 -15.5 -5.2 35.0

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 5.5 5.5 4.6 4.6 4.6 3.1 3.1 3.1 7.0 7.0

MdxT -15.2 22.1 35.8 14.3 -24.9 5.7 9.7 -5.3 -8.3 -15.5

MdyT -17.1 -42.8 50.4 -20.8 -52.1 143.5 57.4 -121.5 -65.1 -26.6

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 7.0 5.1 5.1 5.4 5.4 5.4 3.9 6.2 6.2 5.5

MdxT 2.7 -1.4 -10.7 -23.5 -9.4 12.7 -8.3 -5.5 -13.1 -38.4

MdyT 31.2 37.7 -18.0 33.0 -16.9 -42.1 39.3 -22.8 -13.9 28.0

COMB ( 18 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 13 ) ( 14 ) ( 14 ) ( 15 )

CARR 41 42 43 44 45 46

FdzT 5.5 5.5 7.0 7.0 7.0 7.0

MdxT -15.3 22.3 17.0 -17.0 -17.0 17.0

MdyT -15.3 -38.2 13.3 13.3 -13.3 -13.3

COMB ( 15 ) ( 15 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.2 4.2 4.1 4.2 4.2 3.7 3.7 3.7 3.7 3.4

MdxT 13.5 -13.5 0.0 0.0 0.0 13.2 -11.6 -11.6 5.6 2.0

MdyT 0.0 0.0 -59.4 -81.6 11.4 -35.1 -15.1 17.8 -5.2 9.7

COMB ( 0 ) ( 0 ) ( 5 ) ( 18 ) ( 0 ) ( 3 ) ( 2 ) ( 3 ) ( 2 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.4 3.4 4.1 4.1 3.7 3.7 3.6 3.6 3.1 3.1

MdxT -7.1 -4.1 -8.5 -2.2 -20.7 -8.3 21.7 -17.4 2.5 -6.9

MdyT -5.8 -16.9 -25.0 26.6 -7.3 -11.2 -41.4 25.2 33.2 13.3

COMB ( 4 ) ( 13 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.1 4.2 4.2 4.2 3.7 3.7 3.4 4.0 4.0 3.7

MdxT -4.2 -1.0 -8.9 -1.8 13.9 -12.5 -7.1 -8.5 -3.1 -8.1

MdyT -31.1 -81.8 -33.0 40.0 -35.0 15.3 -6.8 -25.8 24.2 -12.6

COMB ( 17 ) ( 9 ) ( 9 ) ( 9 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36 37 38

FdzT 3.6 3.6 4.2 4.2 4.2 4.2 4.2 4.2

MdxT 22.3 -18.1 -8.8 -2.5 9.5 -9.5 -9.5 9.5

MdyT -41.3 22.8 -33.9 37.7 8.1 8.1 -8.1 -8.1

COMB ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P63

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 35.3 35.3 35.3 35.3 30.6 30.6 31.7 31.5 29.7 29.7

MdxT 74.2 -74.2 0.0 0.0 12.6 1.5 -71.3 11.3 63.0 34.3

MdyT 0.0 0.0 95.4 -95.4 -4.2 1.0 -4.1 0.8 -4.8 -4.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 15 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.7 33.7 33.7 27.5 27.5 31.3 31.3 28.3 28.3 28.3

MdxT -8.7 14.6 1.3 10.8 1.8 -71.4 18.6 96.5 51.7 -15.4

MdyT 1.3 60.2 -4.5 -68.6 6.4 -2.9 0.7 -5.2 -5.2 1.3

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 35.0 35.0 35.0 24.7 24.7 30.9 30.9 31.8 31.8 30.0

MdxT 15.7 15.7 1.0 9.2 2.1 12.7 1.5 -37.7 11.8 63.1

MdyT 103.3 58.7 -8.1 -111.3 10.1 -5.3 1.0 -4.6 0.7 -5.9

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 30.0 30.0 34.0 34.0 27.8 27.8 31.7 28.6 28.6 28.6

MdxT 34.4 -8.7 14.7 1.3 10.8 2.0 18.6 96.5 51.7 -15.4

MdyT -5.9 1.1 59.1 -4.5 -69.6 6.3 0.6 -6.2 -6.2 1.1

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45 46 47

FdzT 35.3 35.3 35.3 25.0 25.0 35.3 35.3

MdxT 15.7 52.4 52.4 9.4 2.2 -52.4 -52.4

MdyT 102.2 67.4 -67.4 -112.4 9.9 67.4 -67.4

COMB ( 17 ) ( 0 ) ( 0 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.2 28.2 28.2 28.2 25.3 25.4 25.4 25.7 25.7 25.7

MdxT 98.7 -98.7 0.0 0.0 57.3 60.3 -53.3 32.5 61.3 -10.4

MdyT 0.0 0.0 76.1 -76.1 -119.7 -72.9 -66.4 -114.5 -74.6 -99.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 1 ) ( 6 ) ( 10 ) ( 10 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 24.9 24.9 27.3 27.3 23.4 23.4 23.4 25.4 23.9 23.9

MdxT 56.7 -49.1 64.9 -30.4 29.4 55.6 -24.2 -10.8 71.7 -63.6

MdyT -116.3 -12.0 -65.7 -77.1 -173.7 -85.8 46.1 -96.3 -113.5 -9.7

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.9 27.9 21.4 21.4 21.4 25.7 26.2 26.2 26.2 27.7

MdxT 65.6 -32.3 26.3 50.0 -22.1 -54.0 7.7 54.9 -6.0 65.9

MdyT -71.3 -118.3 -209.3 -90.7 87.1 -68.1 -109.3 -72.9 -18.2 -66.6

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 15 ) ( 11 ) ( 11 ) ( 11 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 23.8 23.8 24.2 24.2 28.2 28.2 21.7 21.7 21.7 28.2

MdxT 30.0 -24.6 72.2 -64.0 66.4 -32.8 26.9 51.0 -22.4 69.8

MdyT -177.1 46.9 -116.8 -8.8 -72.0 -117.3 -212.5 -92.3 87.9 53.8

COMB ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

CARR 41 42 43

FdzT 28.2 28.2 28.2

MdxT -69.8 -69.8 69.8

MdyT 53.8 -53.8 -53.8

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.3 11.3 11.3 11.3 9.4 9.4 9.8 9.8 9.0 9.0

MdxT 39.5 -39.5 0.0 0.0 41.3 -51.0 22.5 -34.3 60.9 -68.3

MdyT 0.0 0.0 30.5 -30.5 -90.7 164.1 -93.7 164.9 -87.8 163.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.4 10.4 8.4 8.4 10.0 10.0 10.0 8.6 8.6 11.0

MdxT 43.7 -53.3 39.1 -48.4 22.3 -34.0 -19.2 72.4 -76.9 43.5

MdyT -26.6 113.3 -154.8 214.9 -102.9 171.4 157.8 -82.7 154.6 19.0

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 11 ) ( 11 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.0 7.6 7.6 9.6 9.6 9.2 9.2 10.7 10.7 8.6

MdxT -52.1 35.7 -44.0 41.7 -51.4 61.3 -68.7 44.1 -53.8 39.5

MdyT 71.4 -194.5 240.9 -99.8 170.4 -96.9 169.4 -35.8 119.4 -163.9

COMB ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 8.6 10.2 10.2 10.2 8.9 8.9 11.3 11.3 7.8 7.8

MdxT -48.9 7.4 -33.4 -19.6 72.8 -77.3 44.0 -52.5 36.1 -44.4

MdyT 221.2 -101.5 65.5 163.8 -91.6 160.6 10.4 77.4 -203.3 247.0

COMB ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43

FdzT 11.3 11.3 11.3

MdxT 27.9 -27.9 27.9

MdyT 21.5 -21.5 -21.5

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.5 5.0 5.0 5.0 5.0 4.5 4.5 4.8 4.8 4.9

MdxT -20.0 15.9 -15.9 0.0 0.0 2.7 -10.9 -16.9 -16.2 -19.0

MdyT 0.0 0.0 0.0 13.5 -13.5 53.6 32.3 65.0 33.4 -22.5

COMB ( 1 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 2 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.2 4.2 4.2 4.8 4.2 5.0 5.0 3.9 3.9 3.9

MdxT 21.6 -14.8 -37.0 2.5 -21.7 -28.8 8.3 34.2 -22.5 -48.0

MdyT 41.9 30.9 14.6 88.9 22.0 71.7 -23.2 32.8 36.7 24.5

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 9 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 5.0 5.0 3.9 4.5 4.5 4.8 4.2 4.2 4.2 5.0

MdxT 2.4 -17.6 2.9 -11.5 -20.6 -17.3 -15.0 -37.5 -22.3 -29.5

MdyT 111.0 -36.7 -6.7 31.7 -0.8 32.9 30.3 13.4 20.9 71.4

COMB ( 8 ) ( 17 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 14 ) ( 15 )

CARR 31 32 33 34 35 36

FdzT 5.0 3.9 3.9 3.9 5.0 5.0

MdxT 7.7 -48.6 2.4 -23.1 11.3 11.3

MdyT -24.4 23.4 -7.0 35.6 9.5 -9.5

COMB ( 15 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P64

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.4 13.4 7.7 7.9 13.4 13.4 7.7 6.1 6.1 9.2

MdxT 28.2 -28.2 0.0 0.0 0.0 0.0 3.6 -39.5 10.6 48.7

MdyT 0.0 0.0 -2.0 -2.1 36.2 -36.2 -16.2 -13.2 -1.8 -19.5

COMB ( 0 ) ( 0 ) ( 1 ) ( 10 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 9.2 9.2 4.4 4.4 4.4 10.9 10.9 10.9 5.0 5.0

MdxT 25.1 -10.4 8.1 8.1 -0.6 -0.8 1.3 1.3 -71.5 18.2

MdyT -19.5 -2.0 51.0 27.5 -7.7 -83.4 -48.6 3.8 -10.4 -1.8

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.3 10.3 10.3 2.2 2.2 13.2 13.2 13.2 7.9 6.3

MdxT 78.5 40.2 -17.4 10.9 -1.1 -4.1 -4.1 2.0 3.5 -41.4

MdyT -21.1 -21.1 -2.0 96.3 -11.3 -127.8 -73.6 7.7 -17.5 -14.1

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 6.3 9.5 9.5 9.5 4.6 4.6 4.6 11.2 11.2 11.2

MdxT 11.1 48.6 25.1 -10.2 8.0 8.0 -0.6 -1.0 1.4 1.4

MdyT -2.0 -20.7 -20.7 -2.1 49.8 26.8 -7.8 -84.7 -49.4 3.6

COMB ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 5.3 5.3 10.6 10.6 10.6 2.5 2.5 13.4 13.4 13.4

MdxT -71.7 18.2 78.5 40.2 -17.4 10.9 -1.1 -4.1 -4.1 19.9

MdyT -11.5 -1.8 -22.3 -22.3 -2.1 95.2 -11.5 -128.9 -74.3 25.6

COMB ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 51 52 53

FdzT 13.4 13.4 13.4

MdxT -19.9 -19.9 19.9

MdyT 25.6 -25.6 -25.6

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.8 8.8 8.8 8.8 5.1 5.1 5.1 4.3 4.3 5.8

MdxT 30.8 -30.8 0.0 0.0 -1.1 -10.6 -1.3 -33.7 29.3 33.0

MdyT 0.0 0.0 23.7 -23.7 34.6 15.0 -14.4 34.3 -14.8 34.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.8 5.8 3.0 3.0 3.0 7.1 7.1 7.1 3.8 3.8

MdxT -13.3 -33.3 3.4 -10.3 -6.2 -5.5 -15.0 3.6 -57.8 51.8

MdyT 15.3 -13.9 96.3 38.5 -80.2 -27.3 20.6 51.5 31.8 -13.2

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 6.4 6.4 1.6 1.6 1.6 8.6 8.6 8.6 5.3 5.3

MdxT 56.0 -54.9 6.4 -3.9 -9.7 -8.3 -18.0 6.7 -1.3 -11.1

MdyT 32.5 -11.5 135.1 54.0 -122.1 -70.8 39.0 97.6 31.6 13.7

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 5.3 4.5 4.5 6.1 6.1 6.1 3.2 3.2 3.2 7.4

MdxT -1.3 -35.3 30.8 32.9 -13.3 -33.3 3.2 -10.5 -6.2 -5.6

MdyT -13.3 31.4 -13.7 31.8 14.0 -12.7 93.4 37.4 -79.2 -30.2

COMB ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 7.4 7.4 4.0 4.0 6.6 6.6 1.9 1.9 1.9 8.8

MdxT -15.5 3.6 -58.0 51.9 55.9 -54.9 6.3 -3.9 -9.7 -8.4

MdyT 21.1 52.6 29.0 -12.0 29.7 -10.4 132.3 52.9 -121.1 -73.6

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 )

CARR 51 52 53 54 55 56

FdzT 8.8 8.8 8.8 8.8 8.8 8.8

MdxT -18.5 6.7 21.8 -21.8 -21.8 21.8

MdyT 39.4 98.6 16.8 16.8 -16.8 -16.8

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 6.8 6.8 5.9 6.1 6.8 6.8 4.8 4.8 4.8 4.6

MdxT 23.3 -23.3 0.0 0.0 0.0 0.0 0.8 -10.1 -3.2 -20.4

MdyT 0.0 0.0 15.8 23.7 18.3 -18.3 34.7 13.9 -34.2 38.1

COMB ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.6 5.1 5.1 5.1 3.7 3.7 3.7 5.9 5.9 4.4

MdxT 10.2 23.1 9.2 -17.4 4.6 -11.4 -6.7 -2.9 -12.4 -36.1

MdyT -35.6 31.1 -13.1 -32.8 103.0 41.2 -84.1 -33.7 -13.9 38.8

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.4 5.2 5.2 5.2 3.0 3.0 3.0 6.6 6.6 6.6

MdxT 20.4 37.8 15.1 -26.7 7.1 -3.6 -9.0 -5.6 -13.9 2.8

MdyT -35.0 27.0 -12.1 -30.2 146.9 58.7 -115.9 -81.1 -32.4 50.8

COMB ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 5.0 5.0 5.0 4.7 4.7 4.7 3.9 3.9 3.9 6.1

MdxT 0.6 -10.5 -3.1 -21.7 -8.7 11.1 4.3 -11.3 -6.6 -3.4

MdyT 22.8 -10.5 -26.3 26.3 -11.1 -27.9 91.1 36.5 -76.4 -45.6

COMB ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 13 ) ( 13 ) ( 13 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 6.1 4.5 4.5 4.5 5.4 5.4 5.4 3.1 3.1 3.1

MdxT -12.8 -36.4 -14.6 20.6 37.5 15.0 -26.5 6.9 -3.5 -8.8

MdyT -18.3 27.3 -11.0 -27.4 15.4 -9.1 -22.7 135.4 54.2 -108.5

COMB ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 )

CARR 51 52 53 54 55 56 57

FdzT 6.8 6.8 6.8 6.8 6.8 6.8 6.8

MdxT -5.9 -14.2 2.9 16.5 -16.5 -16.5 16.5

MdyT -92.5 -37.0 58.2 12.9 12.9 -12.9 -12.9

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.1 4.1 3.6 4.1 4.1 3.6 3.6 3.6 3.6 3.7

MdxT 13.1 -13.1 0.0 0.0 0.0 8.3 -22.7 -4.2 0.8 20.7

MdyT 0.0 0.0 3.2 11.1 -11.1 -21.4 -28.8 -31.8 3.2 -10.9

COMB ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 0 ) ( 10 ) ( 16 ) ( 11 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.7 3.7 3.3 3.3 3.3 4.0 3.9 3.9 3.5 3.5

MdxT 8.3 -17.1 9.1 3.6 -7.3 7.0 -11.8 -7.7 -13.3 7.3

MdyT -17.0 -21.0 14.6 -10.8 -26.9 -54.7 -27.2 10.1 -35.7 11.9

COMB ( 12 ) ( 12 ) ( 4 ) ( 4 ) ( 4 ) ( 14 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.6 3.6 3.0 3.0 3.0 4.1 4.1 4.1 3.3 3.3

MdxT 28.8 11.5 9.8 3.9 -6.9 5.7 -13.0 -7.7 9.7 3.9

MdyT -3.5 -18.7 37.1 -15.7 -39.2 -76.4 -37.0 22.5 11.9 -11.7

COMB ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 9 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 3.3 4.0 4.0 3.5 3.1 3.1 3.1 4.1 4.1 4.1

MdxT -8.1 -3.4 -8.5 -12.7 10.2 4.1 -7.7 -8.5 9.3 -9.3

MdyT -27.4 -29.0 9.7 -38.2 34.6 -15.8 -39.6 22.1 7.8 7.8

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

CARR 41

FdzT 4.1

MdxT 9.3

MdyT -7.8

COMB ( 0 )

### P65

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 38.1 36.7 38.4 35.6 42.6 42.6 42.6 42.6 37.6 36.7

MdxT -19.9 7.4 -19.7 14.3 89.5 -89.5 0.0 0.0 -3.8 -54.2

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 115.1 -115.1 -9.8 -6.9

COMB ( 16 ) ( 11 ) ( 7 ) ( 6 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.4 41.2 40.9 34.2 34.5 35.3 42.6 42.6 31.1 31.1

MdxT 79.9 -3.2 -3.2 -4.8 -2.2 -88.1 -3.6 -63.3 -5.7 -5.7

MdyT -13.3 58.5 -5.6 -76.9 6.2 -4.6 103.5 -81.4 -121.4 -68.9

COMB ( 7 ) ( 4 ) ( 13 ) ( 14 ) ( 5 ) ( 15 ) ( 8 ) ( 0 ) ( 18 ) ( 18 )

CARR 21 22 23 24 25 26

FdzT 31.4 38.1 31.1 42.6 42.6 42.6

MdxT -2.0 79.8 -2.0 63.3 -63.3 63.3

MdyT 9.9 -14.4 9.8 81.4 81.4 -81.4

COMB ( 9 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 33.0 33.0 33.0 33.0 30.1 30.4 30.2 29.7 30.0 30.5

MdxT 115.5 -115.5 0.0 0.0 -63.8 -104.7 63.5 -88.9 79.4 -72.9

MdyT 0.0 0.0 89.1 -89.1 -86.9 -55.1 -71.0 -91.8 -8.5 -82.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 1 ) ( 7 ) ( 11 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.8 32.5 32.5 28.1 28.1 28.6 28.9 33.0 33.0 33.0

MdxT 36.4 -104.9 57.4 -65.0 60.6 -102.5 93.5 -81.7 -100.1 55.2

MdyT -16.7 -79.9 -79.9 -154.8 56.0 -90.6 -5.0 63.0 -61.0 -124.2

COMB ( 3 ) ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 15 ) ( 6 ) ( 0 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.2 26.2 29.7 30.5 32.2 32.2 28.6 30.0 32.7 32.7

MdxT -61.3 58.5 81.6 -38.6 -106.3 58.7 94.6 62.9 -58.7 56.3

MdyT -192.2 100.4 -7.3 -82.0 -78.8 -78.8 -3.9 -74.3 30.5 -123.1

COMB ( 9 ) ( 9 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 17 )

CARR 31 32 33 34 35

FdzT 25.9 25.9 33.0 33.0 33.0

MdxT -62.6 59.6 81.7 -81.7 81.7

MdyT -195.6 101.5 63.0 -63.0 -63.0

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.3 20.3 20.3 20.3 18.8 19.0 18.8 18.5 18.5 18.5

MdxT 70.9 -70.9 0.0 0.0 -56.7 -65.5 49.6 -76.2 -30.5 66.6

MdyT 0.0 0.0 54.7 -54.7 -140.1 70.9 170.4 -139.2 68.8 171.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 12 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.2 19.2 19.2 19.9 19.9 19.9 17.7 17.7 17.7 17.8

MdxT -36.4 -62.2 31.6 -52.9 -21.2 46.9 -60.6 -24.2 52.2 -88.6

MdyT -141.1 67.5 168.8 -67.2 45.0 112.4 -213.1 91.4 228.5 -133.8

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.8 17.8 20.3 20.3 20.3 16.5 16.5 16.5 18.6 18.6

MdxT -35.4 76.7 -50.1 -50.1 42.4 -61.2 -24.5 51.4 -59.4 -23.7

MdyT 66.2 165.5 -38.7 38.7 66.1 -257.2 103.8 259.6 -152.0 71.5

COMB ( 6 ) ( 6 ) ( 0 ) ( 0 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.6 18.2 18.2 18.2 19.0 19.0 19.7 19.7 19.7 17.5

MdxT 51.7 -79.8 -31.9 69.6 -39.1 33.7 -55.6 -22.2 49.0 -63.3

MdyT 178.8 -151.1 72.2 180.5 -153.0 177.2 -79.1 48.3 120.8 -225.1

COMB ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 17.5 17.5 17.6 17.6 17.6 16.3 16.3 20.3 20.3

MdxT -25.3 54.3 -91.1 -36.5 78.8 -63.7 53.3 50.1 50.1

MdyT 94.8 236.9 -145.3 69.4 173.6 -268.7 267.7 38.7 -38.7

COMB ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.9 4.7 4.7 4.7 4.7 4.2 4.2 3.9 3.9 4.5

MdxT -3.6 14.9 -14.9 0.0 0.0 -4.1 37.1 -20.4 52.9 20.6

MdyT 0.0 0.0 0.0 12.6 -12.6 34.9 46.9 24.5 60.8 52.4

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.5 4.5 4.5 3.9 3.6 3.6 4.7 4.7 4.7 4.7

MdxT 23.9 -4.6 37.4 37.0 -32.5 63.7 24.4 24.7 -4.8 20.1

MdyT 40.4 69.3 27.2 66.6 16.0 69.7 52.2 39.8 91.4 59.9

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.7 3.6 3.6 4.2 4.2 3.8 3.8 4.5 4.5 4.5

MdxT 36.7 -4.3 36.0 -5.2 38.8 -22.3 55.3 24.6 -5.6 21.2

MdyT 12.6 -25.5 78.5 32.5 45.8 21.7 60.3 38.5 66.9 50.6

COMB ( 8 ) ( 18 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 4.5 3.8 3.8 3.6 3.6 4.6 4.6 4.6 3.6 4.7

MdxT 39.1 -4.8 38.6 -33.5 65.4 -5.9 20.6 38.2 37.5 -10.5

MdyT 26.0 -1.8 65.5 13.7 68.7 89.2 58.1 11.5 77.4 8.9

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 )

CARR 41 42

FdzT 4.7 4.7

MdxT -10.5 10.5

MdyT -8.9 -8.9

COMB ( 0 ) ( 0 )

### P66

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.7 3.4 3.9 3.3 4.1 4.2 4.2 4.0 4.2 4.0

MdxT 1.0 -5.2 7.1 -9.2 11.1 8.9 -8.9 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -3.2 -11.5 -3.2

COMB ( 10 ) ( 13 ) ( 5 ) ( 8 ) ( 18 ) ( 0 ) ( 0 ) ( 2 ) ( 0 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.2 3.7 4.0 4.0 3.3 3.3 3.3 3.4 3.9 3.9

MdxT 0.0 1.0 4.2 4.2 -2.4 -2.5 50.5 30.8 -29.0 -14.6

MdyT 11.5 7.7 58.4 33.7 -45.5 -45.4 7.3 7.4 7.8 7.8

COMB ( 0 ) ( 10 ) ( 2 ) ( 2 ) ( 3 ) ( 12 ) ( 17 ) ( 4 ) ( 14 ) ( 14 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.2 4.2 3.1 3.1 3.1 3.3 4.1 4.1 4.0 3.7

MdxT 6.6 6.6 -4.6 -4.8 2.0 50.7 -48.9 -24.9 11.2 0.8

MdyT 95.8 55.3 -81.2 -81.1 5.3 7.1 7.6 7.6 -0.6 7.7

COMB ( 6 ) ( 6 ) ( 7 ) ( 16 ) ( 16 ) ( 8 ) ( 18 ) ( 18 ) ( 9 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 4.0 4.0 3.3 3.4 4.2 3.1 4.2 4.2 4.2

MdxT 4.2 4.2 -2.5 30.7 6.4 -4.8 -6.3 -6.3 6.3

MdyT 60.8 35.2 -26.0 7.6 95.9 -46.5 8.1 -8.1 -8.1

COMB ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 15 ) ( 16 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.5 1.5 1.3 1.3 1.5 1.5 1.4 1.4 1.4 1.4

MdxT 5.2 -5.2 0.0 0.0 0.0 0.0 -8.5 10.5 -24.5 20.3

MdyT 0.0 0.0 46.5 46.1 4.0 -4.0 -48.4 56.0 -53.5 63.1

COMB ( 0 ) ( 0 ) ( 8 ) ( 17 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 9 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.3 1.3 1.3 1.3 1.4 1.4 1.4 1.3 1.3 1.3

MdxT -8.8 7.6 10.2 1.1 -9.8 -24.8 20.6 -8.8 3.9 9.8

MdyT -57.4 -41.2 51.5 -44.9 25.3 -52.8 62.7 -62.6 -25.0 47.2

COMB ( 3 ) ( 17 ) ( 3 ) ( 4 ) ( 9 ) ( 18 ) ( 18 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.3 1.3 1.4 1.4 1.5 1.3 1.3 1.3 1.4 1.4

MdxT 7.8 10.1 -8.8 10.6 10.9 -9.1 4.2 10.5 1.0 5.2

MdyT -41.9 46.8 -47.7 55.6 60.2 -56.7 -22.7 51.1 -44.2 20.3

COMB ( 8 ) ( 16 ) ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37

FdzT 1.4 1.5 1.5 1.3 1.4 1.5 1.5

MdxT 4.6 -8.1 10.8 -9.1 -9.9 -3.6 3.6

MdyT 50.7 -32.2 61.9 -61.9 25.1 2.8 -2.8

COMB ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

### P67

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.2 12.2 13.8 13.8 11.4 10.7 13.8 13.8 12.3 13.2

MdxT -58.4 8.7 29.0 -29.0 0.0 0.0 0.0 0.0 -6.9 -3.4

MdyT 0.0 0.0 0.0 0.0 2.8 4.9 37.3 -37.3 5.5 48.4

COMB ( 18 ) ( 9 ) ( 0 ) ( 0 ) ( 3 ) ( 16 ) ( 0 ) ( 0 ) ( 10 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.2 11.4 11.4 12.3 12.3 12.3 13.8 13.8 13.8 10.7

MdxT -1.5 -10.4 -10.5 44.8 -37.8 -20.8 -0.8 -2.0 -20.5 -12.7

MdyT -3.4 -40.5 -40.0 10.2 2.4 2.4 80.8 46.3 -26.4 -71.1

COMB ( 11 ) ( 3 ) ( 12 ) ( 17 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 0 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 10.7 12.2 13.2 11.4 13.8 10.7 13.8 13.8 13.8

MdxT -12.9 -58.4 -3.2 -10.5 -2.0 -12.9 20.5 -20.5 20.5

MdyT -70.7 -0.6 50.8 -22.9 -5.3 -40.5 26.4 26.4 -26.4

COMB ( 16 ) ( 9 ) ( 11 ) ( 12 ) ( 15 ) ( 16 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.8 3.8 3.8 3.8 3.4 3.4 3.7 3.7 3.2 3.2

MdxT 33.6 -13.3 0.0 0.0 -21.0 34.7 -20.3 34.3 -21.7 35.1

MdyT 0.0 0.0 10.3 -10.3 -44.5 48.3 -14.1 21.1 -76.4 76.6

COMB ( 6 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.4 3.4 3.5 3.5 3.8 3.8 3.0 3.0 3.0 3.3

MdxT -10.4 25.9 -31.5 43.4 -19.3 13.4 -21.8 14.1 35.1 -2.9

MdyT -52.5 58.8 -36.7 37.8 12.2 9.5 -96.5 -38.6 94.8 -56.6

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.3 3.4 3.4 3.4 3.4 3.5 3.8 3.4 3.8 3.8

MdxT 19.9 -38.2 19.6 49.0 26.0 -31.6 13.4 19.9 -9.4 9.4

MdyT 65.1 -30.2 -12.1 30.0 58.2 -33.9 7.3 25.8 -7.3 -7.3

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 13 ) ( 14 ) ( 15 ) ( 17 ) ( 0 ) ( 0 )

### P68

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.8 4.1 3.5 3.4 3.9 4.2 3.7 3.5 5.2 5.2

MdxT -5.5 0.8 -11.8 -16.0 -5.5 0.8 -11.8 -16.0 11.0 -11.0

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

COMB ( 1 ) ( 4 ) ( 5 ) ( 9 ) ( 10 ) ( 13 ) ( 14 ) ( 18 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.2 5.2 3.8 4.6 4.6 3.0 3.0 4.1 3.5 3.5

MdxT 0.0 0.0 -18.1 -21.0 -4.8 -15.0 -6.2 -47.2 11.1 -4.7

MdyT 14.1 -14.1 -13.7 -50.3 2.9 24.6 -2.7 -18.2 -9.1 -9.1

COMB ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 ) ( 4 ) ( 5 ) ( 5 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 5.1 5.1 2.5 2.5 4.3 4.3 3.4 3.4 3.9 4.7

MdxT -23.2 -4.3 -12.9 -6.6 -66.6 5.0 30.5 12.2 -18.1 -21.1

MdyT -76.9 5.0 50.5 -4.6 -20.9 0.7 -5.6 -5.6 -14.0 -52.2

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 4.7 3.1 3.1 4.2 3.7 3.7 5.2 5.2 2.6 2.6

MdxT -4.8 -15.0 -6.2 -47.2 11.1 -4.7 -23.2 -7.8 -13.0 -6.6

MdyT 3.1 24.4 -2.8 -18.5 -9.4 -9.4 -77.1 10.0 50.3 -4.6

COMB ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 0 ) ( 16 ) ( 16 )

CARR 41 42 43 44 45 46

FdzT 4.4 4.4 3.5 3.5 5.2 5.2

MdxT -66.6 5.0 30.5 12.2 7.8 7.8

MdyT -21.1 0.6 -5.9 -5.9 10.0 -10.0

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 1.5 1.5 1.5 1.5 1.1 1.1 1.3 1.3 0.9 0.9

MdxT 5.4 -5.4 0.0 0.0 -21.3 44.4 -21.1 43.4 -21.3 45.5

MdyT 0.0 0.0 4.2 -4.2 90.7 -112.8 57.7 -81.9 125.2 -145.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 1.2 1.2 1.1 1.1 1.5 1.5 0.8 0.8 1.2 1.2

MdxT -29.7 47.7 -12.9 41.2 -20.9 42.7 -21.1 46.2 -34.9 50.0

MdyT 86.7 -108.8 94.8 -117.0 31.2 -57.3 146.0 -165.1 81.9 -104.2

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 1.0 1.0 1.2 1.4 1.4 1.0 1.0 1.3 1.3 1.1

MdxT -7.0 39.1 44.7 -21.4 43.7 -21.6 45.8 -29.8 47.9 41.4

MdyT 95.3 -118.0 -110.0 52.1 -77.7 121.1 -142.4 82.6 -105.8 -114.1

COMB ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 1.5 1.5 0.9 0.9 1.3 1.3 1.1 1.1 1.5 1.5

MdxT -21.1 43.0 -21.3 46.5 -35.1 50.1 -7.3 39.3 3.8 -3.8

MdyT 27.2 -54.3 142.1 -162.1 77.8 -101.4 91.3 -115.2 2.9 -2.9

COMB ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P69

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.8 21.9 20.9 19.8 23.0 23.0 21.9 21.4 23.0 23.0

MdxT -3.2 1.0 7.3 11.5 48.2 -48.2 0.0 0.0 0.0 0.0

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 -46.5 5.0 62.0 -62.0

COMB ( 10 ) ( 1 ) ( 11 ) ( 6 ) ( 0 ) ( 0 ) ( 5 ) ( 9 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.9 23.0 23.0 21.8 21.9 21.9 21.8 19.7 19.7 23.0

MdxT -39.1 57.1 -34.1 -5.6 1.4 0.7 0.7 -62.7 -33.0 34.1

MdyT 1.4 -2.1 43.9 46.9 -2.7 -46.5 3.1 2.1 2.1 -43.9

COMB ( 11 ) ( 7 ) ( 0 ) ( 13 ) ( 4 ) ( 5 ) ( 14 ) ( 15 ) ( 15 ) ( 0 )

CARR 21 22 23 24 25 26 27

FdzT 21.4 21.4 21.4 21.8 21.3 23.0 23.0

MdxT -6.7 1.5 1.4 -0.7 -7.1 34.1 -34.1

MdyT 78.0 -4.6 -77.8 -46.6 77.8 43.9 -43.9

COMB ( 8 ) ( 8 ) ( 9 ) ( 14 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.7 14.7 14.7 14.7 14.4 14.4 14.2 14.2 14.7 14.7

MdxT 51.6 -51.6 0.0 0.0 -58.8 21.4 -63.7 20.6 -49.3 15.3

MdyT 0.0 0.0 39.8 -39.8 -200.6 168.7 -166.6 141.0 -171.4 142.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 14 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18

FdzT 13.5 13.5 13.9 14.0 13.9 14.7 14.7 14.7

MdxT -66.1 21.6 -58.0 -49.7 23.2 36.5 -36.5 36.5

MdyT -159.7 137.6 -216.6 -43.7 184.0 28.1 28.1 -28.1

COMB ( 15 ) ( 15 ) ( 18 ) ( 8 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P7

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.9 29.9 26.5 29.9 29.9 28.9 29.8 29.9 27.9 28.1

MdxT 62.8 -62.8 0.0 0.0 0.0 -5.5 -4.1 -44.4 -6.9 -63.0

MdyT 0.0 0.0 14.7 80.7 -80.7 22.0 78.8 -57.1 -37.5 20.3

COMB ( 0 ) ( 0 ) ( 7 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 0 ) ( 3 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.9 28.9 29.8 26.5 26.5 28.2 28.1 28.9 29.9 28.9

MdxT 29.1 -39.9 -3.1 -7.8 -7.8 52.2 -62.9 -5.3 -3.9 -39.8

MdyT 23.0 21.0 120.8 -77.4 -40.6 23.4 20.4 22.1 81.5 21.1

COMB ( 13 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 17 ) ( 18 ) ( 10 ) ( 11 ) ( 14 )

CARR 21 22 23 24 25

FdzT 29.8 28.1 29.9 29.9 29.9

MdxT -2.9 -33.5 44.4 -44.4 44.4

MdyT 121.0 20.4 57.1 57.1 -57.1

COMB ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.9 21.9 21.9 21.9 21.3 21.5 21.3 21.9 21.9 21.9

MdxT 76.8 -76.8 0.0 0.0 -6.4 -45.2 20.4 -5.7 -46.0 4.8

MdyT 0.0 0.0 59.2 -59.2 191.8 115.8 -122.4 255.9 103.4 -181.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 5 ) ( 2 ) ( 11 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.6 20.6 20.6 21.3 21.3 21.3 21.3 21.3 21.5 21.5

MdxT -36.7 -63.6 30.5 12.2 44.8 -9.7 -24.9 -48.0 -4.8 4.2

MdyT 176.8 70.7 -121.4 192.5 77.0 -121.1 191.1 76.4 289.5 -223.9

COMB ( 9 ) ( 9 ) ( 9 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.7 19.7 19.7 20.6 20.6 20.6 21.9 21.9 20.8 20.8

MdxT -7.0 -41.3 6.6 24.9 47.6 -19.7 -5.2 4.3 -6.6 -43.7

MdyT 66.2 33.1 -16.5 179.2 71.7 -119.3 258.6 -183.7 124.6 51.0

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 20.8 21.4 21.4 21.4 21.6 19.7 20.6 20.6 20.6 21.9

MdxT 5.7 12.6 44.9 -10.1 -45.3 -41.4 25.3 48.2 -20.0 54.3

MdyT -59.4 192.4 76.9 -121.0 115.8 33.1 178.9 71.6 -119.1 41.9

COMB ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 )

CARR 41 42 43

FdzT 21.9 21.9 21.9

MdxT -54.3 -54.3 54.3

MdyT 41.9 -41.9 -41.9

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.1 12.1 12.1 12.1 11.9 11.9 11.9 12.1 12.1 12.1

MdxT 42.4 -42.4 0.0 0.0 -16.4 24.9 12.9 -4.2 25.4 5.2

MdyT 0.0 0.0 32.7 -32.7 282.5 111.6 -279.6 319.2 128.4 -305.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 10 ) ( 5 ) ( 2 ) ( 11 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 11.7 11.6 11.7 11.9 11.9 11.9 12.0 12.1 12.0 11.3

MdxT -23.7 24.4 16.9 6.3 -1.4 -30.2 -3.2 25.3 4.1 -7.1

MdyT 273.0 -99.2 -262.1 275.2 -275.0 113.0 337.1 134.8 -307.3 196.6

COMB ( 9 ) ( 12 ) ( 9 ) ( 13 ) ( 13 ) ( 5 ) ( 6 ) ( 15 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.3 11.3 11.7 11.7 11.7 11.7 12.1 12.1 11.9 11.9

MdxT -23.7 7.0 13.9 26.6 -6.4 -39.8 -3.6 4.6 -29.5 12.3

MdyT -83.6 -208.9 260.8 104.3 -254.2 109.2 321.0 -306.9 113.0 -279.9

COMB ( 16 ) ( 7 ) ( 17 ) ( 17 ) ( 17 ) ( 9 ) ( 11 ) ( 11 ) ( 14 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 12.1 11.3 11.7 11.7 12.1 12.1 12.1 12.1

MdxT 3.5 6.4 -39.1 16.5 30.0 -30.0 -30.0 30.0

MdyT -307.4 -209.0 109.2 -262.2 23.1 23.1 -23.1 -23.1

COMB ( 15 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.6

MdxT 8.5 -8.5 0.0 0.0 -9.8 5.2 9.5 -9.0 12.2 8.7

MdyT 0.0 0.0 13.1 -13.1 -23.7 -106.6 -101.5 -23.8 -47.6 1.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 6 ) ( 6 ) ( 18 ) ( 5 ) ( 7 )

CARR 11 12 13 14 15 16

FdzT 2.7 2.7 2.7 2.7 2.7 2.7

MdxT 14.0 -0.6 8.7 7.8 6.0 -6.0

MdyT -44.4 -23.8 -106.4 1.5 9.3 9.3

COMB ( 9 ) ( 15 ) ( 15 ) ( 16 ) ( 0 ) ( 0 )

### P70

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.8 19.8 19.2 19.3 19.0 19.8 19.8 19.0 18.5 18.5

MdxT 41.5 -41.5 0.0 0.0 0.0 0.0 0.0 22.1 47.9 -5.0

MdyT 0.0 0.0 -2.4 1.1 3.4 53.4 -53.4 -82.6 -9.7 -2.2

COMB ( 0 ) ( 0 ) ( 1 ) ( 4 ) ( 17 ) ( 0 ) ( 0 ) ( 17 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.8 19.8 18.9 19.0 17.9 18.0 19.8 19.1 18.6 19.6

MdxT -29.4 29.4 13.3 0.8 68.3 -8.7 -35.7 -0.6 10.5 -14.6

MdyT -37.7 -37.7 37.0 -5.9 -11.2 -2.2 -4.8 3.4 66.6 -5.9

COMB ( 0 ) ( 0 ) ( 14 ) ( 5 ) ( 15 ) ( 6 ) ( 7 ) ( 8 ) ( 9 ) ( 12 )

CARR 21 22 23

FdzT 18.5 19.8 19.8

MdxT 10.6 29.4 -29.4

MdyT 66.5 37.7 37.7

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 9.1 9.1 9.1 9.0 9.1 9.0 9.1 9.0 8.9 8.9

MdxT 32.0 -32.0 0.0 0.0 0.0 8.0 19.1 0.7 16.2 28.0

MdyT 0.0 0.0 96.7 89.5 -24.7 -210.7 -86.7 88.5 -195.3 -78.1

COMB ( 0 ) ( 0 ) ( 4 ) ( 10 ) ( 0 ) ( 13 ) ( 4 ) ( 1 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 8.9 9.1 9.1 9.1 9.1 8.6 8.6 9.0 9.0 8.8

MdxT -6.6 -3.5 19.2 7.6 7.1 22.3 -11.3 -10.1 11.8 8.5

MdyT 97.6 -181.7 -76.8 80.5 81.5 -191.4 101.9 -170.1 74.1 -217.1

COMB ( 11 ) ( 3 ) ( 3 ) ( 3 ) ( 12 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 8.9 8.8 8.7 8.8 8.7 9.0 9.1 9.0 8.9 8.9

MdxT 18.6 -2.0 4.2 18.5 2.4 19.0 -2.8 -1.0 1.4 -9.4

MdyT -88.8 102.2 -146.0 -89.4 73.8 -87.3 -183.5 97.7 81.3 -171.8

COMB ( 8 ) ( 17 ) ( 18 ) ( 17 ) ( 9 ) ( 13 ) ( 12 ) ( 13 ) ( 14 ) ( 16 )

CARR 31 32 33 34 35 36 37

FdzT 8.9 8.7 8.7 9.1 9.1 9.1 9.1

MdxT 11.3 18.2 2.0 22.6 -22.6 -22.6 22.6

MdyT 75.0 -58.4 74.8 17.5 17.5 -17.5 -17.5

COMB ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P71

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.1 26.1 26.1 26.1 23.7 24.4 24.3 23.0 23.0 21.9

MdxT 54.8 -54.8 0.0 0.0 12.9 48.6 -14.1 -23.0 12.7 11.6

MdyT 0.0 0.0 70.4 -70.4 12.2 10.6 2.9 13.6 2.5 -53.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 15 ) ( 3 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.9 25.4 25.3 24.3 22.1 22.0 20.3 20.3 26.1 26.1

MdxT 3.2 14.1 2.1 72.5 -46.8 19.6 10.9 3.5 15.0 15.0

MdyT 9.5 78.0 -4.2 9.9 14.8 2.5 -97.3 14.1 122.1 69.7

COMB ( 4 ) ( 14 ) ( 5 ) ( 15 ) ( 16 ) ( 7 ) ( 17 ) ( 8 ) ( 18 ) ( 18 )

CARR 21 22 23 24 25

FdzT 26.1 23.0 26.1 26.1 26.1

MdxT 38.7 -22.8 38.7 -38.7 -38.7

MdyT -49.8 13.7 49.8 49.8 -49.8

COMB ( 0 ) ( 12 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.9 18.9 18.9 18.9 17.5 17.5 17.5 17.9 17.9 17.0

MdxT 66.2 -66.2 0.0 0.0 32.9 -17.7 -44.2 67.8 -79.4 -2.2

MdyT 0.0 0.0 51.1 -51.1 114.4 45.8 -110.7 107.4 -105.8 118.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 17.1 16.3 16.3 18.6 18.6 18.6 17.7 17.7 16.2

MdxT -35.9 -9.0 30.2 -42.6 35.7 -18.4 -45.9 89.6 -102.3 -26.7

MdyT 48.6 -115.5 28.3 -40.6 200.6 80.2 -180.7 96.6 -101.5 117.3

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.2 16.2 15.0 15.0 15.0 18.9 18.9 18.9 17.9 17.1

MdxT -47.3 15.5 26.6 -16.1 -40.3 36.3 -18.6 -46.5 -31.8 -1.8

MdyT 46.9 -116.6 -37.9 -37.9 8.3 251.9 100.7 -226.4 43.0 121.4

COMB ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 16.3 16.3 16.3 16.3 15.1 15.1 15.1 18.9 18.9 18.9

MdxT -17.0 -26.3 -46.8 15.1 27.0 -16.3 -40.7 46.8 -46.8 -46.8

MdyT -40.6 120.0 48.0 -117.5 -35.3 -35.3 7.4 36.1 36.1 -36.1

COMB ( 13 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

CARR 41

FdzT 18.9

MdxT 46.8

MdyT -36.1

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.2 11.2 11.2 11.2 10.5 10.5 10.7 10.7 10.3 10.3

MdxT 39.3 -39.3 0.0 0.0 25.2 -23.1 54.2 -43.0 -5.2 -21.6

MdyT 0.0 0.0 30.3 -30.3 113.4 -100.0 119.3 -107.2 107.4 43.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.3 10.0 10.0 11.0 11.0 10.7 10.7 10.0 10.0 9.6

MdxT -2.4 25.5 -24.9 24.8 -21.4 74.9 -56.4 -26.2 12.9 26.2

MdyT -92.4 43.1 -36.5 183.8 -163.4 118.6 -105.6 98.4 -80.4 -9.7

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 9.6 9.6 11.2 11.2 10.5 10.5 10.7 10.3 10.3 10.0

MdxT 10.5 -25.8 23.7 -18.9 26.3 -24.4 -45.1 -21.7 -3.5 26.7

MdyT 13.9 13.9 225.7 -198.7 112.4 -98.8 -106.4 42.5 -91.3 42.0

COMB ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.0 11.0 11.0 10.7 10.7 11.2 11.2 11.2 11.2 11.2

MdxT -26.0 25.9 -22.7 76.0 -57.5 24.8 -20.0 27.8 -27.8 -27.8

MdyT -35.4 182.7 -162.4 117.6 -104.4 224.7 -197.7 21.4 21.4 -21.4

COMB ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

CARR 41

FdzT 11.2

MdxT 27.8

MdyT -21.4

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.6 3.6 3.6 3.6 3.3 3.3 3.4 3.4 3.4 3.3

MdxT 11.4 -11.4 0.0 0.0 24.4 -24.8 43.3 14.3 -29.7 13.0

MdyT 0.0 0.0 9.6 -9.6 71.5 -130.5 72.2 -51.2 -128.1 70.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 15 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.3 3.2 3.2 3.5 3.5 3.5 3.4 3.4 3.1 3.1

MdxT -20.0 25.1 -26.5 23.7 9.5 -23.2 17.3 -32.8 25.5 -27.4

MdyT -132.7 38.8 -115.4 104.3 -58.2 -145.5 -49.4 -123.5 16.4 -102.2

COMB ( 12 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25

FdzT 3.6 3.6 3.6 3.4 3.6

MdxT 23.2 9.3 -22.1 35.7 -8.0

MdyT 125.7 -60.9 -152.3 72.2 6.8

COMB ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 0 )

### P72

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 47.0 47.0 45.3 43.5 47.0 47.0 46.0 47.0 47.0 45.5

MdxT 98.8 -98.8 0.0 0.0 0.0 0.0 8.4 69.9 -69.9 -28.0

MdyT 0.0 0.0 -4.3 -8.1 141.1 -141.1 7.0 99.8 99.8 8.1

COMB ( 0 ) ( 0 ) ( 5 ) ( 9 ) ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 45.3 47.0 46.8 46.2 46.2 43.5 43.7 46.2 46.2 43.5

MdxT 10.6 69.9 1.3 68.9 -15.4 -51.9 17.1 4.8 1.8 12.3

MdyT 76.6 -99.8 6.7 5.0 1.5 8.8 0.8 -108.9 10.5 122.9

COMB ( 5 ) ( 0 ) ( 13 ) ( 6 ) ( 6 ) ( 16 ) ( 7 ) ( 17 ) ( 17 ) ( 9 )

CARR 21

FdzT 47.0

MdxT -69.9

MdyT -99.8

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 35.6 35.6 35.6 35.6 35.1 34.6 35.1 35.5 35.5 35.6

MdxT 124.8 -124.8 0.0 0.0 84.3 75.3 -52.6 122.8 82.6 -88.3

MdyT 0.0 0.0 106.9 -106.9 14.0 -264.2 -37.2 7.1 -154.4 -75.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 17 ) ( 1 ) ( 2 ) ( 13 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 34.5 34.6 34.5 35.5 34.5 34.5 34.5 34.5 32.8 33.1

MdxT 86.5 83.1 -54.5 -51.5 34.6 145.6 58.2 -111.6 82.3 69.5

MdyT 180.7 -37.1 -193.6 121.5 -77.4 3.2 -37.8 -37.8 293.2 -37.4

COMB ( 5 ) ( 3 ) ( 5 ) ( 13 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 9 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 32.8 34.6 32.8 34.9 35.3 35.3 34.4 34.3 34.3 34.3

MdxT 32.9 -48.6 -54.0 84.8 125.0 -89.7 83.6 87.1 34.8 -55.2

MdyT -119.3 225.3 -298.2 12.3 5.0 -35.0 -34.9 179.1 -76.6 -191.4

COMB ( 9 ) ( 17 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 14 ) ( 14 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 34.4 34.4 32.6 32.6 32.6 35.6 35.6 35.6

MdxT 146.0 -112.1 82.7 33.1 -54.6 88.3 -88.3 88.3

MdyT 1.7 -35.6 291.6 -118.4 -296.1 75.6 75.6 -75.6

COMB ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.4 18.4 18.4 18.4 18.0 18.2 18.0 18.3 18.3 18.3

MdxT 64.5 -64.5 0.0 0.0 92.7 -46.5 -104.7 95.1 -46.8 -116.9

MdyT 0.0 0.0 55.2 -55.2 -93.1 -53.1 85.3 -77.7 -31.1 66.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 6 ) ( 10 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.8 17.8 17.8 18.3 18.3 18.3 17.9 17.9 18.1 17.4

MdxT 90.3 -37.0 -92.4 89.7 -42.1 -105.1 93.4 -102.5 -118.0 84.3

MdyT -108.5 -43.4 103.9 -220.6 -88.3 193.2 43.1 -33.3 48.3 -113.0

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 5 ) ( 5 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 17.4 18.2 18.2 18.2 17.4 17.4 17.8 17.8 18.1 17.3

MdxT -77.3 83.4 -39.4 -98.4 91.0 -95.2 95.6 -104.2 -47.2 93.1

MdyT 110.5 -299.7 -119.9 259.4 133.7 -110.7 34.4 -22.8 -24.6 125.3

COMB ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 9 ) ( 9 ) ( 14 ) ( 14 ) ( 15 ) ( 18 )

CARR 31 32 33

FdzT 17.3 18.4 18.4

MdxT -96.9 45.6 -45.6

MdyT -100.7 39.1 -39.1

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.3 4.4 4.4 4.4 4.4 4.2 4.3 4.2 4.3 4.3

MdxT -123.6 45.9 -45.9 0.0 0.0 -156.2 -23.9 81.2 -8.4 -65.7

MdyT 0.0 0.0 0.0 13.1 -13.1 12.3 24.8 1.7 -93.4 -40.8

COMB ( 6 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 13 ) ( 3 ) ( 17 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.3 4.2 4.2 4.2 4.3 4.2 4.2 4.2 4.4 4.4

MdxT -27.9 -8.0 -46.8 -11.3 -156.9 -8.5 122.0 88.9 -8.4 -66.3

MdyT 38.1 64.1 30.5 -19.9 10.1 -3.1 -3.1 3.1 -89.0 -39.0

COMB ( 17 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 16 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.4 4.1 4.1 4.1 4.2 4.2 4.2 4.3 4.3 4.1

MdxT -28.1 -8.0 -42.6 -6.7 -116.6 121.9 46.2 -8.3 -61.2 -46.1

MdyT 36.1 102.6 47.6 -35.0 8.0 -7.4 3.8 -55.4 -23.4 28.6

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 16 ) ( 12 ) ( 13 ) ( 13 ) ( 14 )

CARR 31 32 33 34

FdzT 4.1 4.4 4.4 4.4

MdxT -11.1 32.5 -32.5 32.5

MdyT -17.8 9.3 9.3 -9.3

COMB ( 14 ) ( 0 ) ( 0 ) ( 0 )

### P73

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.2 15.5 15.9 16.3 19.7 19.7 19.7 19.7 14.8 14.8

MdxT -15.0 -22.7 -15.0 -22.7 41.3 -41.3 0.0 0.0 -10.2 -3.5

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 53.1 -53.1 6.4 -0.6

COMB ( 5 ) ( 9 ) ( 14 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 17.1 17.1 12.3 12.3 14.4 14.4 14.4 15.2 18.9

MdxT -11.8 -11.8 -3.4 -8.4 -3.6 -62.2 -34.0 8.1 41.9 -12.7

MdyT -54.0 -30.3 5.3 69.7 -6.7 9.2 9.2 -0.8 3.8 -99.4

COMB ( 2 ) ( 2 ) ( 2 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.9 18.9 10.8 10.8 14.2 14.2 14.2 15.5 15.5 15.5

MdxT -12.7 -3.2 -7.0 -3.6 -96.6 -51.6 16.0 76.9 -10.1 -3.4

MdyT -55.8 9.7 111.4 -10.9 10.6 10.6 -1.0 1.4 6.2 -0.6

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 10 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.0 18.0 18.0 13.1 13.1 15.2 15.2 15.2 15.9 19.7

MdxT -11.8 -11.8 -3.2 -8.3 -3.5 -62.0 -34.0 8.1 42.0 -12.6

MdyT -57.1 -32.0 5.6 69.4 -6.7 9.0 9.0 -0.8 3.4 -99.7

COMB ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49 50

FdzT 19.7 19.7 11.6 11.6 15.0 15.0 15.0 16.3 19.7 19.7

MdxT -12.6 -29.2 -6.9 -3.5 -96.5 -51.5 16.0 77.0 29.2 -29.2

MdyT -55.9 37.5 111.2 -10.9 10.2 10.2 -1.0 1.1 37.5 -37.5

COMB ( 15 ) ( 0 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

CARR 51

FdzT 19.7

MdxT 29.2

MdyT -37.5

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.6 11.6 11.6 11.6 8.1 8.1 9.7 9.7 6.4 6.4

MdxT 40.1 -40.1 0.0 0.0 -73.9 41.0 -76.4 48.4 -71.4 33.5

MdyT 0.0 0.0 31.4 -31.4 -216.7 100.0 -252.0 125.0 -179.8 124.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 7.8 7.8 8.3 8.3 8.3 11.0 11.0 5.5 5.5 7.8

MdxT -95.5 63.3 92.7 109.8 89.0 -73.1 50.3 -64.5 31.2 -104.6

MdyT -180.5 77.8 -253.0 -103.0 122.1 -264.6 175.1 142.1 135.2 -142.8

COMB ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.8 8.7 8.7 8.7 8.8 8.8 10.4 10.4 7.1 7.1

MdxT 93.8 122.9 140.9 117.5 -71.3 42.0 -73.8 49.7 -68.7 34.3

MdyT 57.8 -263.5 -105.5 131.5 -216.7 96.3 -253.5 131.6 -179.8 120.7

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 8.5 8.5 9.0 9.0 9.0 11.6 11.6 6.1 6.1 8.4

MdxT -92.7 62.9 93.7 112.0 89.9 -70.4 51.1 -62.0 30.7 -101.9

MdyT -180.5 74.2 -252.8 -104.3 118.4 -264.6 178.4 -141.5 131.7 -142.8

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 41 42 43 44 45 46

FdzT 8.4 9.3 9.3 9.3 11.6 11.6

MdxT 93.2 123.9 143.2 118.3 -28.3 28.3

MdyT 54.5 -263.5 -106.9 128.0 22.2 -22.2

COMB ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 8.3 8.3 8.3 8.3 7.0 7.0 7.6 7.6 6.3 6.3

MdxT 29.7 -29.7 0.0 0.0 -49.7 47.6 -47.2 44.0 -52.4 -20.9

MdyT 0.0 0.0 22.5 -22.5 -88.2 13.9 -128.1 83.2 -46.3 -53.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 6.3 7.1 7.1 6.8 6.8 8.0 8.0 5.9 5.9 5.9

MdxT 51.2 -75.5 88.2 -23.9 21.8 -43.4 39.1 -52.4 -20.9 51.5

MdyT -58.8 -85.1 26.0 -91.1 5.6 -153.6 133.4 -14.0 -70.7 -108.5

COMB ( 3 ) ( 4 ) ( 8 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 7.1 6.8 6.8 6.8 7.3 7.3 7.9 7.9 6.6 6.6

MdxT -90.9 -4.9 -14.2 2.4 -49.4 47.6 -46.8 44.0 -52.1 51.4

MdyT -78.7 -88.9 -53.8 -1.1 -95.3 20.6 -137.1 93.1 -53.5 -52.1

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 7.4 7.5 7.2 8.3 8.3 6.2 6.2 6.2 7.5 7.1

MdxT -75.2 88.3 -23.7 -43.1 39.2 -52.1 -20.8 51.7 -90.6 -4.6

MdyT -92.3 32.5 -98.3 -160.2 139.7 -20.7 -69.6 -102.2 -85.4 -95.5

COMB ( 13 ) ( 17 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 18 )

CARR 41 42

FdzT 8.3 8.3

MdxT -21.0 21.0

MdyT 15.9 -15.9

COMB ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.0 3.0 2.8 3.0 3.0 2.8 2.9 2.8 2.8 2.8

MdxT 9.6 -9.6 0.0 0.0 0.0 -21.4 28.4 33.9 -19.9 12.8

MdyT 0.0 0.0 26.0 14.7 -14.7 26.0 205.8 33.7 25.5 135.0

COMB ( 0 ) ( 0 ) ( 18 ) ( 0 ) ( 0 ) ( 1 ) ( 15 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 2.8 2.9 2.9 2.9 2.9 2.9 2.8 2.8 2.9 2.9

MdxT 31.9 -41.9 30.4 36.8 17.1 42.7 -18.8 29.8 -23.8 14.7

MdyT 131.6 27.0 138.0 -137.3 42.5 32.2 25.1 203.8 26.9 -137.3

COMB ( 2 ) ( 8 ) ( 11 ) ( 7 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 2.9 2.9 2.9 2.9 2.9 2.9 3.0 3.0 3.0 3.0

MdxT 19.2 48.0 -20.3 13.0 32.5 12.2 -40.7 13.8 35.6 16.5

MdyT 41.4 30.9 27.2 46.1 35.7 141.3 28.0 66.6 -135.4 45.0

COMB ( 8 ) ( 8 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 17 ) ( 12 ) ( 16 ) ( 13 )

CARR 31 32 33 34 35 36 37 38

FdzT 3.0 2.9 2.9 3.0 3.0 3.0 3.0 3.0

MdxT 41.3 -17.6 11.4 -22.7 14.2 18.6 46.6 -6.8

MdyT 34.3 26.2 205.8 27.9 -135.4 43.7 32.9 -10.4

COMB ( 13 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 0 )

### P74

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 63.5 63.5 63.5 63.5 61.6 63.5 63.5 59.6 59.6 62.5

MdxT 133.3 -133.3 0.0 0.0 19.5 94.3 94.3 20.7 4.5 -31.8

MdyT 0.0 0.0 171.4 -171.4 24.4 -121.2 121.2 93.2 -3.2 32.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 62.5 60.7 61.2 62.9 56.3 56.3 58.1 58.1 60.8 62.8

MdxT 16.4 70.6 -65.7 17.4 21.8 4.5 104.9 -15.1 19.6 18.3

MdyT 2.8 16.7 36.1 -91.6 138.0 -6.9 10.4 1.1 25.1 -43.8

COMB ( 4 ) ( 5 ) ( 8 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 9 ) ( 10 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 58.8 58.8 59.9 60.4 62.2 62.2 55.6 55.6 57.4 57.4

MdxT 21.0 4.5 70.7 -65.4 17.6 4.8 22.0 4.5 105.0 -15.1

MdyT 93.9 -3.1 17.4 36.8 -90.9 11.3 138.7 -6.7 11.1 1.3

COMB ( 12 ) ( 12 ) ( 14 ) ( 17 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 18 ) ( 18 )

CARR 31 32

FdzT 63.5 63.5

MdxT -94.3 -94.3

MdyT 121.2 -121.2

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 50.4 50.4 50.4 50.4 48.9 48.8 50.4 50.4 47.6 47.6

MdxT 173.6 -173.6 0.0 0.0 144.3 -170.3 122.7 -116.9 106.0 -48.7

MdyT 0.0 0.0 136.0 -136.0 107.8 140.9 96.2 121.2 81.5 81.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 15 ) ( 0 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 47.6 49.6 49.6 48.5 48.5 49.4 49.4 49.4 44.7 44.7

MdxT -121.8 80.2 -143.0 116.1 -156.0 -87.2 -169.7 -114.1 104.2 -49.1

MdyT -70.3 -88.9 106.7 33.0 36.5 -127.8 60.4 151.1 132.4 53.0

COMB ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 44.7 48.0 48.0 46.2 48.3 48.3 49.7 49.7 46.9 46.9

MdxT -122.6 112.8 -57.1 -231.7 101.9 -120.3 94.1 -117.7 109.9 -49.1

MdyT -90.2 -126.7 -126.7 55.7 50.8 72.8 97.9 124.6 87.4 87.4

COMB ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 46.9 48.9 48.8 47.8 47.8 44.0 44.0 44.0 47.3 47.3

MdxT -122.8 84.0 -115.1 119.8 -157.1 107.8 -49.4 -123.6 117.5 -58.1

MdyT -75.6 -93.9 152.2 32.9 37.7 138.2 55.3 -95.2 -130.1 -131.7

COMB ( 12 ) ( 13 ) ( 15 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 41 42 43 44 45 46

FdzT 45.5 45.5 45.5 50.4 50.4 50.4

MdxT 124.5 -72.2 -180.6 -122.7 -122.7 122.7

MdyT 50.8 50.8 50.4 96.2 -96.2 -96.2

COMB ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.2 23.2 23.2 23.2 22.8 22.8 22.8 23.2 23.2 23.2

MdxT 82.6 -82.6 0.0 0.0 130.5 52.2 -127.0 131.3 58.4 -129.6

MdyT 0.0 0.0 62.7 -62.7 136.4 -59.6 -149.0 78.4 -44.3 -99.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 0 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.4 22.4 22.4 22.9 22.9 22.9 22.8 22.8 22.8 21.7

MdxT 129.5 51.8 -124.2 108.2 43.3 -105.3 152.7 61.1 -148.7 123.9

MdyT 196.8 -80.2 -200.5 148.3 -60.3 -150.8 124.3 -58.9 -147.1 232.7

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.7 22.3 22.3 22.3 22.5 22.5 22.5 22.1 22.1 22.5

MdxT -115.6 162.5 65.0 -156.4 131.7 52.7 -127.8 130.8 -125.0 154.0

MdyT -226.5 111.9 -55.0 -137.5 144.8 -61.4 -153.6 205.2 -205.1 132.9

COMB ( 7 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 22.5 22.5 21.4 21.4 22.0 22.0 22.0 23.2

MdxT 61.6 -149.5 125.0 -116.3 163.7 65.5 -157.1 -58.4

MdyT -60.7 -151.8 240.8 -231.0 120.0 -56.8 -142.0 44.3

COMB ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 18 ) ( 18 ) ( 18 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4

MdxT 14.1 -14.1 0.0 0.0 53.9 -106.1 -108.8 52.4 -102.3 70.3

MdyT 0.0 0.0 21.8 -21.8 45.2 75.5 75.7 45.6 105.6 45.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 2 ) ( 11 ) ( 2 ) ( 6 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.3 4.3 4.4

MdxT -105.0 -109.6 -114.7 51.4 -40.9 -108.4 -116.6 72.8 -110.6 -43.5

MdyT 104.0 -6.4 31.5 45.9 119.5 -34.2 29.3 44.4 33.9 91.0

COMB ( 15 ) ( 3 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 9 ) ( 18 ) ( 10 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.3 4.3 4.3 4.3 4.3 4.4 4.3 4.3 4.4 4.4

MdxT 56.0 -45.1 -112.4 44.8 -117.3 -42.0 -110.9 -119.3 -10.0 10.0

MdyT 44.0 59.9 -8.0 44.5 30.0 117.8 -35.6 27.7 -15.4 -15.4

COMB ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

### P75

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 78.5 76.0 79.6 79.6 79.6 79.6 78.5 79.6 79.6 77.1

MdxT -3.1 -10.4 167.1 -167.1 0.0 0.0 81.6 118.2 118.2 27.4

MdyT 0.0 0.0 0.0 0.0 214.9 -214.9 19.5 151.9 -151.9 -53.5

COMB ( 4 ) ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 77.9 78.4 73.8 73.9 76.0 75.8 77.9 78.3 79.6 79.6

MdxT 31.5 -23.8 26.7 8.3 117.0 -58.7 31.6 -23.8 -118.2 -118.2

MdyT 127.7 10.4 -99.0 10.8 22.3 7.0 127.1 9.8 151.9 -151.9

COMB ( 6 ) ( 5 ) ( 16 ) ( 7 ) ( 8 ) ( 9 ) ( 15 ) ( 14 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 63.2 63.2 63.2 63.2 62.4 62.3 63.2 63.2 61.5 61.5

MdxT 217.8 -217.8 0.0 0.0 132.6 -202.1 154.0 -154.0 130.8 -136.6

MdyT 0.0 0.0 170.7 -170.7 -36.4 77.4 120.7 120.7 -90.3 118.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 14 ) ( 0 ) ( 0 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 62.4 62.4 62.5 62.3 61.3 61.3 58.5 58.5 59.9 59.9

MdxT 157.6 63.1 -155.1 107.5 129.9 -138.3 123.9 -133.7 168.8 67.5

MdyT -30.8 66.8 65.9 -42.0 54.6 -7.3 -126.4 148.7 -27.3 62.2

COMB ( 13 ) ( 13 ) ( 4 ) ( 14 ) ( 6 ) ( 6 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 59.8 59.8 63.2 61.5 61.2 61.2 58.5 59.8 63.2 63.2

MdxT -182.6 85.3 -139.7 -54.7 130.1 -138.7 -53.5 -107.4 -154.0 154.0

MdyT 79.9 -46.1 25.6 118.7 53.1 -6.4 148.7 79.9 -120.7 -120.7

COMB ( 18 ) ( 18 ) ( 11 ) ( 12 ) ( 15 ) ( 15 ) ( 16 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.2 29.2 29.2 29.2 28.8 28.8 29.2 29.2 28.4 28.4

MdxT 104.1 -104.1 0.0 0.0 185.1 -163.2 182.7 -160.7 187.5 -165.6

MdyT 0.0 0.0 78.9 -78.9 -225.4 97.6 -191.1 53.5 -259.8 141.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.8 28.8 28.8 28.8 27.5 27.5 28.2 28.2 29.2 29.2

MdxT 206.9 -183.5 163.4 -142.9 182.3 -159.0 214.6 -188.7 73.6 -73.6

MdyT -220.6 96.0 -230.2 99.1 -275.2 167.3 -210.0 91.1 55.8 55.8

COMB ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

CARR 21

FdzT 29.2

MdxT -73.6

MdyT -55.8

COMB ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8

MdxT 15.4 -15.4 0.0 0.0 65.9 -131.0 -134.1 -132.9 -140.6 -57.4

MdyT 0.0 0.0 24.2 -24.2 -50.5 -205.5 -145.5 34.6 -53.3 -214.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 6 ) ( 11 ) ( 12 ) ( 4 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8

MdxT 54.6 -129.5 72.8 -142.8 -141.1 -57.4 -131.6 -143.2 10.9

MdyT -50.7 94.8 -50.4 -51.8 -53.2 -214.4 -205.4 -51.5 17.1

COMB ( 16 ) ( 16 ) ( 17 ) ( 8 ) ( 13 ) ( 15 ) ( 15 ) ( 17 ) ( 0 )

### P76

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 51.9 51.9 51.9 51.9 50.1 51.8 51.9 48.4 48.4 49.8

MdxT 108.9 -108.9 0.0 0.0 -20.2 -21.0 -77.0 -19.9 -4.2 33.2

MdyT 0.0 0.0 140.1 -140.1 17.1 113.8 -99.0 -41.2 9.5 18.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 0 ) ( 3 ) ( 3 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 50.5 50.5 46.2 46.2 48.4 48.4 49.6 49.7 50.2 50.5

MdxT -73.5 6.2 -19.6 -3.8 68.6 -23.1 -109.1 -108.9 -20.0 -73.4

MdyT 16.2 4.5 -80.2 13.3 18.5 3.1 15.4 15.5 17.4 16.4

COMB ( 5 ) ( 5 ) ( 7 ) ( 7 ) ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 10 ) ( 14 )

CARR 21 22 23 24 25

FdzT 51.9 49.7 51.9 51.9 51.9

MdxT -20.9 -60.0 77.0 -77.0 77.0

MdyT 114.0 15.5 99.0 99.0 -99.0

COMB ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 37.2 37.2 37.2 37.2 36.4 36.2 36.4 37.1 36.8 36.8

MdxT 128.3 -128.3 0.0 0.0 -57.3 102.2 77.8 -32.1 109.1 63.6

MdyT 0.0 0.0 100.6 -100.6 169.0 66.0 -161.8 215.9 99.2 -242.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 5 ) ( 1 ) ( 5 ) ( 2 ) ( 15 ) ( 15 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.3 35.2 35.3 36.4 36.7 36.7 36.7 33.4 33.4 33.4

MdxT -74.3 97.2 90.4 31.1 -32.3 110.0 64.3 -30.0 93.1 53.2

MdyT 164.8 44.6 -168.0 67.6 246.8 98.7 -241.2 69.2 69.2 -65.5

COMB ( 9 ) ( 3 ) ( 9 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.9 34.9 34.8 36.3 37.2 37.2 37.2 35.3 36.4 36.4

MdxT 12.7 73.2 27.0 101.3 -31.4 106.4 61.3 96.3 -56.6 77.0

MdyT 152.5 61.0 -138.9 66.5 219.7 87.9 -206.8 45.2 170.4 -162.8

COMB ( 17 ) ( 17 ) ( 8 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 14 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 36.8 33.5 33.5 33.5 34.9 35.4 35.4 37.2 37.2 37.2

MdxT -31.6 -29.3 92.2 52.5 26.3 -73.6 89.7 -90.7 -90.7 90.7

MdyT 248.1 70.4 70.4 -66.5 -139.9 166.2 -169.0 71.1 -71.1 -71.1

COMB ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.4 23.4 22.5 23.4 23.4 23.0 23.0 23.0 23.4 23.4

MdxT 83.5 -83.5 0.0 0.0 0.0 -102.6 -41.0 56.3 -81.8 -33.7

MdyT 0.0 0.0 -54.3 63.3 -63.3 -53.8 -61.6 -61.6 -11.8 -71.8

COMB ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 5 ) ( 5 ) ( 5 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.3 22.5 22.6 22.9 23.3 23.3 21.8 21.8 22.6 23.0

MdxT 39.2 -78.1 68.9 -57.4 -80.5 -32.6 -74.5 29.8 -115.2 54.0

MdyT -143.1 -88.3 -55.4 -60.9 18.5 -78.5 -111.9 33.3 -54.3 -66.1

COMB ( 6 ) ( 3 ) ( 9 ) ( 4 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 14 )

CARR 21 22 23 24 25 26 27 28 29

FdzT 23.4 23.3 23.3 23.3 22.6 23.4 23.4 23.4 23.4

MdxT -33.4 -78.5 -32.3 37.1 66.6 59.0 -59.0 -59.0 59.0

MdyT -73.1 23.7 -78.9 -147.3 -59.8 44.8 44.8 -44.8 -44.8

COMB ( 11 ) ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1

MdxT 16.2 -16.2 0.0 0.0 -69.4 104.4 113.8 -68.5 101.5 105.0

MdyT 0.0 0.0 24.9 -24.9 -53.6 -121.4 -60.6 -53.8 -173.5 22.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 2 ) ( 9 ) ( 18 ) ( 6 ) ( 3 )

CARR 11 12 13 14 15 16 17 18

FdzT 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1

MdxT 40.6 102.5 103.5 40.3 100.7 -49.6 112.8 -11.4

MdyT -185.6 70.8 -125.2 -186.3 -174.2 -53.8 -61.3 17.6

COMB ( 6 ) ( 7 ) ( 11 ) ( 15 ) ( 15 ) ( 16 ) ( 18 ) ( 0 )

### P77

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.3 29.3 29.3 29.3 27.2 27.4 28.6 28.8 25.6 25.7

MdxT 61.6 -61.6 0.0 0.0 -64.5 -220.8 -72.2 -100.0 -56.5 -78.1

MdyT 0.0 0.0 79.2 -79.2 56.8 -26.0 77.0 -56.6 35.7 11.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 17 ) ( 2 ) ( 11 ) ( 3 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.6 27.6 27.6 26.8 26.8 26.8 29.3 29.3 29.3 24.2

MdxT 35.7 -87.4 -169.5 -91.8 -58.4 -8.4 -32.1 -75.5 -104.7 -68.0

MdyT 54.9 54.9 -24.9 58.7 58.7 -20.2 90.2 36.1 -78.7 34.9

COMB ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 14 ) ( 6 ) ( 6 ) ( 15 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.4 27.4 26.1 26.1 26.1 27.2 28.8 28.8 25.7 27.6

MdxT 80.4 -100.2 -132.4 -60.2 48.2 -64.7 -31.8 -72.7 -56.8 -87.6

MdyT 51.9 51.9 58.1 58.1 -17.9 56.7 77.7 31.1 35.6 54.7

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 26.8 29.3 29.3 24.2 27.4 26.1 29.3 29.3 29.3

MdxT -92.1 -32.2 -75.7 -49.0 -100.4 -132.7 43.5 -43.5 43.5

MdyT 58.5 90.0 36.0 34.9 51.8 58.0 56.0 56.0 -56.0

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.0 21.0 21.0 21.0 20.0 20.1 20.9 21.0 18.9 18.9

MdxT 72.3 -72.3 0.0 0.0 97.6 -158.8 83.2 -167.0 71.8 -143.2

MdyT 0.0 0.0 56.7 -56.7 31.1 -36.7 154.6 -175.0 -47.6 50.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 13 ) ( 6 ) ( 15 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.1 19.7 19.7 17.8 17.8 19.7 19.1 19.1 20.1 21.0

MdxT -63.5 109.3 -161.6 66.4 -135.7 -64.6 40.3 -141.1 97.3 83.0

MdyT -36.7 33.2 -39.9 -98.0 104.0 -39.9 23.5 -31.9 31.5 155.0

COMB ( 13 ) ( 8 ) ( 17 ) ( 7 ) ( 7 ) ( 17 ) ( 9 ) ( 18 ) ( 13 ) ( 15 )

CARR 21 22 23 24 25

FdzT 19.7 19.1 19.1 21.0 21.0

MdxT 109.1 40.0 -68.7 -51.1 51.1

MdyT 33.5 23.9 -31.9 40.1 -40.1

COMB ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 13.8 13.8 13.8 13.8 13.4 13.4 13.7 13.8 13.7 13.0

MdxT 49.3 -49.3 0.0 0.0 198.0 -116.3 176.4 169.4 -94.2 181.6

MdyT 0.0 0.0 37.4 -37.4 -66.5 67.9 -8.8 39.3 30.7 -123.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 2 ) ( 15 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 13.0 13.4 13.3 13.3 12.6 12.6 13.3 13.3 13.8 13.8

MdxT -101.2 79.2 159.9 -124.0 177.0 -98.8 204.3 81.7 177.5 -95.3

MdyT 100.4 27.2 -63.7 66.1 -157.9 120.1 -62.3 26.4 -4.8 26.6

COMB ( 3 ) ( 4 ) ( 5 ) ( 8 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 11 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 13.0 13.0 13.5 13.5 13.5 13.8 12.6 12.6 13.3 13.3

MdxT 182.7 -102.3 199.1 79.6 -117.5 -88.2 178.1 -100.0 205.4 82.2

MdyT -122.2 97.7 -64.8 26.1 65.2 -1.0 -156.4 117.6 -60.8 25.4

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 31 32 33

FdzT 13.3 13.8 13.8

MdxT -125.2 -34.9 34.9

MdyT 63.4 -26.4 -26.4

COMB ( 17 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.8 3.9 3.9 3.9 3.9 3.8 3.8 3.9 3.9 3.7

MdxT 104.4 12.6 -12.6 0.0 0.0 113.5 -191.1 104.3 -185.6 104.0

MdyT 0.0 0.0 0.0 10.7 -10.7 -4.8 27.3 18.9 22.4 -23.0

COMB ( 10 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 11 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.7 3.8 3.8 3.9 3.9 3.9 3.6 3.6 3.6 3.8

MdxT -185.1 94.2 -179.5 103.3 -72.7 -181.3 103.5 -72.2 -180.5 119.1

MdyT 29.3 -3.1 24.1 32.5 25.5 18.9 -34.7 -13.9 30.5 -4.3

COMB ( 3 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 3.9 3.7 3.7 3.8 3.8 3.9 3.7 3.7 3.7 3.8

MdxT -185.9 104.6 -185.4 -191.4 94.8 -181.7 104.0 -72.3 -180.7 119.7

MdyT 18.2 -19.3 25.2 23.2 0.7 15.0 -31.1 -12.4 26.6 -0.8

COMB ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 16 ) ( 17 )

CARR 31 32 33

FdzT 3.8 3.9 3.9

MdxT 87.6 -8.9 8.9

MdyT 2.2 -7.5 -7.5

COMB ( 18 ) ( 0 ) ( 0 )

### P78

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 12.3 12.3 12.3 12.3 11.9 11.9 12.0 11.7 11.8 11.8

MdxT 74.0 -74.0 0.0 0.0 -65.2 -121.2 -65.4 -79.0 -129.7 -72.4

MdyT 0.0 0.0 33.1 -33.1 -41.9 -16.7 24.6 -40.5 30.7 55.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 10 ) ( 4 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 12.1 12.1 11.7 11.7 12.3 12.2 11.6 11.6 12.1 12.1

MdxT -57.0 -113.0 -98.2 2.5 -185.7 -133.0 -133.4 -75.9 -50.3 -105.6

MdyT -76.4 -48.5 -16.2 27.2 -17.9 22.3 52.5 76.2 -98.1 -70.1

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 14 ) ( 15 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 11.5 11.5 11.5 12.3 12.3 12.0 12.1 11.7 12.1 12.1

MdxT -86.9 -86.9 48.9 -41.2 -176.7 -121.4 -113.2 -98.4 -50.4 -105.9

MdyT -38.2 -15.3 28.1 -43.1 19.9 -16.7 -48.3 -16.1 -97.9 -69.9

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 18 ) ( 10 ) ( 12 ) ( 13 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35 36 37

FdzT 11.5 12.3 12.3 12.3 12.3 12.3 12.3

MdxT 48.6 -41.3 -186.0 52.3 -52.3 -52.3 52.3

MdyT 28.3 -42.8 -17.8 23.4 23.4 -23.4 -23.4

COMB ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.3 4.3 4.3 4.3 4.2 4.2 4.2 4.3 4.3 4.2

MdxT 26.1 -26.1 0.0 0.0 -16.0 -81.5 -81.5 -88.9 -88.9 -73.8

MdyT 0.0 0.0 11.7 -11.7 -67.8 -19.0 24.4 -14.8 5.5 -27.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.2 4.1 4.1 4.1 4.3 4.3 4.3 4.2 4.1 4.1

MdxT -73.8 -15.3 -94.8 -94.8 -16.0 -70.0 -68.3 -93.2 -68.3 -67.5

MdyT 44.1 -79.9 -18.7 22.7 -48.9 -19.5 25.9 -11.4 -32.0 56.7

COMB ( 3 ) ( 7 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.0 4.0 4.0 4.3 4.2 4.2 4.3 4.3 4.3 4.2

MdxT -14.3 -102.3 -102.3 -58.2 -81.6 -81.6 -15.3 -89.3 -89.3 -73.9

MdyT -44.2 -18.1 21.0 26.5 -18.8 24.2 -26.9 -14.3 4.5 -26.9

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 4.2 4.1 4.3 4.2 4.1 4.1 4.0 4.0 4.3 4.3

MdxT -73.9 -94.8 -70.1 -93.2 -15.4 -68.4 -102.5 -102.5 -58.4 18.5

MdyT 44.0 -18.4 -19.3 -11.1 -79.4 -31.8 -17.9 20.9 26.3 8.3

COMB ( 12 ) ( 13 ) ( 14 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 )

CARR 41

FdzT 4.3

MdxT 18.5

MdyT -8.3

COMB ( 0 )

### P79

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.0 21.0 20.2 21.0 21.0 20.6 20.3 20.3 20.9 21.0

MdxT 44.1 -44.1 0.0 0.0 0.0 -80.1 -69.2 -142.0 -117.2 -73.4

MdyT 0.0 0.0 -3.4 56.7 -56.7 -9.7 -117.7 -11.3 -10.6 -74.5

COMB ( 0 ) ( 0 ) ( 7 ) ( 0 ) ( 0 ) ( 10 ) ( 17 ) ( 16 ) ( 12 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 21.0 20.1 20.3 19.0 18.9 19.0 20.2 19.0 19.0 21.0

MdxT -31.2 -86.7 -68.9 -33.6 -91.4 -17.1 -86.8 -18.8 -91.6 31.2

MdyT 40.1 55.3 -117.5 -8.1 98.4 -15.4 55.0 -8.1 98.3 40.1

COMB ( 0 ) ( 5 ) ( 8 ) ( 15 ) ( 9 ) ( 18 ) ( 14 ) ( 15 ) ( 18 ) ( 0 )

CARR 21

FdzT 21.0

MdxT 31.2

MdyT -40.1

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.4 14.4 14.4 14.4 14.2 14.2 14.2 14.2 14.3 14.3

MdxT 50.4 -50.4 0.0 0.0 -66.9 179.6 -53.5 177.4 -80.2 181.9

MdyT 0.0 0.0 38.8 -38.8 -124.0 131.2 -128.2 136.2 -119.7 126.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.4 14.4 14.4 14.1 14.1 13.2 13.2 13.4 13.4 13.6

MdxT -65.2 79.6 176.1 -68.5 183.1 -43.7 175.3 -88.2 182.7 -63.3

MdyT -191.1 -76.4 179.5 -56.8 83.0 -124.6 138.2 -110.5 121.5 -229.5

COMB ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 )

CARR 21 22 23 24 25

FdzT 13.6 13.6 13.0 13.0 14.4

MdxT 78.5 173.0 -68.6 184.8 -35.6

MdyT -91.8 210.3 -5.6 49.6 27.5

COMB ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

### P8

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.1 28.1 28.1 28.1 26.8 28.1 25.4 25.4 25.4 26.5

MdxT 59.0 -59.0 0.0 0.0 35.4 3.6 -0.7 0.8 0.8 -33.6

MdyT 0.0 0.0 -75.9 75.9 14.0 118.7 -56.7 -56.7 8.1 4.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 15 ) ( 3 ) ( 3 ) ( 3 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.1 23.9 23.9 23.9 26.2 25.9 25.9 26.6 26.2 28.1

MdxT 3.6 -1.7 -1.7 1.1 58.5 -56.4 -28.9 -33.5 -11.2 41.8

MdyT 67.6 -100.4 -55.2 12.6 17.4 1.4 2.7 4.5 0.8 53.7

COMB ( 15 ) ( 7 ) ( 7 ) ( 7 ) ( 17 ) ( 18 ) ( 9 ) ( 14 ) ( 17 ) ( 0 )

CARR 21 22 23

FdzT 28.1 28.1 28.1

MdxT -41.8 -41.8 41.8

MdyT 53.7 -53.7 -53.7

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.3 20.3 20.3 20.3 19.5 19.5 19.5 20.0 20.0 20.0

MdxT 70.9 -70.9 0.0 0.0 35.7 -62.6 -36.5 18.6 -45.0 -23.4

MdyT 0.0 0.0 54.7 -54.7 147.3 58.9 -88.5 233.4 93.4 -169.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 4 ) ( 6 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.9 18.8 18.9 19.5 17.6 17.7 18.8 18.8 20.1 20.1

MdxT 47.5 -39.5 -46.3 -1.8 14.1 -37.1 -15.0 4.8 18.5 -44.9

MdyT 140.0 49.3 -90.4 137.3 29.4 29.8 123.3 -71.1 233.8 93.5

COMB ( 8 ) ( 18 ) ( 8 ) ( 14 ) ( 7 ) ( 16 ) ( 18 ) ( 18 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.3 18.8 19.6 19.6 17.7 19.0 19.0 20.3 20.3 20.3

MdxT -22.7 -39.5 35.6 -62.5 13.9 47.3 -46.1 50.1 -50.1 -50.1

MdyT -136.1 37.1 147.6 59.0 29.8 140.3 -90.6 38.7 38.7 -38.7

COMB ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

CARR 31

FdzT 20.3

MdxT 50.1

MdyT -38.7

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 11.4 11.4 11.4 11.4 11.0 10.9 11.0 11.3 11.3 11.3

MdxT 39.9 -39.9 0.0 0.0 29.1 35.6 -22.7 20.2 35.0 -17.4

MdyT 0.0 0.0 30.7 -30.7 213.2 211.0 -201.0 262.6 105.1 -242.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 17 ) ( 4 ) ( 6 ) ( 6 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.7 10.7 10.7 11.0 10.3 10.3 10.3 10.9 10.9 10.8

MdxT 16.1 29.1 -14.3 -23.1 14.3 26.4 -12.5 35.8 -26.5 -1.8

MdyT 162.4 65.0 -159.3 77.6 125.9 50.3 -121.4 210.7 -191.0 178.2

COMB ( 3 ) ( 3 ) ( 3 ) ( 14 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.8 11.0 10.7 10.7 10.7 11.1 11.1 11.4 11.4 11.4

MdxT -22.8 31.4 15.8 28.8 -14.0 28.8 -22.4 19.9 34.7 -17.1

MdyT 71.3 81.5 162.8 65.1 -159.7 213.6 -201.5 262.9 105.2 -242.8

COMB ( 18 ) ( 10 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 15 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35 36 37

FdzT 10.4 10.4 10.4 10.9 11.4 11.4 11.4

MdxT 13.9 25.8 -12.2 -26.2 -28.2 -28.2 28.2

MdyT 126.3 50.5 -121.8 -191.4 21.7 -21.7 -21.7

COMB ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6

MdxT -14.0 8.4 0.0 0.0 14.0 -9.4 -9.5 6.4 -9.4 -12.2

MdyT 0.0 0.0 13.0 -13.0 -23.4 -77.3 -48.4 -23.1 30.0 -3.8

COMB ( 8 ) ( 0 ) ( 0 ) ( 0 ) ( 8 ) ( 6 ) ( 2 ) ( 2 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18

FdzT 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6

MdxT -3.8 -9.2 13.6 5.6 -9.1 -11.9 -3.6 6.0

MdyT -84.0 56.4 -23.5 -23.5 -77.6 -4.1 -84.4 9.2

COMB ( 6 ) ( 7 ) ( 17 ) ( 12 ) ( 15 ) ( 13 ) ( 15 ) ( 0 )

### P80

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 43.1 46.7 46.7 46.7 46.7 44.8 42.9 42.4 46.7 46.7

MdxT 16.4 98.2 -98.2 0.0 0.0 10.6 9.4 4.8 69.4 69.4

MdyT 0.0 0.0 0.0 126.2 -126.2 11.1 -53.6 5.6 89.2 -89.2

COMB ( 4 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 11 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 43.1 46.4 46.7 39.6 39.6 46.3 46.0 40.2 40.2 39.9

MdxT -53.3 74.5 -69.4 8.4 4.6 12.5 4.8 -96.2 -48.1 24.1

MdyT 11.9 10.2 89.2 -102.3 8.8 123.1 -7.4 11.8 11.8 -0.6

COMB ( 4 ) ( 5 ) ( 0 ) ( 6 ) ( 6 ) ( 7 ) ( 16 ) ( 8 ) ( 8 ) ( 17 )

CARR 21 22 23 24 25 26 27

FdzT 45.7 45.7 42.4 42.8 39.3 39.9 46.7

MdxT 117.0 -14.7 9.1 -53.6 8.1 -96.5 -69.4

MdyT 8.8 2.1 -57.0 11.5 -102.8 11.3 -89.2

COMB ( 9 ) ( 9 ) ( 11 ) ( 13 ) ( 15 ) ( 17 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.9 36.9 36.9 36.9 35.6 35.3 34.3 34.0 34.3 36.5

MdxT 129.1 -129.1 0.0 0.0 10.9 -88.0 2.9 -87.0 -44.7 7.7

MdyT 0.0 0.0 99.5 -99.5 -96.2 84.7 -143.5 72.5 168.6 -91.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 18 ) ( 10 ) ( 2 ) ( 13 ) ( 2 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.6 36.5 31.4 31.4 31.4 36.0 36.0 31.5 35.6 35.3

MdxT -92.1 -89.0 2.9 -78.8 -42.4 9.9 -92.8 -84.0 -46.8 5.0

MdyT -8.5 97.0 -189.6 91.1 227.6 43.7 -67.2 60.2 101.1 -78.3

COMB ( 12 ) ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 ) ( 17 ) ( 18 ) ( 10 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 34.0 34.0 34.0 35.7 35.7 35.6 36.9 36.9 36.9 36.9

MdxT 2.9 -83.7 -44.8 10.1 -92.8 -87.5 91.3 -91.3 -91.3 91.3

MdyT -147.8 69.2 172.9 42.6 -66.5 40.4 70.4 70.4 -70.4 -70.4

COMB ( 11 ) ( 11 ) ( 11 ) ( 16 ) ( 16 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.8 15.8 15.3 15.8 15.8 15.2 15.2 14.4 14.6 14.4

MdxT 55.2 -55.2 0.0 0.0 0.0 -22.3 44.4 -24.6 80.9 47.0

MdyT 0.0 0.0 32.5 42.6 -42.6 30.5 -70.6 -80.5 -49.6 29.7

COMB ( 0 ) ( 0 ) ( 5 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 11 ) ( 8 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.8 15.8 15.1 15.1 15.3 13.6 13.6 13.6 15.7 15.7

MdxT -21.3 43.3 -44.8 68.3 20.3 -23.1 17.6 44.1 -18.6 39.1

MdyT 138.0 -167.2 28.7 -60.2 -80.9 -153.7 -61.5 97.4 207.8 -227.9

COMB ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 ) ( 15 ) ( 15 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 14.6 14.5 14.8 15.0 14.8 15.0 15.7 15.7 15.0 15.1

MdxT -57.8 82.3 17.4 70.0 0.8 45.9 -22.8 44.8 -46.3 21.8

MdyT 25.6 -46.1 31.9 -56.6 -84.1 -66.9 134.1 -163.5 24.9 -77.3

COMB ( 8 ) ( 17 ) ( 9 ) ( 13 ) ( 9 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38

FdzT 15.6 15.6 14.5 14.7 14.7 15.8 15.8 15.8

MdxT -20.0 40.6 -59.2 31.3 2.2 39.1 -39.1 -39.1

MdyT 204.1 -224.4 22.0 -37.1 -80.6 30.1 30.1 -30.1

COMB ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P81

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 33.4 35.6 31.5 29.3 33.8 31.9 36.0 29.7 36.0 36.0

MdxT -5.7 12.6 -16.7 -23.7 -5.7 -16.7 75.6 -23.7 -75.6 0.0

MdyT 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 97.3

COMB ( 1 ) ( 8 ) ( 5 ) ( 9 ) ( 10 ) ( 14 ) ( 0 ) ( 18 ) ( 0 ) ( 0 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 36.0 33.4 31.6 31.6 35.3 35.3 35.6 35.6 31.5 29.3

MdxT 0.0 -30.7 -31.4 -5.6 -30.0 -5.9 -140.6 -79.3 36.0 -30.5

MdyT -97.3 17.5 -48.6 5.2 86.7 -5.5 26.0 26.0 11.3 -99.3

COMB ( 0 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 ) ( 8 ) ( 8 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.3 29.3 35.5 35.5 29.3 33.8 32.0 32.0 35.7 36.0

MdxT -30.5 -5.5 -28.3 -5.7 81.8 -31.1 -31.8 -5.6 -30.4 -53.5

MdyT -56.0 8.8 131.0 -9.2 5.6 17.8 -51.2 5.5 86.9 -68.8

COMB ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 0 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 31.9 29.7 29.7 29.7 36.0 36.0 36.0 36.0 29.7 36.0

MdxT 35.6 -30.9 -30.9 -5.5 -28.7 -5.7 -141.0 -79.5 81.3 53.5

MdyT 11.6 -99.0 -55.9 8.8 131.3 -9.2 26.3 26.3 5.9 68.8

COMB ( 14 ) ( 15 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 0 )

CARR 41 42

FdzT 36.0 36.0

MdxT -53.5 53.5

MdyT 68.8 -68.8

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.0 21.0 21.0 21.0 19.6 19.6 19.6 18.6 18.6 18.6

MdxT 73.6 -73.6 0.0 0.0 -15.7 28.3 57.7 -14.3 28.7 57.4

MdyT 0.0 0.0 56.8 -56.8 -222.7 -89.1 187.5 -295.7 -118.3 265.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.5 20.5 20.5 18.7 17.1 17.1 17.1 20.8 20.8 20.8

MdxT -28.8 30.3 69.7 48.6 -13.2 55.4 55.4 -29.0 30.3 69.9

MdyT -228.1 -91.2 188.9 -87.0 -336.3 -134.5 317.7 -228.5 -91.4 189.7

COMB ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 13 ) ( 13 ) ( 13 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 20.3 20.3 20.3 17.4 17.4 17.4 19.9 19.9 19.9 18.9

MdxT -37.5 30.6 76.0 6.3 60.4 55.6 -15.8 28.4 58.0 -14.4

MdyT -218.1 -87.2 183.5 -200.6 -80.2 318.6 -223.3 -89.3 188.4 -299.5

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 15 ) ( 10 ) ( 10 ) ( 10 ) ( 11 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 18.9 18.9 21.0 21.0 21.0 19.1 19.1 19.1 17.4 17.4

MdxT 28.8 57.5 -17.2 28.1 58.2 -2.7 48.8 45.9 -13.3 55.6

MdyT -119.8 270.3 -147.0 -58.8 106.5 -218.1 -87.2 187.2 -336.7 -134.7

COMB ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 12 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45 46 47 48 49

FdzT 20.7 20.7 20.7 17.7 17.7 17.7 21.0 21.0 21.0

MdxT -37.7 30.6 76.2 6.3 60.9 36.3 -52.1 -52.1 52.1

MdyT -218.5 -87.4 184.4 -201.0 -80.4 180.0 40.1 -40.1 -40.1

COMB ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 10.6 10.6 10.6 10.6 9.9 9.9 9.5 9.5 10.2 10.3

MdxT 37.1 -37.1 0.0 0.0 -36.0 20.9 -34.9 18.5 -60.9 -14.8

MdyT 0.0 0.0 28.6 -28.6 -98.0 76.7 -186.8 157.8 -79.4 -8.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 13 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 10.4 10.1 10.1 9.8 9.8 9.8 9.0 9.0 10.4 10.4

MdxT 24.2 -59.4 49.7 -12.7 -23.9 -8.1 -33.2 16.4 -37.0 -14.8

MdyT -70.3 -80.1 51.2 -115.9 -46.4 102.2 -249.3 212.0 60.2 -28.1

COMB ( 7 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 10.0 10.0 9.5 9.5 10.1 10.1 9.7 9.7 10.5 10.6

MdxT -73.9 68.5 3.8 -27.9 -37.5 22.4 -36.4 20.0 -38.6 -26.2

MdyT -64.7 28.4 -124.6 113.4 -97.3 75.7 -190.1 160.4 -4.3 -20.2

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 0 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 10.6 10.2 9.9 9.9 9.2 9.2 10.6 10.6 10.1 10.1

MdxT 25.8 51.4 -14.3 -6.4 -34.6 17.9 -38.5 -15.4 -75.3 70.0

MdyT -71.3 50.3 -115.2 101.4 -248.6 211.0 60.9 -28.5 -64.0 27.4

COMB ( 16 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 41 42 43 44

FdzT 9.7 9.7 10.6 10.6

MdxT 2.2 -26.3 26.2 26.2

MdyT -123.9 112.4 20.2 -20.2

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P82

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 42.5 42.5 42.4 42.5 41.0 40.7 40.8 39.3 39.3 42.5

MdxT 89.3 -89.3 0.0 0.0 -41.2 35.6 -10.4 -4.3 -1.0 -1.8

MdyT 0.0 0.0 131.7 -114.8 15.4 13.9 2.2 -55.7 9.2 84.8

COMB ( 0 ) ( 0 ) ( 18 ) ( 0 ) ( 12 ) ( 11 ) ( 2 ) ( 4 ) ( 4 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 42.5 39.5 39.5 40.0 40.0 37.1 37.1 42.5 42.5 42.5

MdxT -63.1 61.0 -17.1 -66.8 14.4 -5.6 -0.7 -63.1 -1.1 63.1

MdyT -81.2 13.6 2.5 16.1 2.2 -102.2 14.1 81.2 84.8 81.2

COMB ( 0 ) ( 15 ) ( 15 ) ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 0 ) ( 14 ) ( 0 )

CARR 21

FdzT 42.5

MdxT 63.1

MdyT -81.2

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.7 31.7 31.7 31.7 30.7 30.7 30.6 30.5 30.5 30.7

MdxT 111.0 -111.0 0.0 0.0 -52.9 100.6 14.4 30.0 -30.2 59.1

MdyT 0.0 0.0 85.5 -85.5 216.3 86.0 -135.0 214.2 -135.0 -134.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 3 ) ( 10 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.6 29.6 29.6 31.6 31.7 31.7 29.3 29.3 29.3 27.7

MdxT -80.2 62.1 88.8 -8.1 66.5 11.3 58.0 -100.6 -59.9 -16.8

MdyT 202.0 52.2 -132.7 298.8 118.9 -200.3 198.5 79.4 -133.1 61.2

COMB ( 16 ) ( 4 ) ( 16 ) ( 14 ) ( 5 ) ( 5 ) ( 15 ) ( 15 ) ( 15 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 27.7 27.7 31.3 31.3 31.3 30.6 30.7 30.5 30.7 29.5

MdxT 58.2 19.7 -5.6 65.7 9.2 -11.5 100.4 -64.0 58.9 62.0

MdyT 59.9 -22.7 338.2 135.3 -242.3 215.2 86.5 85.7 -134.8 52.7

COMB ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 12 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 31.6 31.6 27.7 27.7 31.2 31.2 31.2 31.7 31.7 31.7

MdxT 66.4 11.2 58.1 19.6 -5.5 65.6 9.1 78.5 -78.5 -78.5

MdyT 119.5 -200.8 61.2 -23.1 339.5 135.8 -242.8 60.5 60.5 -60.5

COMB ( 14 ) ( 14 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

CARR 41

FdzT 31.7

MdxT 78.5

MdyT -60.5

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.9 16.9 16.9 16.9 16.5 16.4 16.5 16.4 16.4 16.5

MdxT 59.3 -59.3 0.0 0.0 -2.9 55.1 6.0 32.6 -19.9 -37.8

MdyT 0.0 0.0 45.7 -45.7 381.6 155.3 -319.5 388.2 -321.6 376.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 1 ) ( 11 ) ( 11 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.5 16.0 16.1 16.0 16.9 16.9 16.9 16.1 16.3 16.3

MdxT 31.2 -2.9 55.9 4.3 -2.9 35.5 8.4 -37.0 -61.0 47.6

MdyT -318.2 361.8 374.8 -256.9 401.4 160.6 -402.1 -300.7 356.0 -296.0

COMB ( 3 ) ( 4 ) ( 15 ) ( 4 ) ( 5 ) ( 5 ) ( 9 ) ( 15 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.4 15.4 15.4 16.9 16.9 16.4 16.4 16.5 16.5 16.0

MdxT -2.8 -32.4 2.8 -3.1 35.6 -2.2 5.3 -37.2 30.5 -2.2

MdyT 331.7 132.7 -193.8 397.7 -160.8 383.0 -320.3 377.7 -319.2 363.2

COMB ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 12 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 16.0 16.9 16.9 16.2 16.2 15.4 15.4 15.4 16.9 16.9

MdxT 3.6 -2.4 35.5 -60.5 46.9 -2.2 -32.3 2.1 35.5 7.7

MdyT -257.9 402.8 161.1 357.3 -296.8 332.9 133.2 -194.6 -161.2 -402.9

COMB ( 13 ) ( 14 ) ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 41 42 43 44

FdzT 16.9 16.9 16.9 16.9

MdxT 42.0 -42.0 -42.0 42.0

MdyT 32.3 32.3 -32.3 -32.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.5 3.6 3.6

MdxT 11.4 -11.4 0.0 0.0 -32.1 -12.8 18.3 10.1 -9.5 6.3

MdyT 0.0 0.0 17.6 -17.6 -35.0 -83.6 -71.8 -249.1 -35.1 58.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 7 ) ( 7 ) ( 9 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.5 3.6 3.6 3.6 3.5 3.6 3.6 3.5 3.6 3.6

MdxT -5.0 -3.5 5.5 5.7 11.1 -3.3 5.0 -12.0 8.1 -8.1

MdyT -249.1 136.9 136.9 58.9 -34.7 137.1 137.1 -34.3 12.4 12.4

COMB ( 9 ) ( 8 ) ( 8 ) ( 13 ) ( 15 ) ( 17 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

### P83

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 55.8 57.4 57.4 56.0 57.4 57.4 56.0 55.8 55.8 56.2

MdxT 43.1 120.5 -120.5 0.0 0.0 0.0 4.5 43.1 -9.5 -34.2

MdyT 0.0 0.0 0.0 -117.7 154.9 -154.9 1.3 -1.7 -1.7 2.1

COMB ( 11 ) ( 0 ) ( 0 ) ( 8 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 11 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 57.4 54.7 54.8 53.5 53.5 54.2 54.3 54.2 56.0 56.0

MdxT 85.2 6.9 -0.7 68.5 -15.7 -60.3 -60.3 15.1 0.6 0.6

MdyT -109.6 72.0 -8.7 -1.8 -1.8 2.0 -2.0 -2.0 -117.7 9.7

COMB ( 0 ) ( 14 ) ( 5 ) ( 15 ) ( 15 ) ( 16 ) ( 7 ) ( 16 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26

FdzT 51.7 51.8 56.0 57.4 57.4 57.4

MdxT 8.1 -1.1 4.5 85.2 -85.2 -85.2

MdyT 118.3 -13.4 -1.7 109.6 109.6 -109.6

COMB ( 18 ) ( 9 ) ( 10 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 45.4 45.4 45.4 45.4 44.7 44.7 44.6 44.4 44.4 44.4

MdxT 159.0 -159.0 0.0 0.0 -76.7 -134.3 16.8 1.0 -93.3 -22.8

MdyT 0.0 0.0 122.6 -122.6 -183.0 -73.2 160.3 -182.8 -73.1 160.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 1 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 44.7 45.4 45.4 45.4 43.8 43.8 42.1 42.1 42.1 42.7

MdxT 58.4 -41.0 -95.4 20.2 -91.9 21.4 32.1 -100.6 -53.3 -100.4

MdyT 159.9 -255.1 -102.0 225.1 -116.6 265.2 -171.1 -68.4 157.9 -171.4

COMB ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 8 ) ( 8 ) ( 6 ) ( 6 ) ( 6 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 42.7 43.8 41.0 41.0 44.3 44.3 44.6 44.6 45.3 42.6

MdxT 85.1 -40.9 -86.1 10.4 2.7 -24.6 -76.9 -134.4 -41.2 -100.5

MdyT 156.4 -291.6 -51.0 49.1 -181.7 160.6 -181.9 -72.7 -254.0 -170.4

COMB ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 16 )

CARR 31 32 33 34 35

FdzT 40.9 45.4 45.4 45.4 45.4

MdxT 10.4 112.5 -112.5 -112.5 112.5

MdyT 49.0 86.7 86.7 -86.7 -86.7

COMB ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.6 19.6 19.6 19.6 19.2 19.2 19.2 19.0 19.2 19.4

MdxT 68.5 -68.5 0.0 0.0 -24.6 62.9 41.4 2.7 37.0 -53.1

MdyT 0.0 0.0 52.8 -52.8 -291.6 -174.8 263.2 -294.6 392.8 -288.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 17 ) ( 1 ) ( 2 ) ( 17 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 19.3 19.4 19.6 19.6 19.6 18.9 18.8 18.9 18.4 18.4

MdxT 63.3 65.9 -24.1 68.3 40.9 -70.7 16.9 79.1 24.2 45.3

MdyT -174.9 261.7 -386.4 -154.6 351.1 -274.3 -78.7 244.0 -284.6 -113.8

COMB ( 8 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 7 ) ( 5 ) ( 7 ) ( 6 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 18.4 19.3 19.3 18.0 18.0 18.0 19.0 18.3 18.3 18.3

MdxT -2.2 -22.4 37.2 -24.1 15.8 39.5 4.2 24.5 45.6 -2.7

MdyT 249.1 -437.4 393.1 -121.4 -48.6 100.0 -294.1 -284.1 -113.6 248.8

COMB ( 6 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 15 ) ( 15 ) ( 15 )

CARR 31 32 33

FdzT 19.6 19.6 19.6

MdxT 48.5 -48.5 -48.5

MdyT 37.4 37.4 -37.4

COMB ( 0 ) ( 0 ) ( 0 )

### P84

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 54.9 58.9 58.9 58.9 58.9 58.0 57.5 58.9 58.2 58.1

MdxT -2.7 123.8 -123.8 0.0 0.0 -12.2 -11.9 -87.5 -12.3 38.6

MdyT 0.0 0.0 0.0 176.8 -176.8 37.9 109.2 -125.0 37.5 43.4

COMB ( 6 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 0 ) ( 10 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 58.0 54.9 57.5 56.2 56.0 58.9 58.1 55.0 56.2 58.9

MdxT -63.1 -11.9 -13.6 72.1 -97.4 -87.5 -63.3 -12.0 -97.6 87.5

MdyT 32.6 157.2 -82.3 46.8 28.7 125.0 32.2 156.8 28.3 125.0

COMB ( 5 ) ( 6 ) ( 16 ) ( 8 ) ( 9 ) ( 0 ) ( 14 ) ( 15 ) ( 18 ) ( 0 )

CARR 21

FdzT 58.9

MdxT 87.5

MdyT -125.0

COMB ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 43.9 43.9 43.9 43.9 42.9 43.5 43.4 42.8 42.9 42.9

MdxT 153.8 -153.8 0.0 0.0 -100.0 -119.4 69.7 -98.8 -40.0 71.4

MdyT 0.0 0.0 131.7 -131.7 179.1 -119.9 -254.7 177.0 -142.8 -357.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 13 ) ( 10 ) ( 2 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 43.4 43.9 43.9 43.4 43.5 43.1 43.3 40.5 40.7 40.7

MdxT -99.4 -39.5 68.0 -65.1 44.8 -131.3 94.6 -92.8 -37.6 70.4

MdyT 92.1 -89.3 -152.3 115.1 -275.4 72.4 -233.9 232.7 -170.1 -425.3

COMB ( 10 ) ( 12 ) ( 12 ) ( 4 ) ( 13 ) ( 5 ) ( 14 ) ( 6 ) ( 15 ) ( 15 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 42.3 42.3 42.3 41.5 41.7 41.7 41.1 41.3 43.9 43.5

MdxT -91.8 -36.7 64.8 -36.7 -87.5 26.0 -147.0 109.2 -108.7 -66.2

MdyT -58.8 -84.1 -84.1 123.2 -125.0 -289.4 52.2 -220.2 93.2 113.4

COMB ( 16 ) ( 16 ) ( 16 ) ( 8 ) ( 17 ) ( 17 ) ( 9 ) ( 18 ) ( 0 ) ( 13 )

CARR 31 32 33 34 35 36

FdzT 43.3 40.7 41.7 41.3 43.9 43.9

MdxT -132.4 -93.9 -37.8 -148.0 108.7 108.7

MdyT 70.8 231.0 121.7 50.7 93.2 -93.2

COMB ( 14 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 20.9 20.9 20.9 20.9 20.5 20.5 20.5 20.3 20.3 20.3

MdxT 72.6 -72.6 0.0 0.0 -50.3 33.1 82.7 -52.1 33.4 83.6

MdyT 0.0 0.0 62.7 -62.7 379.7 155.7 -180.3 507.8 203.1 -270.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 1 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.8 20.8 20.8 20.6 20.6 20.6 20.4 20.2 20.4 19.5

MdxT -50.0 33.3 83.3 -23.9 26.3 59.8 -76.6 66.8 105.7 -48.0

MdyT 249.2 114.2 -88.2 397.5 160.8 -194.2 361.9 161.0 -166.5 587.0

COMB ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 17 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 19.5 19.5 20.2 19.9 19.9 19.9 20.6 20.6 20.6 20.9

MdxT 30.2 75.6 65.1 -91.6 45.9 114.8 -51.9 33.7 84.1 -51.7

MdyT 234.8 -324.7 161.8 340.2 144.9 -148.1 377.4 154.9 -178.9 247.0

COMB ( 6 ) ( 6 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 20.9 20.9 20.7 20.7 20.7 20.5 20.5 20.5 19.6 19.6

MdxT 33.9 84.8 -25.6 26.5 61.3 -78.3 42.8 107.1 -49.7 30.8

MdyT 113.5 -86.7 395.2 160.0 -192.8 359.7 149.8 -165.1 584.9 234.0

COMB ( 12 ) ( 12 ) ( 13 ) ( 13 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 41 42 43 44 45

FdzT 19.6 20.0 20.0 20.9 20.9

MdxT 77.0 -93.2 116.2 51.3 -51.3

MdyT -323.4 338.1 -146.7 44.3 -44.3

COMB ( 15 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

### P85

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 99.7 99.7 98.5 97.1 99.7 92.6 96.5 99.7 99.7 97.1

MdxT 209.3 -209.3 0.0 0.0 0.0 0.0 0.0 0.0 -148.0 -5.2

MdyT 0.0 0.0 -1.4 -6.3 299.0 -9.7 6.9 -299.0 -211.4 58.9

COMB ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 0 ) ( 6 ) ( 7 ) ( 0 ) ( 0 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 99.7 98.3 98.3 92.4 96.5 94.2 94.9 94.9 99.5 98.1

MdxT -6.6 48.6 48.6 -4.8 -7.0 84.8 -96.5 16.9 -6.6 48.4

MdyT -60.8 1.4 -1.4 98.1 -101.1 2.4 -5.5 -1.3 -60.5 1.7

COMB ( 3 ) ( 4 ) ( 4 ) ( 15 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 12 ) ( 13 )

CARR 21 22 23 24 25 26 27

FdzT 98.5 96.3 94.0 94.7 99.7 99.7 99.7

MdxT -60.3 -7.1 84.7 -96.6 148.0 -148.0 148.0

MdyT -3.1 -100.9 2.7 -5.3 211.4 211.4 -211.4

COMB ( 14 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 81.8 81.8 81.8 81.8 81.8 81.8 81.8 80.9 80.9 81.1

MdxT 286.3 -286.3 0.0 0.0 -202.5 -171.7 12.0 16.7 -169.8 -60.6

MdyT 0.0 0.0 245.3 -245.3 -173.5 195.6 195.6 -11.6 115.1 -36.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 81.8 75.7 75.7 78.3 78.3 78.3 76.8 77.3 77.3 77.3

MdxT 202.5 -159.0 6.2 -22.7 -164.5 12.6 44.1 -165.5 -84.6 66.4

MdyT 173.5 57.5 17.2 -108.6 99.4 238.1 -5.0 151.3 -46.1 151.3

COMB ( 0 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 9 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25 26 27

FdzT 80.8 80.1 80.7 75.6 76.7 81.8 81.8

MdxT -169.7 8.0 16.8 -158.7 44.2 -202.5 202.5

MdyT 127.7 61.5 -10.1 58.9 -3.6 173.5 -173.5

COMB ( 10 ) ( 11 ) ( 13 ) ( 15 ) ( 17 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 38.2 38.2 38.2 38.2 37.9 38.0 38.0 37.6 37.6 37.6

MdxT 132.8 -132.8 0.0 0.0 -74.9 -125.8 61.0 -44.0 -83.7 33.3

MdyT 0.0 0.0 114.7 -114.7 235.2 91.6 -144.8 329.7 131.9 -222.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 5 ) ( 5 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.2 37.9 37.9 36.3 36.3 36.3 37.4 36.6 37.0 36.6

MdxT -44.9 -125.7 60.8 -42.0 -80.2 31.1 33.5 8.0 -93.7 -12.9

MdyT 122.5 94.1 -150.4 394.8 157.9 -272.3 1.4 223.7 225.0 -139.3

COMB ( 3 ) ( 14 ) ( 14 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 17 ) ( 18 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 37.1 37.1 37.8 37.8 37.8 37.5 37.5 37.5 36.2 36.2

MdxT -93.7 77.3 -44.4 -84.4 33.9 -43.8 -83.4 33.0 -41.9 -79.9

MdyT 219.1 -136.9 234.8 93.9 -149.5 340.6 136.2 -231.6 400.8 160.3

COMB ( 9 ) ( 9 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35

FdzT 36.2 37.0 38.2 38.2 38.2

MdxT 30.9 77.1 93.9 -93.9 93.9

MdyT -277.5 -142.2 81.1 -81.1 -81.1

COMB ( 15 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P86

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 36.0 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.0

MdxT 4.9 77.2 -77.2 0.0 0.0 54.6 54.6 78.1 -54.6 33.3

MdyT 0.0 0.0 0.0 126.8 -126.8 89.7 -89.7 32.5 89.7 92.4

COMB ( 6 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 0 ) ( 15 )

CARR 11 12 13 14

FdzT 36.0 36.1 35.9 36.8

MdxT 29.7 113.0 -50.0 -54.6

MdyT -37.4 35.1 20.0 -89.7

COMB ( 7 ) ( 17 ) ( 9 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.0 21.0 21.0 21.0 21.0 21.0 21.0 21.0 20.2 20.2

MdxT 73.6 -73.6 0.0 0.0 671.4 -354.8 671.6 -375.3 645.3 -349.3

MdyT 0.0 0.0 72.5 -72.5 391.3 -275.5 335.9 -223.7 423.8 -312.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 4 ) ( 5 ) ( 6 ) ( 6 )

CARR 11 12 13 14

FdzT 20.3 20.3 21.0 21.0

MdxT 645.4 -383.5 -52.0 52.0

MdyT 326.8 -222.3 51.3 -51.3

COMB ( 8 ) ( 9 ) ( 0 ) ( 0 )

### P87

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 62.6 62.6 62.6 62.6 61.6 61.4 60.6 60.6 62.6 62.1

MdxT 131.5 -131.5 0.0 0.0 -162.3 -160.2 -268.8 -268.9 -166.0 -231.1

MdyT 0.0 0.0 216.0 -216.0 375.9 584.9 336.6 336.1 507.2 358.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 7 ) ( 8 ) ( 17 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 58.2 58.2 58.2 60.6 59.0 59.0 59.0 61.7 62.6 62.2

MdxT -72.8 -117.6 -147.4 -0.7 -161.3 -112.3 -38.9 -162.4 -166.2 -231.4

MdyT 286.4 230.8 147.3 334.6 315.7 363.6 395.5 375.5 506.9 357.8

COMB ( 6 ) ( 6 ) ( 6 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 12 ) ( 13 )

CARR 21 22 23 24 25 26 27 28

FdzT 58.2 58.2 61.4 59.0 59.0 62.6 62.6 62.6

MdxT -117.7 -147.7 -160.4 -112.4 -39.1 93.0 -93.0 93.0

MdyT 230.5 146.9 584.6 363.3 395.1 152.8 -152.8 -152.8

COMB ( 15 ) ( 15 ) ( 16 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 48.7 48.7 48.7 48.7 48.4 48.4 48.4 47.4 47.2 47.4

MdxT 170.5 -170.5 0.0 0.0 218.5 -89.6 -225.1 177.7 -193.6 -195.3

MdyT 0.0 0.0 167.9 -167.9 413.7 244.0 -12.2 578.3 357.3 -224.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 13 ) ( 11 ) ( 7 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 48.4 48.7 47.7 45.1 45.1 45.2 46.7 46.7 46.7 45.6

MdxT 219.5 -199.1 -169.3 164.8 -74.1 -186.3 234.6 -94.1 -236.2 98.4

MdyT 413.4 217.1 5.0 668.2 267.3 -377.2 393.4 227.1 -23.8 339.6

COMB ( 13 ) ( 3 ) ( 5 ) ( 6 ) ( 6 ) ( 15 ) ( 8 ) ( 8 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 45.6 45.6 48.7 48.4 47.7 47.7 45.2 45.2 47.2 46.7

MdxT -57.5 -143.8 -200.2 -90.0 -68.2 -170.4 165.8 -74.5 -194.7 235.8

MdyT 205.2 3.6 215.6 243.2 230.0 3.4 667.9 267.2 355.7 393.0

COMB ( 9 ) ( 9 ) ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 )

CARR 31 32 33 34 35 36

FdzT 46.7 45.7 45.7 45.7 48.7 48.7

MdxT -94.5 99.4 -58.0 -144.9 -120.5 120.5

MdyT 226.3 339.2 204.4 2.1 -118.8 -118.8

COMB ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 26.5 26.5 26.5 26.5 26.0 26.1 26.0 26.3 26.3 26.5

MdxT 92.2 -92.2 0.0 0.0 255.4 101.4 -218.4 252.4 101.0 -228.8

MdyT 0.0 0.0 91.6 -91.6 557.6 -169.5 -446.2 396.8 -165.8 -405.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 14 ) ( 11 ) ( 10 ) ( 10 ) ( 13 )

CARR 11 12 13 14 15 16 17 18

FdzT 25.3 25.3 26.1 25.5 26.3 26.5 26.5 26.5

MdxT 247.2 -206.6 -223.9 97.6 -216.0 249.5 99.8 -65.2

MdyT 650.9 -435.0 -366.5 -158.9 -414.4 235.8 -153.0 64.7

COMB ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 10 ) ( 12 ) ( 12 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 5.2 5.2 5.2 5.2 5.1 5.1 5.1 5.0 5.1 5.1

MdxT -57.8 57.8 0.0 0.0 -9.8 -161.1 -106.1 -9.7 -65.3 -23.2

MdyT 0.0 0.0 18.0 -18.0 36.4 -284.6 -293.6 89.6 -119.2 -291.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 17 ) ( 13 ) ( 6 ) ( 11 ) ( 10 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 5.2 5.2 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5.1

MdxT -78.4 -30.1 -9.7 -10.2 115.4 59.9 -10.1 -202.9 158.0 -19.0

MdyT -222.6 -356.0 37.9 35.3 -267.5 -278.7 35.0 -154.8 -149.6 -247.0

COMB ( 16 ) ( 16 ) ( 13 ) ( 18 ) ( 9 ) ( 5 ) ( 14 ) ( 17 ) ( 9 ) ( 11 )

CARR 21 22 23 24 25 26 27 28

FdzT 5.1 5.0 5.1 5.1 5.1 5.2 5.2 5.2

MdxT 59.6 -9.5 -9.5 157.6 114.9 40.9 -40.9 40.9

MdyT -289.8 97.6 40.0 -152.9 -278.3 12.7 12.7 -12.7

COMB ( 14 ) ( 15 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P88

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 33.8 33.8 33.8 33.8 33.6 33.5 33.5 33.5 33.6 33.6

MdxT 71.0 -71.0 0.0 0.0 -189.7 -179.8 -168.2 -150.8 -203.6 -212.9

MdyT 0.0 0.0 116.6 -116.6 380.9 447.9 451.6 454.2 353.7 312.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 11 ) ( 11 ) ( 11 ) ( 14 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 32.7 32.7 32.7 33.0 33.0 33.0 33.8 33.8 33.8

MdxT -175.0 -161.8 -142.0 -191.4 -224.0 -245.7 50.2 -50.2 50.2

MdyT 485.7 509.6 525.6 374.2 340.6 290.2 82.4 -82.4 -82.4

COMB ( 15 ) ( 15 ) ( 15 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.1 19.1 19.1 19.1 19.0 19.0 19.0 19.0 19.1 19.1

MdxT 66.9 -66.9 0.0 0.0 -696.6 334.3 -693.3 330.4 -693.4 327.5

MdyT 0.0 0.0 65.9 -65.9 301.4 -22.7 328.2 -11.8 265.3 -25.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 14 ) ( 5 ) ( 11 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17

FdzT 18.3 18.4 18.4 18.5 19.1 19.1 19.1

MdxT -666.8 334.2 -672.4 322.6 47.3 -47.3 47.3

MdyT 339.4 -31.8 294.7 -35.7 46.6 -46.6 -46.6

COMB ( 15 ) ( 9 ) ( 18 ) ( 7 ) ( 0 ) ( 0 ) ( 0 )

### P89

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 42.3 42.3 41.6 40.3 41.2 42.3 42.3 42.3 41.8 41.8

MdxT 88.8 -88.8 0.0 0.0 0.0 0.0 0.0 -62.8 40.5 -10.2

MdyT 0.0 0.0 9.8 14.4 136.6 114.2 -114.2 80.8 16.1 2.7

COMB ( 0 ) ( 0 ) ( 4 ) ( 8 ) ( 9 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 41.6 42.3 42.3 40.6 40.5 40.9 40.9 40.3 41.3 41.2

MdxT -5.6 -1.4 -62.8 73.1 -17.2 -79.5 15.8 -6.9 -1.8 -1.8

MdyT -53.2 89.2 -80.8 14.7 2.5 21.4 3.5 -100.5 78.6 -8.4

COMB ( 4 ) ( 14 ) ( 0 ) ( 15 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 18 ) ( 9 )

CARR 21 22 23 24 25

FdzT 42.3 42.3 40.4 41.3 42.3

MdxT 62.8 -1.0 -6.7 0.6 62.8

MdyT 80.8 89.2 -100.5 136.6 -80.8

COMB ( 0 ) ( 14 ) ( 17 ) ( 18 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 30.8 30.8 29.1 30.8 30.8 30.6 30.8 30.6 30.3 30.3

MdxT 107.9 -107.9 0.0 0.0 0.0 17.8 64.6 -11.1 32.8 64.3

MdyT 0.0 0.0 39.1 83.2 -83.2 226.0 90.2 -200.2 119.1 47.7

COMB ( 0 ) ( 0 ) ( 17 ) ( 0 ) ( 0 ) ( 5 ) ( 14 ) ( 5 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.3 30.7 30.7 30.6 29.0 29.0 29.0 29.6 29.7 29.6

MdxT -24.1 -6.4 10.1 64.3 46.2 82.3 -35.8 -20.6 62.3 22.4

MdyT -99.1 135.5 -123.5 90.4 105.3 42.1 -89.5 133.1 113.4 -130.9

COMB ( 2 ) ( 3 ) ( 3 ) ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 18 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 29.1 29.0 29.5 29.5 29.5 30.4 30.4 30.4 30.8 30.8

MdxT 61.2 -0.6 19.7 62.0 -12.9 33.5 65.4 -24.5 -6.6 76.3

MdyT -45.8 38.5 283.8 113.5 -258.9 118.4 47.4 -98.0 135.2 58.8

COMB ( 17 ) ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 0 )

CARR 31 32 33 34 35 36 37 38

FdzT 30.8 29.7 29.7 29.7 29.1 30.8 30.8 30.8

MdxT 10.4 -20.7 62.4 22.5 5.7 -76.3 -76.3 76.3

MdyT -122.9 132.9 53.1 -130.2 -45.8 58.8 -58.8 -58.8

COMB ( 12 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 14.2 14.2 14.2 14.2 14.1 14.1 14.1 14.1 14.1 14.2

MdxT 49.8 -49.8 0.0 0.0 -31.5 -29.6 24.8 9.9 -14.4 -9.2

MdyT 0.0 0.0 38.4 -38.4 149.8 58.0 -130.2 140.1 -120.3 234.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 1 ) ( 3 ) ( 2 ) ( 2 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.2 13.8 13.8 13.8 13.9 13.9 13.9 13.9 14.1 14.1

MdxT 4.5 25.1 -48.0 -28.7 -45.5 37.9 -8.4 4.2 10.9 -15.4

MdyT -205.7 131.3 52.5 -107.8 147.8 -124.7 288.3 -250.3 138.5 -118.4

COMB ( 5 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 9 ) ( 9 ) ( 11 ) ( 11 )

CARR 21 22 23 24 25 26 27

FdzT 13.8 13.8 13.8 14.2 14.2 14.2 14.2

MdxT 25.2 -48.2 -28.8 35.2 -35.2 -35.2 35.2

MdyT 129.9 52.0 -106.3 27.2 27.2 -27.2 -27.2

COMB ( 15 ) ( 15 ) ( 15 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

### P9

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.9 39.9 39.9 39.9 38.9 39.9 39.9 38.0 37.5 39.1

MdxT 83.8 -83.8 0.0 0.0 -9.8 -8.5 -59.2 -11.1 -67.1 24.5

MdyT 0.0 0.0 107.7 -107.7 18.3 79.2 -76.2 -42.8 10.2 23.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 0 ) ( 3 ) ( 18 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.7 38.3 39.6 36.3 36.3 37.5 37.9 39.9 39.9 39.9

MdxT -44.1 47.3 -7.7 -12.0 -1.7 9.7 -11.1 59.2 -59.2 59.2

MdyT 13.6 25.9 119.6 -83.7 14.4 3.6 -42.6 76.2 76.2 -76.2

COMB ( 14 ) ( 17 ) ( 15 ) ( 7 ) ( 7 ) ( 18 ) ( 12 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 28.7 28.7 28.2 28.7 28.7 28.1 28.3 28.1 28.6 28.7

MdxT 100.4 -100.4 0.0 0.0 0.0 -18.6 59.4 21.7 -18.2 60.2

MdyT 0.0 0.0 173.0 77.4 -77.4 165.8 69.1 -95.1 234.5 92.5

COMB ( 0 ) ( 0 ) ( 13 ) ( 0 ) ( 0 ) ( 10 ) ( 4 ) ( 10 ) ( 11 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 28.6 27.6 27.6 27.6 28.0 28.0 28.0 28.0 28.0 28.1

MdxT 21.1 -19.2 58.0 22.4 20.7 -37.1 -69.2 36.5 -16.9 59.0

MdyT -156.8 97.0 44.7 -33.3 -196.8 158.5 63.4 -88.8 268.0 107.0

COMB ( 11 ) ( 12 ) ( 3 ) ( 12 ) ( 15 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 26.2 26.3 27.4 27.4 27.4 27.0 27.0 27.0 28.6 27.6

MdxT -18.6 55.2 13.3 57.5 -3.2 -48.4 -83.9 46.3 60.1 57.9

MdyT 38.6 38.4 165.2 66.1 -104.6 141.1 56.4 -83.4 93.8 44.9

COMB ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 18 ) ( 18 ) ( 18 ) ( 11 ) ( 12 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 28.2 28.0 26.2 27.3 27.3 28.7 28.7 28.7 28.7

MdxT 59.2 58.9 55.1 12.9 57.3 71.0 -71.0 -71.0 71.0

MdyT 69.2 107.2 38.6 165.5 66.2 54.7 54.7 -54.7 -54.7

COMB ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.9 15.9 15.9 15.9 15.7 15.7 15.7 15.9 15.9 15.9

MdxT 55.8 -55.8 0.0 0.0 -17.2 -33.7 16.0 -15.8 -33.4 15.0

MdyT 0.0 0.0 43.0 -43.0 287.3 -119.5 -298.8 324.4 -129.2 -324.7

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 10 ) ( 10 ) ( 11 ) ( 2 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 15.4 15.4 15.4 15.8 15.7 15.7 15.6 15.6 15.6 15.8

MdxT -35.3 -35.4 26.3 -14.4 33.1 9.2 -28.4 -49.1 22.8 -33.2

MdyT 268.5 -109.2 -275.9 336.0 -119.9 -300.2 283.9 -119.0 -297.5 134.2

COMB ( 18 ) ( 12 ) ( 18 ) ( 15 ) ( 4 ) ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.0 15.0 15.0 15.5 15.5 15.4 15.9 15.7 15.8 15.5

MdxT -18.9 -35.7 16.5 2.5 32.6 -14.1 -33.4 33.0 -33.2 2.0

MdyT 212.0 -94.1 -235.2 279.2 -112.1 -110.4 -129.9 -120.1 134.4 279.6

COMB ( 16 ) ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 18 ) ( 11 ) ( 13 ) ( 15 ) ( 17 )

CARR 31 32 33 34 35

FdzT 15.5 15.9 15.9 15.9 15.9

MdxT 32.5 39.4 -39.4 -39.4 39.4

MdyT -112.2 30.4 30.4 -30.4 -30.4

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3

MdxT 10.5 -10.5 0.0 0.0 -15.5 8.4 19.2 21.3 18.8 22.7

MdyT 0.0 0.0 16.1 -16.1 -31.4 -107.2 -98.6 -37.8 19.0 -36.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 6 ) ( 6 ) ( 5 ) ( 16 ) ( 9 )

CARR 11 12 13 14 15 16

FdzT 3.3 3.3 3.3 3.3 3.3 3.3

MdxT 19.7 21.8 8.5 -16.1 23.2 -7.4

MdyT -98.4 -37.7 -107.0 -31.2 -36.0 11.4

COMB ( 15 ) ( 14 ) ( 15 ) ( 18 ) ( 18 ) ( 0 )

### P90

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 65.8 65.8 64.9 65.8 65.8 65.8 65.8 65.6 65.8 64.2

MdxT 138.1 -138.1 0.0 0.0 0.0 97.7 97.7 48.3 -97.7 -47.5

MdyT 0.0 0.0 3.1 177.6 -177.6 125.6 -125.6 3.4 -125.6 2.8

COMB ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 0 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 64.4 65.5 64.8 64.8 63.5 63.3 61.0 61.2 62.7 62.7

MdxT 11.8 -0.7 2.4 1.4 80.8 -15.8 -79.1 18.6 -2.0 1.5

MdyT -1.7 -67.8 73.6 -8.3 3.1 -0.8 2.2 -2.0 -115.1 10.2

COMB ( 3 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26

FdzT 61.8 61.8 65.2 64.5 63.3 65.8

MdxT 3.6 1.4 -1.1 2.0 80.4 -97.7

MdyT 120.4 -12.9 -67.6 73.6 3.2 125.6

COMB ( 9 ) ( 9 ) ( 13 ) ( 14 ) ( 15 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 53.9 53.9 53.9 53.9 53.3 53.3 53.3 53.9 53.8 53.8

MdxT 188.6 -188.6 0.0 0.0 -57.7 -113.2 25.5 -133.3 -26.3 -1.8

MdyT 0.0 0.0 145.4 -145.4 -47.5 88.3 88.3 102.8 -139.6 166.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 3 ) ( 3 ) ( 0 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 53.1 51.3 51.3 50.3 50.3 50.3 51.1 51.1 51.1 50.4

MdxT 6.4 17.9 -107.7 -72.7 -132.7 40.3 -20.4 -107.4 -5.2 -105.9

MdyT -6.7 -36.8 66.1 -50.0 93.9 93.9 -203.6 89.7 224.3 116.8

COMB ( 14 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 8 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 50.2 53.0 53.0 53.0 53.6 50.1 50.1 50.1 50.9 50.2

MdxT 8.4 -58.4 -114.1 25.8 -27.0 -73.2 -133.3 40.5 -21.1 -105.4

MdyT -64.4 -46.9 88.2 88.2 -139.0 -49.4 93.8 93.8 -203.0 117.3

COMB ( 18 ) ( 12 ) ( 12 ) ( 12 ) ( 13 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 18 )

CARR 31 32 33

FdzT 53.9 53.9 53.9

MdxT 133.3 -133.3 133.3

MdyT 102.8 -102.8 -102.8

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 24.1 24.1 24.1 24.1 23.7 23.6 24.0 23.9 23.7 23.8

MdxT 84.4 -84.4 0.0 0.0 -110.7 101.8 -91.0 87.2 -92.3 82.7

MdyT 0.0 0.0 65.1 -65.1 -67.6 57.7 -152.3 134.3 23.5 -22.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 3 ) ( 12 ) ( 4 ) ( 13 ) ( 14 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.8 22.7 23.3 23.2 23.0 23.1 23.6 23.9 23.7 22.7

MdxT -119.8 106.4 -86.9 82.2 -87.5 76.0 -112.7 -93.0 84.7 -121.5

MdyT -67.9 56.4 -209.0 184.1 83.9 -77.3 -67.3 -152.0 -22.4 -67.5

COMB ( 7 ) ( 16 ) ( 8 ) ( 17 ) ( 18 ) ( 9 ) ( 12 ) ( 13 ) ( 14 ) ( 16 )

CARR 21 22 23 24

FdzT 23.2 23.0 24.1 24.1

MdxT -88.6 77.8 -59.7 59.7

MdyT -208.6 -77.1 46.0 -46.0

COMB ( 17 ) ( 18 ) ( 0 ) ( 0 )

### P91

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 39.5 39.5 39.5 39.5 38.0 37.9 38.1 36.3 36.3 39.5

MdxT 83.0 -83.0 0.0 0.0 6.2 44.0 -31.6 4.5 1.3 9.0

MdyT 0.0 0.0 -106.8 106.8 13.0 12.7 13.3 -59.5 9.1 134.1

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 11 ) ( 12 ) ( 4 ) ( 4 ) ( 18 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 39.5 36.8 37.0 34.2 34.3 34.3 39.5 39.5 39.5

MdxT 58.7 69.2 -57.0 3.2 1.5 3.2 58.7 -58.7 -58.7

MdyT -75.5 12.9 14.0 -107.4 14.3 -58.6 75.5 75.5 -75.5

COMB ( 0 ) ( 15 ) ( 16 ) ( 8 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.4 29.4 27.3 29.4 29.4 28.4 28.4 28.4 28.5 28.5

MdxT 103.0 -103.0 0.0 0.0 0.0 42.1 -94.4 -55.7 -37.7 29.5

MdyT 0.0 0.0 164.6 79.4 -79.4 246.8 98.7 -153.3 246.5 -151.9

COMB ( 0 ) ( 0 ) ( 4 ) ( 0 ) ( 0 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 27.4 27.2 29.4 29.4 29.4 27.2 27.2 27.4 25.7 25.7

MdxT -64.3 -84.1 5.3 -61.8 -16.0 69.2 -33.7 58.0 -2.4 -53.9

MdyT 229.3 -151.2 327.5 131.3 -219.5 229.0 91.6 -148.8 93.8 40.9

COMB ( 16 ) ( 6 ) ( 5 ) ( 14 ) ( 5 ) ( 6 ) ( 6 ) ( 16 ) ( 17 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 25.6 29.0 29.0 29.0 28.4 28.4 29.4 27.3 29.0 29.4

MdxT -8.5 7.4 -61.0 -17.8 2.2 -59.7 5.0 68.9 7.1 72.9

MdyT -38.5 364.6 146.0 -261.5 246.7 98.7 328.2 229.6 365.1 56.2

COMB ( 8 ) ( 9 ) ( 18 ) ( 9 ) ( 10 ) ( 10 ) ( 14 ) ( 15 ) ( 18 ) ( 0 )

CARR 31 32 33

FdzT 29.4 29.4 29.4

MdxT -72.9 -72.9 72.9

MdyT 56.2 -56.2 -56.2

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.8 15.8 15.7 15.8 15.2 15.3 15.3 15.3 15.3 15.0

MdxT 55.2 -55.2 0.0 0.0 44.2 45.9 -26.0 -22.4 22.7 68.0

MdyT 0.0 0.0 -383.3 42.6 385.8 385.6 -330.1 382.9 -327.0 369.9

COMB ( 0 ) ( 0 ) ( 14 ) ( 0 ) ( 2 ) ( 11 ) ( 11 ) ( 3 ) ( 3 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.8 15.0 15.7 15.7 15.7 15.0 15.0 14.3 14.3 14.3

MdxT 31.2 -42.3 10.6 33.0 2.1 -45.4 38.8 13.0 30.0 -5.6

MdyT 144.4 -307.9 407.8 163.1 -396.3 365.0 -302.8 328.3 131.3 -214.3

COMB ( 4 ) ( 15 ) ( 5 ) ( 5 ) ( 9 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 17 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.7 15.3 15.7 15.0 15.1 14.3 14.3 15.8 15.8 15.8

MdxT 33.1 22.3 10.9 68.3 38.4 13.3 30.0 33.1 1.7 39.0

MdyT 163.0 -327.3 407.4 369.5 -303.1 327.9 131.2 162.4 -396.5 30.1

COMB ( 14 ) ( 12 ) ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 )

CARR 31 32 33

FdzT 15.8 15.8 15.8

MdxT -39.0 -39.0 39.0

MdyT 30.1 -30.1 -30.1

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 10.3 -10.3 0.0 0.0 8.0 -11.8 -13.9 28.3 -22.0 -11.5

MdyT 0.0 0.0 15.9 -15.9 -42.3 -127.5 -42.7 -30.7 -23.8 -196.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 11 ) ( 14 ) ( 16 ) ( 15 ) ( 15 ) ( 18 )

CARR 11 12 13 14 15 16 17 18 19

FdzT 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2

MdxT 11.3 -4.8 -12.0 -4.7 -11.9 -4.6 19.9 -18.1 7.3

MdyT -42.3 -80.9 80.9 -132.0 149.4 -196.8 -30.7 -23.7 11.3

COMB ( 15 ) ( 4 ) ( 4 ) ( 5 ) ( 8 ) ( 18 ) ( 11 ) ( 11 ) ( 0 )

### P92

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 48.2 46.4 49.5 49.5 48.2 49.5 49.5 48.1 48.2 48.2

MdxT 42.3 -58.9 104.0 -104.0 0.0 0.0 0.0 40.6 -33.6 -33.6

MdyT 0.0 0.0 0.0 0.0 -1.8 133.7 -133.7 -1.8 -1.8 0.7

COMB ( 11 ) ( 16 ) ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 2 ) ( 12 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 48.1 49.5 46.8 46.8 46.3 46.3 46.4 48.5 48.5 44.1

MdxT 9.2 73.5 6.3 -0.8 67.5 -58.9 15.5 1.1 1.0 7.4

MdyT -1.8 -94.5 73.1 -9.0 -2.0 -2.0 -2.0 -122.2 9.9 121.0

COMB ( 3 ) ( 0 ) ( 5 ) ( 5 ) ( 6 ) ( 7 ) ( 16 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26

FdzT 44.1 48.2 46.9 49.5 49.5 49.5

MdxT -1.3 4.3 6.2 73.5 -73.5 -73.5

MdyT -13.9 -1.8 73.2 94.5 94.5 -94.5

COMB ( 9 ) ( 10 ) ( 14 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 38.5 38.5 38.5 38.5 37.6 37.6 37.6 37.7 37.6 37.7

MdxT 134.9 -134.9 0.0 0.0 51.8 95.7 -9.4 -48.4 -23.1 30.0

MdyT 0.0 0.0 104.0 -104.0 -212.4 -85.0 167.6 167.3 -212.1 167.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 2 ) ( 1 ) ( 11 ) ( 3 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 38.5 38.5 38.5 36.8 36.8 36.8 35.8 35.8 35.8 35.8

MdxT 12.9 80.8 -8.4 17.5 77.2 -10.4 77.7 -74.5 -50.0 100.8

MdyT -282.8 -113.1 233.4 -141.5 -56.6 101.9 -197.5 163.7 -197.0 -78.8

COMB ( 4 ) ( 4 ) ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 35.8 37.2 37.2 37.2 34.4 34.4 37.7 37.7 37.7 38.5

MdxT 56.6 10.1 78.2 -7.4 72.2 -10.6 53.2 97.7 -23.4 80.9

MdyT 164.5 -315.0 -126.0 273.7 -79.7 54.5 -212.0 -84.8 -211.5 -113.0

COMB ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39

FdzT 36.8 35.8 35.8 37.3 34.4 38.5 38.5 38.5 38.5

MdxT 77.3 -50.1 101.1 78.2 72.3 95.4 -95.4 -95.4 95.4

MdyT -56.4 -196.6 -78.6 -125.8 -79.1 73.5 73.5 -73.5 -73.5

COMB ( 14 ) ( 16 ) ( 16 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 17.0 17.0 17.0 17.0 16.6 16.6 16.6 16.6 16.5 16.5

MdxT 59.4 -59.4 0.0 0.0 29.7 54.7 -24.8 -46.6 3.5 -2.0

MdyT 0.0 0.0 45.8 -45.8 -332.1 -331.0 324.5 323.3 -333.3 325.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 2 ) ( 1 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.9 16.9 16.9 16.2 16.2 16.2 16.0 16.0 16.0 16.7

MdxT 30.8 53.2 -26.2 72.0 49.6 -61.0 -15.3 -33.7 15.0 30.2

MdyT -421.7 -168.7 400.7 -316.1 99.3 301.3 -320.3 -128.1 305.6 -467.6

COMB ( 4 ) ( 4 ) ( 4 ) ( 6 ) ( 5 ) ( 6 ) ( 7 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.7 15.5 15.5 15.5 16.6 16.6 16.5 17.0 17.0 17.0

MdxT -25.3 26.6 46.5 -20.7 55.9 -47.7 -2.1 30.9 53.4 -26.3

MdyT 430.4 -168.8 70.6 176.5 -329.8 322.6 325.1 -420.7 -168.3 400.0

COMB ( 8 ) ( 9 ) ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 13 ) ( 13 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 16.2 16.2 16.2 16.1 16.8 16.8 15.5 15.5 17.0 17.0

MdxT 49.7 72.1 -61.2 -33.7 30.4 -25.5 46.5 -20.9 42.0 -42.0

MdyT 99.1 -315.1 300.6 -127.7 -466.6 429.7 70.3 175.8 32.4 32.4

COMB ( 14 ) ( 15 ) ( 15 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 )

CARR 41

FdzT 17.0

MdxT -42.0

MdyT -32.4

COMB ( 0 )

### P93

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 41.4 41.4 40.3 41.4 41.4 40.3 40.8 40.8 39.8 40.1

MdxT 87.0 -87.0 0.0 0.0 0.0 2.2 49.1 -9.0 -44.8 80.4

MdyT 0.0 0.0 5.0 -111.8 111.8 33.5 31.4 5.0 35.7 29.7

COMB ( 0 ) ( 0 ) ( 1 ) ( 0 ) ( 0 ) ( 1 ) ( 11 ) ( 11 ) ( 3 ) ( 6 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 39.3 39.3 39.1 41.4 38.2 38.1 37.4 37.4 41.0 41.0

MdxT -0.8 1.0 1.0 5.2 -76.0 15.8 -2.8 1.4 7.3 -0.7

MdyT -40.0 -40.0 12.2 107.0 37.0 5.3 -89.2 16.8 155.8 -6.6

COMB ( 4 ) ( 4 ) ( 13 ) ( 5 ) ( 7 ) ( 16 ) ( 8 ) ( 8 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25

FdzT 39.6 41.4 41.4 41.4 41.4

MdxT 9.5 61.5 -61.5 -61.5 61.5

MdyT 5.2 79.1 79.1 -79.1 -79.1

COMB ( 12 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 31.4 31.4 31.4 31.4 30.7 30.7 30.7 31.1 31.1 31.1

MdxT 109.9 -109.9 0.0 0.0 23.7 -64.4 -24.2 45.2 -82.4 -45.2

MdyT 0.0 0.0 84.7 -84.7 218.3 -52.2 -242.1 120.8 -55.7 -139.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 9 ) ( 1 ) ( 9 ) ( 11 ) ( 11 ) ( 11 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 30.1 30.2 30.2 30.2 30.0 30.2 31.4 31.4 31.4 30.4

MdxT -8.3 63.4 7.8 62.0 63.0 -62.6 22.4 -65.9 -22.5 62.7

MdyT 106.7 -48.6 -121.5 119.0 -63.1 -144.8 180.2 -79.1 -197.7 118.9

COMB ( 12 ) ( 3 ) ( 3 ) ( 15 ) ( 4 ) ( 15 ) ( 5 ) ( 5 ) ( 5 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 30.4 30.4 28.5 28.7 28.5 28.5 28.4 30.7 30.1 29.9

MdxT -105.5 -63.1 -27.0 -60.2 27.0 59.9 -59.6 -64.4 8.4 15.1

MdyT -57.9 -144.8 95.6 -46.0 -115.1 -46.0 -17.9 -96.8 -121.4 47.2

COMB ( 6 ) ( 6 ) ( 16 ) ( 7 ) ( 16 ) ( 16 ) ( 8 ) ( 9 ) ( 12 ) ( 13 )

CARR 31 32 33 34 35 36 37 38

FdzT 31.3 28.3 30.5 30.5 31.4 31.4 31.4 31.4

MdxT 21.8 11.9 23.1 -64.1 77.7 -77.7 -77.7 77.7

MdyT 180.5 -3.8 218.4 -96.8 59.9 59.9 -59.9 -59.9

COMB ( 14 ) ( 17 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 16.6 16.6 15.8 16.6 16.6 16.3 16.4 16.3 16.5 16.5

MdxT 58.1 -58.1 0.0 0.0 0.0 3.1 -46.6 -3.4 33.3 56.1

MdyT 0.0 0.0 34.0 44.8 -44.8 122.2 -113.0 -125.9 121.4 -49.0

COMB ( 0 ) ( 0 ) ( 13 ) ( 0 ) ( 0 ) ( 1 ) ( 6 ) ( 1 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 16.5 16.0 16.0 16.0 15.9 15.9 16.5 16.6 16.5 16.4

MdxT -28.4 -28.4 -49.3 22.7 0.8 -2.5 6.9 34.9 -4.6 55.6

MdyT -122.5 123.2 -51.8 -129.5 34.4 -56.1 266.0 84.1 -235.3 117.9

COMB ( 2 ) ( 3 ) ( 3 ) ( 3 ) ( 4 ) ( 4 ) ( 9 ) ( 5 ) ( 9 ) ( 6 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 15.6 15.6 15.6 15.4 16.2 16.4 16.4 16.4 15.9 15.9

MdxT -49.6 -19.8 40.5 -32.3 -34.0 34.0 56.9 -29.0 -29.1 -50.2

MdyT 121.1 -50.0 -124.9 -26.9 -50.1 120.8 -48.7 -121.8 122.8 -51.6

COMB ( 7 ) ( 7 ) ( 7 ) ( 8 ) ( 10 ) ( 11 ) ( 11 ) ( 11 ) ( 12 ) ( 12 )

CARR 31 32 33 34 35 36 37 38

FdzT 15.9 15.5 15.5 15.5 15.3 16.6 16.6 16.6

MdxT 23.2 -50.3 -20.1 40.9 -32.2 41.1 -41.1 -41.1

MdyT -128.9 120.8 -49.7 -124.3 -27.3 31.7 31.7 -31.7

COMB ( 12 ) ( 16 ) ( 16 ) ( 16 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.6 3.6 3.3 3.6 3.6 3.5 3.5 3.5 3.5 3.4

MdxT 11.5 -11.5 0.0 0.0 0.0 15.3 -7.4 24.5 -11.9 5.6

MdyT 0.0 0.0 -56.8 9.7 -9.7 99.7 -56.8 98.4 -56.7 100.9

COMB ( 0 ) ( 0 ) ( 7 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.4 3.4 3.4 3.5 3.5 3.6 3.6 3.3 3.3 3.3

MdxT 16.4 -2.8 -9.4 14.0 -5.3 31.5 -15.3 -0.7 -7.0 17.4

MdyT 69.6 -57.0 -43.7 129.8 -70.0 97.7 -56.3 102.1 40.8 49.7

COMB ( 4 ) ( 3 ) ( 4 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 )

CARR 21 22 23 24 25 26 27 28

FdzT 3.3 3.6 3.6 3.4 3.3 3.3 3.6 3.6

MdxT -10.9 13.3 -4.2 -2.2 -1.7 0.7 -8.1 8.1

MdyT -34.6 150.1 -78.5 -57.0 101.9 -56.8 6.9 -6.9

COMB ( 8 ) ( 9 ) ( 9 ) ( 12 ) ( 16 ) ( 16 ) ( 0 ) ( 0 )

### P94

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 52.9 52.9 51.4 52.0 50.8 49.5 49.5 52.9 52.9 51.4

MdxT 111.0 -111.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -3.6

MdyT 0.0 0.0 16.2 12.7 1.8 169.1 -2.0 158.6 -158.6 39.8

COMB ( 0 ) ( 0 ) ( 8 ) ( 4 ) ( 5 ) ( 9 ) ( 9 ) ( 0 ) ( 0 ) ( 10 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 50.0 50.0 52.9 52.9 51.4 50.8 48.1 48.1 50.0 51.5

MdxT 43.0 -9.7 -83.4 78.5 -5.5 -2.0 77.7 -16.2 44.7 -5.9

MdyT 36.5 6.9 44.7 112.1 -90.7 117.6 33.7 6.4 36.4 -90.6

COMB ( 2 ) ( 11 ) ( 16 ) ( 0 ) ( 8 ) ( 14 ) ( 6 ) ( 6 ) ( 11 ) ( 17 )

CARR 21 22 23

FdzT 52.9 52.9 52.9

MdxT -78.5 -78.5 78.5

MdyT 112.1 -112.1 -112.1

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 35.9 35.9 35.9 35.9 35.1 35.1 34.4 34.4 35.9 35.9

MdxT 125.8 -125.8 0.0 0.0 73.8 -7.1 80.4 -32.8 -75.4 19.6

MdyT 0.0 0.0 107.8 -107.8 -133.2 -204.7 -129.9 -200.5 -136.7 -209.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 1 ) ( 2 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.5 34.7 34.7 34.7 33.0 33.0 35.5 35.5 34.9 34.9

MdxT 74.6 3.9 72.9 -2.2 111.2 -51.0 -91.8 38.4 16.5 -14.6

MdyT -110.4 97.4 -175.6 -357.7 -127.0 -199.4 -138.5 -214.2 -227.4 48.2

COMB ( 4 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 33.5 33.5 33.5 35.2 34.4 34.4 35.9 35.9 35.6 34.8

MdxT -0.6 70.4 1.8 73.9 81.8 -33.7 -75.4 19.9 74.7 73.0

MdyT 184.1 -203.4 -461.7 -133.0 -129.6 -199.9 -136.5 -208.7 -110.3 -175.4

COMB ( 9 ) ( 9 ) ( 9 ) ( 10 ) ( 11 ) ( 11 ) ( 12 ) ( 12 ) ( 13 ) ( 14 )

CARR 31 32 33 34 35 36 37 38 39 40

FdzT 35.5 35.5 34.9 34.9 33.6 33.6 33.6 35.9 35.9 35.9

MdxT -92.4 38.5 16.1 -14.4 -1.1 70.5 2.1 89.0 -89.0 -89.0

MdyT -138.3 -213.8 -227.6 48.6 184.0 -203.2 -461.3 76.2 76.2 -76.2

COMB ( 16 ) ( 16 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

CARR 41

FdzT 35.9

MdxT 89.0

MdyT -76.2

COMB ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 22.6 22.6 22.4 22.6 22.6 22.4 22.3 21.9 21.9 22.6

MdxT 79.3 -79.3 0.0 0.0 0.0 8.4 46.8 -4.1 -46.1 18.9

MdyT 0.0 0.0 -123.6 67.9 -67.9 213.6 92.5 126.3 92.7 142.7

COMB ( 0 ) ( 0 ) ( 17 ) ( 0 ) ( 0 ) ( 17 ) ( 10 ) ( 2 ) ( 2 ) ( 7 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 22.6 22.6 22.1 22.1 22.1 21.4 21.4 22.4 22.4 21.7

MdxT 47.5 56.1 5.6 46.3 1.0 -9.9 -45.0 2.4 47.0 6.7

MdyT 92.3 -48.0 285.0 140.4 -76.6 122.9 91.4 -122.2 85.5 387.8

COMB ( 3 ) ( 0 ) ( 5 ) ( 5 ) ( 5 ) ( 6 ) ( 6 ) ( 8 ) ( 17 ) ( 9 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 21.7 21.7 21.9 21.9 22.6 22.5 22.1 22.1 21.4 21.4

MdxT 45.5 -0.7 -7.3 -46.1 47.6 7.6 46.4 3.5 -12.6 -45.0

MdyT 170.8 -154.7 124.6 92.7 92.3 145.3 140.3 -74.6 121.5 91.3

COMB ( 9 ) ( 9 ) ( 11 ) ( 11 ) ( 12 ) ( 13 ) ( 14 ) ( 14 ) ( 15 ) ( 15 )

CARR 31 32 33 34 35

FdzT 21.7 21.7 22.6 22.6 22.6

MdxT 45.6 1.5 56.1 -56.1 -56.1

MdyT 170.7 -152.9 48.0 48.0 -48.0

COMB ( 18 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 6.4 6.4 6.4 6.4 6.3 6.3 6.3 6.3 6.3 6.2

MdxT 66.9 -66.9 0.0 0.0 13.7 134.0 79.2 -111.7 -59.4 13.0

MdyT 0.0 0.0 19.1 -19.1 67.1 -36.7 -91.7 -33.9 -84.7 152.6

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 6 ) ( 3 ) ( 3 ) ( 2 ) ( 2 ) ( 9 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 6.2 6.2 6.3 6.3 6.3 6.3 6.4 6.4 6.2 6.3

MdxT 65.4 11.9 -160.3 -109.5 179.2 126.7 67.0 5.2 65.2 -114.7

MdyT 47.0 -117.5 -31.4 -78.5 -36.1 -90.3 -38.9 -51.4 61.0 -33.7

COMB ( 5 ) ( 9 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 11 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 6.3 6.3 6.2 6.3 6.3 6.4 6.2 6.4 6.4 6.4

MdxT -62.4 134.0 65.4 -160.4 -109.6 67.0 65.2 47.3 -47.3 -47.3

MdyT -84.1 -36.5 46.9 -31.2 -78.1 -38.8 60.9 13.5 13.5 -13.5

COMB ( 11 ) ( 12 ) ( 14 ) ( 15 ) ( 15 ) ( 17 ) ( 18 ) ( 0 ) ( 0 ) ( 0 )

### P95

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 50.9 50.9 50.9 50.9 49.5 50.9 50.9 48.0 48.1 49.8

MdxT 106.9 -106.9 0.0 0.0 44.5 75.6 75.6 44.4 16.5 103.5

MdyT 0.0 0.0 137.5 -137.5 -7.8 97.2 -97.2 -65.4 3.4 -4.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 0 ) ( 0 ) ( 12 ) ( 3 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 49.1 49.1 50.5 45.6 45.7 48.6 48.6 48.6 47.5 47.5

MdxT -14.4 28.1 15.1 44.2 16.7 142.7 83.9 -4.2 -53.8 36.0

MdyT -11.1 -11.1 -9.9 -103.7 6.6 -2.4 -2.4 -2.4 -13.3 -1.1

COMB ( 14 ) ( 14 ) ( 6 ) ( 16 ) ( 7 ) ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 )

CARR 21 22

FdzT 50.9 50.9

MdxT -75.6 -75.6

MdyT 97.2 -97.2

COMB ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 38.0 38.0 38.0 38.0 37.1 37.2 38.0 38.0 38.0 35.9

MdxT 133.0 -133.0 0.0 0.0 27.0 -163.5 94.1 -144.3 -144.3 14.7

MdyT 0.0 0.0 102.6 -102.6 -49.6 71.1 72.5 24.5 -21.4 -121.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 13 ) ( 4 ) ( 0 ) ( 2 ) ( 2 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 35.9 37.2 36.7 37.3 37.3 33.8 33.8 35.8 35.8 35.2

MdxT -159.0 27.9 -10.4 4.2 -140.1 22.8 -165.1 44.7 -172.8 -18.5

MdyT 166.0 -45.8 -51.1 80.1 -90.6 -167.6 228.5 -42.4 70.3 -48.6

COMB ( 3 ) ( 4 ) ( 14 ) ( 6 ) ( 6 ) ( 7 ) ( 7 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 35.2 36.9 37.1 38.0 35.9 35.9 33.7 33.7 35.7 35.7

MdxT -139.3 8.4 -163.2 -143.8 13.9 -158.8 22.0 -164.8 44.0 -172.5

MdyT 70.0 -50.3 73.6 -22.8 -124.6 168.7 -171.2 231.0 -45.9 72.8

COMB ( 18 ) ( 10 ) ( 13 ) ( 11 ) ( 12 ) ( 12 ) ( 16 ) ( 16 ) ( 17 ) ( 17 )

CARR 31 32 33

FdzT 38.0 38.0 38.0

MdxT -94.1 -94.1 94.1

MdyT 72.5 -72.5 -72.5

COMB ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 18.1 18.1 18.1 18.1 17.8 17.8 17.6 18.1 17.2 17.2

MdxT 63.5 -63.5 0.0 0.0 83.3 85.6 42.6 77.3 57.3 78.1

MdyT 0.0 0.0 48.9 -48.9 -85.1 -34.0 72.9 10.9 -181.3 -72.5

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 4 ) ( 4 ) ( 10 ) ( 2 ) ( 3 ) ( 3 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 17.1 17.7 17.6 17.7 17.5 18.1 18.1 18.1 16.7 16.7

MdxT 41.3 16.9 101.2 82.7 68.0 51.5 74.7 40.3 58.0 76.0

MdyT 142.5 77.6 -82.9 -90.0 68.3 84.3 33.7 -51.7 -243.2 -97.3

COMB ( 12 ) ( 13 ) ( 8 ) ( 13 ) ( 14 ) ( 6 ) ( 6 ) ( 6 ) ( 7 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 16.6 17.6 17.1 17.1 17.6 17.1 17.1 18.1 16.6 16.6

MdxT 37.1 -4.3 81.8 81.8 54.9 56.8 78.0 41.0 57.5 75.9

MdyT 184.0 72.1 -32.2 60.2 -87.9 -186.2 -74.5 -48.2 -247.7 -99.1

COMB ( 16 ) ( 8 ) ( 18 ) ( 18 ) ( 10 ) ( 12 ) ( 12 ) ( 15 ) ( 16 ) ( 16 )

CARR 31 32 33 34 35

FdzT 17.5 17.5 18.1 18.1 18.1

MdxT 100.8 -3.6 -44.9 -44.9 44.9

MdyT -87.5 75.6 34.6 -34.6 -34.6

COMB ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 3.9 4.2 4.2 4.2 4.2 3.9 4.0 4.1 4.1 4.1

MdxT 149.9 13.6 -13.6 0.0 0.0 137.6 -178.6 135.9 -65.7 -164.4

MdyT 0.0 0.0 0.0 11.4 -11.4 6.9 39.6 35.1 29.2 20.3

COMB ( 13 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 8 ) ( 2 ) ( 2 ) ( 2 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 3.8 3.8 4.0 3.9 4.0 4.2 4.2 4.2 3.7 3.7

MdxT 139.3 -170.4 149.9 125.2 -178.5 134.1 -63.8 -159.6 139.9 -169.8

MdyT -27.4 49.4 4.6 9.1 43.4 56.8 37.7 9.0 -46.5 58.5

COMB ( 12 ) ( 3 ) ( 4 ) ( 5 ) ( 17 ) ( 6 ) ( 6 ) ( 6 ) ( 16 ) ( 7 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 4.0 3.9 4.1 3.8 3.9 3.9 4.2 3.7 4.0 4.2

MdxT 157.6 116.3 -164.2 -170.2 125.2 -158.9 -159.5 -169.7 157.6 -9.6

MdyT 3.8 11.2 23.7 53.5 4.5 35.0 12.7 62.3 -0.7 -8.0

COMB ( 8 ) ( 9 ) ( 11 ) ( 12 ) ( 14 ) ( 14 ) ( 15 ) ( 16 ) ( 17 ) ( 0 )

CARR 31

FdzT 4.2

MdxT 9.6

MdyT -8.0

COMB ( 0 )

### P96

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 72.0 72.0 72.0 72.0 72.0 72.0 70.6 70.6 70.9 70.9

MdxT 151.3 -151.3 0.0 0.0 107.0 -107.0 -26.3 12.0 8.7 2.9

MdyT 0.0 0.0 194.5 -194.5 137.5 137.5 2.7 2.0 -60.6 8.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 12 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 72.0 72.0 69.3 69.0 67.2 67.5 67.4 67.4 69.4 69.4

MdxT 7.1 107.0 64.0 -11.6 -49.1 17.8 8.8 2.5 6.3 3.5

MdyT 65.9 -137.5 3.5 1.5 2.9 2.1 -102.5 12.7 108.8 -9.2

COMB ( 5 ) ( 0 ) ( 6 ) ( 15 ) ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 )

CARR 21 22 23 24 25

FdzT 71.1 71.7 69.0 69.1 72.0

MdxT 7.6 6.9 63.7 6.0 -107.0

MdyT 2.9 66.2 3.8 108.9 -137.5

COMB ( 10 ) ( 14 ) ( 15 ) ( 18 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 61.4 61.4 61.4 61.4 60.4 60.4 60.4 61.2 60.9 61.1

MdxT 215.0 -215.0 0.0 0.0 -116.2 -197.9 44.9 -128.5 -11.5 -86.4

MdyT 0.0 0.0 165.8 -165.8 171.5 68.6 -163.7 164.5 -156.8 284.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 12 ) ( 12 ) ( 2 ) ( 11 ) ( 14 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 61.1 61.1 58.3 58.4 57.3 57.3 57.2 57.2 57.2 58.4

MdxT -158.6 17.9 -122.5 -147.3 -129.4 61.2 -74.6 -139.8 11.3 -79.5

MdyT -117.3 -293.2 153.6 -150.8 163.7 -161.0 -34.4 68.2 68.2 351.5

COMB ( 14 ) ( 14 ) ( 6 ) ( 18 ) ( 16 ) ( 16 ) ( 8 ) ( 8 ) ( 8 ) ( 18 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 58.4 60.7 60.7 58.0 56.9 56.9 56.9 61.4 61.4 61.4

MdxT 16.1 -85.1 -156.6 -32.9 -75.5 -140.8 12.0 152.0 -152.0 152.0

MdyT -376.9 169.3 67.7 -149.5 -31.9 66.5 66.5 117.2 117.2 -117.2

COMB ( 18 ) ( 10 ) ( 10 ) ( 15 ) ( 17 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 29.6 29.6 29.6 29.6 29.3 29.1 29.4 29.3 28.9 29.0

MdxT 103.8 -103.8 0.0 0.0 -142.0 166.6 -126.0 -158.5 145.5 -141.3

MdyT 0.0 0.0 80.0 -80.0 -10.8 -65.0 -12.2 -9.2 -215.5 -130.9

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 1 ) ( 12 ) ( 2 ) ( 3 ) ( 18 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 29.0 29.0 29.5 29.5 28.9 28.3 28.4 28.3 28.0 28.0

MdxT 61.6 154.0 -144.1 155.3 -142.7 164.4 -163.7 -66.0 -134.8 57.7

MdyT -64.3 35.6 114.7 -158.6 -125.7 -59.4 -8.4 -59.4 -211.3 -84.6

COMB ( 4 ) ( 4 ) ( 14 ) ( 14 ) ( 13 ) ( 16 ) ( 7 ) ( 16 ) ( 8 ) ( 8 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 28.0 28.9 29.0 29.2 29.1 28.9 28.4 28.3 27.9 27.9

MdxT 144.2 -138.5 57.8 155.1 -160.0 155.1 -109.6 -165.1 -136.4 58.1

MdyT 105.4 194.2 -84.7 -63.4 -3.9 31.6 -8.7 -3.5 -206.2 -83.1

COMB ( 8 ) ( 18 ) ( 9 ) ( 10 ) ( 12 ) ( 13 ) ( 15 ) ( 16 ) ( 17 ) ( 17 )

CARR 31 32 33

FdzT 27.9 29.6 29.6

MdxT 145.2 73.4 -73.4

MdyT 101.6 56.6 -56.6

COMB ( 17 ) ( 0 ) ( 0 )

### P97

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 52.5 52.5 52.5 52.5 51.1 51.7 51.1 51.6 51.6 52.5

MdxT 110.3 -110.3 0.0 0.0 29.4 -5.5 -16.5 -24.6 9.0 3.1

MdyT 0.0 0.0 141.9 -141.9 321.6 503.2 342.0 329.5 356.0 267.3

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 2 ) ( 8 ) ( 2 ) ( 3 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 52.5 50.2 50.2 49.3 49.3 50.1 47.7 47.7 47.6 51.0

MdxT -5.0 17.8 -44.0 48.2 -25.6 -44.0 2.0 -2.4 -2.4 30.7

MdyT 451.5 343.8 316.4 303.0 320.0 315.2 315.0 253.3 252.3 320.2

COMB ( 4 ) ( 7 ) ( 7 ) ( 6 ) ( 6 ) ( 16 ) ( 9 ) ( 9 ) ( 18 ) ( 11 )

CARR 21 22 23 24 25 26 27

FdzT 51.0 52.5 51.6 52.5 52.5 52.5 52.5

MdxT -17.2 -5.2 -5.6 78.0 -78.0 -78.0 78.0

MdyT 340.2 450.1 501.8 100.3 100.3 -100.3 -100.3

COMB ( 11 ) ( 13 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 40.5 40.5 40.5 40.5 39.9 39.7 39.9 39.9 40.5 40.5

MdxT 141.9 -141.9 0.0 0.0 -97.0 -125.2 89.7 -38.8 -71.8 -124.7

MdyT 0.0 0.0 109.4 -109.4 -276.4 135.4 339.2 135.7 -369.6 177.0

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 10 ) ( 12 ) ( 12 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 40.5 38.9 38.9 38.9 37.7 37.8 37.7 38.4 38.4 38.4

MdxT 64.8 -73.5 -125.7 65.9 -27.3 -79.3 22.4 -108.1 -43.2 103.5

MdyT 442.4 -182.1 93.8 234.5 -257.2 130.3 326.9 -258.7 131.8 329.4

COMB ( 13 ) ( 14 ) ( 14 ) ( 14 ) ( 15 ) ( 6 ) ( 15 ) ( 16 ) ( 16 ) ( 16 )

CARR 21 22 23 24 25 26 27 28 29 30

FdzT 39.4 39.4 39.4 36.7 36.7 36.7 39.7 39.7 37.7 40.5

MdxT -66.4 -116.7 61.9 -69.2 -118.3 63.8 -72.7 65.4 -79.1 100.4

MdyT -414.3 200.5 501.3 -101.6 62.0 155.0 -275.9 338.4 130.8 77.4

COMB ( 17 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 18 ) ( 10 ) ( 10 ) ( 15 ) ( 0 )

CARR 31 32

FdzT 40.5 40.5

MdxT -100.4 100.4

MdyT -77.4 -77.4

COMB ( 0 ) ( 0 )

LANCE: 3

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 21.5 21.5 21.5 21.5 21.1 21.0 21.1 21.2 21.4 21.4

MdxT 75.2 -75.2 0.0 0.0 -97.6 89.6 103.6 103.5 -79.4 90.6

MdyT 0.0 0.0 58.0 -58.0 -187.2 226.8 226.4 222.0 -208.7 266.8

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 12 ) ( 10 ) ( 12 ) ( 3 ) ( 13 ) ( 13 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 20.8 20.8 20.5 20.5 21.3 21.3 20.0 20.0 21.0 21.0

MdxT -106.3 106.7 -42.1 59.8 -75.7 84.8 -72.5 81.6 -78.4 75.6

MdyT -181.2 209.4 -180.0 210.7 -217.0 276.9 -144.2 143.2 -186.9 227.2

COMB ( 16 ) ( 16 ) ( 15 ) ( 15 ) ( 17 ) ( 17 ) ( 18 ) ( 18 ) ( 10 ) ( 11 )

CARR 21 22 23

FdzT 20.0 21.5 21.5

MdxT 32.6 -53.2 53.2

MdyT -57.7 41.0 -41.0

COMB ( 18 ) ( 0 ) ( 0 )

LANCE: 4

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1

MdxT 13.2 -13.2 0.0 0.0 -50.8 54.6 60.2 53.1 60.3 52.9

MdyT 0.0 0.0 20.3 -20.3 42.0 141.0 25.8 218.3 24.8 219.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 7 ) ( 4 ) ( 16 ) ( 8 ) ( 7 ) ( 17 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1

MdxT 56.4 -46.8 24.1 21.2 56.0 -40.0 55.3 54.5 21.2 -9.3

MdyT -90.9 41.4 57.2 221.3 -168.1 41.2 26.0 142.0 222.0 -14.4

COMB ( 5 ) ( 12 ) ( 7 ) ( 8 ) ( 9 ) ( 10 ) ( 10 ) ( 13 ) ( 17 ) ( 0 )

### P98

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 19.0 19.0 18.9 19.0 18.3 18.4 18.4 17.9 17.9 18.9

MdxT 39.9 -39.9 0.0 0.0 -26.7 14.7 14.7 -6.2 2.2 -4.9

MdyT 0.0 0.0 422.7 -51.3 374.5 362.9 362.7 360.8 299.9 404.1

COMB ( 0 ) ( 0 ) ( 5 ) ( 0 ) ( 3 ) ( 2 ) ( 2 ) ( 4 ) ( 4 ) ( 5 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 18.2 18.2 18.1 17.3 17.3 19.0 19.0 18.4 17.9 17.9

MdxT 30.1 14.0 -40.6 -6.3 2.7 -4.2 -0.6 15.5 -6.3 -6.3

MdyT 347.3 349.6 363.7 340.9 245.4 416.8 450.1 361.7 359.7 335.5

COMB ( 6 ) ( 6 ) ( 7 ) ( 8 ) ( 8 ) ( 9 ) ( 9 ) ( 11 ) ( 13 ) ( 13 )

CARR 21 22 23 24 25 26 27

FdzT 17.9 17.3 17.3 19.0 19.0 19.0 19.0

MdxT 2.4 -6.3 2.8 28.2 -28.2 -28.2 28.2

MdyT 299.2 301.8 244.7 36.3 36.3 -36.3 -36.3

COMB ( 13 ) ( 17 ) ( 17 ) ( 0 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 6.9 6.9 6.9 6.9 6.7 6.7 6.7 6.7 6.5 6.5

MdxT 24.1 -24.1 0.0 0.0 -27.7 40.9 -24.2 -31.2 -27.6 40.6

MdyT 0.0 0.0 18.6 -18.6 17.6 113.3 20.3 14.8 -12.5 142.2

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 3 ) ( 11 ) ( 12 ) ( 4 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 6.9 6.9 6.6 6.5 6.5 6.2 6.2 6.8 6.7 6.5

MdxT -27.3 39.8 -21.6 -33.2 41.3 -27.4 40.9 -26.7 41.3 -28.0

MdyT 45.5 75.9 21.6 12.5 112.6 -31.5 161.0 63.4 111.7 -10.2

COMB ( 14 ) ( 5 ) ( 15 ) ( 16 ) ( 7 ) ( 8 ) ( 8 ) ( 18 ) ( 12 ) ( 13 )

CARR 21 22 23 24 25 26 27

FdzT 6.5 6.9 6.5 6.3 6.3 6.9 6.9

MdxT 41.2 40.3 41.7 -28.0 41.4 -17.0 17.0

MdyT 140.7 74.3 111.0 -29.4 159.5 -13.1 -13.1

COMB ( 13 ) ( 14 ) ( 16 ) ( 17 ) ( 17 ) ( 0 ) ( 0 )

### P99

LANCE: 1

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 23.2 23.8 23.8 23.8 23.8 23.5 23.6 22.9 22.9 23.5

MdxT 5.9 49.9 -49.9 0.0 0.0 60.1 60.3 -19.0 11.8 11.3

MdyT 0.0 0.0 0.0 64.1 -64.1 5.3 5.3 3.1 2.9 -62.2

COMB ( 5 ) ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 15 ) ( 6 ) ( 12 ) ( 3 ) ( 4 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 23.2 23.2 23.8 22.1 22.1 23.1 22.7 22.7 22.1 23.0

MdxT 10.4 10.4 -35.3 -38.8 15.8 11.8 10.1 6.2 -38.8 11.5

MdyT 69.9 41.7 45.4 2.9 2.9 -106.0 114.1 -2.7 2.8 -106.0

COMB ( 5 ) ( 5 ) ( 0 ) ( 16 ) ( 16 ) ( 8 ) ( 9 ) ( 9 ) ( 16 ) ( 17 )

CARR 21 22 23 24

FdzT 23.0 23.8 23.8 23.8

MdxT 4.9 35.3 -35.3 35.3

MdyT 8.7 45.4 -45.4 -45.4

COMB ( 17 ) ( 0 ) ( 0 ) ( 0 )

LANCE: 2

CARREGAMENTOS DE ESFORÇOS FINAIS DE CÁLCULO PARA DIMENSIONAMENTO APÓS A ENVOLTÓRIA

CARR 1 2 3 4 5 6 7 8 9 10

FdzT 15.1 15.1 15.1 15.1 15.0 14.9 15.1 15.1 15.1 14.9

MdxT 53.0 -53.0 0.0 0.0 -49.3 -65.1 -38.4 -37.7 -60.9 -61.0

MdyT 0.0 0.0 40.9 -40.9 235.6 -105.8 -253.3 240.7 -101.2 230.4

COMB ( 0 ) ( 0 ) ( 0 ) ( 0 ) ( 10 ) ( 5 ) ( 11 ) ( 11 ) ( 2 ) ( 12 )

CARR 11 12 13 14 15 16 17 18 19 20

FdzT 14.9 15.1 14.9 14.9 14.6 14.6 14.6 14.3 14.3 14.3

MdxT -69.3 -50.8 -47.7 -33.3 -27.2 -59.7 -44.7 -66.1 -69.8 -35.8

MdyT -94.9 207.6 263.5 -264.6 236.3 -101.3 -253.3 219.5 -90.6 -272.0

COMB ( 12 ) ( 13 ) ( 14 ) ( 5 ) ( 15 ) ( 6 ) ( 6 ) ( 16 ) ( 16 ) ( 9 )

CARR 21 22 23 24 25 26 27 28

FdzT 14.6 14.6 14.3 15.1 14.9 14.6 15.1 15.1

MdxT -49.3 -62.3 -44.1 -64.7 -65.2 -59.6 37.5 37.5

MdyT 181.4 -83.1 274.4 -90.4 -105.8 -101.3 28.9 -28.9

COMB ( 17 ) ( 17 ) ( 18 ) ( 13 ) ( 14 ) ( 15 ) ( 0 ) ( 0 )

## Seleção de bitolas de pilares

### Legenda

Seção : Dimensões da seção tansversal (seção retangular)

Nome da seção (seção qualquer)

Área : Área de concreto da seção transversal

NFer : Número de ferros

PDD : Pé-Direito Duplo (direções 'x' e 'y')

S: Sim N: Não

As : Área total de armadura utilizada

Taxa : Taxa de Armadura da seção

Estr : Bitola do estribo

C/ : Espaçamento do estribo

fck : fck utilizado no lance

Cobr : Cobrimento utilizado no lance

PP : Pilar-Parede: (S) Sim (N)Não

PP : S\* :Pilar-Parede (Sim), mas Ast não atende o item 18.5 da NBR6118

T : Tensão de Cálculo (Carga Vertical: Combinação 1 TQS Pilar) (kgf/cm2)

Lbd : Índice de Esbeltez (Maior Lambda)

Ni : Força Normal Admensional (Nsd / Ac\*Fcd) (Carga Vertical: Combinação 1 TQS Pilar)

2OrdM : Método utilizado cálculo momento 2ªOrdem

ELOL : Efeito Local (15.8.3)

ELZD : Efeito Localizado (15.9.3)

KAPA : Pilar Padrão com Rigidez Kapa Aproximada (15.8.3.3.3)

CURV : Pilar Padrão com Curvatura Aproximada (15.8.3.3.2)

N,M,1/R : Pilar Padrão Acoplado ao Diagrama N,M,1/r (15.8.3.3.4)

MetGerl : Método Geral (15.8.3.2)

### P1

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P1 num: 1 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 3.2 106. 0.0177 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 16.1 54. 0.0902 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 27.8 54. 0.1554 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 40.5 21. 0.2266 ----

### P10

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P10 num: 10 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.1 53. 0.0228 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.6 54. 0.1156 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.6 54. 0.1995 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 51.8 21. 0.2899 ----

### P100

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P100 num:100 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.2 54. 0.0513 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.1 21. 0.1069 ----

### P101

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P101 num:101 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 53. 0.0223 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.9 54. 0.1056 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.7 54. 0.1945 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 46.6 21. 0.2612 ----

### P102

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P102 num:102 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.5 54. 0.1150 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 48.1 54. 0.2691 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 59.8 21. 0.3346 ----

### P103

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P103 num:103 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 3.3 96. 0.0187 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 11.5 54. 0.0642 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 21.2 79. 0.1185 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 26.5 79. 0.1486 ELOL KAPA

### P104

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P104 num:104 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 3.2 96. 0.0178 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 9.9 54. 0.0552 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 16.8 79. 0.0940 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 22.8 79. 0.1275 ELOL KAPA

### P105

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P105 num:105 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 1.7 54. 0.0096 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.8 21. 0.0382 ----

### P106

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P106 num:106 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.6 54. 0.0871 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 36.7 54. 0.2053 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 50.0 21. 0.2798 ----

### P107

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P107 num:107 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.2 53. 0.0181 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.6 54. 0.0930 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.3 54. 0.1754 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 41.7 21. 0.2337 ----

### P108

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P108 num:108 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.9 54. 0.0217 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.2 21. 0.0573 ----

### P109

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P109 num:109 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 54. 0.0224 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.7 21. 0.0540 ----

### P11

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P11 num: 11 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0195 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.3 54. 0.0858 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.6 54. 0.1547 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 37.1 21. 0.2077 ----

### P110

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P110 num:110 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0196 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.3 54. 0.0912 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.6 54. 0.1656 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 40.2 21. 0.2251 ----

### P111

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P111 num:111 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.1 54. 0.0960 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 39.1 54. 0.2190 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 49.9 21. 0.2797 ----

### P112

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P112 num:112 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.3 48. 0.0184 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.5 54. 0.0700 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 23.1 54. 0.1292 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.1 21. 0.1908 ----

### P113

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P113 num:113 Lances: 1 à 1

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

1 BALDRAME 20.x 40. 800.0 6 10.0 N S 4.7 0.59 5.0 12.0 N 25.0 3.0 10.9 52. 0.0611 ELOL KAPA

### P114

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P114 num:114 Lances: 1 à 1

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

1 BALDRAME 20.x 40. 800.0 6 10.0 N S 4.7 0.59 5.0 12.0 N 25.0 3.0 11.0 52. 0.0616 ELOL KAPA

### P115

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P115 num:115 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.4 48. 0.0188 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.0 54. 0.0617 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.3 54. 0.1139 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.4 21. 0.1759 ----

### P116

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P116 num:116 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.6 48. 0.0145 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 13.5 54. 0.0756 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.2 54. 0.1241 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.0 21. 0.1734 ----

### P117

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P117 num:117 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.2 54. 0.1358 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 44.7 54. 0.2503 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 57.7 21. 0.3233 ----

### P118

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P118 num:118 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.4 54. 0.0190 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.4 54. 0.0693 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 21.4 54. 0.1200 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.2 21. 0.1634 ----

### P119

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P119 num:119 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.4 53. 0.0189 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.6 54. 0.0647 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.3 54. 0.0970 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.3 21. 0.1363 ----

### P12

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P12 num: 12 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 53. 0.0221 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.9 54. 0.1169 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 36.7 54. 0.2056 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 53.4 21. 0.2990 ----

### P120

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P120 num:120 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.1 54. 0.1518 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 52.4 54. 0.2937 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 69.0 21. 0.3863 ----

### P121

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P121 num:121 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.5 53. 0.0252 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.8 54. 0.1275 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.3 54. 0.2145 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 51.8 21. 0.2900 ----

### P122

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P122 num:122 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.1 54. 0.0339 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 8.7 40. 0.0486 ELOL KAPA

### P123

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P123 num:123 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 13.2 80. 0.0737 ELOL KAPA

### P124

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P124 num:124 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 13.5 80. 0.0755 ELOL KAPA

### P125

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P125 num:125 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 7.1 54. 0.0398 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.8 40. 0.0550 ELOL KAPA

### P126

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P126 num:126 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.4 48. 0.0191 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.4 54. 0.0582 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 23.8 54. 0.1331 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 28.4 40. 0.1593 ELOL KAPA

### P127

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P127 num:127 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 22.7 80. 0.1271 ELOL KAPA

### P128

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P128 num:128 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 23.2 80. 0.1298 ELOL KAPA

### P129

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P129 num:129 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.4 48. 0.0191 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.4 54. 0.0581 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 25.2 54. 0.1412 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.7 40. 0.1664 ELOL KAPA

### P13

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P13 num: 13 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0198 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.1 54. 0.0789 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.9 54. 0.1397 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.2 21. 0.1972 ----

### P130

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P130 num:130 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.3 53. 0.0240 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.4 54. 0.0917 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.8 54. 0.1274 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.3 21. 0.1921 ----

### P131

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P131 num:131 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.8 54. 0.0999 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.9 54. 0.1564 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.3 21. 0.2146 ----

### P132

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P132 num:132 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.2 54. 0.1468 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 37.9 54. 0.2122 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 55.0 21. 0.3083 ----

### P133

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P133 num:133 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.0 48. 0.0170 ----

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.4 54. 0.0862 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.3 54. 0.1250 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.7 21. 0.1774 ----

### P134

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P134 num:134 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 13.5 54. 0.0758 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.2 40. 0.1078 ELOL KAPA

### P135

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P135 num:135 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 22.6 80. 0.1268 ELOL KAPA

### P136

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P136 num:136 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 22.9 80. 0.1285 ELOL KAPA

### P137

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P137 num:137 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.9 54. 0.0723 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.4 40. 0.1033 ELOL KAPA

### P138

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P138 num:138 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.3 48. 0.0243 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.5 54. 0.0867 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.1 54. 0.1517 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 30.1 40. 0.1688 ELOL KAPA

### P139

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P139 num:139 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 22.3 80. 0.1247 ELOL KAPA

### P14

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P14 num: 14 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 48. 0.0195 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.3 54. 0.0578 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.8 54. 0.0885 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 23.9 21. 0.1339 ----

### P140

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P140 num:140 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 22.6 80. 0.1264 ELOL KAPA

### P141

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P141 num:141 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.3 48. 0.0244 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.4 54. 0.0805 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.2 54. 0.1467 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.2 40. 0.1637 ELOL KAPA

### P142

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P142 num:142 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0193 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.8 54. 0.0831 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.3 54. 0.0969 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.7 21. 0.1496 ----

### P143

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P143 num:143 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.1 54. 0.0960 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.4 54. 0.1145 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.7 21. 0.1775 ----

### P144

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P144 num:144 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.3 54. 0.0858 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.3 54. 0.1023 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 28.6 21. 0.1604 ----

### P145

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P145 num:145 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.2 53. 0.0233 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.9 54. 0.0945 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.5 54. 0.1150 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 32.4 21. 0.1816 ----

### P146

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P146 num:146 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.8 54. 0.0716 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.4 40. 0.0972 ELOL KAPA

### P147

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P147 num:147 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 23.6 80. 0.1323 ELOL KAPA

### P148

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P148 num:148 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 0 10.0 N N 4.7 0.59 5.0 25.0 3.0

1 BALDRAME 20.x 40. 800.0 6 10.0 S S 4.7 0.59 5.0 12.0 N 25.0 3.0 23.6 80. 0.1323 ELOL KAPA

### P149

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P149 num:149 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 13.3 54. 0.0746 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.9 40. 0.1001 ELOL KAPA

### P15

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P15 num: 15 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.0 53. 0.0114 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.1 54. 0.0508 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.6 54. 0.0872 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.3 21. 0.1251 ----

### P150

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P150 num:150 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 48. 0.0226 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.4 54. 0.1476 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.0 54. 0.1963 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 45.8 21. 0.2567 ----

### P151

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P151 num:151 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 4.0 106. 0.0226 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 12.5 N N 7.4 0.74 6.3 15.0 N 25.0 3.0 21.4 48. 0.1199 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 34.6 59. 0.1937 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 46.5 21. 0.2601 ----

### P152

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P152 num:152 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 4.0 106. 0.0226 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 12.5 N N 7.4 0.74 6.3 15.0 N 25.0 3.0 21.4 48. 0.1197 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 34.6 59. 0.1936 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 46.4 21. 0.2600 ----

### P153

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P153 num:153 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 48. 0.0226 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.4 54. 0.1479 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.5 54. 0.1985 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 46.2 21. 0.2590 ----

### P154

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P154 num:154 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0193 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.6 54. 0.0815 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.8 54. 0.0997 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.6 21. 0.1544 ----

### P155

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P155 num:155 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.5 54. 0.0870 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.6 54. 0.1040 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 30.1 21. 0.1688 ----

### P156

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P156 num:156 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.8 54. 0.0885 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.9 54. 0.1060 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 30.7 21. 0.1719 ----

### P157

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P157 num:157 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.2 53. 0.0182 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.1 54. 0.0787 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.7 54. 0.0935 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 25.5 21. 0.1427 ----

### P158

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P158 num:158 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.4 53. 0.0192 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.6 54. 0.0817 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.6 54. 0.0988 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.4 21. 0.1535 ----

### P159

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P159 num:159 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.3 54. 0.0691 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.4 54. 0.0865 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.9 21. 0.1396 ----

### P16

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P16 num: 16 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.2 53. 0.0126 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.5 54. 0.0588 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.8 54. 0.0996 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.1 21. 0.1464 ----

### P160

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P160 num:160 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.1 54. 0.0678 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.2 54. 0.0851 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.7 21. 0.1381 ----

### P161

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P161 num:161 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0195 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.8 54. 0.0827 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.9 54. 0.1004 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.9 21. 0.1563 ----

### P162

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P162 num:162 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 2.6 48. 0.0144 ELOL KAPA

3 COBERTURA 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 6.7 54. 0.0373 ELOL KAPA

2 TERREO 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 8.7 54. 0.0489 ELOL KAPA

1 BALDRAME 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 12.7 21. 0.0713 ----

### P163

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P163 num:163 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 60. 1200.0 6 10.0 N S 4.7 0.39 5.0 12.0 N 25.0 3.0 4.1 106. 0.0232 ELOL N,M,1

3 COBERTURA 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 19.8 54. 0.1108 ELOL KAPA

2 TERREO 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 22.7 54. 0.1270 ELOL KAPA

1 BALDRAME 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 32.6 21. 0.1825 ----

### P164

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P164 num:164 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 60. 1200.0 6 10.0 N S 4.7 0.39 5.0 12.0 N 25.0 3.0 4.2 106. 0.0235 ELOL N,M,1

3 COBERTURA 20.x 60. 1200.0 6 12.5 N N 7.4 0.61 6.3 15.0 N 25.0 3.0 23.4 107. 0.1308 ELOL N,M,1

2 TERREO 20.x 60. 1200.0 6 12.5 N S 7.4 0.61 6.3 15.0 N 25.0 3.0 26.1 107. 0.1461 ELOL N,M,1

1 BALDRAME 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 38.0 21. 0.2128 ----

### P165

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P165 num:165 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 60. 1200.0 6 10.0 N S 4.7 0.39 5.0 12.0 N 25.0 3.0 4.2 106. 0.0234 ELOL N,M,1

3 COBERTURA 20.x 60. 1200.0 6 12.5 N N 7.4 0.61 6.3 15.0 N 25.0 3.0 23.2 107. 0.1298 ELOL N,M,1

2 TERREO 20.x 60. 1200.0 6 12.5 N S 7.4 0.61 6.3 15.0 N 25.0 3.0 25.9 107. 0.1450 ELOL N,M,1

1 BALDRAME 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 37.8 21. 0.2114 ----

### P166

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P166 num:166 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 60. 1200.0 6 10.0 N S 4.7 0.39 5.0 12.0 N 25.0 3.0 4.1 106. 0.0231 ELOL N,M,1

3 COBERTURA 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 19.7 54. 0.1105 ELOL KAPA

2 TERREO 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 22.7 54. 0.1271 ELOL KAPA

1 BALDRAME 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 32.6 21. 0.1828 ----

### P167

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P167 num:167 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 2.6 48. 0.0144 ELOL KAPA

3 COBERTURA 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 6.7 54. 0.0376 ELOL KAPA

2 TERREO 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 8.8 54. 0.0492 ELOL KAPA

1 BALDRAME 20.x 60. 1200.0 6 10.0 N N 4.7 0.39 5.0 12.0 N 25.0 3.0 12.7 21. 0.0713 ----

### P168

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P168 num:168 Lances: 4 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 15.x 40. 600.0 6 10.0 N N 4.7 0.79 5.0 12.0 N 25.0 3.0 4.2 65. 0.0233 ELOL KAPA

### P169

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P169 num:169 Lances: 4 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 15.x 40. 600.0 6 10.0 N N 4.7 0.79 5.0 12.0 N 25.0 3.0 3.2 65. 0.0182 ELOL KAPA

### P17

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P17 num: 17 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.2 55. 0.0798 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.4 53. 0.1761 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 41.1 21. 0.2300 ----

### P170

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P170 num:170 Lances: 4 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 15.x 40. 600.0 6 10.0 N N 4.7 0.79 5.0 12.0 N 25.0 3.0 3.3 65. 0.0187 ELOL KAPA

### P171

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P171 num:171 Lances: 4 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 15.x 40. 600.0 6 10.0 N N 4.7 0.79 5.0 12.0 N 25.0 3.0 3.3 65. 0.0185 ELOL KAPA

### P18

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P18 num: 18 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.9 54. 0.1115 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 42.7 54. 0.2389 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 58.6 21. 0.3282 ----

### P19

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P19 num: 19 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.2 55. 0.0965 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.5 53. 0.2154 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 50.9 21. 0.2848 ----

### P2

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P2 num: 2 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 48. 0.0225 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.2 54. 0.0680 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.8 54. 0.1110 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.4 21. 0.1536 ----

### P20

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P20 num: 20 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.9 54. 0.0948 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 37.9 54. 0.2124 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 49.9 21. 0.2797 ----

### P21

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P21 num: 21 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 21.1 55. 0.1181 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 44.4 53. 0.2484 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 62.3 21. 0.3488 ----

### P22

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P22 num: 22 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.4 54. 0.0636 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.8 54. 0.1503 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.6 21. 0.1997 ----

### P23

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P23 num: 23 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.6 55. 0.0873 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.0 53. 0.1901 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 45.8 21. 0.2566 ----

### P24

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P24 num: 24 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.9 54. 0.1002 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 39.8 54. 0.2230 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 52.6 21. 0.2944 ----

### P25

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P25 num: 25 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.9 55. 0.1172 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 45.1 53. 0.2528 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 61.5 21. 0.3442 ----

### P26

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P26 num: 26 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.9 54. 0.0725 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.5 54. 0.1652 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.3 21. 0.2146 ----

### P27

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P27 num: 27 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.3 54. 0.1078 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 40.0 54. 0.2241 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 55.1 21. 0.3088 ----

### P28

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P28 num: 28 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 11.7 54. 0.0653 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 28.6 54. 0.1603 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 38.7 21. 0.2168 ----

### P29

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P29 num: 29 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 12.5 N S 7.4 0.74 6.3 15.0 N 25.0 3.0 3.2 106. 0.0180 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 12.0 54. 0.0673 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 20.0 54. 0.1118 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 34.5 21. 0.1933 ----

### P3

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P3 num: 3 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.6 53. 0.0204 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.4 54. 0.0808 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 25.8 54. 0.1444 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.6 21. 0.1994 ----

### P30

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P30 num: 30 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.3 55. 0.0576 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.2 53. 0.1133 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 30.1 21. 0.1688 ----

### P31

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P31 num: 31 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.7 54. 0.0655 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.6 54. 0.1265 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.0 21. 0.1904 ----

### P32

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P32 num: 32 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N S 4.7 0.59 5.0 12.0 N 25.0 3.0 5.2 106. 0.0294 ELOL N,M,1

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.0 54. 0.1122 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.2 54. 0.1972 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 48.9 21. 0.2737 ----

### P33

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P33 num: 33 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.8 54. 0.1110 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 42.4 54. 0.2372 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 58.3 21. 0.3265 ----

### P34

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P34 num: 34 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.6 54. 0.0989 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.4 54. 0.1928 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 47.5 21. 0.2662 ----

### P35

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P35 num: 35 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.6 55. 0.0873 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 32.5 53. 0.1820 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 43.1 21. 0.2415 ----

### P36

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P36 num: 36 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.1 55. 0.0955 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 39.4 53. 0.2204 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 51.6 21. 0.2891 ----

### P37

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P37 num: 37 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.2 54. 0.0909 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 33.1 54. 0.1856 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 45.4 21. 0.2540 ----

### P38

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P38 num: 38 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 25.5 54. 0.1427 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 59.4 54. 0.3329 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 74.5 21. 0.4171 ----

### P39

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P39 num: 39 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.4 55. 0.1084 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 48.6 53. 0.2719 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 57.2 21. 0.3205 ----

### P4

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P4 num: 4 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0199 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.0 54. 0.0895 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 28.0 54. 0.1567 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 39.0 21. 0.2182 ----

### P40

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P40 num: 40 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.9 54. 0.0721 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.1 54. 0.1632 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.1 21. 0.2134 ----

### P41

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P41 num: 41 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.4 55. 0.1141 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 45.3 53. 0.2539 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 60.3 21. 0.3379 ----

### P42

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P42 num: 42 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.8 54. 0.1110 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 41.8 54. 0.2341 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 57.7 21. 0.3231 ----

### P43

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P43 num: 43 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.6 55. 0.0817 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 32.2 53. 0.1805 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 42.1 21. 0.2361 ----

### P44

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P44 num: 44 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 12.5 N S 7.4 0.74 6.3 15.0 N 25.0 3.0 2.8 106. 0.0157 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 10.2 55. 0.0570 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 17.2 53. 0.0962 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 23.1 21. 0.1291 ----

### P45

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P45 num: 45 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.2 55. 0.0571 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.2 53. 0.1132 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 30.1 21. 0.1687 ----

### P46

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P46 num: 46 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.6 55. 0.0649 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.4 53. 0.1256 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 33.8 21. 0.1894 ----

### P47

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P47 num: 47 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.7 48. 0.0208 ----

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.0 54. 0.0617 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.4 54. 0.0977 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.6 21. 0.1376 ----

### P48

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P48 num: 48 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.1 48. 0.0176 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 8.9 54. 0.0497 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 13.7 54. 0.0770 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.4 21. 0.1089 ----

### P49

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P49 num: 49 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.2 48. 0.0125 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.1 54. 0.0678 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.7 54. 0.1158 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 28.1 21. 0.1576 ----

### P5

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P5 num: 5 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 53. 0.0226 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.2 54. 0.1078 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.5 54. 0.1935 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 47.6 21. 0.2666 ----

### P50

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P50 num: 50 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 3.4 106. 0.0191 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 16.5 54. 0.0923 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 28.1 54. 0.1573 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 41.1 21. 0.2303 ----

### P51

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P51 num: 51 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.8 53. 0.0213 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.6 54. 0.0986 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.3 54. 0.1752 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 43.5 21. 0.2439 ----

### P52

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P52 num: 52 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.6 53. 0.0201 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.3 54. 0.0967 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.4 54. 0.1643 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 41.0 21. 0.2298 ----

### P53

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P53 num: 53 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 5.6 53. 0.0312 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.1 54. 0.1630 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 53.2 54. 0.2980 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 73.4 21. 0.4110 ----

### P54

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P54 num: 54 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.9 53. 0.0276 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.8 54. 0.1671 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 64.2 54. 0.3595 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 82.7 21. 0.4628 ----

### P55

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P55 num: 55 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.6 53. 0.0201 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.2 54. 0.0906 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.3 54. 0.1472 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 37.7 21. 0.2109 ----

### P56

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P56 num: 56 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.1 53. 0.0232 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 21.4 54. 0.1201 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 37.4 54. 0.2095 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 52.7 21. 0.2952 ----

### P57

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P57 num: 57 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0194 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.1 54. 0.0848 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.1 54. 0.1519 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 36.7 21. 0.2057 ----

### P58

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P58 num: 58 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 3.5 106. 0.0198 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 16.9 54. 0.0948 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 28.9 54. 0.1621 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 42.3 21. 0.2371 ----

### P59

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P59 num: 59 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.2 48. 0.0124 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.9 54. 0.0720 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 21.8 54. 0.1218 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.2 21. 0.1636 ----

### P6

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P6 num: 6 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.1 53. 0.0229 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.4 54. 0.1141 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.2 54. 0.1971 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 51.2 21. 0.2870 ----

### P60

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P60 num: 60 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.0 53. 0.0115 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.2 54. 0.0514 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.8 54. 0.0886 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.6 21. 0.1263 ----

### P61

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P61 num: 61 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 2.3 53. 0.0127 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.6 54. 0.0594 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.1 54. 0.1014 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.4 21. 0.1477 ----

### P62

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P62 num: 62 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.6 48. 0.0260 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.3 53. 0.0354 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.4 54. 0.0359 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.9 22. 0.0553 ----

### P63

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P63 num: 63 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 5.6 48. 0.0315 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.7 54. 0.0657 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 31.8 54. 0.1778 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.2 21. 0.2140 ----

### P64

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P64 num: 64 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.5 48. 0.0253 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.0 53. 0.0338 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.3 54. 0.0354 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 9.6 22. 0.0536 ----

### P65

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P65 num: 65 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 5.3 48. 0.0295 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 23.5 54. 0.1318 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.0 54. 0.2129 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 47.3 21. 0.2650 ----

### P66

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P66 num: 66 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 1.7 54. 0.0097 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.6 21. 0.0256 ----

### P67

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P67 num: 67 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.3 54. 0.0241 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 15.4 21. 0.0861 ----

### P68

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P68 num: 68 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 1.4 54. 0.0080 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.8 21. 0.0267 ----

### P69

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P69 num: 69 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.1 54. 0.1014 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 27.4 21. 0.1532 ----

### P7

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P7 num: 7 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.3 53. 0.0186 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 14.8 54. 0.0830 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.7 54. 0.1494 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 36.1 21. 0.2021 ----

### P70

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P70 num: 70 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 11.3 54. 0.0633 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 23.9 21. 0.1341 ----

### P71

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P71 num: 71 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.2 48. 0.0232 ----

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 13.1 54. 0.0734 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 21.8 54. 0.1219 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.5 21. 0.1653 ----

### P72

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P72 num: 72 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 4.2 106. 0.0238 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 18.1 54. 0.1016 ----

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 35.0 54. 0.1963 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 46.2 21. 0.2586 ----

### P73

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P73 num: 73 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.5 53. 0.0199 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 8.7 55. 0.0487 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 10.1 53. 0.0565 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.5 21. 0.1034 ----

### P74

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P74 num: 74 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 5.5 53. 0.0307 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 28.6 55. 0.1599 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 61.3 53. 0.3432 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 77.0 21. 0.4311 ----

### P75

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P75 num: 75 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.0 54. 0.0337 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 36.0 55. 0.2018 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 78.0 53. 0.4370 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 98.0 21. 0.5489 ----

### P76

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P76 num: 76 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 6.3 53. 0.0354 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 28.7 55. 0.1607 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 45.2 53. 0.2534 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 62.6 21. 0.3508 ----

### P77

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P77 num: 77 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 12.5 N N 7.4 0.92 6.3 15.0 N 25.0 3.0 4.7 48. 0.0265 ----

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 16.7 55. 0.0936 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.8 53. 0.1389 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 34.0 21. 0.1902 ----

### P78

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P78 num: 78 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 5.3 79. 0.0296 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N S 4.7 0.59 5.0 12.0 N 25.0 3.0 14.9 79. 0.0836 ELOL KAPA

### P79

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P79 num: 79 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.7 54. 0.0993 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 25.6 21. 0.1436 ----

### P8

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P8 num: 8 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 3.3 53. 0.0184 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 13.7 54. 0.0769 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.3 54. 0.1361 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 33.3 21. 0.1863 ----

### P80

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P80 num: 80 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.0 54. 0.1062 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 44.5 54. 0.2490 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 56.0 21. 0.3133 ----

### P81

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P81 num: 81 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 12.4 54. 0.0694 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.5 54. 0.1372 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 41.8 21. 0.2339 ----

### P82

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P82 num: 82 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.5 53. 0.0249 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.6 54. 0.1153 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.3 54. 0.2143 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 51.1 21. 0.2863 ----

### P83

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P83 num: 83 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 24.0 54. 0.1344 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 55.7 54. 0.3120 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 70.2 21. 0.3928 ----

### P84

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P84 num: 84 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 20.5 53. 0.1148 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 43.2 54. 0.2422 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 58.0 20. 0.3249 ----

### P85

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P85 num: 85 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 37.9 53. 0.2123 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 81.0 54. 0.4535 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 98.5 20. 0.5515 ----

### P86

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P86 num: 86 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 65. 1300.0 10 16.0 N N 20.1 1.55 6.3 19.0 N 25.0 3.0 16.1 54. 0.0904 ----

1 BALDRAME 20.x 65. 1300.0 8 10.0 N N 6.3 0.48 5.0 12.0 N 25.0 3.0 28.2 21. 0.1580 ----

### P87

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P87 num: 87 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 65. 1300.0 8 10.0 N S 6.3 0.48 5.0 12.0 N 25.0 3.0 3.9 108. 0.0221 ELOL N,M,1

3 COBERTURA 20.x 65. 1300.0 8 10.0 N N 6.3 0.48 5.0 12.0 N 25.0 3.0 20.2 53. 0.1131 ----

2 TERREO 20.x 65. 1300.0 8 10.0 N N 6.3 0.48 5.0 12.0 N 25.0 3.0 36.9 54. 0.2069 ----

1 BALDRAME 20.x 65. 1300.0 8 10.0 N N 6.3 0.48 5.0 12.0 N 25.0 3.0 47.4 20. 0.2655 ----

### P88

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P88 num: 88 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 65. 1300.0 12 16.0 N N 24.1 1.86 6.3 19.0 N 25.0 3.0 14.6 54. 0.0820 ----

1 BALDRAME 20.x 65. 1300.0 8 10.0 N N 6.3 0.48 5.0 12.0 N 25.0 3.0 25.9 21. 0.1449 ----

### P89

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P89 num: 89 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 17.6 54. 0.0988 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.1 54. 0.2134 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 52.4 21. 0.2933 ----

### P9

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P9 num: 9 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.1 53. 0.0230 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.6 54. 0.1100 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.2 54. 0.1971 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 48.7 21. 0.2727 ----

### P90

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P90 num: 90 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.9 54. 0.1673 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 67.0 54. 0.3749 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 81.4 21. 0.4558 ----

### P91

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P91 num: 91 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.0 53. 0.0225 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 19.1 54. 0.1069 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 35.5 54. 0.1985 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 47.4 21. 0.2653 ----

### P92

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P92 num: 92 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.7 54. 0.1159 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 47.0 54. 0.2633 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 60.2 21. 0.3369 ----

### P93

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P93 num: 93 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.3 48. 0.0243 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 20.3 54. 0.1138 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 38.4 54. 0.2148 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 50.4 21. 0.2824 ----

### P94

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P94 num: 94 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 50. 1000.0 6 10.0 N S 4.7 0.47 5.0 12.0 N 25.0 3.0 6.3 106. 0.0351 ELOL N,M,1

3 COBERTURA 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 22.3 54. 0.1247 ELOL KAPA

2 TERREO 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 35.1 54. 0.1967 ELOL KAPA

1 BALDRAME 20.x 50. 1000.0 6 10.0 N N 4.7 0.47 5.0 12.0 N 25.0 3.0 51.4 21. 0.2876 ----

### P95

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P95 num: 95 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 4.9 49. 0.0276 ----

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.1 54. 0.1235 ELOL KAPA

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 46.2 54. 0.2589 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 62.0 20. 0.3469 ----

### P96

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P96 num: 96 Lances: 1 à 3

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 36.7 54. 0.2054 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 76.2 54. 0.4268 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 89.3 21. 0.5001 ----

### P97

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P97 num: 97 Lances: 1 à 4

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

4 RESPALDO 20.x 40. 800.0 6 10.0 S N 4.7 0.59 5.0 12.0 N 25.0 3.0 5.1 53. 0.0287 ELOL KAPA

3 COBERTURA 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 26.4 54. 0.1477 ----

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 49.7 54. 0.2781 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 64.2 21. 0.3594 ----

### P98

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P98 num: 98 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 8.3 54. 0.0468 ----

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 22.9 21. 0.1285 ----

### P99

----------------------------------------------------------------------------------------------------------------------------------

PILAR:P99 num: 99 Lances: 1 à 2

----------------------------------------------------------------------------------------------------------------------------------

Lance Título Seção Área NFer Bitola PDD As Taxa Estr C/ PP fck Cobr T Lbd Ni 2OrdM

[cm] [cm2] [mm] x y [cm2] [%] [mm] [cm] (MPa) (cm)

2 TERREO 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 18.8 54. 0.1053 ELOL KAPA

1 BALDRAME 20.x 40. 800.0 6 10.0 N N 4.7 0.59 5.0 12.0 N 25.0 3.0 29.2 21. 0.1634 ----

# MEMORIAL DE CÁLCULO DAS FUNDAÇÕES

A seguir são apresentados os dados e resultados do cálculo/dimensionamento dos pilares

## Legenda

OBSERVAÇÃO:

Este programa utiliza o MÉTODO SIMPLIFICADO DAS BIELAS EM BLOCOS

CONSIDERADOS RÍGIDOS (com um ângulo ótimo entre 45 e 55 graus).

Nos casos com Momentos Fletores atuantes, Considera-se para o

dimensionamento do bloco, a Força normal Equivalente (FE), mais crítica,

dentre os casos de carregamentos transferidos.

Cabe ao engenheiro o cálculo e o detalhamento de armaduras

complementares para esforços de TRAÇÃO em pontos localizados do bloco e

estaca(s), se houver, em função da geometria do bloco e das solicitações.

OBSERVAÇÃO:

Este programa utiliza o MÉTODO SIMPLIFICADO DAS BIELAS EM BLOCOS

CONSIDERADOS RÍGIDOS (com um ângulo ótimo entre 45 e 55 graus).

Nos casos com Momentos Fletores atuantes, Considera-se para o

dimensionamento do bloco, a Força normal Equivalente (FE), mais crítica,

dentre os casos de carregamentos transferidos.

Cabe ao engenheiro o cálculo e o detalhamento de armaduras

complementares para esforços de TRAÇÃO em pontos localizados do bloco e

estaca(s), se houver, em função da geometria do bloco e das solicitações.

LEGENDA:

FE: Força normal Equivalente total para dimensionamento, que provoca o

mesmo efeito das ações (compressão e flexões concomitantes), na estaca

mais solicitada, dentre todos os casos de carregamento;

F1: FE/Estacas (esforço crítico p/ simples conferência, para a 'estaca

mais solicitada');

AsXfdZ,AsYfdZ: a SOMA de armaduras necessárias para fendilhamento e

cintamento (quando houver);

Ascin: Armadura necessária para cintamento;

OBS: Observar possíveis conversões entre armaduras e tipos de aço (ex: CA50 para CA60)

## B1

BLOCO: 1 - B1 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 16.01| 0.01| -0.06| -0.875| 0.033| -0.01| -0.50|

| 7(Rmin)| 11.00| 0.03| 0.11| 0.872| -0.011| 0.03| 0.54|

| 9(TEst)| 11.31| 0.14| 0.04| 0.058| -0.390| 0.34| 0.07|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 46.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.6 | TensEst = 28.5 | |

| Área de forma: 2.30 | Fmx= 9.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 5.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B10

BLOCO: 10 - B10 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 28.30| -0.02| -0.07| -0.612| -0.023| -0.01| -0.37|

| 16(Rmin)| 25.91| -0.01| 0.10| 0.466| -0.049| 0.01| 0.34|

| 9(TEst)| 26.86| 0.07| 0.03| -0.031| -0.365| 0.25| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 28.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 76.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 31.4 | TensEst = 45.7 | |

| Área de forma: 2.30 | Fmx= 15.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.3 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B100

BLOCO: 100 - B100 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 29.20| -0.00| -0.06| -0.605| -0.037| 0.02| -0.37|

| 8(Rmin)| 26.01| -0.01| 0.11| 0.488| -0.019| 0.00| 0.35|

| 16(TEst)| 27.89| 0.09| 0.02| -0.037| -0.380| 0.28| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 79.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.2 | TensEst = 47.0 | |

| Área de forma: 2.30 | Fmx= 16.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.4 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B101

BLOCO: 101 - B101 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 6.02| -0.03| 0.05| 0.554| -0.078| 0.01| 0.33|

| 18(Rmin)| 4.94| -0.02| -0.04| -0.574| -0.106| 0.03| -0.33|

| 16(TEst)| 5.87| 0.05| 0.01| 0.014| -0.378| 0.24| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 6.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 18.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 8.9 | TensEst = 13.0 | |

| Área de forma: 2.30 | Fmx= 4.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 2.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B102

BLOCO: 102 - B102 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 24.23| -0.00| -0.06| -0.635| 0.031| -0.02| -0.38|

| 17(Rmin)| 20.49| 0.01| 0.10| 0.569| -0.003| 0.01| 0.39|

| 6(TEst)| 22.76| -0.11| 0.02| -0.037| 0.395| -0.31| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 24.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 66.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 27.3 | TensEst = 39.8 | |

| Área de forma: 2.30 | Fmx= 13.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B103

BLOCO: 103 - B103 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 29.31| 0.01| 0.07| 0.630| 0.001| 0.01| 0.38|

| 9(Rmin)| 25.67| -0.01| -0.10| -0.577| 0.045| -0.03| -0.39|

| 6(TEst)| 27.80| -0.11| -0.02| 0.021| 0.403| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 79.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.4 | TensEst = 47.3 | |

| Área de forma: 2.30 | Fmx= 16.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.4 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B104

BLOCO: 104 - B104 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 20.89| 0.11| 0.03| -0.037| -0.436| 0.33| 0.01|

| 6(Rmin)| 17.09| -0.11| 0.03| -0.055| 0.446| -0.33| 0.00|

| 15(TEst)| 17.13| -0.11| 0.03| -0.056| 0.447| -0.33| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 20.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.3 | TensPil = 53.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 22.5 | TensEst = 32.8 | |

| Área de forma: 2.30 | Fmx= 11.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B105

BLOCO: 105 - B105 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 7.00| -0.02| 0.01| 0.548| 0.011| -0.02| 0.29|

| 9(Rmin)| 5.47| 0.01| -0.05| -0.492| -0.010| 0.02| -0.29|

| 6(TEst)| 6.24| -0.13| -0.02| 0.022| 0.090| -0.18| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 7.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 21.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 9.7 | TensEst = 14.2 | |

| Área de forma: 2.30 | Fmx= 4.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 2.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B106

BLOCO: 106 - B106 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 6.97| 0.01| -0.01| -0.545| -0.003| 0.01| -0.29|

| 8(Rmin)| 5.59| -0.01| 0.05| 0.491| 0.004| -0.01| 0.29|

| 6(TEst)| 6.30| -0.13| 0.02| -0.034| 0.088| -0.17| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 7.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 20.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 9.7 | TensEst = 14.1 | |

| Área de forma: 2.30 | Fmx= 4.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 3.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B107

BLOCO: 107 - B107 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 7(Dim )| 19.07| 0.11| -0.03| 0.057| -0.432| 0.33| -0.00|

| 15(Rmin)| 15.97| -0.10| -0.04| 0.048| 0.428| -0.32| -0.01|

| 16(TEst)| 19.02| 0.11| -0.03| 0.056| -0.432| 0.33| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 19.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.3 | TensPil = 49.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.6 | TensEst = 30.1 | |

| Área de forma: 2.30 | Fmx= 10.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B108

BLOCO: 108 - B108 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 19.67| -0.01| -0.04| -0.626| 0.010| -0.02| -0.36|

| 8(Rmin)| 15.39| -0.00| 0.13| 0.472| -0.024| 0.01| 0.37|

| 6(TEst)| 16.39| -0.13| 0.04| -0.087| 0.363| -0.31| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 19.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 54.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 22.7 | TensEst = 33.1 | |

| Área de forma: 2.30 | Fmx= 11.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B109

BLOCO: 109 - B109 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 5(Dim )| 33.10| -0.01| -0.05| -0.343| 0.021| -0.02| -0.22|

| 17(Rmin)| 30.90| -0.00| 0.06| 0.588| -0.015| 0.01| 0.36|

| 6(TEst)| 31.30| -0.12| -0.01| -0.003| 0.375| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 87.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 35.6 | TensEst = 51.8 | |

| Área de forma: 2.30 | Fmx= 17.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.8 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B11

BLOCO: 11 - B11 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 30.77| 0.01| -0.06| -0.612| 0.037| -0.01| -0.37|

| 7(Rmin)| 27.15| 0.02| 0.09| 0.533| 0.011| 0.01| 0.36|

| 9(TEst)| 28.92| 0.10| 0.02| 0.015| -0.307| 0.25| 0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 83.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 33.8 | TensEst = 49.3 | |

| Área de forma: 2.30 | Fmx= 16.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.6 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B110

BLOCO: 110 - B110 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 17.31| 0.00| 0.07| 0.567| -0.042| 0.02| 0.36|

| 18(Rmin)| 15.16| -0.02| -0.10| -0.529| 0.020| -0.03| -0.37|

| 15(TEst)| 17.39| -0.12| -0.02| 0.011| 0.431| -0.34| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 48.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.3 | TensEst = 29.6 | |

| Área de forma: 2.30 | Fmx= 10.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B111

BLOCO: 111 - B111 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 15.14| 0.00| -0.07| -0.533| -0.046| 0.02| -0.33|

| 17(Rmin)| 11.91| -0.01| 0.08| 0.521| 0.012| -0.01| 0.35|

| 16(TEst)| 12.21| 0.10| 0.01| 0.002| -0.450| 0.33| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 15.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 42.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 18.1 | TensEst = 26.3 | |

| Área de forma: 2.30 | Fmx= 9.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B112

BLOCO: 112 - B112 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 40.22| 0.00| 0.03| 0.345| -0.004| 0.01| 0.21|

| 18(Rmin)| 36.63| 0.01| -0.06| -0.539| -0.015| 0.02| -0.33|

| 16(TEst)| 38.03| 0.11| -0.00| 0.019| -0.355| 0.28| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 40.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 105.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 42.6 | TensEst = 62.1 | |

| Área de forma: 2.30 | Fmx= 21.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 18.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.5 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.9 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B113

BLOCO: 113 - B113 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 29.92| -0.00| 0.06| 0.563| 0.032| -0.02| 0.34|

| 18(Rmin)| 27.82| -0.00| -0.11| -0.464| 0.037| -0.02| -0.34|

| 6(TEst)| 29.06| -0.10| -0.03| 0.043| 0.423| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 80.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.9 | TensEst = 47.9 | |

| Área de forma: 2.30 | Fmx= 16.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B114

BLOCO: 114 - B114 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 6.02| 0.00| 0.12| 0.416| -0.042| 0.02| 0.33|

| 9(Rmin)| 4.59| -0.01| -0.07| -0.530| 0.037| -0.03| -0.34|

| 15(TEst)| 5.56| -0.11| 0.02| -0.065| 0.445| -0.33| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 6.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 18.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 8.9 | TensEst = 13.0 | |

| Área de forma: 2.30 | Fmx= 4.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 2.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B115

BLOCO: 115 - B115 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 7.58| 0.03| 0.06| 0.563| 0.082| -0.01| 0.34|

| 9(Rmin)| 6.98| 0.02| -0.10| -0.466| 0.101| -0.03| -0.33|

| 15(TEst)| 7.54| -0.14| -0.02| 0.042| 0.308| -0.30| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 7.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 23.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 10.5 | TensEst = 15.3 | |

| Área de forma: 2.30 | Fmx= 5.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 3.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B116

BLOCO: 116 - B116 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 7.74| 0.04| -0.06| -0.563| 0.102| -0.01| -0.34|

| 17(Rmin)| 7.17| 0.03| 0.10| 0.462| 0.108| -0.02| 0.33|

| 6(TEst)| 7.71| -0.14| 0.02| -0.059| 0.321| -0.30| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 7.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 23.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 10.7 | TensEst = 15.6 | |

| Área de forma: 2.30 | Fmx= 5.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 3.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B117

BLOCO: 117 - B117 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 6.60| 0.00| -0.12| -0.412| -0.044| 0.03| -0.32|

| 8(Rmin)| 5.13| -0.00| 0.07| 0.535| 0.024| -0.02| 0.34|

| 16(TEst)| 6.31| 0.10| -0.02| 0.068| -0.446| 0.33| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 6.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 20.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 9.5 | TensEst = 13.8 | |

| Área de forma: 2.30 | Fmx= 4.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 2.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B118

BLOCO: 118 - B118 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 16.30| -0.01| -0.08| -0.521| 0.025| -0.02| -0.35|

| 17(Rmin)| 15.15| 0.01| 0.12| 0.389| -0.015| 0.02| 0.32|

| 15(TEst)| 15.43| -0.11| 0.02| -0.087| 0.448| -0.34| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 45.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.3 | TensEst = 28.1 | |

| Área de forma: 2.30 | Fmx= 9.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B119

BLOCO: 119 - B119 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 12.95| 0.02| 0.07| 0.550| 0.027| 0.00| 0.34|

| 9(Rmin)| 12.04| 0.01| -0.11| -0.445| 0.057| -0.02| -0.33|

| 15(TEst)| 12.46| -0.14| -0.02| 0.029| 0.318| -0.30| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 13.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 36.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 15.9 | TensEst = 23.2 | |

| Área de forma: 2.30 | Fmx= 7.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B12

BLOCO: 12 - B12 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 21.68| -0.01| -0.06| -0.686| -0.004| -0.01| -0.41|

| 7(Rmin)| 19.62| -0.00| 0.11| 0.503| -0.039| 0.02| 0.36|

| 9(TEst)| 20.61| 0.08| 0.03| -0.041| -0.352| 0.25| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 21.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 60.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.9 | TensEst = 36.3 | |

| Área de forma: 2.30 | Fmx= 12.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B120

BLOCO: 120 - B120 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 13.17| 0.02| -0.10| -0.473| 0.043| -0.00| -0.34|

| 17(Rmin)| 12.34| 0.01| 0.08| 0.521| 0.051| -0.01| 0.34|

| 6(TEst)| 12.74| -0.14| -0.02| 0.025| 0.318| -0.30| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 13.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 37.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 16.1 | TensEst = 23.5 | |

| Área de forma: 2.30 | Fmx= 8.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B121

BLOCO: 121 - B121 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 16.93| -0.00| 0.08| 0.526| 0.019| -0.01| 0.34|

| 18(Rmin)| 16.29| 0.01| -0.12| -0.402| -0.028| 0.02| -0.32|

| 16(TEst)| 16.68| 0.11| -0.02| 0.056| -0.437| 0.33| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 47.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.9 | TensEst = 29.0 | |

| Área de forma: 2.30 | Fmx= 9.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B122

BLOCO: 122 - B122 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 21.81| -0.02| -0.06| -0.575| 0.001| -0.02| -0.35|

| 8(Rmin)| 17.43| -0.01| 0.09| 0.455| -0.052| 0.02| 0.32|

| 6(TEst)| 20.05| -0.13| 0.01| -0.074| 0.357| -0.31| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 21.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 59.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.8 | TensEst = 36.1 | |

| Área de forma: 2.30 | Fmx= 12.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B123

BLOCO: 123 - B123 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 23.01| 0.01| 0.07| 0.486| -0.009| 0.01| 0.31|

| 18(Rmin)| 19.83| -0.00| -0.06| -0.581| 0.035| -0.02| -0.35|

| 6(TEst)| 22.28| -0.11| 0.01| -0.064| 0.394| -0.31| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 23.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 62.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 25.8 | TensEst = 37.7 | |

| Área de forma: 2.30 | Fmx= 12.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B124

BLOCO: 124 - B124 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 31.41| -0.00| -0.06| -0.502| -0.039| 0.02| -0.31|

| 17(Rmin)| 29.14| -0.01| 0.07| 0.549| -0.023| 0.00| 0.35|

| 16(TEst)| 29.36| 0.09| 0.01| 0.028| -0.380| 0.28| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 31.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 84.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 34.2 | TensEst = 49.9 | |

| Área de forma: 2.30 | Fmx= 17.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.6 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B125

BLOCO: 125 - B125 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 19.56| -0.02| 0.01| 0.646| -0.004| -0.02| 0.34|

| 9(Rmin)| 16.42| -0.02| -0.15| -0.371| 0.001| -0.02| -0.33|

| 6(TEst)| 17.54| -0.12| -0.07| 0.134| 0.374| -0.31| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 19.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 53.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 22.5 | TensEst = 32.8 | |

| Área de forma: 2.30 | Fmx= 11.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B126

BLOCO: 126 - B126 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 11.31| -0.01| -0.08| -0.553| 0.024| -0.02| -0.36|

| 8(Rmin)| 10.66| 0.00| 0.12| 0.379| -0.036| 0.02| 0.31|

| 15(TEst)| 11.30| -0.11| 0.02| -0.101| 0.442| -0.33| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 11.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 32.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 14.3 | TensEst = 20.9 | |

| Área de forma: 2.30 | Fmx= 7.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 5.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.5 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B127

BLOCO: 127 - B127 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 12.76| 0.01| 0.08| 0.526| -0.013| 0.02| 0.34|

| 9(Rmin)| 12.18| 0.00| -0.12| -0.425| 0.005| -0.00| -0.33|

| 7(TEst)| 12.46| 0.17| -0.02| 0.069| -0.262| 0.30| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 12.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 36.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 15.7 | TensEst = 22.9 | |

| Área de forma: 2.30 | Fmx= 7.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B128

BLOCO: 128 - B128 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 12.91| 0.01| -0.11| -0.448| -0.010| 0.01| -0.34|

| 17(Rmin)| 12.35| 0.00| 0.09| 0.503| -0.000| 0.00| 0.34|

| 16(TEst)| 12.60| 0.16| -0.01| 0.034| -0.260| 0.29| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 12.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 36.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 15.8 | TensEst = 23.1 | |

| Área de forma: 2.30 | Fmx= 7.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B129

BLOCO: 129 - B129 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 10.80| -0.01| 0.07| 0.557| 0.014| -0.01| 0.35|

| 8(Rmin)| 10.33| -0.01| 0.07| 0.557| 0.014| -0.01| 0.35|

| 16(TEst)| 10.70| 0.10| -0.03| 0.101| -0.451| 0.33| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 10.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 31.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 13.8 | TensEst = 20.1 | |

| Área de forma: 2.30 | Fmx= 6.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 5.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.5 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B13

BLOCO: 13 - B13 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 30.03| -0.05| 0.07| -0.050| 0.871| -0.70| 0.03|

| 7(Rmin)| 24.47| 0.08| 0.02| -0.069| -0.791| 0.67| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 30.0 | TensLimP= 281.2 | dmin = 31.8 |

| DisX= 76.1 | MX= -0.7 | TensPil = 41.3 | dmax = 45.3 |

| Xbl = 180.0 Ybl = 155.9 | MY= 0.0 | | d = 54.0 |

| Alt = 75.0 Vol = 1.447 |-------------| TensLimE= 281.2 | Angulo = 60.0 |

| Xpil= 45.0 Ypil= 40.0 | FEq= 36.8 | TensEst = 38.9 | |

| Área de forma: 4.05 | Fmx= 12.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 3.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 3 {10.0 C/ 15.0(c) Susp.X: 2.3 = 8 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.3 = 12 { 5.0 C/ 15.0(d) Laterl: 0.9 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 54.00 cm maior do que a alt. máxima 45.26 cm.|

| AVISO: Ângulo da biela de compressão ( 60.0 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B130

BLOCO: 130 - B130 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 17.31| -0.01| -0.08| -0.596| 0.028| -0.02| -0.38|

| 17(Rmin)| 15.94| 0.01| 0.15| 0.275| -0.025| 0.02| 0.29|

| 15(TEst)| 16.58| -0.11| 0.03| -0.175| 0.445| -0.33| -0.06|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 48.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.4 | TensEst = 29.8 | |

| Área de forma: 2.30 | Fmx= 10.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B131

BLOCO: 131 - B131 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 12.61| 0.00| 0.09| 0.510| -0.053| 0.03| 0.35|

| 9(Rmin)| 11.93| -0.00| -0.13| -0.404| -0.032| 0.01| -0.33|

| 7(TEst)| 12.24| 0.16| -0.02| 0.068| -0.269| 0.30| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 12.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 36.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 15.6 | TensEst = 22.7 | |

| Área de forma: 2.30 | Fmx= 7.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B132

BLOCO: 132 - B132 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 12.76| 0.00| -0.12| -0.438| -0.044| 0.03| -0.34|

| 8(Rmin)| 12.10| 0.00| 0.10| 0.472| -0.031| 0.02| 0.34|

| 16(TEst)| 12.38| 0.16| -0.01| 0.030| -0.260| 0.29| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 12.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 36.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 15.7 | TensEst = 22.9 | |

| Área de forma: 2.30 | Fmx= 7.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B133

BLOCO: 133 - B133 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 16.80| -0.00| 0.08| 0.581| 0.021| -0.01| 0.37|

| 18(Rmin)| 15.67| 0.01| -0.16| -0.290| -0.032| 0.02| -0.30|

| 16(TEst)| 15.95| 0.11| -0.04| 0.154| -0.437| 0.33| 0.04|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 47.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.8 | TensEst = 28.9 | |

| Área de forma: 2.30 | Fmx= 9.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B134

BLOCO: 134 - B134 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 17.49| -0.00| -0.06| -0.611| 0.034| -0.02| -0.36|

| 17(Rmin)| 12.58| 0.01| 0.09| 0.525| -0.012| 0.02| 0.36|

| 6(TEst)| 14.94| -0.11| 0.02| -0.060| 0.397| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 48.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.5 | TensEst = 29.9 | |

| Área de forma: 2.30 | Fmx= 10.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B135

BLOCO: 135 - B135 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 19.95| 0.00| 0.06| 0.579| -0.022| 0.01| 0.35|

| 9(Rmin)| 15.78| -0.01| -0.09| -0.560| 0.028| -0.02| -0.37|

| 6(TEst)| 17.32| -0.11| -0.02| -0.006| 0.395| -0.31| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 19.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 55.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 22.9 | TensEst = 33.4 | |

| Área de forma: 2.30 | Fmx= 11.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B136

BLOCO: 136 - B136 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 18.25| 0.01| -0.06| -0.601| -0.019| 0.02| -0.36|

| 8(Rmin)| 14.19| 0.00| 0.08| 0.528| 0.004| 0.00| 0.35|

| 16(TEst)| 16.37| 0.11| 0.01| -0.025| -0.358| 0.28| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 18.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 50.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 21.3 | TensEst = 31.0 | |

| Área de forma: 2.30 | Fmx= 10.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B137

BLOCO: 137 - B137 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 20.89| -0.01| 0.05| 0.578| -0.012| -0.00| 0.34|

| 9(Rmin)| 16.79| -0.01| -0.09| -0.550| -0.029| 0.01| -0.37|

| 16(TEst)| 19.09| 0.09| -0.02| 0.026| -0.368| 0.27| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 20.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 57.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 23.8 | TensEst = 34.7 | |

| Área de forma: 2.30 | Fmx= 11.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.5 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B138

BLOCO: 138 - B138 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 10.41| -0.01| -0.09| -0.569| 0.032| -0.02| -0.38|

| 8(Rmin)| 9.36| 0.01| 0.13| 0.353| -0.012| 0.02| 0.30|

| 15(TEst)| 9.97| -0.11| 0.01| -0.123| 0.455| -0.34| -0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 10.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 30.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 13.5 | TensEst = 19.7 | |

| Área de forma: 2.30 | Fmx= 6.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 4.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B139

BLOCO: 139 - B139 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 13.14| 0.01| 0.09| 0.525| -0.018| 0.02| 0.35|

| 18(Rmin)| 12.86| -0.00| -0.14| -0.384| -0.005| 0.00| -0.33|

| 7(TEst)| 12.86| 0.17| -0.02| 0.085| -0.201| 0.27| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 13.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 37.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 16.1 | TensEst = 23.5 | |

| Área de forma: 2.30 | Fmx= 8.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B14

BLOCO: 14 - B14 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 22.89| -0.00| -0.08| -0.821| 0.011| -0.01| -0.49|

| 7(Rmin)| 16.65| 0.01| 0.12| 0.855| -0.041| 0.03| 0.55|

| 9(TEst)| 21.28| 0.13| 0.02| 0.104| -0.423| 0.34| 0.07|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 22.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 64.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 26.4 | TensEst = 38.5 | |

| Área de forma: 2.30 | Fmx= 13.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.8 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B140

BLOCO: 140 - B140 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 13.13| 0.01| -0.12| -0.474| -0.012| 0.01| -0.35|

| 8(Rmin)| 12.89| 0.00| 0.11| 0.434| -0.006| 0.00| 0.33|

| 7(TEst)| 12.93| 0.17| 0.00| -0.006| -0.195| 0.27| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 13.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 37.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 16.1 | TensEst = 23.5 | |

| Área de forma: 2.30 | Fmx= 8.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B141

BLOCO: 141 - B141 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 10.67| -0.00| 0.09| 0.536| 0.024| -0.01| 0.36|

| 9(Rmin)| 9.66| 0.01| -0.13| -0.390| -0.018| 0.02| -0.33|

| 16(TEst)| 10.47| 0.11| -0.02| 0.085| -0.430| 0.32| 0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 10.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 31.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 13.7 | TensEst = 19.9 | |

| Área de forma: 2.30 | Fmx= 6.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 5.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B142

BLOCO: 142 - B142 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 26.68| -0.01| -0.06| -0.646| 0.028| -0.02| -0.38|

| 17(Rmin)| 24.60| 0.01| 0.06| 0.601| -0.014| 0.02| 0.36|

| 15(TEst)| 24.06| -0.11| -0.00| -0.045| 0.447| -0.33| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 26.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 72.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 29.8 | TensEst = 43.4 | |

| Área de forma: 2.30 | Fmx= 14.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 2 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B143

BLOCO: 143 - B143 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 33.12| 0.08| -0.05| -0.648| 0.153| -0.01| -0.44|

| 8(Rmin)| 32.11| 0.08| 0.03| 0.629| 0.140| 0.00| 0.41|

| 15(TEst)| 32.74| -0.03| -0.01| -0.030| 0.498| -0.33| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.1 | TensLimP= 225.0 | dmin = 17.5 |

| DisX= 60.0 | MX= -0.0 | TensPil = 69.0 | dmax = 24.8 |

| Xbl = 150.0 Ybl = 90.0 | MY= -0.4 | | d = 40.5 |

| Alt = 60.0 Vol = 0.810 |-------------| TensLimE= 225.0 | AnguloX= 66.6 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 36.6 | TensEst = 51.6 | |

| Área de forma: 2.88 | Fmx= 18.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.0 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.2 = 8 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 40.50 cm maior do que a alt. máxima 24.85 cm.|

| AVISO: Ângulo da biela de compressão ( 66.6 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B144

BLOCO: 144 - B144 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 33.09| 0.08| 0.05| 0.608| 0.149| -0.01| 0.41|

| 9(Rmin)| 32.09| 0.08| -0.04| -0.670| 0.145| -0.00| -0.44|

| 6(TEst)| 32.78| -0.02| 0.00| -0.053| 0.494| -0.32| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.1 | TensLimP= 225.0 | dmin = 17.5 |

| DisX= 60.0 | MX= -0.0 | TensPil = 68.7 | dmax = 24.8 |

| Xbl = 150.0 Ybl = 90.0 | MY= 0.4 | | d = 40.5 |

| Alt = 60.0 Vol = 0.810 |-------------| TensLimE= 225.0 | AnguloX= 66.6 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 36.5 | TensEst = 51.5 | |

| Área de forma: 2.88 | Fmx= 18.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.0 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.2 = 8 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 40.50 cm maior do que a alt. máxima 24.85 cm.|

| AVISO: Ângulo da biela de compressão ( 66.6 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B145

BLOCO: 145 - B145 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 26.97| -0.00| 0.05| 0.607| 0.020| -0.01| 0.36|

| 18(Rmin)| 24.70| 0.01| -0.06| -0.639| -0.022| 0.02| -0.38|

| 16(TEst)| 27.15| 0.11| 0.00| 0.004| -0.430| 0.33| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 27.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 73.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 30.0 | TensEst = 43.7 | |

| Área de forma: 2.30 | Fmx= 15.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.2 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B146

BLOCO: 146 - B146 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 17.28| -0.01| -0.06| -0.650| 0.013| -0.02| -0.38|

| 8(Rmin)| 14.07| -0.00| 0.08| 0.552| -0.035| 0.02| 0.36|

| 6(TEst)| 15.96| -0.12| 0.01| -0.068| 0.374| -0.31| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 48.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.4 | TensEst = 29.7 | |

| Área de forma: 2.30 | Fmx= 10.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B147

BLOCO: 147 - B147 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 18.40| -0.00| 0.05| 0.606| -0.033| 0.01| 0.35|

| 18(Rmin)| 15.59| -0.02| -0.09| -0.601| 0.011| -0.02| -0.39|

| 6(TEst)| 17.14| -0.12| -0.02| -0.017| 0.378| -0.31| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 18.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 51.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 21.4 | TensEst = 31.2 | |

| Área de forma: 2.30 | Fmx= 10.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B148

BLOCO: 148 - B148 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 18.71| -0.00| -0.05| -0.644| -0.036| 0.01| -0.38|

| 17(Rmin)| 15.88| -0.01| 0.08| 0.562| -0.020| 0.00| 0.36|

| 16(TEst)| 17.15| 0.09| 0.02| -0.015| -0.378| 0.28| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 18.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 52.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 21.8 | TensEst = 31.8 | |

| Área de forma: 2.30 | Fmx= 10.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B149

BLOCO: 149 - B149 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 16.28| -0.00| 0.05| 0.612| -0.004| -0.00| 0.36|

| 18(Rmin)| 12.14| 0.00| -0.09| -0.588| -0.014| 0.01| -0.38|

| 16(TEst)| 13.89| 0.10| -0.02| 0.038| -0.358| 0.27| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 45.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.3 | TensEst = 28.1 | |

| Área de forma: 2.30 | Fmx= 9.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B15

BLOCO: 15 - B15 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 31.61| -0.09| -0.02| 0.052| 0.813| -0.58| 0.01|

| 16(Rmin)| 27.95| 0.13| -0.03| -0.007| -0.634| 0.51| -0.03|

| 6(TEst)| 31.61| -0.09| -0.02| 0.052| 0.813| -0.58| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 31.6 | TensLimP= 225.0 | dmin = 20.0 |

| DisX= 50.0 | MX= -0.6 | TensPil = 82.7 | dmax = 28.4 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.0 | | d = 40.5 |

| Alt = 60.0 Vol = 0.756 |-------------| TensLimE= 225.0 | AnguloX= 63.7 |

| Xpil= 20.0 Ypil= 40.0 | FEq= 33.6 | TensEst = 49.6 | |

| Área de forma: 2.76 | Fmx= 16.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.9 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.7 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 40.50 cm maior do que a alt. máxima 28.40 cm.|

| AVISO: Ângulo da biela de compressão ( 63.7 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B150

BLOCO: 150 - B150 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 17.09| -0.00| -0.06| -0.658| 0.033| -0.02| -0.38|

| 17(Rmin)| 13.93| 0.01| 0.09| 0.560| -0.016| 0.02| 0.37|

| 6(TEst)| 15.93| -0.11| 0.01| -0.073| 0.398| -0.31| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 48.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.2 | TensEst = 29.4 | |

| Área de forma: 2.30 | Fmx= 10.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B151

BLOCO: 151 - B151 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 15.51| 0.01| 0.05| 0.617| -0.014| 0.01| 0.36|

| 9(Rmin)| 12.73| -0.00| -0.09| -0.603| 0.036| -0.02| -0.39|

| 6(TEst)| 14.48| -0.11| -0.02| -0.018| 0.404| -0.31| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 15.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 43.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 18.5 | TensEst = 27.0 | |

| Área de forma: 2.30 | Fmx= 9.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B152

BLOCO: 152 - B152 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 15.40| 0.01| -0.05| -0.649| -0.017| 0.02| -0.38|

| 8(Rmin)| 12.58| 0.00| 0.09| 0.572| 0.006| 0.00| 0.37|

| 16(TEst)| 13.58| 0.10| 0.02| -0.013| -0.359| 0.28| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 15.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 43.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 18.5 | TensEst = 26.9 | |

| Área de forma: 2.30 | Fmx= 9.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B153

BLOCO: 153 - B153 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 17.39| 0.00| 0.05| 0.626| 0.009| -0.00| 0.37|

| 9(Rmin)| 14.34| 0.01| -0.09| -0.592| -0.004| 0.01| -0.38|

| 16(TEst)| 15.69| 0.10| -0.02| 0.044| -0.349| 0.27| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 48.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 20.4 | TensEst = 29.8 | |

| Área de forma: 2.30 | Fmx= 10.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B154

BLOCO: 154 - B154 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 12.63| -0.02| -0.04| -0.683| 0.009| -0.02| -0.38|

| 8(Rmin)| 9.20| -0.01| 0.05| 0.627| -0.042| 0.01| 0.36|

| 6(TEst)| 9.79| -0.13| 0.00| -0.064| 0.365| -0.31| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 12.6 | TensLimP= 225.0 | dmin = 10.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 21.8 | dmax = 14.2 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 72.4 |

| Xpil= 60.0 Ypil= 20.0 | FEq= 15.7 | TensEst = 20.6 | |

| Área de forma: 2.30 | Fmx= 7.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 4.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 14.20 cm.|

| AVISO: Ângulo da biela de compressão ( 72.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B155

BLOCO: 155 - B155 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 29.04| -0.00| 0.07| 0.599| -0.031| 0.02| 0.46|

| 18(Rmin)| 26.08| -0.01| -0.01| -0.726| 0.015| -0.02| -0.48|

| 6(TEst)| 26.44| -0.12| 0.03| -0.100| 0.376| -0.37| -0.04|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.0 | TensLimP= 225.0 | dmin = 30.0 |

| DisX= 90.0 | MX= 0.0 | TensPil = 60.8 | dmax = 42.6 |

| Xbl = 180.0 Ybl = 90.0 | MY= 0.5 | | d = 45.0 |

| Alt = 65.0 Vol = 1.053 |-------------| TensLimE= 225.0 | AnguloX= 56.3 |

| Xpil= 60.0 Ypil= 20.0 | FEq= 32.7 | TensEst = 56.1 | |

| Área de forma: 3.51 | Fmx= 16.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.8 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.7 = 9 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.0 = 4 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 45.00 cm maior do que a alt. máxima 42.60 cm.|

| AVISO: Ângulo da biela de compressão ( 56.3 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B156

BLOCO: 156 - B156 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 32.93| -0.07| -0.08| -0.627| -0.115| 0.00| -0.48|

| 8(Rmin)| 31.39| -0.07| 0.01| 0.693| -0.129| 0.02| 0.46|

| 7(TEst)| 32.58| 0.04| -0.03| 0.068| -0.473| 0.35| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 32.9 | TensLimP= 225.0 | dmin = 30.0 |

| DisX= 90.0 | MX= 0.0 | TensPil = 68.8 | dmax = 42.6 |

| Xbl = 180.0 Ybl = 90.0 | MY= -0.5 | | d = 45.0 |

| Alt = 65.0 Vol = 1.053 |-------------| TensLimE= 225.0 | AnguloX= 56.3 |

| Xpil= 60.0 Ypil= 20.0 | FEq= 36.6 | TensEst = 62.9 | |

| Área de forma: 3.51 | Fmx= 18.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 5.4 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.7 = 9 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.1 = 4 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 45.00 cm maior do que a alt. máxima 42.60 cm.|

| AVISO: Ângulo da biela de compressão ( 56.3 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B157

BLOCO: 157 - B157 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 32.74| -0.07| 0.07| 0.593| -0.119| 0.01| 0.46|

| 9(Rmin)| 31.18| -0.07| -0.01| -0.726| -0.127| 0.02| -0.48|

| 16(TEst)| 32.49| 0.04| 0.03| -0.031| -0.459| 0.34| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 32.7 | TensLimP= 225.0 | dmin = 30.0 |

| DisX= 90.0 | MX= 0.0 | TensPil = 68.3 | dmax = 42.6 |

| Xbl = 180.0 Ybl = 90.0 | MY= 0.5 | | d = 45.0 |

| Alt = 65.0 Vol = 1.053 |-------------| TensLimE= 225.0 | AnguloX= 56.3 |

| Xpil= 60.0 Ypil= 20.0 | FEq= 36.4 | TensEst = 62.5 | |

| Área de forma: 3.51 | Fmx= 18.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 5.4 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.7 = 9 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.1 = 4 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 45.00 cm maior do que a alt. máxima 42.60 cm.|

| AVISO: Ângulo da biela de compressão ( 56.3 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B158

BLOCO: 158 - B158 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 29.06| -0.00| -0.07| -0.634| -0.034| 0.01| -0.39|

| 17(Rmin)| 26.14| -0.01| 0.01| 0.691| -0.015| 0.00| 0.36|

| 16(TEst)| 28.37| 0.10| -0.03| 0.063| -0.370| 0.28| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.1 | TensLimP= 225.0 | dmin = 10.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 47.2 | dmax = 14.2 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 72.4 |

| Xpil= 60.0 Ypil= 20.0 | FEq= 32.2 | TensEst = 42.1 | |

| Área de forma: 2.30 | Fmx= 16.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 14.20 cm.|

| AVISO: Ângulo da biela de compressão ( 72.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B159

BLOCO: 159 - B159 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 12.65| -0.01| 0.04| 0.649| -0.012| -0.00| 0.36|

| 9(Rmin)| 9.17| -0.01| -0.05| -0.661| -0.027| 0.01| -0.38|

| 16(TEst)| 11.93| 0.09| -0.00| 0.028| -0.366| 0.27| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 12.6 | TensLimP= 225.0 | dmin = 10.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 21.7 | dmax = 14.2 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 72.4 |

| Xpil= 60.0 Ypil= 20.0 | FEq= 15.7 | TensEst = 20.5 | |

| Área de forma: 2.30 | Fmx= 7.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 4.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 14.20 cm.|

| AVISO: Ângulo da biela de compressão ( 72.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B16

BLOCO: 16 - B16 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 2(Dim )| 23.62| -0.00| -0.04| -0.395| -0.003| -0.00| -0.24|

| 16(Rmin)| 22.26| 0.00| 0.07| 0.699| -0.028| 0.02| 0.42|

| 9(TEst)| 23.47| 0.09| -0.01| -0.086| -0.386| 0.29| -0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 23.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 63.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 26.1 | TensEst = 38.1 | |

| Área de forma: 2.30 | Fmx= 13.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 11.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.8 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B17

BLOCO: 17 - B17 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 29.66| 0.02| 0.07| 0.564| -0.001| 0.02| 0.35|

| 6(Rmin)| 26.46| 0.01| -0.08| -0.566| 0.026| -0.00| -0.37|

| 9(TEst)| 28.21| 0.10| -0.01| -0.047| -0.368| 0.29| -0.04|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 80.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.6 | TensEst = 47.6 | |

| Área de forma: 2.30 | Fmx= 16.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B18

BLOCO: 18 - B18 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 35.90| 0.02| 0.03| 0.342| 0.003| 0.01| 0.20|

| 15(Rmin)| 33.90| 0.01| -0.07| -0.554| 0.029| -0.00| -0.35|

| 9(TEst)| 34.70| 0.10| -0.01| -0.024| -0.368| 0.29| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 35.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 94.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 38.3 | TensEst = 55.8 | |

| Área de forma: 2.30 | Fmx= 19.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 17.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.1 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B19

BLOCO: 19 - B19 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 2(Dim )| 26.39| 0.00| -0.03| -0.359| 0.008| 0.00| -0.21|

| 16(Rmin)| 24.93| 0.01| 0.06| 0.584| -0.016| 0.02| 0.35|

| 9(TEst)| 25.49| 0.10| 0.01| 0.030| -0.383| 0.29| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 26.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 70.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 28.8 | TensEst = 42.0 | |

| Área de forma: 2.30 | Fmx= 14.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 2 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B2

BLOCO: 2 - B2 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 16.56| -0.01| -0.06| -0.736| -0.010| -0.01| -0.43|

| 7(Rmin)| 14.24| -0.01| 0.13| 0.604| -0.040| 0.01| 0.43|

| 9(TEst)| 15.91| 0.08| 0.02| -0.169| -0.347| 0.25| -0.06|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 47.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.8 | TensEst = 28.9 | |

| Área de forma: 2.30 | Fmx= 9.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B20

BLOCO: 20 - B20 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 7(Dim )| 35.54| 0.02| 0.07| 0.577| 0.002| 0.02| 0.35|

| 15(Rmin)| 32.31| 0.01| -0.09| -0.570| 0.035| -0.00| -0.37|

| 9(TEst)| 34.42| 0.11| -0.00| 0.057| -0.366| 0.29| 0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 35.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 95.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 38.5 | TensEst = 56.2 | |

| Área de forma: 2.30 | Fmx= 19.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.1 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B21

BLOCO: 21 - B21 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 29.79| -0.01| 0.03| 0.984| 0.000| -0.01| 0.52|

| 6(Rmin)| 23.65| -0.01| -0.12| -0.759| 0.028| -0.02| -0.49|

| 17(TEst)| 25.92| -0.12| -0.04| 0.012| 0.521| -0.38| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.8 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= -0.0 | TensPil = 62.0 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 33.5 | TensEst = 46.0 | |

| Área de forma: 2.30 | Fmx= 16.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 11.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B22

BLOCO: 22 - B22 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 26.69| -0.12| -0.05| 0.024| 0.522| -0.38| -0.04|

| 18(Rmin)| 21.50| 0.12| -0.02| 0.156| -0.459| 0.35| 0.05|

| 17(TEst)| 26.63| -0.12| -0.05| 0.025| 0.522| -0.38| -0.04|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 26.7 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= -0.4 | TensPil = 52.2 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 28.4 | TensEst = 39.1 | |

| Área de forma: 2.30 | Fmx= 14.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 11.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.5 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B23

BLOCO: 23 - B23 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 33.84| -0.02| 0.06| 0.202| -0.079| 0.02| 0.16|

| 18(Rmin)| 31.78| -0.04| -0.02| -0.486| -0.001| -0.04| -0.26|

| 6(TEst)| 31.58| -0.16| 0.03| -0.037| 0.425| -0.38| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 88.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 36.1 | TensEst = 52.6 | |

| Área de forma: 2.30 | Fmx= 18.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.8 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B24

BLOCO: 24 - B24 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 13(Dim )| 28.83| -0.01| 0.05| 0.210| -0.005| -0.01| 0.16|

| 9(Rmin)| 27.18| -0.03| -0.03| -0.476| 0.052| -0.05| -0.27|

| 15(TEst)| 26.28| -0.14| 0.03| -0.031| 0.496| -0.39| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 28.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 75.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 31.0 | TensEst = 45.2 | |

| Área de forma: 2.30 | Fmx= 15.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.3 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B25

BLOCO: 25 - B25 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 12(Dim )| 21.40| 0.05| 0.01| -0.046| -0.270| 0.19| -0.01|

| 6(Rmin)| 18.36| -0.14| 0.02| -0.017| 0.497| -0.39| 0.01|

| 15(TEst)| 18.57| -0.14| 0.02| -0.016| 0.497| -0.39| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 21.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.2 | TensPil = 55.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 23.0 | TensEst = 33.5 | |

| Área de forma: 2.30 | Fmx= 11.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B26

BLOCO: 26 - B26 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 12(Dim )| 30.87| 0.06| 0.03| -0.065| -0.278| 0.20| -0.01|

| 9(Rmin)| 28.75| -0.01| -0.02| -0.487| -0.026| 0.01| -0.27|

| 15(TEst)| 27.78| -0.14| 0.03| -0.034| 0.507| -0.40| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.2 | TensPil = 79.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.5 | TensEst = 47.3 | |

| Área de forma: 2.30 | Fmx= 16.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.4 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B27

BLOCO: 27 - B27 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 12(Dim )| 22.75| 0.06| 0.01| -0.047| -0.299| 0.21| -0.01|

| 6(Rmin)| 19.87| -0.15| 0.02| -0.020| 0.554| -0.43| 0.01|

| 15(TEst)| 19.96| -0.15| 0.02| -0.019| 0.554| -0.43| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 22.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.2 | TensPil = 58.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.4 | TensEst = 35.5 | |

| Área de forma: 2.30 | Fmx= 12.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B28

BLOCO: 28 - B28 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 36.23| -0.06| 0.05| -0.029| 0.857| -0.70| 0.03|

| 7(Rmin)| 35.42| 0.04| 0.04| -0.053| -0.853| 0.68| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 36.2 | TensLimP= 281.2 | dmin = 31.8 |

| DisX= 76.1 | MX= -0.7 | TensPil = 49.1 | dmax = 45.3 |

| Xbl = 180.0 Ybl = 155.9 | MY= 0.0 | | d = 54.0 |

| Alt = 75.0 Vol = 1.447 |-------------| TensLimE= 281.2 | Angulo = 60.0 |

| Xpil= 45.0 Ypil= 40.0 | FEq= 43.0 | TensEst = 45.5 | |

| Área de forma: 4.05 | Fmx= 14.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 3.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 3 {10.0 C/ 15.0(c) Susp.X: 2.3 = 8 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.3 = 12 { 5.0 C/ 15.0(d) Laterl: 0.9 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 54.00 cm maior do que a alt. máxima 45.26 cm.|

| AVISO: Ângulo da biela de compressão ( 60.0 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B29

BLOCO: 29 - B29 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 32.65| 0.07| -0.03| 0.063| -0.388| 0.27| -0.00|

| 15(Rmin)| 28.52| -0.20| -0.03| 0.088| 0.670| -0.53| 0.01|

| 6(TEst)| 28.62| -0.20| -0.03| 0.087| 0.670| -0.53| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 32.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.3 | TensPil = 84.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 34.2 | TensEst = 49.9 | |

| Área de forma: 2.30 | Fmx= 17.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.6 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B3

BLOCO: 3 - B3 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 21.51| 0.00| -0.08| -0.669| 0.015| -0.01| -0.41|

| 7(Rmin)| 18.53| 0.01| 0.09| 0.660| -0.015| 0.01| 0.42|

| 9(TEst)| 20.66| 0.08| -0.01| -0.088| -0.335| 0.25| -0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 21.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 59.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.7 | TensEst = 36.1 | |

| Área de forma: 2.30 | Fmx= 12.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B30

BLOCO: 30 - B30 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 27.67| -0.02| -0.08| -0.698| -0.021| -0.00| -0.43|

| 16(Rmin)| 26.81| -0.01| 0.06| 0.712| -0.048| 0.02| 0.42|

| 9(TEst)| 27.71| 0.09| -0.02| -0.102| -0.413| 0.30| -0.07|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 27.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 75.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 31.0 | TensEst = 45.2 | |

| Área de forma: 2.30 | Fmx= 15.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.3 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B31

BLOCO: 31 - B31 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 24.73| 0.00| 0.04| 0.419| -0.015| 0.01| 0.25|

| 15(Rmin)| 23.12| -0.00| -0.06| -0.693| 0.002| -0.00| -0.41|

| 18(TEst)| 23.95| 0.10| -0.01| -0.087| -0.405| 0.30| -0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 24.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 66.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 27.3 | TensEst = 39.8 | |

| Área de forma: 2.30 | Fmx= 13.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 11.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B32

BLOCO: 32 - B32 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 33.61| 0.04| 0.06| 0.218| 0.019| 0.03| 0.17|

| 18(Rmin)| 31.76| 0.02| -0.03| -0.507| 0.100| -0.03| -0.28|

| 16(TEst)| 31.33| 0.17| 0.02| -0.065| -0.428| 0.38| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 88.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 35.9 | TensEst = 52.3 | |

| Área de forma: 2.30 | Fmx= 17.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.8 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B33

BLOCO: 33 - B33 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 30.08| 0.01| -0.07| -0.561| 0.029| -0.00| -0.35|

| 16(Rmin)| 26.82| 0.02| 0.09| 0.571| 0.003| 0.02| 0.37|

| 18(TEst)| 28.71| 0.11| 0.00| -0.042| -0.384| 0.30| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 81.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 33.1 | TensEst = 48.2 | |

| Área de forma: 2.30 | Fmx= 16.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B34

BLOCO: 34 - B34 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 14(Dim )| 26.34| 0.01| -0.01| -0.324| -0.001| 0.01| -0.17|

| 8(Rmin)| 24.59| 0.03| 0.08| 0.409| -0.052| 0.06| 0.28|

| 7(TEst)| 23.86| 0.14| 0.02| -0.064| -0.501| 0.39| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 26.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 69.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 28.6 | TensEst = 41.7 | |

| Área de forma: 2.30 | Fmx= 14.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 2 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B35

BLOCO: 35 - B35 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 43.06| 0.01| -0.01| 0.327| -0.003| 0.01| 0.16|

| 18(Rmin)| 39.98| -0.00| -0.11| -0.376| 0.043| -0.02| -0.30|

| 15(TEst)| 40.94| -0.11| -0.04| 0.076| 0.508| -0.37| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 43.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 112.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 45.3 | TensEst = 66.0 | |

| Área de forma: 2.30 | Fmx= 22.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 20.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.8 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.0 = 2 { 8.0 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Comprimento da dobra do ferro principal 1 ( 31.9) maior do que a |

| altura limite do bloco ( 28.0). Comprimento da dobra adotada= 28.0. |

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B36

BLOCO: 36 - B36 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 32.93| -0.00| 0.05| 0.329| -0.029| 0.01| 0.21|

| 15(Rmin)| 30.86| -0.01| -0.05| -0.631| -0.021| 0.00| -0.37|

| 9(TEst)| 32.17| 0.10| 0.01| 0.015| -0.436| 0.31| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 32.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 87.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 35.4 | TensEst = 51.5 | |

| Área de forma: 2.30 | Fmx= 17.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.7 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B37

BLOCO: 37 - B37 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 13(Dim )| 27.68| 0.01| 0.05| 0.237| -0.005| 0.02| 0.17|

| 9(Rmin)| 25.69| 0.03| -0.03| -0.517| -0.065| 0.06| -0.29|

| 7(TEst)| 25.02| 0.14| 0.02| -0.048| -0.517| 0.40| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 27.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 73.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 29.9 | TensEst = 43.6 | |

| Área de forma: 2.30 | Fmx= 15.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.2 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B38

BLOCO: 38 - B38 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 34.85| 0.01| -0.07| -0.556| 0.016| 0.01| -0.35|

| 16(Rmin)| 31.66| 0.02| 0.08| 0.589| 0.010| 0.01| 0.38|

| 9(TEst)| 33.52| 0.11| 0.01| 0.071| -0.403| 0.31| 0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 34.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 93.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 37.8 | TensEst = 55.1 | |

| Área de forma: 2.30 | Fmx= 18.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.0 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B39

BLOCO: 39 - B39 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 11(Dim )| 22.62| -0.06| 0.02| -0.035| 0.302| -0.21| -0.00|

| 7(Rmin)| 19.78| 0.15| 0.01| -0.042| -0.553| 0.43| -0.01|

| 7(TEst)| 19.78| 0.15| 0.01| -0.042| -0.553| 0.43| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 22.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.2 | TensPil = 58.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.2 | TensEst = 35.3 | |

| Área de forma: 2.30 | Fmx= 12.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B4

BLOCO: 4 - B4 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 28.99| 0.04| 0.04| 0.193| 0.031| 0.02| 0.14|

| 18(Rmin)| 28.12| 0.02| -0.03| -0.408| 0.110| -0.04| -0.23|

| 16(TEst)| 27.26| 0.16| 0.02| -0.050| -0.416| 0.37| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.0 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= 0.0 | TensPil = 57.5 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.1 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 31.1 | TensEst = 42.8 | |

| Área de forma: 2.30 | Fmx= 15.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B40

BLOCO: 40 - B40 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 35.46| -0.04| 0.04| -0.038| 0.877| -0.70| 0.01|

| 7(Rmin)| 36.00| 0.05| 0.05| -0.049| -0.833| 0.68| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 35.5 | TensLimP= 281.2 | dmin = 31.8 |

| DisX= 76.1 | MX= -0.7 | TensPil = 48.1 | dmax = 45.3 |

| Xbl = 180.0 Ybl = 155.9 | MY= 0.0 | | d = 54.0 |

| Alt = 75.0 Vol = 1.447 |-------------| TensLimE= 281.2 | Angulo = 60.0 |

| Xpil= 45.0 Ypil= 40.0 | FEq= 42.3 | TensEst = 44.7 | |

| Área de forma: 4.05 | Fmx= 14.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 3.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 3 {10.0 C/ 15.0(c) Susp.X: 2.3 = 8 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.3 = 12 { 5.0 C/ 15.0(d) Laterl: 0.9 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 54.00 cm maior do que a alt. máxima 45.26 cm.|

| AVISO: Ângulo da biela de compressão ( 60.0 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B41

BLOCO: 41 - B41 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 5(Dim )| 33.11| 0.03| -0.08| -0.250| 0.046| 0.01| -0.20|

| 17(Rmin)| 31.61| 0.02| 0.04| 0.611| 0.096| -0.03| 0.35|

| 15(TEst)| 33.06| -0.14| -0.04| 0.073| 0.667| -0.48| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 87.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 35.5 | TensEst = 51.8 | |

| Área de forma: 2.30 | Fmx= 17.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.8 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B42

BLOCO: 42 - B42 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 25.36| -0.01| -0.09| -0.788| 0.006| -0.01| -0.48|

| 16(Rmin)| 20.95| -0.01| 0.11| 0.733| 0.007| -0.01| 0.48|

| 17(TEst)| 23.57| -0.13| 0.01| -0.076| 0.487| -0.37| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 25.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 70.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 28.9 | TensEst = 42.1 | |

| Área de forma: 2.30 | Fmx= 14.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 2 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B43

BLOCO: 43 - B43 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 16.28| 0.01| 0.05| 0.952| 0.038| -0.01| 0.53|

| 6(Rmin)| 16.07| 0.01| -0.06| -0.872| 0.039| -0.01| -0.49|

| 17(TEst)| 17.06| -0.12| -0.01| -0.031| 0.507| -0.37| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.3 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= -0.0 | TensPil = 35.8 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 20.0 | TensEst = 27.5 | |

| Área de forma: 2.30 | Fmx= 10.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.8 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B44

BLOCO: 44 - B44 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 15.37| -0.01| 0.08| 0.695| -0.058| 0.02| 0.42|

| 6(Rmin)| 12.41| -0.02| -0.11| -0.658| -0.036| -0.01| -0.44|

| 18(TEst)| 14.41| 0.09| -0.03| -0.086| -0.438| 0.31| -0.07|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 15.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 43.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 18.6 | TensEst = 27.2 | |

| Área de forma: 2.30 | Fmx= 9.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B45

BLOCO: 45 - B45 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 13.11| 0.01| 0.07| 0.928| 0.070| -0.02| 0.54|

| 6(Rmin)| 8.93| 0.03| -0.10| -0.817| 0.048| 0.00| -0.51|

| 17(TEst)| 11.71| -0.12| -0.02| -0.013| 0.538| -0.39| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 13.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 39.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 16.8 | TensEst = 24.5 | |

| Área de forma: 2.30 | Fmx= 8.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 4.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.8 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B46

BLOCO: 46 - B46 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 17.92| 0.00| 0.06| 0.711| -0.018| 0.01| 0.42|

| 6(Rmin)| 13.86| -0.00| -0.11| -0.618| -0.011| 0.00| -0.42|

| 18(TEst)| 17.14| 0.10| -0.03| -0.041| -0.429| 0.32| -0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 17.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 50.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 21.2 | TensEst = 30.9 | |

| Área de forma: 2.30 | Fmx= 10.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B47

BLOCO: 47 - B47 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 7(Dim )| 25.97| 0.02| 0.07| 0.598| 0.010| 0.01| 0.37|

| 15(Rmin)| 22.61| 0.01| -0.09| -0.533| 0.015| 0.01| -0.35|

| 18(TEst)| 23.53| 0.12| -0.02| -0.014| -0.401| 0.32| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 26.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 70.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 29.0 | TensEst = 42.3 | |

| Área de forma: 2.30 | Fmx= 14.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 11.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 2 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B48

BLOCO: 48 - B48 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 24.28| -0.01| 0.07| 0.608| -0.039| 0.01| 0.37|

| 6(Rmin)| 21.60| -0.01| -0.10| -0.445| -0.032| 0.00| -0.32|

| 18(TEst)| 22.96| 0.10| -0.02| 0.044| -0.444| 0.32| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 24.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 66.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 27.3 | TensEst = 39.9 | |

| Área de forma: 2.30 | Fmx= 13.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B49

BLOCO: 49 - B49 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 42.28| -0.00| 0.04| 0.338| -0.021| 0.01| 0.21|

| 15(Rmin)| 40.18| -0.01| -0.10| -0.508| -0.019| 0.00| -0.35|

| 18(TEst)| 40.41| 0.10| -0.02| -0.011| -0.427| 0.32| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 42.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 111.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 44.7 | TensEst = 65.1 | |

| Área de forma: 2.30 | Fmx= 22.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 20.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.7 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.9 = 2 { 8.0 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B5

BLOCO: 5 - B5 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 23.55| 0.01| -0.07| -0.596| 0.030| -0.01| -0.31|

| 7(Rmin)| 20.01| 0.01| 0.09| 0.535| -0.001| 0.01| 0.30|

| 9(TEst)| 21.28| 0.09| 0.00| -0.077| -0.318| 0.22| -0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 23.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 75.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 22.5 |

| Alt = 40.0 Vol = 0.504 |-------------| TensLimE= 225.0 | AnguloX= 56.3 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 26.0 | TensEst = 44.7 | |

| Área de forma: 1.84 | Fmx= 13.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.3 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.9 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 2 { 8.0 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Comprimento da dobra do ferro principal 1 ( 25.5) maior do que a |

| altura limite do bloco ( 18.0). Comprimento da dobra adotada= 18.0. |

| AVISO: Bloco com altura útil 22.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 56.3 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B50

BLOCO: 50 - B50 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 48.03| 0.03| 0.04| 0.335| 0.039| 0.01| 0.21|

| 15(Rmin)| 44.33| 0.03| -0.08| -0.582| 0.046| 0.00| -0.37|

| 18(TEst)| 46.08| 0.13| 0.00| 0.031| -0.365| 0.32| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 48.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 125.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 50.4 | TensEst = 73.5 | |

| Área de forma: 2.30 | Fmx= 25.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 22.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 5.3 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.1 = 3 { 8.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Comprimento da dobra do ferro principal 1 ( 31.9) maior do que a |

| altura limite do bloco ( 28.0). Comprimento da dobra adotada= 28.0. |

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B51

BLOCO: 51 - B51 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 22.52| -0.02| 0.07| 0.624| -0.054| 0.01| 0.38|

| 6(Rmin)| 19.83| -0.02| -0.10| -0.448| -0.046| 0.00| -0.33|

| 18(TEst)| 21.15| 0.09| -0.01| 0.132| -0.459| 0.32| 0.06|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 22.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 61.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 25.6 | TensEst = 37.3 | |

| Área de forma: 2.30 | Fmx= 12.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B52

BLOCO: 52 - B52 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 7(Dim )| 31.28| 0.02| 0.07| 0.612| 0.015| 0.01| 0.38|

| 15(Rmin)| 27.50| 0.02| -0.08| -0.533| 0.023| 0.00| -0.35|

| 18(TEst)| 29.64| 0.12| -0.00| 0.092| -0.391| 0.32| 0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 31.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 84.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 34.4 | TensEst = 50.1 | |

| Área de forma: 2.30 | Fmx= 17.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.6 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B53

BLOCO: 53 - B53 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 21.57| -0.01| 0.06| 0.682| -0.027| 0.01| 0.41|

| 6(Rmin)| 19.39| -0.01| -0.11| -0.506| -0.025| 0.00| -0.36|

| 18(TEst)| 20.76| 0.10| -0.01| 0.136| -0.437| 0.32| 0.06|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 21.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 59.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.8 | TensEst = 36.1 | |

| Área de forma: 2.30 | Fmx= 12.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B54

BLOCO: 54 - B54 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 29.97| 0.04| 0.06| -0.048| -0.847| 0.68| 0.02|

| 6(Rmin)| 25.03| -0.08| 0.03| -0.036| 0.814| -0.69| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 30.0 | TensLimP= 281.2 | dmin = 31.8 |

| DisX= 76.1 | MX= 0.7 | TensPil = 39.4 | dmax = 45.3 |

| Xbl = 180.0 Ybl = 155.9 | MY= 0.0 | | d = 54.0 |

| Alt = 75.0 Vol = 1.447 |-------------| TensLimE= 281.2 | Angulo = 60.0 |

| Xpil= 45.0 Ypil= 40.0 | FEq= 35.2 | TensEst = 37.2 | |

| Área de forma: 4.05 | Fmx= 11.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 3.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 3 {10.0 C/ 15.0(c) Susp.X: 2.3 = 8 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.3 = 12 { 5.0 C/ 15.0(d) Laterl: 0.9 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 54.00 cm maior do que a alt. máxima 45.26 cm.|

| AVISO: Ângulo da biela de compressão ( 60.0 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B55

BLOCO: 55 - B55 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 19.27| -0.01| 0.06| 0.813| 0.032| -0.02| 0.47|

| 6(Rmin)| 13.42| 0.01| -0.13| -0.712| 0.013| -0.00| -0.49|

| 17(TEst)| 18.10| -0.13| -0.04| -0.001| 0.531| -0.40| -0.04|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 19.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 54.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.5 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 22.7 | TensEst = 33.1 | |

| Área de forma: 2.30 | Fmx= 11.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B56

BLOCO: 56 - B56 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 29.69| -0.02| 0.08| 0.413| -0.111| 0.04| 0.29|

| 18(Rmin)| 27.85| -0.04| -0.03| -0.528| -0.013| -0.04| -0.29|

| 16(TEst)| 29.67| 0.10| 0.03| -0.062| -0.547| 0.37| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.7 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= 0.0 | TensPil = 60.0 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 32.4 | TensEst = 44.6 | |

| Área de forma: 2.30 | Fmx= 16.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B57

BLOCO: 57 - B57 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 30.49| -0.03| -0.11| -0.503| -0.080| 0.01| -0.36|

| 17(Rmin)| 28.69| -0.04| 0.04| 0.654| -0.019| -0.03| 0.37|

| 15(TEst)| 28.36| -0.20| -0.04| 0.063| 0.560| -0.48| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.5 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= 0.0 | TensPil = 62.1 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 33.5 | TensEst = 46.1 | |

| Área de forma: 2.30 | Fmx= 16.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B58

BLOCO: 58 - B58 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 9.86| 0.01| 0.05| 0.618| -0.035| 0.03| 0.36|

| 8(Rmin)| 1.55| -0.02| -0.08| -0.496| 0.041| -0.04| -0.33|

| 7(TEst)| 3.79| -0.13| -0.01| 0.063| 0.446| -0.35| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 9.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 29.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 12.9 | TensEst = 18.7 | |

| Área de forma: 2.30 | Fmx= 6.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 0.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B59

BLOCO: 59 - B59 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 25.23| 0.01| -0.06| -0.526| 0.070| -0.03| -0.32|

| 9(Rmin)| 17.61| 0.02| 0.07| 0.578| 0.034| -0.00| 0.36|

| 7(TEst)| 20.20| -0.11| 0.01| 0.031| 0.533| -0.38| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 25.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 68.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 28.1 | TensEst = 40.9 | |

| Área de forma: 2.30 | Fmx= 14.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.0 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B6

BLOCO: 6 - B6 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 27.75| -0.02| -0.07| -0.600| -0.019| -0.01| -0.37|

| 16(Rmin)| 25.28| -0.01| 0.10| 0.452| -0.049| 0.01| 0.33|

| 9(TEst)| 26.61| 0.07| 0.01| -0.117| -0.361| 0.25| -0.05|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 27.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 75.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 30.8 | TensEst = 44.9 | |

| Área de forma: 2.30 | Fmx= 15.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.3 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B60

BLOCO: 60 - B60 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 3.73| 0.03| -0.04| -0.391| 0.090| -0.01| -0.23|

| 7(Rmin)| 1.80| 0.05| 0.03| 0.262| 0.030| 0.03| 0.16|

| 18(TEst)| 2.49| 0.11| 0.00| -0.027| -0.221| 0.22| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 3.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 12.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 6.2 | TensEst = 9.1 | |

| Área de forma: 2.30 | Fmx= 3.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 1.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.1 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B61

BLOCO: 61 - B61 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 3.03| -0.00| -0.04| -0.482| 0.031| -0.02| -0.28|

| 7(Rmin)| 2.20| 0.01| 0.04| 0.412| -0.031| 0.03| 0.24|

| 18(TEst)| 2.91| 0.08| -0.00| -0.038| -0.286| 0.22| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 3.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 10.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 5.7 | TensEst = 8.3 | |

| Área de forma: 2.30 | Fmx= 2.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 1.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.1 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B62

BLOCO: 62 - B62 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 9.87| -0.01| -0.04| -0.410| 0.005| -0.02| -0.24|

| 7(Rmin)| 7.63| -0.00| 0.03| 0.362| -0.060| 0.03| 0.22|

| 18(TEst)| 8.72| 0.06| -0.00| -0.000| -0.320| 0.22| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 9.9 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 27.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 12.4 | TensEst = 18.1 | |

| Área de forma: 2.30 | Fmx= 6.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 4.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B63

BLOCO: 63 - B63 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 9.58| 0.01| 0.05| 0.650| -0.029| 0.03| 0.38|

| 8(Rmin)| 1.59| -0.01| -0.08| -0.513| 0.058| -0.04| -0.34|

| 7(TEst)| 7.39| -0.12| -0.01| 0.091| 0.457| -0.35| 0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 9.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 28.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 12.7 | TensEst = 18.5 | |

| Área de forma: 2.30 | Fmx= 6.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 0.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B64

BLOCO: 64 - B64 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 30.46| -0.03| -0.07| -0.537| 0.005| -0.03| -0.33|

| 18(Rmin)| 22.21| -0.01| 0.07| 0.625| -0.018| -0.00| 0.38|

| 7(TEst)| 27.43| -0.14| 0.00| 0.065| 0.475| -0.38| 0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 81.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 33.4 | TensEst = 48.7 | |

| Área de forma: 2.30 | Fmx= 16.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 11.1 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B65

BLOCO: 65 - B65 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 18.62| 0.01| -0.06| -0.623| 0.062| -0.02| -0.37|

| 8(Rmin)| 14.48| 0.03| 0.10| 0.531| 0.035| 0.01| 0.37|

| 6(TEst)| 17.31| -0.10| 0.02| -0.033| 0.412| -0.31| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 18.6 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 51.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 21.7 | TensEst = 31.6 | |

| Área de forma: 2.30 | Fmx= 10.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B66

BLOCO: 66 - B66 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 33.13| 0.01| 0.07| 0.569| 0.014| 0.01| 0.36|

| 18(Rmin)| 30.93| -0.00| -0.06| -0.624| 0.059| -0.03| -0.37|

| 6(TEst)| 32.97| -0.11| 0.01| -0.017| 0.401| -0.31| 0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.1 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= 0.0 | TensPil = 67.2 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 36.1 | TensEst = 49.7 | |

| Área de forma: 2.30 | Fmx= 18.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.2 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B67

BLOCO: 67 - B67 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 14.04| 0.02| -0.07| -0.521| 0.045| -0.00| -0.33|

| 7(Rmin)| 7.75| 0.03| 0.08| 0.583| 0.016| 0.02| 0.37|

| 9(TEst)| 11.10| 0.16| 0.00| 0.008| -0.474| 0.40| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 14.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 39.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 16.9 | TensEst = 24.7 | |

| Área de forma: 2.30 | Fmx= 8.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 3.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.8 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B68

BLOCO: 68 - B68 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 44.96| -0.03| -0.08| -0.489| -0.060| -0.00| -0.32|

| 16(Rmin)| 39.69| -0.03| 0.05| 0.693| -0.084| 0.01| 0.39|

| 9(TEst)| 41.49| 0.11| -0.01| 0.044| -0.571| 0.39| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 45.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 119.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 47.8 | TensEst = 69.7 | |

| Área de forma: 2.30 | Fmx= 23.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 19.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 5.1 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.0 = 2 { 8.0 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Comprimento da dobra do ferro principal 1 ( 31.9) maior do que a |

| altura limite do bloco ( 28.0). Comprimento da dobra adotada= 28.0. |

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B69

BLOCO: 69 - B69 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 11(Dim )| 56.83| 0.06| -0.04| -0.419| 0.107| 0.00| -0.25|

| 16(Rmin)| 52.72| 0.06| 0.08| 0.523| 0.088| 0.02| 0.34|

| 9(TEst)| 54.17| 0.19| 0.01| -0.026| -0.406| 0.39| -0.00|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 56.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 149.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 59.4 | TensEst = 86.6 | |

| Área de forma: 2.30 | Fmx= 29.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 26.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 6.3 = 6 {12.5 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.3 = 3 { 8.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Comprimento da dobra do ferro principal 1 ( 31.9) maior do que a |

| altura limite do bloco ( 28.0). Comprimento da dobra adotada= 28.0. |

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B7

BLOCO: 7 - B7 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 30.26| 0.01| -0.07| -0.557| 0.037| -0.01| -0.35|

| 16(Rmin)| 27.03| 0.02| 0.09| 0.515| 0.011| 0.01| 0.35|

| 9(TEst)| 28.90| 0.10| 0.01| -0.051| -0.305| 0.25| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 81.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 33.2 | TensEst = 48.4 | |

| Área de forma: 2.30 | Fmx= 16.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B70

BLOCO: 70 - B70 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 37.06| -0.04| -0.04| -0.568| -0.072| -0.00| -0.32|

| 7(Rmin)| 32.97| -0.03| 0.09| 0.445| -0.075| 0.01| 0.32|

| 9(TEst)| 35.45| 0.10| 0.04| -0.050| -0.583| 0.39| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 37.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 98.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 39.9 | TensEst = 58.2 | |

| Área de forma: 2.30 | Fmx= 20.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.2 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B71

BLOCO: 71 - B71 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 29.25| -0.02| -0.29| 0.335| 0.522| -0.41| -0.04|

| 7(Rmin)| 25.89| 0.05| -0.22| 0.235| -0.405| 0.35| -0.04|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 29.3 | TensLimP= 281.2 | dmin = 38.5 |

| DisX= 87.6 | MX= -0.4 | TensPil = 43.0 | dmax = 54.8 |

| Xbl = 180.0 Ybl = 155.9 | MY= -0.0 | | d = 54.0 |

| Alt = 75.0 Vol = 1.447 |-------------| TensLimE= 281.2 | Angulo = 55.0 |

| Xpil= 45.0 Ypil= 40.0 | FEq= 34.5 | TensEst = 40.8 | |

| Área de forma: 4.05 | Fmx= 11.5 | | |

| Altb= 15.0 DisF= 40.0 | Fmn= 9.4 | | |

| | | | |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 3.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.3 = 3 {10.0 C/ 15.0(c) Susp.X: 2.3 = 8 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.3 = 12 { 5.0 C/ 15.0(d) Laterl: 0.9 = 3 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B72

BLOCO: 72 - B72 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 7(Dim )| 16.41| 0.07| -0.01| -0.013| -0.318| 0.23| -0.01|

| 15(Rmin)| 14.08| -0.08| 0.00| 0.012| 0.354| -0.26| 0.01|

| 15(TEst)| 14.08| -0.08| 0.00| 0.012| 0.354| -0.26| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.2 | TensPil = 42.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.0 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 18.0 | TensEst = 26.3 | |

| Área de forma: 2.30 | Fmx= 9.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B73

BLOCO: 73 - B73 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 13.66| -0.00| 0.02| 0.409| 0.107| -0.06| 0.23|

| 18(Rmin)| 13.23| 0.01| -0.06| -0.356| 0.045| -0.01| -0.24|

| 6(TEst)| 12.85| -0.06| -0.02| 0.043| 0.366| -0.25| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 13.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.1 | TensPil = 37.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 16.2 | TensEst = 23.5 | |

| Área de forma: 2.30 | Fmx= 8.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.7 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B74

BLOCO: 74 - B74 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 14.53| -0.12| 0.07| 0.605| -0.252| 0.01| 0.37|

| 9(Rmin)| 13.50| -0.12| -0.11| -0.542| -0.354| 0.06| -0.38|

| 16(TEst)| 14.48| 0.00| -0.02| 0.038| -0.678| 0.34| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 14.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 41.2 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 17.6 | TensEst = 25.6 | |

| Área de forma: 2.30 | Fmx= 8.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 6.8 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.9 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B75

BLOCO: 75 - B75 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 7(Dim )| 33.05| -0.03| 0.05| 0.621| -0.037| -0.01| 0.36|

| 15(Rmin)| 28.10| -0.03| -0.06| -0.532| -0.017| -0.02| -0.33|

| 17(TEst)| 28.47| -0.17| 0.00| 0.057| 0.573| -0.46| 0.03|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 33.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 88.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 36.1 | TensEst = 52.6 | |

| Área de forma: 2.30 | Fmx= 18.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.8 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B76

BLOCO: 76 - B76 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 25.68| 0.04| 0.07| 0.669| 0.109| -0.01| 0.40|

| 6(Rmin)| 20.96| 0.04| -0.06| -0.515| 0.120| -0.02| -0.32|

| 17(TEst)| 25.73| -0.09| 0.00| 0.126| 0.731| -0.46| 0.06|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 25.7 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 70.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 28.9 | TensEst = 42.1 | |

| Área de forma: 2.30 | Fmx= 14.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 10.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.6 = 2 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B77

BLOCO: 77 - B77 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 30.33| -0.01| -0.07| -0.672| 0.009| -0.02| -0.40|

| 17(Rmin)| 26.46| -0.01| 0.10| 0.553| -0.023| 0.01| 0.38|

| 6(TEst)| 28.25| -0.12| 0.02| -0.052| 0.372| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 82.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 33.5 | TensEst = 48.9 | |

| Área de forma: 2.30 | Fmx= 16.8 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B78

BLOCO: 78 - B78 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 40.99| 0.00| 0.04| 0.357| 0.009| -0.00| 0.22|

| 18(Rmin)| 36.92| -0.01| -0.10| -0.627| 0.044| -0.03| -0.41|

| 6(TEst)| 38.26| -0.11| -0.01| -0.003| 0.401| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 41.0 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 107.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 43.4 | TensEst = 63.3 | |

| Área de forma: 2.30 | Fmx= 21.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 18.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.6 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.9 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B79

BLOCO: 79 - B79 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 12(Dim )| 68.86| -0.02| -0.24| 0.212| -0.263| 0.18| -0.08|

| 9(Rmin)| 65.70| -0.03| -0.28| -0.324| 0.021| -0.05| -0.53|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 68.9 | TensLimP= 281.2 | dmin = 37.1 |

| DisX= 87.6 | MX= 0.2 | TensPil = 75.4 | dmax = 52.7 |

| Xbl = 180.0 Ybl = 155.9 | MY= -0.1 | | d = 54.0 |

| Alt = 75.0 Vol = 1.447 |-------------| TensLimE= 281.2 | Angulo = 56.0 |

| Xpil= 45.0 Ypil= 50.0 | FEq= 73.1 | TensEst = 84.2 | |

| Área de forma: 4.05 | Fmx= 24.4 | | |

| Altb= 15.0 DisF= 40.0 | Fmn= 22.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 3.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.7 = 5 {10.0 C/ 7.5(c) Susp.X: 2.3 = 8 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.3 = 12 { 5.0 C/ 15.0(d) Laterl: 1.4 = 5 { 6.3 C/ 12.5(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 54.00 cm maior do que a alt. máxima 52.72 cm.|

| AVISO: Ângulo da biela de compressão ( 56.0 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B8

BLOCO: 8 - B8 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 21.31| -0.01| -0.06| -0.616| -0.006| -0.01| -0.37|

| 7(Rmin)| 18.90| -0.00| 0.11| 0.439| -0.035| 0.01| 0.32|

| 9(TEst)| 20.07| 0.08| 0.02| -0.082| -0.351| 0.25| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 21.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 58.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 24.4 | TensEst = 35.5 | |

| Área de forma: 2.30 | Fmx= 12.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.6 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B80

BLOCO: 80 - B80 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 12(Dim )| 42.09| -0.01| 0.09| 0.221| -0.052| 0.01| 0.20|

| 6(Rmin)| 39.18| -0.02| -0.00| -0.750| -0.044| 0.00| -0.38|

| 18(TEst)| 40.12| 0.11| 0.06| -0.096| -0.541| 0.38| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 42.1 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= 0.0 | TensPil = 83.4 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 68.4 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 44.5 | TensEst = 61.2 | |

| Área de forma: 2.30 | Fmx= 22.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 19.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.9 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 68.4 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B81

BLOCO: 81 - B81 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 3(Dim )| 71.18| 0.03| 0.00| -0.030| -0.306| 0.26| -0.02|

| 15(Rmin)| 66.01| -0.07| 0.00| -0.021| 0.513| -0.45| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 71.2 | TensLimP= 281.2 | dmin = 43.9 |

| DisX= 90.7 | MX= 0.3 | TensPil = 198.3 | dmax = 62.5 |

| Xbl = 160.0 Ybl = 138.6 | MY= -0.0 | | d = 54.0 |

| Alt = 75.0 Vol = 1.143 |-------------| TensLimE= 281.2 | Angulo = 51.2 |

| Xpil= 20.0 Ypil= 50.0 | FEq= 74.6 | TensEst = 97.2 | |

| Área de forma: 3.60 | Fmx= 24.9 | | |

| Altb= 15.0 DisF= 30.0 | Fmn= 22.7 | | |

| | | | |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.9 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.5 = 6 {10.0 C/ 6.0(c) Susp.X: 2.2 = 9 { 6.3 C/ 15.0(d)|

| Susp.Y: 2.2 = 8 { 6.3 C/ 20.0(d) Laterl: 1.7 = 4 { 8.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Distância entre a face do bloco e o eixo da estaca (Distf = 30.00 cm)|

| menor do que a recomendada (Distf recomendada: 40.00 cm). |

.------------------------------------------------------------------------------.

## B82

BLOCO: 82 - B82 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 11(Dim )| 26.20| 0.03| 0.01| -0.311| 0.123| -0.05| -0.19|

| 6(Rmin)| 25.69| 0.04| -0.00| -0.441| 0.135| -0.05| -0.29|

| 17(TEst)| 25.79| -0.05| 0.03| -0.150| 0.569| -0.42| -0.07|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 26.2 | TensLimP= 225.0 | dmin = 23.8 |

| DisX= 80.0 | MX= -0.0 | TensPil = 44.1 | dmax = 33.7 |

| Xbl = 180.0 Ybl = 100.0 | MY= -0.2 | | d = 45.0 |

| Alt = 65.0 Vol = 1.170 |-------------| TensLimE= 225.0 | AnguloX= 62.2 |

| Xpil= 65.0 Ypil= 20.0 | FEq= 29.6 | TensEst = 45.0 | |

| Área de forma: 3.64 | Fmx= 14.8 | | |

| Altb= 15.0 DisF= 50.0 | Fmn= 13.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.9 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.7 = 9 { 6.3 C/ 20.0(d)|

| P.Estr: 1.5 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 4 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 45.00 cm maior do que a alt. máxima 33.73 cm.|

| AVISO: Ângulo da biela de compressão ( 62.2 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B83

BLOCO: 83 - B83 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 14(Dim )| 30.22| -0.01| -0.03| -0.443| 0.002| -0.01| -0.25|

| 8(Rmin)| 28.77| 0.00| 0.10| 0.547| -0.035| 0.02| 0.38|

| 7(TEst)| 29.23| 0.11| 0.03| -0.085| -0.454| 0.34| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 30.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 80.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.8 | TensEst = 47.8 | |

| Área de forma: 2.30 | Fmx= 16.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 14.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B84

BLOCO: 84 - B84 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 46.76| 0.01| 0.04| 0.349| -0.011| 0.02| 0.21|

| 18(Rmin)| 43.96| 0.01| -0.09| -0.635| 0.009| 0.00| -0.41|

| 16(TEst)| 43.55| 0.13| -0.01| -0.020| -0.465| 0.37| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 46.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 122.7 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 49.2 | TensEst = 71.7 | |

| Área de forma: 2.30 | Fmx= 24.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 21.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 5.2 = 5 {12.5 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 1.0 = 3 { 8.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Comprimento da dobra do ferro principal 1 ( 31.9) maior do que a |

| altura limite do bloco ( 28.0). Comprimento da dobra adotada= 28.0. |

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B85

BLOCO: 85 - B85 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 18(Dim )| 28.24| 0.00| -0.07| -0.687| 0.041| -0.02| -0.42|

| 8(Rmin)| 24.44| 0.01| 0.10| 0.579| 0.008| 0.01| 0.39|

| 6(TEst)| 26.21| -0.11| 0.01| -0.051| 0.401| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 28.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 77.0 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 31.5 | TensEst = 45.9 | |

| Área de forma: 2.30 | Fmx= 15.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.3 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B86

BLOCO: 86 - B86 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 13(Dim )| 35.37| 0.00| 0.04| 0.371| 0.010| -0.00| 0.22|

| 9(Rmin)| 31.49| -0.01| -0.10| -0.641| 0.042| -0.03| -0.42|

| 6(TEst)| 33.07| -0.11| -0.01| -0.003| 0.397| -0.31| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 35.4 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 93.4 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 37.8 | TensEst = 55.2 | |

| Área de forma: 2.30 | Fmx= 18.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.7 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.0 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B87

BLOCO: 87 - B87 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 29.26| -0.01| -0.05| -0.773| 0.038| -0.02| -0.43|

| 17(Rmin)| 26.60| 0.01| 0.12| 0.505| -0.019| 0.02| 0.37|

| 15(TEst)| 28.57| -0.11| 0.04| -0.117| 0.455| -0.34| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 29.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 79.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 32.6 | TensEst = 47.5 | |

| Área de forma: 2.30 | Fmx= 16.3 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 13.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.4 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B88

BLOCO: 88 - B88 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 36.77| 0.00| 0.12| 0.509| -0.030| 0.02| 0.45|

| 9(Rmin)| 35.34| 0.00| -0.01| -0.814| -0.000| 0.00| -0.54|

| 16(TEst)| 37.76| 0.12| 0.06| -0.175| -0.477| 0.43| -0.06|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 36.8 | TensLimP= 225.0 | dmin = 17.5 |

| DisX= 60.0 | MX= 0.0 | TensPil = 74.0 | dmax = 24.8 |

| Xbl = 150.0 Ybl = 90.0 | MY= 0.4 | | d = 45.0 |

| Alt = 65.0 Vol = 0.877 |-------------| TensLimE= 225.0 | AnguloX= 68.7 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 40.5 | TensEst = 55.3 | |

| Área de forma: 3.12 | Fmx= 20.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 17.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.2 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.5 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.2 = 8 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 4 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 45.00 cm maior do que a alt. máxima 24.85 cm.|

| AVISO: Ângulo da biela de compressão ( 68.7 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B89

BLOCO: 89 - B89 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 6(Dim )| 36.07| 0.11| -0.07| -0.468| 0.140| 0.04| -0.30|

| 16(Rmin)| 32.60| 0.12| 0.05| 0.525| 0.131| 0.05| 0.31|

| 9(TEst)| 33.97| 0.26| -0.01| 0.057| -0.428| 0.47| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 36.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 96.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 38.9 | TensEst = 56.7 | |

| Área de forma: 2.30 | Fmx= 19.4 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 16.5 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.1 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B9

BLOCO: 9 - B9 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 20.08| 0.00| -0.06| -0.608| 0.017| -0.01| -0.37|

| 7(Rmin)| 17.08| 0.01| 0.09| 0.538| -0.013| 0.01| 0.36|

| 9(TEst)| 18.47| 0.09| 0.02| 0.007| -0.328| 0.25| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 20.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 55.5 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 23.1 | TensEst = 33.7 | |

| Área de forma: 2.30 | Fmx= 11.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.6 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.5 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B90

BLOCO: 90 - B90 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 2(Dim )| 51.40| -0.01| -0.04| -0.216| -0.007| -0.01| -0.22|

| 16(Rmin)| 47.99| -0.01| 0.13| 0.318| -0.004| -0.01| 0.40|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 51.4 | TensLimP= 281.2 | dmin = 54.2 |

| DisX= 107.6 | MX= -0.0 | TensPil = 188.4 | dmax = 77.1 |

| Xbl = 200.0 Ybl = 173.2 | MY= -0.2 | | d = 63.0 |

| Alt = 85.0 Vol = 2.024 |-------------| TensLimE= 281.2 | Angulo = 49.6 |

| Xpil= 20.0 Ypil= 40.0 | FEq= 57.1 | TensEst = 78.0 | |

| Área de forma: 5.10 | Fmx= 19.0 | | |

| Altb= 15.0 DisF= 40.0 | Fmn= 17.3 | | |

| | | | |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 5.1 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.6 = 3 {12.5 C/ 15.0(c) Susp.X: 2.6 = 9 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.6 = 10 { 6.3 C/ 20.0(d) Laterl: 1.4 = 5 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

## B91

BLOCO: 91 - B91 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 50.28| -0.02| -0.21| 0.588| -0.001| -0.02| 0.38|

| 18(Rmin)| 47.61| -0.02| -0.25| -0.339| 0.003| -0.02| -0.59|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 50.3 | TensLimP= 281.2 | dmin = 57.1 |

| DisX= 127.6 | MX= -0.0 | TensPil = 38.9 | dmax = 81.2 |

| Xbl = 220.0 Ybl = 190.5 | MY= 0.4 | | d = 76.5 |

| Alt = 100.0 Vol = 2.882 |-------------| TensLimE= 281.2 | Angulo = 53.7 |

| Xpil= 85.0 Ypil= 40.0 | FEq= 58.4 | TensEst = 71.2 | |

| Área de forma: 6.60 | Fmx= 19.5 | | |

| Altb= 15.0 DisF= 40.0 | Fmn= 17.8 | | |

| | | | |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 7.2 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.2 = 3 {12.5 C/ 15.0(c) Susp.X: 2.9 = 10 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.9 = 15 { 5.0 C/ 15.0(d) Laterl: 1.2 = 5 { 6.3 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

## B92

BLOCO: 92 - B92 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 8(Dim )| 16.47| 0.03| 0.06| 0.546| 0.033| 0.02| 0.33|

| 18(Rmin)| 16.18| 0.04| -0.02| -0.556| 0.018| 0.03| -0.30|

| 16(TEst)| 15.79| 0.11| 0.02| 0.000| -0.260| 0.24| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.5 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 45.9 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 19.4 | TensEst = 28.3 | |

| Área de forma: 2.30 | Fmx= 9.7 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 8.3 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.1 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B93

BLOCO: 93 - B93 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 11.06| -0.07| 0.02| 0.607| -0.018| -0.06| 0.33|

| 9(Rmin)| 10.44| -0.05| -0.08| -0.463| -0.082| -0.01| -0.31|

| 6(TEst)| 10.73| -0.13| -0.03| 0.076| 0.231| -0.25| 0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 11.1 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.1 | TensPil = 31.8 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 13.9 | TensEst = 20.3 | |

| Área de forma: 2.30 | Fmx= 7.0 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 5.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.5 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B94

BLOCO: 94 - B94 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 15(Dim )| 19.25| -0.00| -0.07| -0.495| 0.018| -0.01| -0.37|

| 7(Rmin)| 17.61| -0.00| 0.05| 0.514| -0.015| 0.01| 0.36|

| 8(TEst)| 17.97| -0.19| -0.00| 0.039| 0.242| -0.33| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 19.3 | TensLimP= 225.0 | dmin = 17.5 |

| DisX= 60.0 | MX= -0.0 | TensPil = 40.8 | dmax = 24.8 |

| Xbl = 150.0 Ybl = 90.0 | MY= -0.4 | | d = 40.5 |

| Alt = 60.0 Vol = 0.810 |-------------| TensLimE= 225.0 | AnguloX= 66.6 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 22.5 | TensEst = 31.7 | |

| Área de forma: 2.88 | Fmx= 11.2 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 9.2 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 2.0 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.2 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.2 = 8 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.4 = 3 { 5.0 C/ 20.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 40.50 cm maior do que a alt. máxima 24.85 cm.|

| AVISO: Ângulo da biela de compressão ( 66.6 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B95

BLOCO: 95 - B95 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 16(Dim )| 16.78| -0.00| 0.05| 0.517| 0.038| -0.02| 0.36|

| 6(Rmin)| 15.32| 0.00| -0.06| -0.483| 0.001| 0.00| -0.35|

| 8(TEst)| 15.50| -0.18| -0.01| -0.019| 0.361| -0.39| -0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 16.8 | TensLimP= 225.0 | dmin = 12.5 |

| DisX= 50.0 | MX= -0.0 | TensPil = 33.5 | dmax = 17.8 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.4 | | d = 40.5 |

| Alt = 60.0 Vol = 0.756 |-------------| TensLimE= 225.0 | AnguloX= 72.8 |

| Xpil= 50.0 Ypil= 20.0 | FEq= 20.1 | TensEst = 26.2 | |

| Área de forma: 2.76 | Fmx= 10.1 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 7.9 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.9 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.4 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.3 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 40.50 cm maior do que a alt. máxima 17.75 cm.|

| AVISO: Ângulo da biela de compressão ( 72.8 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B96

BLOCO: 96 - B96 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 9(Dim )| 27.78| -0.02| -0.07| -0.641| 0.008| -0.02| -0.39|

| 17(Rmin)| 24.04| -0.00| 0.10| 0.563| -0.022| 0.01| 0.38|

| 6(TEst)| 26.13| -0.12| 0.01| -0.039| 0.370| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 27.8 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 75.6 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= -0.4 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 30.9 | TensEst = 45.1 | |

| Área de forma: 2.30 | Fmx= 15.5 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 12.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 3.3 = 5 {10.0 C/ 20.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.7 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B97

BLOCO: 97 - B97 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 4(Dim )| 35.26| -0.01| 0.04| 0.366| -0.006| -0.00| 0.22|

| 18(Rmin)| 30.82| -0.01| -0.10| -0.595| 0.029| -0.03| -0.40|

| 6(TEst)| 32.92| -0.12| -0.01| 0.008| 0.382| -0.31| -0.01|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 35.3 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= -0.0 | TensPil = 93.1 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.2 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 37.7 | TensEst = 55.0 | |

| Área de forma: 2.30 | Fmx= 18.9 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 15.4 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 4.0 = 6 {10.0 C/ 15.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.8 = 3 { 6.3 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B98

BLOCO: 98 - B98 Retang. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 4.22| -0.02| 0.02| 0.618| -0.044| 0.00| 0.33|

| 9(Rmin)| 3.61| -0.02| -0.08| -0.447| -0.095| 0.03| -0.30|

| 16(TEst)| 4.31| 0.06| -0.03| 0.091| -0.355| 0.23| 0.02|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 2 fi = 30.0 | FN= 4.2 | TensLimP= 225.0 | dmin = 15.0 |

| DisX= 50.0 | MX= 0.0 | TensPil = 14.3 | dmax = 21.3 |

| Xbl = 140.0 Ybl = 90.0 | MY= 0.3 | | d = 31.5 |

| Alt = 50.0 Vol = 0.630 |-------------| TensLimE= 225.0 | AnguloX= 64.5 |

| Xpil= 40.0 Ypil= 20.0 | FEq= 7.1 | TensEst = 10.4 | |

| Área de forma: 2.30 | Fmx= 3.6 | | |

| Altb= 15.0 DisF= 45.0 | Fmn= 2.0 | | |

| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* | | | \*\*\*\* |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 1.6 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 1.3 = 4 {10.0 C/ 25.0(d) Susp.Y: 2.1 = 7 { 6.3 C/ 20.0(d)|

| P.Estr: 1.3 = 5 { 6.3 C/ 20.0(d) Laterl: 0.2 = 2 { 5.0 C/ 25.0(d)|

.------------------------------------------------------------------------------.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

| AVISO: Bloco com altura útil 31.50 cm maior do que a alt. máxima 21.30 cm.|

| AVISO: Ângulo da biela de compressão ( 64.5 graus) maior do que 55 graus. |

.------------------------------------------------------------------------------.

## B99

BLOCO: 99 - B99 Polign. ( 1x)

.------------------------------------------------------------------------------.

| TOTAL DE CARREGAMENTOS = 18 / CARREGAMENTOS PRINCIPAIS: |

.----------.---------.---------.---------.--------.--------.---------.---------.

| Caso | Nk[tf] |Mxk[tf.m]|Myk[tf.m]| Fxk[tf]| Fyk[tf]|Mx\*[tf.m]|My\*[tf.m]|

.----------.---------.---------.---------.--------.--------.---------.---------.

| 17(Dim )| 30.19| -0.00| -0.14| 0.750| 0.023| -0.03| 0.61|

| 9(Rmin)| 27.94| -0.01| -0.19| -0.452| 0.032| -0.04| -0.64|

.--------------------------.-------------.------------------.------------------.

| GEOMETRIA[cm,m2,m3] | CARGAS[tf,m]| TENSOES[kgf/cm2] | VERIF.[cm,graus] |

| | Dimensionam.| Bielas | Altura/Ang.Biela |

| Estacas= 3 fi = 30.0 | FN= 30.2 | TensLimP= 281.2 | dmin = 57.1 |

| DisX= 127.6 | MX= -0.0 | TensPil = 24.0 | dmax = 81.2 |

| Xbl = 220.0 Ybl = 190.5 | MY= 0.6 | | d = 76.5 |

| Alt = 100.0 Vol = 2.882 |-------------| TensLimE= 281.2 | Angulo = 53.7 |

| Xpil= 85.0 Ypil= 40.0 | FEq= 38.8 | TensEst = 47.3 | |

| Área de forma: 6.60 | Fmx= 12.9 | | |

| Altb= 15.0 DisF= 40.0 | Fmn= 11.2 | | |

| | | | |

.--------------------------.-------------.------------------.------------------.

| ARMADURAS [cm2,cm] | Peso Próprio: 7.2 tf (x1) |

.------------------------------------------------------------------------------.

| Prin.X: 2.9 = 6 { 8.0 C/ 6.0(c) Susp.X: 2.9 = 10 { 6.3 C/ 20.0(d)|

| Susp.Y: 2.9 = 15 { 5.0 C/ 15.0(d) Laterl: 1.1 = 6 { 5.0 C/ 15.0(d)|

.------------------------------------------------------------------------------.

(c): Armadura concentrada, para cada faixa/alinhamento e dir. X/Y de estacas.

(d): Armadura distribuida uniforme, pela largura/lado X/Y/H do bloco.

Obs: Adotada armadura principal mínima (X).

.------------------------------------------------------------------------------.

| AVISOS |

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

.------------------------------------------------------------------------------.

| ERROS |

.------------------------------------------------------------------------------.

| ERRO: Pilar(es) excêntrico(s) ou múltiplos: Verifique necessidade |

| de armaduras complementares. |

.------------------------------------------------------------------------------.

# CRITÉRIOS PROJETO - GERENCIADOS

A seguir são apresentados alguns dos critérios de projeto utilizados.

## Critérios gerais

1. Norma em uso
   1. NBR-6118-2014
2. Verificação de fck mínimo
   1. Desativa
3. Verificação de cobrimentos mínimos
   1. Desativa
4. Verificação de dimensões mínimas
   1. Verifica segunda a ABNT NBR 6118
5. Permite rebaixo de pilar
   1. Não permite

## Ações

1. Separação de cargas permanentes e variáveis
   1. Com separação
2. Caso 1 agrupa outros casos
   1. Casos de 2 a 4
3. Consideração de peso-próprio de lajes
   1. Sim
4. Consideração de peso-próprio de vigas
   1. Sim
5. Carga estimada em viga de transição
   1. Entre a carga estimada pelo pórtico e a definida pelo engenheiro, usar o valor de maior módulo.
6. Permite cálculo c/ altura de alvenaria igual a zero
   1. Não
7. Vento
   1. Número total de casos de vento
      * 1. 4
   2. Velocidade básica (Vo)
      * 1. 45
   3. Coeficiente de arrasto (menor valor)
      * 1. 1
   4. Túnel de vento
      * 1. Correção dos momentos torsores
           1. Sim
8. Ponderadores
   1. Ponderador do peso-próprio
      * 1. 1,4
   2. Ponderador das demais ações permanentes (CV)
      * 1. 1,4
   3. Ponderador das ações variáveis (CV)
      * 1. 1,4

## Análise Estrutural

1. Modelo global do edifício
   1. Modelo de vigas e pilares, flexibilizado conforme critérios
2. Modelo para viga de transição
   1. Modelo adicional com vigas de transição enrijecidas
3. Trechos rígidos
   1. Método p/ definir extensão de apoio
      * 1. em função da altura da viga
   2. Multiplicador da altura da viga p/ extensão de apoio
      * 1. 0,3
4. Pórtico espacial
   1. Vigas
      * 1. Consideração de seção T
           1. Calcular inércia das vigas com seção T em todo o vão
        2. Inércia p/ vigas s/ rigidez à torção
           1. 100
        3. Fator de engastamento parcial em vigas
           1. 1
   2. Pilares
      * 1. Majoração da rigidez axial p/ efeitos construtivos
           1. Considera majoração da rigidez axial
        2. Multiplicador da rigidez axial p/ efeitos construtivos
           1. 3
        3. Pilares não-retangulares c/ eixos principais
           1. Calcula.
   3. Ligações viga-pilar
      * 1. Flexibilização de ligações
           1. Sim
        2. Multiplicador de largura de apoio p/ coeficiente de mola
           1. 1,5
        3. Divisor de coeficiente de mola
           1. Sim
        4. Offset-rígido
           1. Sim
   4. Separação de modelos para ELU e ELS
      * 1. Sim
   5. Modelo ELU
      * 1. Não-linearidade física p/ vigas
           1. 0,4
        2. Não-linearidade física p/ pilares
           1. 0,8
        3. Não-linearidade física p/ lajes
           1. 0,3
   6. Modelo ELS
      * 1. Não-linearidade física p/ lajes
           1. 1
   7. Transferência de esforços
      * 1. Transferência dos esforços de 2ª ordem (GamaZ)
           1. Sim
        2. Transferência de força normal para vigas
           1. Sim
        3. Tolerância p/ transferência de forças das grelhas
           1. 0
        4. Tolerância p/ transferência de momentos das grelhas
           1. 0
5. Grelha
   1. Vigas
      * 1. Consideração da seção T em vigas
           1. Calcular inércia das vigas com seção T em todo o vão
        2. Inércia p/ vigas s/ rigidez à torção
           1. 100
        3. Fator de engastamento parcial em vigas
           1. 1
   2. Apoios (restrições)
      * 1. Apoio de vigas em pilares
           1. Modelo p/ o apoio de vigas em pilares

Elástico independente

* + - * 1. Multiplicador de largura de apoio p/ coeficiente de mola

1

* + - * 1. Divisor de coeficiente de mola

4

* + - 1. Modelo p/ o apoio de nervuras em pilares
         1. Sim
      2. Modelo p/ o apoio de lajes maciças em pilares
         1. Sim
  1. Lajes nervuradas
     + 1. Considera seção T para nervuras
          1. Sim
       2. Plastificação de nervuras apoiadas em vigas
          1. Não
  2. Lajes maciças (planas)
     + 1. Divisor de inércia à torção em barras de lajes
          1. 6
       2. Consideração de Wood&Armer
          1. Sim
       3. Espaçamento de barras em X
          1. 35
       4. Espaçamento de barras em Y
          1. 35
       5. Plastificação de barras de lajes apoiadas em vigas
          1. Não
  3. Multiplicador p/ deformação lenta
     + 1. 2,5

1. Estabilidade global
   1. Cálculo de GamaZ com valores de cálculo
      * 1. Esforços de cálculo.
   2. Considera deslocamentos horizontais gerados por cargas verticais
      * 1. Sim
2. Análise P-Delta
   1. Análise em 2 passos
      * 1. P-&Delta; em 2 passos
   2. Multiplicador de esforços pós-análise
      * 1. 1
3. Deslocamentos laterais do edifício
   1. Verifica deslocamentos laterais do edifício
      * 1. ABNT NBR 6118
   2. Considera efeitos das cargas verticais
      * 1. Não
   3. P-Delta na avaliação dos deslocamentos laterais
      * 1. Não adota análise P-&Delta; na avaliação dos deslocamentos laterais
   4. Limites
      * 1. Deslocamento máximo no topo do edifício
           1. 1700
        2. Deslocamento máximo entre pisos
           1. 850
4. Grelha não-linear
   1. Análise p/ todas combinações ELS
      * 1. Adota todas combinações ELS definidas
   2. Número total de incrementos de carga
      * 1. 12
   3. Consideração da fissuração
      * 1. Considera fissuração à flexão e à torção
   4. Consideração da fluência
      * 1. Correção do diagrama tensão-deformação do concreto pelos coeficientes de fluência (&phi;).

## Dimensionamento, detalhamento e desenho

1. Lajes
   1. Flexão composta
      * 1. Verifica flexão composta normal
           1. Sim
        2. Força pequena a ser desprezada
           1. 50
   2. Verifica armadura mínima
      * 1. Sempre que a armadura de flexão tiver valores menores que a armadura mínima recomendada pela NBR 6118, este valor de norma será adotado.
   3. Norma p/ verificação ao cisalhamento
      * 1. Dimensionamento de acordo com a ABNT NBR 6118 vigente
   4. Norma p/ verificação à punção
      * 1. Dimensionamento de acordo com a ABNT NBR 6118:2014
   5. Ponderadores p/ valores de cálculo
      * 1. Ponderador da resistência do concreto
           1. 1,4
        2. Ponderador da resistência do aço
           1. 1,15
        3. Ponderador das solicitações
           1. 1,4
   6. Homogeneização de faixas de armaduras
      * 1. Porcentagem mínima de média ponderada p/ M(-)
           1. 50
        2. Porcentagem mínima de média ponderada p/ M(+)
           1. 80
2. Vigas
   1. Norma p/ cálculo
      * 1. Dimensionamento de acordo com a ABNT NBR 6118:2014
   2. Ponderadores p/ valores de cálculo
      * 1. Ponderador da resistência do concreto
           1. 1,4
        2. Ponderador da resistência do aço
           1. 1,15
        3. Ponderador das solicitações
           1. 1,4
   3. Cálculo de esforços
      * 1. Redução de momentos negativos
           1. Cálculo de esforços solicitantes em regime elástico.
   4. Flexão
      * 1. Armadura mínima
           1. Limite p/ armadura mínima

O limite é definido de acordo com as prescrições da ABNT NBR 6118

* + - * 1. Seção T para cálculo de M1dmín e Asmín

Armadura mínima e Momento mínimo (M1d,mín) calculados considerando seção T.

* + - 1. Alojamento de barras sem simetria
         1. Aloja as barras na seção transversal em diversas camadas, sem a preocupação de fazer uma distribuição simétrica.
      2. Armadura que chega em apoio extremo
         1. 2
      3. Verificação de dutilidade
         1. Verifica limites de redistribuição de M(-), plastificação, nos extremos dos vãos e impõe critérios de dutilidade no dimensionamento das seções transversais conforme prescrições da NBR 6118:2003. É realizada a limitação da posição relativa da Linha Neutra na seção transversal e, conseqüentemente, aumento da armadura de compressão.
      4. Ancoragem positiva
         1. Ancoragem nos apoios extremos

Ancoragem da armadura positiva combinando com grampos, calculados por processo exato quando o comprimento do apoio é pequeno perante o raio de dobra da barra. É válido também para vãos internos com faces inferiores não coincidentes.

* + - * 1. Bitola que chega no apoio extremo

A condição acima não é verificada.

* 1. Cisalhamento e Torção
     + 1. Modelo de cálculo
          1. Modelo I
       2. Limite p/ desprezar torção
          1. 5
  2. Armadura lateral
     + 1. Dimensionamento da armadura lateral
          1. Dimensionamento da armadura lateral segundo ABNT NBR 6118:2003 (2007)
       2. Altura mínima para colocação de As,lat
          1. 59
  3. Furo em viga
     + 1. Largura máxima do furo
          1. 0
       2. Cortante p/ cálculo de suspensão
          1. 0

1. Pilares
   1. Norma para cálculo
      * 1. ABNT NBR 6118:2014 (2014)
   2. Ponderadores p/ valores de cálculo
      * 1. Ponderador da resistência do concreto
           1. 1,4
        2. Ponderador da resistência do aço
           1. 1,15
        3. Ponderador das solicitações
           1. 1,4
   3. Índices de esbeltez limites
      * 1. Limite p/ 2ª ordem aproximada (1/r e kapa)
           1. 90
        2. Limite p/ 2ª ordem c/ N, M, 1/r
           1. 140
   4. Definição dos comprimentos equivalentes
      * 1. Comprimento equivalente calculado de eixo a eixo das vigas.
   5. Transformação de FCO em FCN
      * 1. Não se alternam os esforços da flexão composta oblíqua para dimensionamento.
   6. Porcentagens limites de armadura
      * 1. Porcentagem limite de armadura mínima
           1. 0,4
        2. Porcentagem limite de armadura máxima
           1. 8
   7. Grampos
      * 1. Grampos verticais no último pavimento
           1. Sim
        2. Desenho de grampos em forma de S
           1. Desenho dos grampos em forma de "S".
   8. Consideração de peso-próprio
      * 1. Sim
   9. Pilares-parede
      * 1. Esbeltez limite p/ desprezar efeitos localizados
           1. 35
        2. Avaliação dos efeitos locais de 2ª ordem
           1. Sim
        3. Porcentagem mínima de estribos
           1. 25
   10. Seleção de bitolas no lance
       * 1. % limite p/ seleção no lance
            1. 15
         2. Número de bitolas a mais p/ seleção no lance
            1. 3
2. Fundações
   1. Sapatas
      * 1. Ponderadores p/ valores de cálculo
           1. Ponderador da resistência do concreto

1,4

* + - * 1. Ponderador da resistência do aço

1,15

* + - * 1. Ponderador das solicitações

1,4

* + - * 1. Coeficiente adicional de segurança

1,2

* + - * 1. Coeficiente de segurança ao tombamento

1,5

* + - * 1. Coeficiente de segurança ao deslizamento

1,5

* 1. Blocos sobre estacas
     + 1. Ponderadores p/ valores de cálculo
          1. Ponderador da resistência do concreto

1,4

* + - * 1. Ponderador da resistência do aço

1,15

* + - * 1. Ponderador das solicitações

1,4

* + - * 1. Coeficiente adicional de segurança

1,2

* + - 1. Blocos quadrados
         1. Igualar armaduras pela maior

iguala armaduras pela maior

* + - * 1. Diferença máxima entre as dimensões

9

* + - 1. Blocos de 7 a 24 estacas
         1. Método de Cálculo - Bloco Rígido

Método CEB-FIP (recomendado)

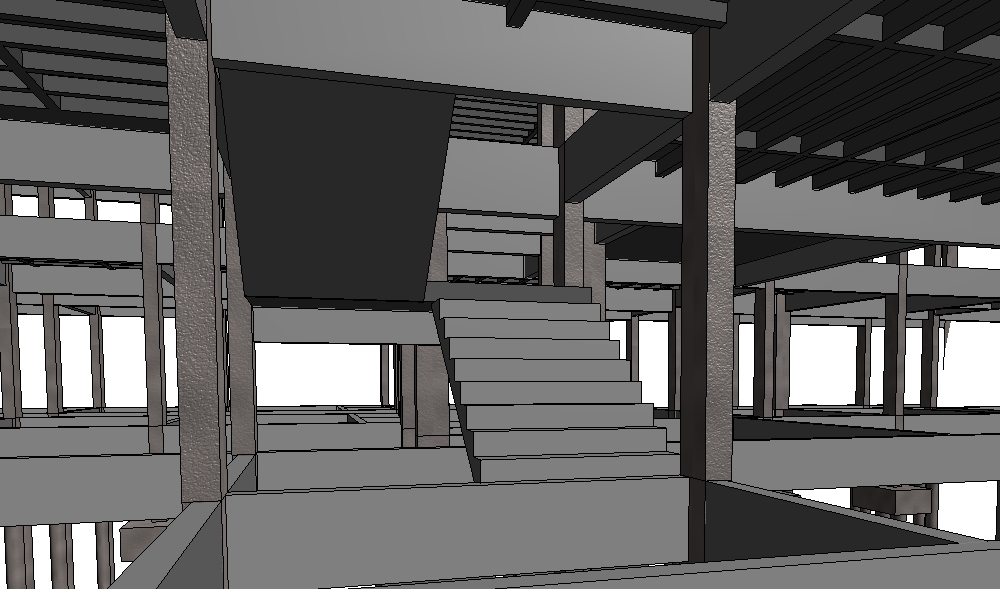
* + - * 1. % de armadura principal detalhada

125

1. Escadas
   1. Ponderadores p/ valores de cálculo
      * 1. Ponderador da resistência do concreto
           1. 1,4
        2. Ponderador da resistência do aço
           1. 1,15
        3. Ponderador das solicitações
           1. 1,4
   2. Homogeneização de armaduras
      * 1. Porcentagem mínima p/ M(-)
           1. 50
        2. Porcentagem mínima p/ M(+)
           1. 80
   3. Cálculo de armadura mínima
      * 1. O limite é definido de acordo com as prescrições da ABNT NBR 6118

# FIGURAS COMPLEMENTARES

A seguir são apresentadas as figuras do projeto.



PERSPECTIVA TRIDIMENSIONAL - LANCE DE ESCADAS