MEMORIAL DE CÁLCULO – PROJETO ESTRUTURAL

PROJETO PADRÃO EDIF 2019 - EMEI 9 SALAS

Rua Riachuelo, 240 - Centro - Campinas - SP - CEP: 13015-320 - Fone / Fax: (19) 3236-1034

DESCRIÇÃO DO EDIFÍCIO

Trata-se de Edifício em concreto armado para fins escolares.

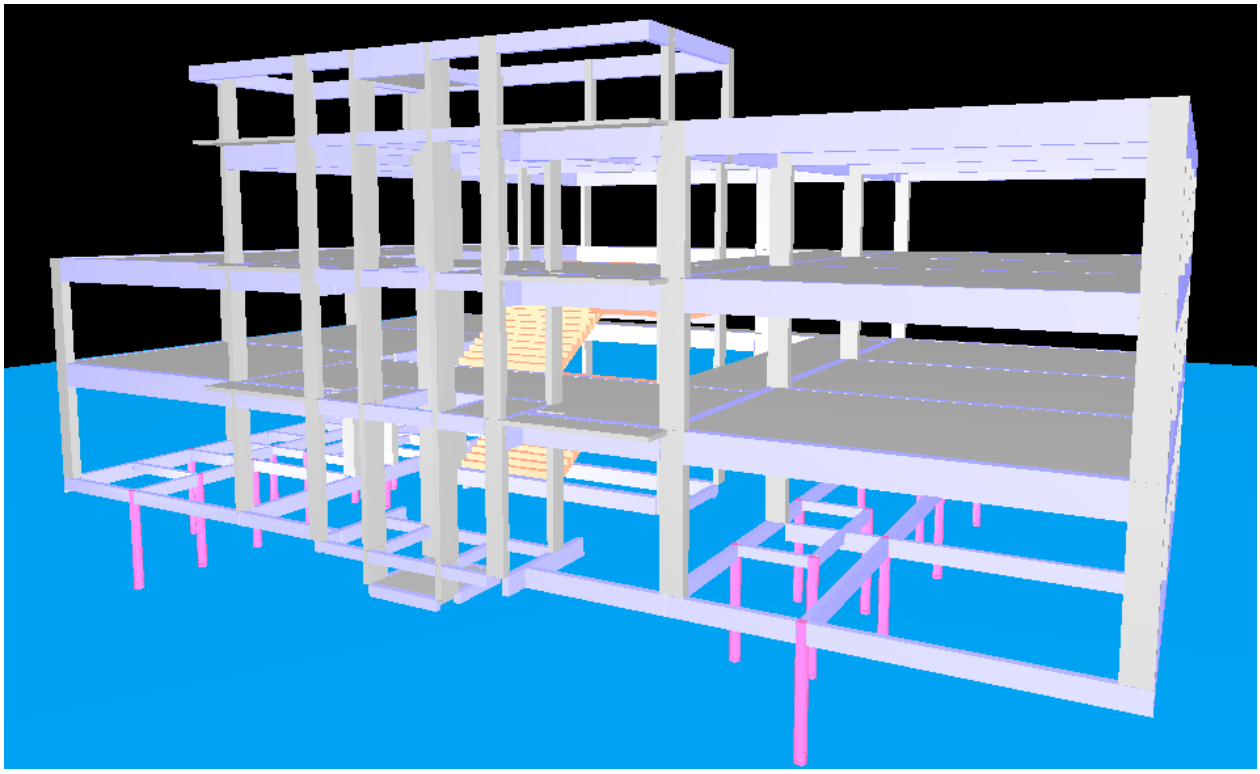
Pavimentos	*Piso a Piso (m)*	*Cota (m)*
torre	2,00	13,55
cobertura	3,40	11,55
pav2	3,40	8,15
pav1	3,85	4,75
Fundacao	0,90	0,90
elevador	0,00	0,00

A altura total do edifício é de 13,6 m.

Corte esquemático

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

Perpectivas da estrutura



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NORMA EM USO

Na análise, dimensionamento e detalhamento dos elementos estruturais deste edifício foram utilizadas as prescrições indicadas pelas seguintes normas:

- NBR6118 - Projeto de estruturas de concreto - Procedimentos;
- NBR6120 - Cargas para o cálculo de estruturas de edificações - Procedimentos;
- NBR6123 - Forças devidas ao vento em edificações – Procedimentos;
- NBR8681 - Ações e segurança nas estruturas – Procedimentos.

SOFTWARE UTILIZADO

Para a análise estrutural e dimensionamento e detalhamento estrutural foi utilizado o sistema CAD/TQS na versão V18.12.64.

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*
torre	30	30	30
cobertura	30	30	30
pav2	30	30	30
pav1	30	30	30
Fundacao	30	30	30
elevador	30	30	30

Piso	*Pavimento*	*fck do pilar (MPa)*
5	torre	30
4	cobertura	30
3	pav2	30
2	pav1	30
1	Fundacao	30
0	elevador	30

Módulo de elasticidade

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

	AlfaE	*Ecs*	*Eci*	*Gc*
C30	1	2607159	3067246	0

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Aço de armadura passiva

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

Tipo de barra	*Ecs(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

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**, conforme definido pelo item 6 da NBR6118.

Cobrimentos gerais

A definição dos cobrimentos foi feita com base na Classe de Agressividade Ambiental definida anteriormente e de acordo com o item 7.4.7 e seus subitens.

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

AÇÕES E COMBINAÇÕES

Carga vertical

Na análise estrutural do edifício não foi considera a redução de sobrecarga definida no item 2.2.1.8 da NBR 6120.

Vento

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

- Velocidade básica (m/s): 45,0;
- Fator topográfico (S1): 1,0;
- Categoria de rugosidade (S2): I - Superfícies lisas de grandes dimensões, com mais de 5km de extensão;

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- Classe da edificação (S2): A - Maior dimensão horizontal ou vertical < 20m;
- Fator estatístico (S3): 1,00 - Edificações em geral. Hotéis, residências, comércio e indústria com alta taxa de ocupação.

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	1,11	373,0	0,156
6	270	1,11	373,0	0,156
7	0	0,92	250,4	0,129
8	180	0,92	250,4	0,129

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*
torre	Não	Não	Não	Não
cobertura	Não	Não	Não	Não
pav2	Não	Não	Não	Não
pav1	Não	Não	Não	Não
Fundacao	Não	Não	Não	Não
elevador	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

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LAJEPRO	Combinações p/ flechas em lajes protendidas	0

Lista de combinações no modelo global

No modelo estrutural global foram consideradas as seguintes combinações:Combinações de ELU para vigas e lajes

Caso	Prefixo	Título
14		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT1
15		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT2
16		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT3
17		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT4
18		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT1
19		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT2
20		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT3
21		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT4
25		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT1
26		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT2
27		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT3
28		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT4
29		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT1
30		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT2
31		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT3
32		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT4

Combinações de ELU para pilares e fundações

Caso	Prefixo	Título
14		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT1
15		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT2
16		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT3
17		ELU1/ACIDCOMB/PP+PERM+ACID+0.6VENT4
18		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT1
19		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT2
20		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT3
21		ELU1/ACIDCOMB/PP+PERM+0.8ACID+VENT4
25		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT1
26		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT2
27		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT3
28		ELU1/ACIDCOMB/PP_V+PERM_V+ACID_V+0.6VENT4
29		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT1
30		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT2
31		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT3
32		ELU1/ACIDCOMB/PP_V+PERM_V+0.8ACID_V+VENT4

MODELO ESTRUTURAL

Explicações

Na análise estrutural do edifício foi utilizado o 'Modelo 4' do sistema CAD/TQS. Este modelo consiste em dois modelos de cálculo:

- Modelo de grelha para os pavimentos;

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- Modelo de pórtico espacial para a análise global.

O edifício será modelado por um único pórtico espacial mais os modelos dos pavimentos. O pórtico será composto apenas por barras que simulam as vigas e pilares da estrutura, com o efeito de diafragma rígido das lajes devidamente incorporado ao modelo. Os efeitos oriundos das ações veticais e horizontais nas vigas e pilares serão calculados com o pórtico espacial.

Nas lajes, somente os efeitos gerados pelas ações verticais serão calculados. Nos pavimentos simulados por grelha de lajes, os esforços resultantes das barras de lajes sobre as vigas serão tranferidas como cargas para o pórtico espacial, ou seja, há uma 'certa' integração entre ambos os modelos (pórtico e grelha). Para os demais tipos de modelos de pavimentos, as cargas das lajes serão transferidas para o pórtico por meio de quinhos de carga.

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*
torre	Modelo de lajes planas	Grelha (3 graus de liberdade)
cobertura	Modelo de lajes planas	Grelha (3 graus de liberdade)
pav2	Modelo de lajes planas	Pórtico (6 graus de liberdade)
pav1	Modelo de lajes planas	Pórtico (6 graus de liberdade)
Fundacao	Modelo de lajes planas	Pórtico (6 graus de liberdade)
elevador	Modelo somente de vigas	Grelha (3 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)*
torre	2607159
cobertura	2607159

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pav2	2607159
pav1	2607159
Fundacao	2607159
elevador	2607159

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: P-Delta
- Análise por efeito incremental: Sim
- 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.

Apenas no neste modelo foram utilizados os coeficientes de não linearidade física conforme indicados pelo item 15.7.3 da NBR6118. A seguir são apresentados estes valores:

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).

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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.

Esforços de cálculo

Os esforços obtidos na análise de pórtico foram utilizados para o dimensionamento de vigas e pilares, onde um conjunto de combinações conciliando os esforços de cargas verticais e de vento são agrupados e ponderados segundo as prescrições das normas NBR8681 e NBR6118.

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 previstas na NBR6120, caso o projeto esteja utilizando este método.

ESTABILIDADE GLOBAL

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

Parâmetro	*Valor*
GamaZ	1,05
FAVt	1,06
Alfa	0,63

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.    2682.2      15.8      58.1     398.0      46.1    1.053   .558
   6   270.    2682.2      15.8      58.1     398.0      46.1    1.053   .558
```


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7	0.	2682.2	4.3	32.4	220.8	46.1	1.026	.427
8	180.	2682.2	4.3	32.4	220.8	46.1	1.026	.427

Parâmetro de estabilidade (RM2M1) para combinações de ELU - vigas e lajes

Caso	Ang	CTot	M2	CHor	M1	MultH	RM2M1	Alfa	Obs
14	90.	2682.2	11.9	34.8	238.8	1.000	1.063	.602	B
15	270.	2682.2	8.4	34.8	238.8	1.000	1.045	.548	
16	0.	2682.2	3.2	19.4	132.5	1.000	1.031	.407	
17	180.	2682.2	2.2	19.4	132.5	1.000	1.022	.459	
18	90.	2682.2	18.4	58.1	398.0	1.000	1.059	.589	
19	270.	2682.2	15.3	58.1	398.0	1.000	1.049	.561	
20	0.	2682.2	4.9	32.4	220.8	1.000	1.029	.416	
21	180.	2682.2	4.1	32.4	220.8	1.000	1.024	.450	
25	90.	2682.2	12.0	34.8	238.8	1.000	1.064	.631	B
26	270.	2682.2	8.3	34.8	238.8	1.000	1.044	.515	
27	0.	2682.2	3.2	19.4	132.5	1.000	1.031	.431	
28	180.	2682.2	2.2	19.4	132.5	1.000	1.021	.437	
29	90.	2682.2	18.5	58.1	398.0	1.000	1.059	.606	B
30	270.	2682.2	15.2	58.1	398.0	1.000	1.049	.542	
31	0.	2682.2	4.9	32.4	220.8	1.000	1.029	.431	
32	180.	2682.2	4.1	32.4	220.8	1.000	1.024	.437	

Parâmetro de estabilidade (RM2M1) para combinações de ELU - pilares e fundações

Caso	Ang	CTot	M2	CHor	M1	MultH	RM2M1	Alfa	Obs
14	90.	2682.2	11.9	34.8	238.8	1.000	1.063	.602	B
15	270.	2682.2	8.4	34.8	238.8	1.000	1.045	.548	
16	0.	2682.2	3.2	19.4	132.5	1.000	1.031	.407	
17	180.	2682.2	2.2	19.4	132.5	1.000	1.022	.459	
18	90.	2682.2	18.4	58.1	398.0	1.000	1.059	.589	
19	270.	2682.2	15.3	58.1	398.0	1.000	1.049	.561	
20	0.	2682.2	4.9	32.4	220.8	1.000	1.029	.416	
21	180.	2682.2	4.1	32.4	220.8	1.000	1.024	.450	
25	90.	2682.2	12.0	34.8	238.8	1.000	1.064	.631	B
26	270.	2682.2	8.3	34.8	238.8	1.000	1.044	.515	
27	0.	2682.2	3.2	19.4	132.5	1.000	1.031	.431	
28	180.	2682.2	2.2	19.4	132.5	1.000	1.021	.437	
29	90.	2682.2	18.5	58.1	398.0	1.000	1.059	.606	B
30	270.	2682.2	15.2	58.1	398.0	1.000	1.049	.542	
31	0.	2682.2	4.9	32.4	220.8	1.000	1.029	.431	
32	180.	2682.2	4.1	32.4	220.8	1.000	1.024	.437	

Observações IMPORTANTES

Este edifício foi calculado com processo P-Delta. Os esforços obtidos já consideram os efeitos de 2a ordem. Os valores de GamaZ nesta listagem servem para referência de quanto aproximadamente os esforços foram majorados em relação a uma análise linear, para consideração de efeitos globais de 2a ordem. Eles não multiplicarão os esforços devido a cargas horizontais passados para dimensionamento e detalhamento de vigas e pilares.

Observações para os casos com Obs="B":
O parâmetro Alfa deste edifício indica que a estrutura é de nós móveis.

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```
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): 1,05;
- Tipo da estrutura (Alfa): 0,63.

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): 13,55;
- Altura entre pisos - Hi (m): 3,40.

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)
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    Relat1          Obs
   5            .30    H/4451.           D
   6            .30    H/4451.
   7            .25    H/5425.
   8            .25    H/5425.

Deslocamentos máximos entre pisos
=================================
Caso  Piso    DeslHp   Relat3          Obs
   5     3       .11    Hi/3042.
   6     3       .11    Hi/3042.
   7     4       .18    Hi/1895.          DE
   8     4       .18    Hi/1895.

Observações IMPORTANTES
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Observações para os casos com Obs="D":
Caso de carregamento com deslocamento absoluto máximo
```


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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 / 4451) 0,30	(H / 1700) 0,80
Entre pisos (cm)	(Hi / 1895) 0,18	(Hi / 850) 0,40

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

Flecha máxima dos pavimentos

Para verificação das flechas, foi utisado o processo de grelha não linear, modelo de **grelha** que considera a **não**-linearidade física de forma bastante refinada (relações momento-curvatura). Leva em conta a fissuração do concreto, a presença de armaduras e a fluência.

É ideal para verificação refinada de flechas e de aberturas de fissuras em um pavimento de concreto armado.

A seguir são apresentadas as flechas máximas de todas as lajes e vigas de todos os pavimentos:

Flechas nas lajes do Primeiro Pavimento:

Laje	Vão (cm)	Espessura (cm)	C.A. (kgf/m²)	C.P. (kgf/m²)	Flecha (cm)	Flecha Adm. (cm)	Contra Flecha (cm)	Status
L301	98,00	12,00	50,00	150,00	-0,41	0,78	0,00	OK
L302	621,00	20,00	300,00	150,00	-1,51	2,48	1,00	OK
L303	626,00	20,00	300,00	150,00	-2,37	2,50	1,50	OK
L304	277,00	20,00	300,00	150,00	-0,99	2,22	0,50	OK
L305	626,00	20,00	300,00	150,00	-1,59	2,50	1,00	OK
L306	631,00	20,00	300,00	150,00	-1,70	2,52	1,00	OK
L308	626,00	20,00	300,00	150,00	-1,53	2,50	1,00	
L309	530,00	15,00	300,00	150,00	-0,58	2,12		OK
L310	626,00	20,00	300,00	150,00	-2,33	2,50	1,50	OK
L311	170,00	10,00	300,00	150,00	-0,03	0,68		OK
L312	170,00	10,00	300,00	150,00	-0,03	0,68		OK
L313	90,00	12,00	50,00	150,00	-0,15	0,72		OK
L314	90,00	12,00	50,00	150,00	-0,05	0,72		OK

Flecha na ponta do balanço – laje304 = -0,99cm:

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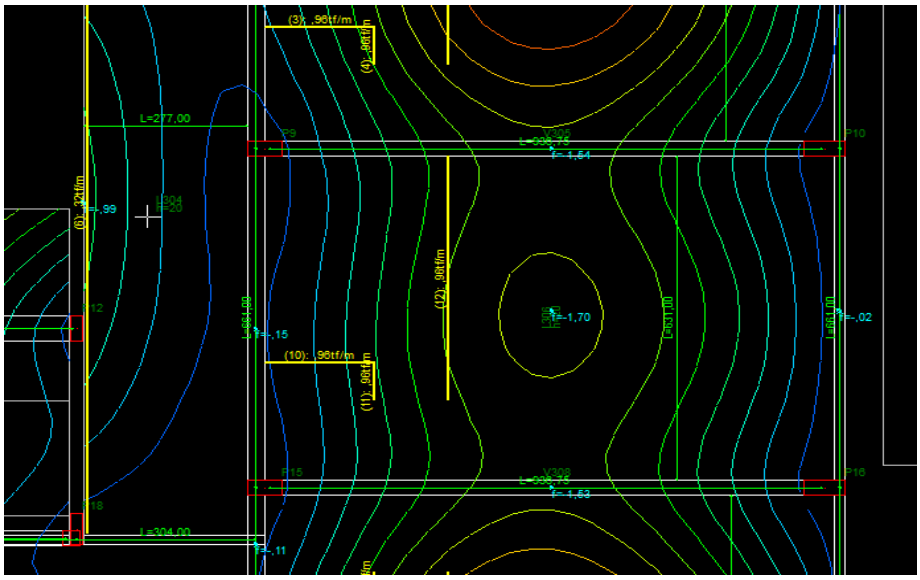

Flechas nas vigas do Primeiro Pavimento:

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Viga	Tramo	Vão (cm)	Flecha (cm)	Flecha Adm. (cm)	Contra Flecha (cm)	Status
V301	1	788,00	-0,57	3,15	0,00	OK
V302	1	947,00	-1,18	3,79	0,00	OK
V303	1	492,00	-0,11	1,97	0,00	OK
V303	2	402,00	-0,02	1,61	0,00	OK
V303	3	507,00	-0,23	2,03	0,00	OK
V304	1	773,00	-0,86	3,09	0,00	OK
V305	1	937,00	-1,54	3,75	0,00	OK
V307	1	773,00	-0,83	3,09	0,00	OK
V308	1	937,00	-1,53	3,75	0,00	OK
V309	1	349,00	-0,07	1,40	0,00	OK
V309	2	748,00	-1,38	2,99	0,00	OK
V309	3	304,00	-0,11	1,22	0,00	OK
V310	1	184,00	-0,05	0,74	0,00	OK
V310	2	238,00	-0,04	0,95	0,00	OK
V310	3	184,00	-0,03	0,74	0,00	OK
V311	1	798,00	-0,45	3,19	0,00	OK
V311	2	390,00	-0,02	1,56	0,00	OK
V312	1	410,00	-0,06	1,64	0,00	OK
V312	2	949,00	-0,84	3,80	0,00	OK
V313	1	169,00	-0,01	0,68	0,00	OK
V313	2	238,00	-0,01	0,95	0,00	OK
V313	3	169,00	-0,01	0,68	0,00	OK
V314	1	648,00	-0,23	2,59	0,00	OK
V314	2	661,00	-0,07	2,64	0,00	OK
V314	3	649,00	-0,20	2,60	0,00	OK
V315	1	453,00	-0,08	1,81	0,00	OK
V315	2	185,00	-0,05	0,74	0,00	OK
V315	3	661,00	-0,07	2,64	0,00	OK
V315	4	633,00	-0,20	2,53	0,00	OK
V317	1	224,00	-0,02	0,90	0,00	OK
V318	1	214,00	-0,01	0,86	0,00	OK
V319	1	214,00	-0,01	0,86	0,00	OK
V320	1	224,00	-0,02	0,90	0,00	OK
V322	1	648,00	-0,26	2,59	0,00	OK
V322	2	661,00	-0,15	2,64	0,00	OK
V322	3	648,00	-0,41	2,59	0,00	OK
V323	1	648,00	-0,20	2,59	0,00	OK
V323	2	661,00	-0,02	2,64	0,00	OK
V323	3	648,00	-0,20	2,59	0,00	OK
VE	1	738,00	-1,31	2,95	0,00	OK

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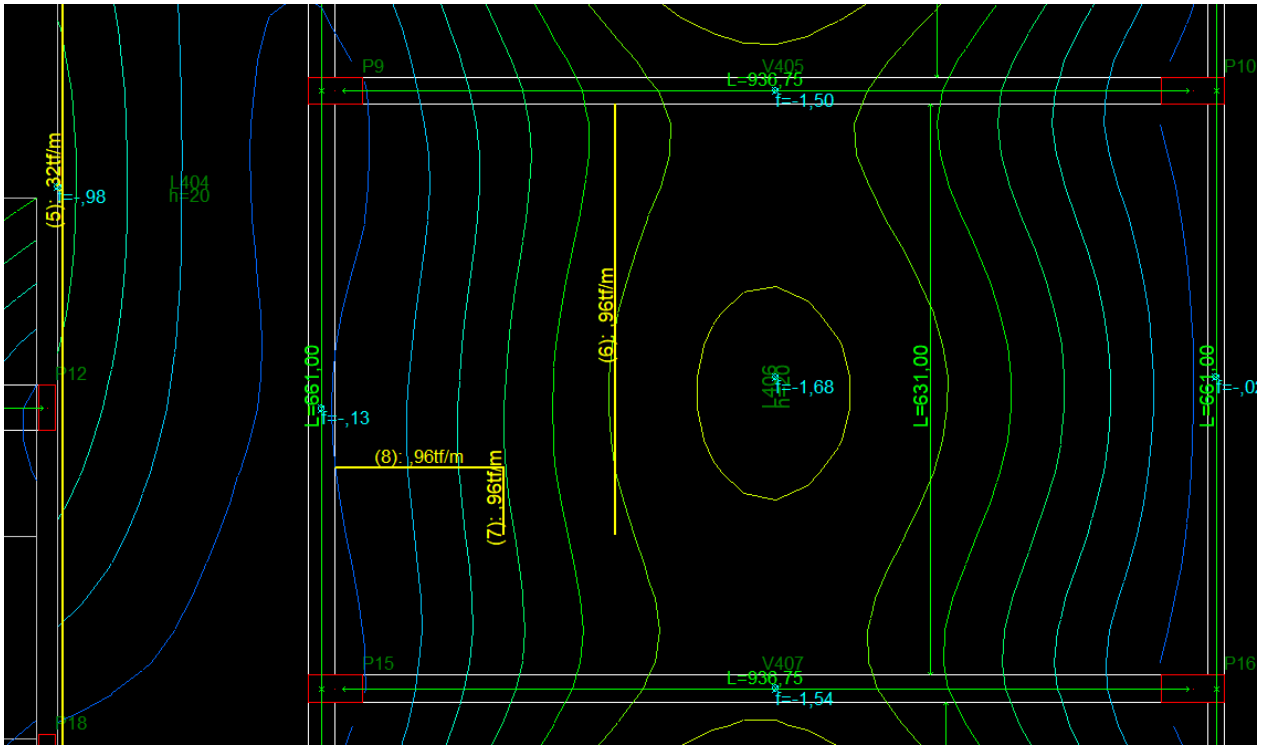
Flechas nas lajes do Segundo Pavimento:

Laje	Vão (cm)	Espessura (cm)	C.A. (kgf/m²)	C.P. (kgf/m²)	Flecha (cm)	Flecha Adm. (cm)	Contra Flecha (cm)	Status
L401	98,00	12,00	50,00	150,00	-0,51	0,78		OK
L402	621,00	20,00	500,00	200,00	-1,47	2,48	1,00	OK
L403	626,00	20,00	300,00	150,00	-2,34	2,50	1,50	OK
L404	277,00	20,00	300,00	150,00	-0,98	2,22	0,50	OK
L405	799,00	20,00	500,00	200,00	-2,37	3,20	1,50	OK
L406	631,00	20,00	300,00	150,00	-1,68	2,52	1,00	OK
L408	539,00	20,00	300,00	150,00	-0,59	2,16		OK
L409	626,00	15,00	300,00	150,00	-2,33	2,50	1,50	OK
L410	170,00	20,00	300,00	150,00	-0,03	0,68		OK
L411	170,00	10,00	300,00	150,00	-0,03	0,68		OK
L412	90,00	10,00	50,00	150,00	-0,11	0,72		OK
L413	92,00	12,00	50,00	150,00	-0,08	0,74		OK

Flecha na ponta do balanço – laje404 = -0,98cm:



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Flechas nas vigas do Segundo Pavimento:

Viga	Tramo	Vão (cm)	Flecha (cm)	Flecha Adm. (cm)	Contra Flecha (cm)	Status
V401	1	788,00	-0,76	3,15	0,00	OK
V402	1	947,00	-1,16	3,79	0,00	OK
V403	1	492,00	-0,14	1,97	0,00	OK
V403	2	402,00	-0,03	1,61	0,00	OK
V403	3	507,00	-0,23	2,03	0,00	OK
V404	1	788,00	-0,98	3,15	0,00	OK
V405	1	937,00	-1,50	3,75	0,00	OK
V407	1	937,00	-1,54	3,75	0,00	OK
V408	1	344,00	-0,08	1,38	0,00	OK
V408	2	749,00	-0,54	3,00	0,00	OK
V408	3	304,00	-0,12	1,22	0,00	OK
V409	1	184,00	-0,05	0,74	0,00	OK
V409	2	238,00	-0,04	0,95	0,00	OK
V409	3	184,00	-0,03	0,74	0,00	OK
V410	1	798,00	-0,57	3,19	0,00	OK
V410	2	390,00	-0,02	1,56	0,00	OK
V411	1	410,00	-0,05	1,64	0,00	OK
V411	2	950,00	-0,82	3,80	0,00	OK
V412	1	169,00	-0,01	0,68	0,00	OK
V412	2	238,00	-0,01	0,95	0,00	OK
V412	3	169,00	-0,01	0,68	0,00	OK
V413	1	648,00	-0,29	2,59	0,00	OK
V413	2	661,00	0,09	2,64	0,00	OK
V413	3	648,00	-0,27	2,59	0,00	OK
V414	1	557,00	-0,28	2,23	0,00	OK
V414	2	742,00	-0,37	2,97	0,00	OK
V414	3	633,00	-0,27	2,53	0,00	OK
V416	1	224,00	-0,10	0,90	0,00	OK
V417	1	214,00	-0,01	0,86	0,00	OK
V418	1	214,00	-0,01	0,86	0,00	OK
V419	1	224,00	-0,06	0,90	0,00	OK
V421	1	648,00	-0,27	2,59	0,00	OK
V421	2	661,00	-0,13	2,64	0,00	OK
V421	3	648,00	-0,40	2,59	0,00	OK
V422	1	648,00	-0,20	2,59	0,00	OK
V422	2	661,00	-0,02	2,64	0,00	OK
V422	3	648,00	-0,20	2,59	0,00	OK
VE	1	740,00	-1,06	2,96	0,00	OK

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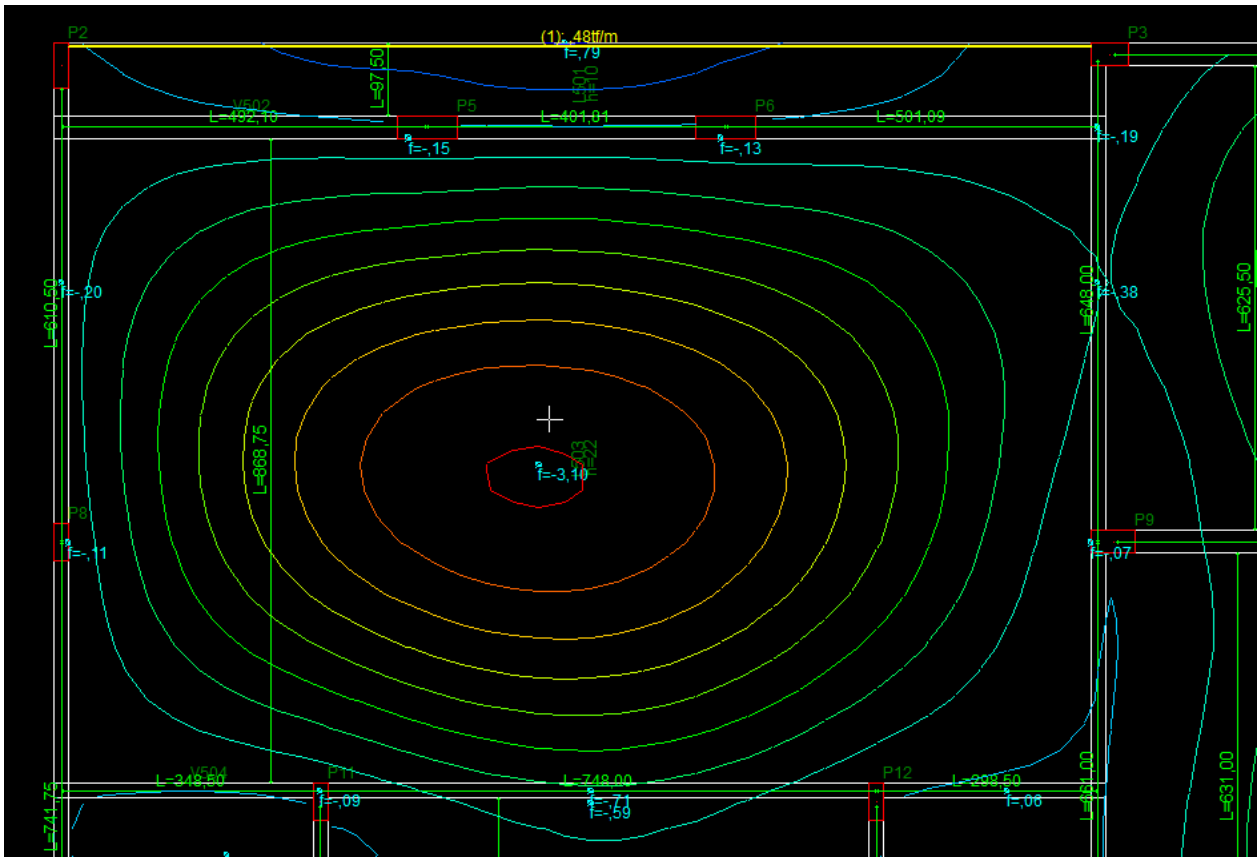
Flechas nas lajes da Cobertura:

Laje	Vão (cm)	Espessura (cm)	C.A. (kgf/m²)	C.P. (kgf/m²)	Flecha (cm)	Flecha Adm. (cm)	Contra Flecha (cm)	Status
L501	98,00	10,00	50,00	150,00	0,79	0,78		OK
L502	626,00	15,00	50,00	150,00	-2,35	2,50	1,50	OK
L503	869,00	22,00	50,00	150,00	-3,10	3,48	2,00	OK
L504	631,00	15,00	50,00	150,00	-1,63	2,52	1,00	OK
L505	330,00	10,00	50,00	150,00	0,16	1,32		OK
L506	408,00	10,00	50,00	150,00	-0,59	1,63	1,00	OK
L507	280,00	10,00	50,00	150,00	0,15	1,12		OK
L508	540,00	10,00	50,00	500,00	-1,13	2,16		
L509	382,00	10,00	50,00	500,00	-1,51	1,53		
L510	371,00	10,00	50,00	500,00	-0,59	1,48		
L511	626,00	15,00	50,00	150,00	-2,51	2,50	1,50	
L512	170,00	10,00	50,00	500,00	-0,03	0,68		OK
L513	170,00	10,00	50,00	500,00	0,02	0,68		OK
L514	90,00	10,00	50,00	150,00	-0,30	0,72		OK
L515	90,00	10,00	50,00	150,00	-0,34	0,72		OK

Flecha nas lajes L501 / L503:



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Flecha nas vigas da Cobertura:

Viga	Tramo	Vão (cm)	Flecha (cm)	Flecha Adm. (cm)	Contra Flecha (cm)	Status
V501	1	950,00	-0,75	3,80	0,00	OK
V502	1	492,00	-0,15	1,97	0,00	OK
V502	2	402,00	-0,13	1,61	0,00	OK
V502	3	502,00	-0,19	2,01	0,00	OK
V503	1	940,00	-1,16	3,76	0,00	OK
V504	1	359,00	-0,09	1,44	0,00	OK
V504	2	748,00	-0,71	2,99	0,00	OK
V504	3	299,00	0,06	1,20	0,00	OK
V505	1	940,00	-1,33	3,76	0,00	OK
V506	1	344,00	-0,04	1,38	0,00	OK
V506	2	748,00	-0,48	2,99	0,00	OK
V506	3	299,00	-0,13	1,20	0,00	OK
V507	1	184,00	-0,06	0,74	0,00	OK
V507	2	238,00	-0,07	0,95	0,00	OK
V507	3	184,00	-0,02	0,74	0,00	OK
V508	1	385,00	-0,07	1,54	0,00	OK
V509	1	410,00	-0,06	1,64	0,00	OK
V509	2	950,00	-0,53	3,80	0,00	OK
V510	1	169,00	-0,01	0,68	0,00	OK
V510	2	238,00	-0,02	0,95	0,00	OK
V510	3	169,00	0,00	0,68	0,00	OK
V511	1	560,00	-0,14	2,24	0,00	OK
V511	2	742,00	-0,11	2,97	0,00	OK
V511	3	611,00	-0,20	2,44	0,00	OK
V512	1	382,00	0,03	1,53	0,00	OK
V513	1	229,00	-0,05	0,92	0,00	OK
V513	2	416,00	-0,22	1,66	0,00	OK
V514	1	214,00	-0,01	0,86	0,00	OK
V515	1	214,00	-0,01	0,86	0,00	OK
V516	1	229,00	-0,04	0,92	0,00	OK
V516	2	416,00	-0,24	1,66	0,00	OK
V517	1	382,00	-0,02	1,53	0,00	OK
V518	1	648,00	-0,32	2,59	0,00	OK
V518	2	661,00	-0,07	2,64	0,00	OK
V518	3	648,00	-0,38	2,59	0,00	OK
V519	1	648,00	-0,15	2,59	0,00	OK
V519	2	661,00	-0,01	2,64	0,00	OK
V519	3	648,00	-0,15	2,59	0,00	OK

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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
```

elevador

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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  2.06 /B=  .20 /H=   .30  /BCs=  .41 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .5 tf* m - Abcis.= 103 | M.[-] =      1.0  tf* m
[tf,cm]| As =   1.25  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                  | As =   1.25  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07 | As =    .92   -STAS-  [  2 B  8.0mm ] | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7 |                          x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                     | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                       | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 188.   4.02  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.868     2.643       .50      .16      4   P21          .00    .00     21      0      0      0      0      0
              2     2.867     2.643       .50      .16      4   P22          .00    .00     22      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  2.37 /B=  .20 /H=   .30  /BCs=  .44 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       1.0 tf* m - Abcis.= 118 | M.[-] =      1.0  tf* m
[tf,cm]| As =   1.31  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                  | As =   1.31  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .08 | As =   1.22   -STAS-  [  2 B 10.0mm ] | AsL=    .00  ------     x/d  = .08
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .8 |                          x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                     | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .31                      |                                       | Asapo[+]=   .31

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 219.   4.62  26.48   1  45.     .1    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.299     3.041       .19      .01      4   P29          .00    .00     30      0      0      0      0      0
              2     3.299     3.041       .19      .01      4   P30          .00    .00     31      0      0      0      0      0
```


Rua Riachuelo, 240 - Centro - Campinas - SP - CEP: 13015-320 - Fone / Fax: (19) 3236-1034

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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.97 /B=  .20 /H=   .30  /BCs=  .40 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.1 tf* m              | M.[+] Max=       .6 tf* m - Abcis.= 114  | M.[-] =       .6  tf* m
[tf,cm]| As =   1.44  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .08 | As =    .92   -STAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7  |                         x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                      | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                        | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   4.34  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.094     2.847       .70      .26      4   P29         .00    .00     30      0      0      0      0      0
              2     2.550     2.347       .19      .01      4   P21         .00    .00     21      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.97 /B=  .20 /H=   .30  /BCs=  .40 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.1 tf* m              | M.[+] Max=       .6 tf* m - Abcis.= 114  | M.[-] =       .6  tf* m
[tf,cm]| As =   1.44  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .08 | As =    .92   -STAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7  |                         x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                      | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                        | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   4.34  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.094     2.847       .70      .26      4   P30         .00    .00     31      0      0      0      0      0
              2     2.550     2.347       .19      .01      4   P22         .00    .00     22      0      0      0      0      0
```


Rua Riachuelo, 240 - Centro - Campinas - SP - CEP: 13015-320 - Fone / Fax: (19) 3236-1034

Fundacao

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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  3.56 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .7 tf* m - Abcis.= 180   | M.[-] =      1.5  tf* m
[tf,cm]| As =   1.92  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                    | As =   2.05  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .11 | As =    .94   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                          | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 338.   3.57  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2  /L=  4.09 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=      1.0 tf* m - Abcis.= 207   | M.[-] =      1.7  tf* m
[tf,cm]| As =   2.85  -SRAS-   [  4 B 10.0mm] | AsL=    .00   ------                    | As =   2.21  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .17 | As =   1.38   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .13
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.1    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .85                      |                                          | Asapo[+]=   .34

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 391.   4.21  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.467     2.467       .60      .21      4   P1          .00    .00      1      0      0      0      0      0
              2     5.470     5.470       .30      .06      1   T1          .00    .00   8001      0      0      0      0      0
              3     2.758     2.758       .19      .01      4   P2          .00    .00      2      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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  3.06 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .4 tf* m - Abcis.= 127   | M.[-] =      2.1  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.51  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04 | As =   1.50   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .50                      |                                          | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 276.   3.85  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2  /L=  6.29 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      4.5 tf* m             | M.[+] Max=      2.6 tf* m - Abcis.= 314   | M.[-] =      5.1  tf* m
[tf,cm]| As =   3.37  -SRAS-   [  3 B 12.5mm] | AsL=    .00   ------                    | As =   3.78  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .11 | As =   1.89   -SRAS-  [  3 B 10.0mm ]   | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.8    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                      |                                          | Asapo[+]=   .47

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 599.   6.71  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.830     1.830       .50      .10      4   P3          .00    .00      3      0      0      0      0      0
              2     7.384     7.384       .30      .00      1   T2          .00    .00   8002      0      0      0      0      0
              3     4.796     4.796       .60      .15      4   P4          .00    .00      4      0      0      0      0      0
```


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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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.64 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m                 | M.[+] Max=      2.1 tf* m - Abcis.= 164    | M.[-] =      4.0  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                      | As =   3.89  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   2.00   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .16
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.0      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   115.8                       | M[+]Min =   115.8                          | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.20                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 442.   5.97  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  3.46 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      .7 tf* m - Abcis.= 200     | M.[-] =      1.5  tf* m
[tf,cm]| As =   1.37  -SRAS-   [  2 B 16.0mm]    | AsL=    .00   ------                      | As =   1.38  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .06    | As =   1.20   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   115.8                       | M[+]Min =   115.8                          | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 322.   3.56  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  4.73 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      4.2 tf* m                  | M.[+] Max=      2.2 tf* m - Abcis.= 334    | M.[-] =       .0  tf* m
[tf,cm]| As =   4.13  -SRAS-   [  2 B 16.0mm]    | AsL=    .00   ------                      | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .17    | As =   2.07   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.1      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   115.8                       | M[+]Min =   115.8                          | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                         |                                            | Asapo[+]=  1.20

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 451.   6.11  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.527     2.527       .20      .00      2   V230        .00    .00      0      0      0      0      0      0
              2     6.709     6.709       .80      .28      4   P5          .00    .00      5      0      0      0      0      0
              3     6.811     6.811       .80      .28      4   P6          .00    .00      6      0      0      0      0      0
              4     2.557     2.557       .20      .00      2   V237        .00    .00      0      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.17 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .2 tf* m - Abcis.=  54    | M.[-] =      1.8  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]    | AsL=    .00   ------                      | As =   2.44  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .00    | As =    .93   -SRAS-  [  2 B  8.0mm ]      | AsL=    .00  ------     x/d  = .14
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =    65.1                       | M[+]Min =    65.1                          | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                         |                                            | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 199.   3.31  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1      .689      .689       .20      .01      2   V225        .00    .00      0      0      0      0      0      0
              2     2.363     2.363       .30      .06      1   T3          .00    .00   8003      0      0      0      0      0
```


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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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.01 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .3 tf* m - Abcis.= 100   | M.[-] =       .4  tf* m
[tf,cm]| As =    .90  -SRAS-   [  2 B  8.0mm]  | AsL=    .00   ------                    | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =    .93   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    65.1                     | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                       |                                          | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 183.   1.97  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.406     1.406       .30      .06      1   T4          .00    .00   8004      0      0      0      0      0
              2     1.406     1.406       .30      .06      1   T5          .00    .00   8005      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.77 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .6 tf* m - Abcis.=  88   | M.[-] =       .0  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]  | AsL=    .00   ------                    | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------       x/d  = .00  | As =    .93   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    65.1                     | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                       |                                          | Asapo[+]=   .90

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 159.   1.77  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.261     1.261       .20      .01      2   V226        .00    .00      0      0      0      0      0      0
              2     1.245     1.245       .20      .01      2   V228        .00    .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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.83 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .2 tf* m - Abcis.=  92   | M.[-] =       .4  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                    | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =   1.20   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   115.8                     | M[+]Min =   115.8                        | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .40                       |                                          | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 159.   1.89  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  1.74 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .1 tf* m - Abcis.=  74   | M.[-] =       .7  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                    | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =   1.20   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   115.8                     | M[+]Min =   115.8                        | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                       |                                          | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 150.   2.15  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  3.83 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .10   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---
```


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```
-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E 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=       .9 tf* m - Abcis.= 193    | M.[-] =      1.8  tf* m
[tf,cm]| As =   1.56  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                      | As =   1.69  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07 | As =   1.20   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                          | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                            | Asapo[+]=   .30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 359.   3.95  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.349     1.349       .60      .18      4   P7          .00    .00      7      0      0      0      0      0
              2     2.299     2.299       .30      .03      1   T6          .00    .00   8006      0      0      0      0      0
              3     4.251     4.251       .30      .03      1   T7          .00    .00   8007      0      0      0      0      0
              4     2.820     2.820       .50      .13      4   P8          .00    .00      8      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.96 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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=       .7 tf* m - Abcis.= 147    | M.[-] =      2.4  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                      | As =   1.76  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04 | As =   1.50   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .38                      |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 266.   4.84  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.18 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      4.4 tf* m               | M.[+] Max=      2.5 tf* m - Abcis.= 309    | M.[-] =      4.9  tf* m
[tf,cm]| As =   3.30  -SRAS-   [  3 B 12.5mm] | AsL=    .00   ------                      | As =   3.66  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .11 | As =   1.81   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.7      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                      |                                            | Asapo[+]=   .45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 589.   6.60  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.271     2.271       .60      .15      4   P9          .00    .00      9      0      0      0      0      0
              2     8.022     8.021       .30      .00      1   T8          .00    .00   8008      0      0      0      0      0
              3     4.713     4.713       .70      .20      4   P10         .00    .00     10      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.17 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m               | M.[+] Max=       .2 tf* m - Abcis.=  54    | M.[-] =      1.8  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm] | AsL=    .00   ------                      | As =   2.47  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .00 | As =    .93   -SRAS-  [  2 B  8.0mm ]     | AsL=    .00  ------     x/d  = .15
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                          | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                      |                                            | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 199.   3.33  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1      .674      .674       .20      .01      2   V225        .00    .00      0      0      0      0      0      0
              2     2.378     2.378       .30      .06      1   T9          .00    .00   8009      0      0      0      0      0
```


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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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.12 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      4.1 tf* m             | M.[+] Max=      1.6 tf* m - Abcis.= 274   | M.[-] =       .0  tf* m
[tf,cm]| As =   3.99  -SRAS-   [  2 B 16.0mm] | AsL=    .00   ------                     | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------       x/d  = .17 | As =   1.54   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.3    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                        | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .38                      |                                          | Asapo[+]=  1.20

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 390.   6.18  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     4.410     4.410       .30      .03      1   T10         .00    .00   8010      0      0      0      0      0
              2     2.201     2.201       .20      .00      2   V230        .00    .00      0      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  7.48 /B=  .30 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E 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=      3.6 tf* m - Abcis.= 374   | M.[-] =      4.2  tf* m
[tf,cm]| As =   3.10  -SRAS-   [  4 B 10.0mm] | AsL=    .00   ------                     | As =   3.09  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07 | As =   2.63   -SRAS-  [  4 B 10.0mm ]    | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.6    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   271.4                    | M[+]Min =   271.4                        | M[-]Min =   271.4
[cm2  ]| Asapo[+]=   .66                      |                                          | Asapo[+]=   .66

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 729.   5.90  70.26   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     4.207     4.207       .19      .00      4   P11         .00    .00     11      0      0      0      0      0
              2     4.208     4.208       .19      .00      4   P12         .00    .00     12      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.00 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m              | M.[+] Max=      .3 tf* m - Abcis.=  99    | M.[-] =      .4  tf* m
[tf,cm]| As =    .90  -SRAS-   [  2 B  8.0mm] | AsL=    .00   ------                     | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =    .93   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                          | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 182.   1.96  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.398     1.398       .30      .06      1   T11         .00    .00   8011      0      0      0      0      0
              2     1.397     1.397       .30      .06      1   T12         .00    .00   8012      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.28 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m              | M.[+] Max=      .0 tf* m - Abcis.= 133    | M.[-] =      1.1  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm] | AsL=    .00   ------                     | As =   1.48  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .00 | As =    .93   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .09
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                      |                                          |
```


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```
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                    | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .31                      |                                      | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 110.   2.51  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 2  /L=  2.73 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .5 tf* m - Abcis.= 186   | M.[-] =       .0  tf* m
[tf,cm]| As =   2.85  -SRAS-   [  4 B 10.0mm] | AsL=    .00   ------                     | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------       x/d  = .17 | As =    .93   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                    | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .85                      |                                      | Asapo[+]=   .90

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 256.   3.80  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1      .033      .033       .20      .01      2   V228        .00    .00      0      0      0      0      0      0
              2     4.447     4.447       .30      .06      1   T13         .00    .00   8013      0      0      0      0      0
              3     1.165     1.165       .20      .01      2   V230        .00    .00      0      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 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  2.22 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m               | M.[+] Max=       .9 tf* m - Abcis.= 111   | M.[-] =       .0  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm] | AsL=    .00   ------                     | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------       x/d  = .00 | As =   1.12   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.7    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                    | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                      |                                      | Asapo[+]=   .90

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 204.   2.20  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.567     1.567       .20      .01      2   V225        .00    .00      0      0      0      0      0      0
              2     1.569     1.569       .20      .01      2   V226        .00    .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 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  1.76 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m               | M.[+] Max=       .2 tf* m - Abcis.=  91   | M.[-] =       .4  tf* m
[tf,cm]| As =    .90  -SRAS-   [  2 B  8.0mm] | AsL=    .00   ------                     | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =    .93   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                    | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                      | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 159.   1.75  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 2  /L=  1.67 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m               | M.[+] Max=       .1 tf* m - Abcis.=  74   | M.[-] =       .6  tf* m
[tf,cm]| As =    .90  -SRAS-   [  2 B  8.0mm] | AsL=    .00   ------                     | As =    .90  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =    .93   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                    | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .85                      |                                      | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 149.   1.94  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 3  /L=  3.78 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .10   [M]
```


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

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E 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=      1.0 tf* m - Abcis.= 191 | M.[-] =      1.9  tf* m
[tf,cm]| As =   2.74  -SRAS-   [  4 B 10.0mm] | AsL=    .00   ------                   | As =   2.58  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .16 | As =   1.35   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .15
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.0  |                         x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                      | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .85                      |                                        | Asapo[+]=   .34

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 360.   4.49  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .5

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.249     1.249       .60      .21      4   P13         .00    .00     13      0      0      0      0      0
              2     2.190     2.190       .30      .06      1   T14         .00    .00   8014      0      0      0      0      0
              3     4.525     4.523       .30      .06      1   T15         .00    .00   8015      0      0      0      0      0
              4     2.881     2.880       .50      .16      4   P14         .00    .00     14      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 CM

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 1  /L=  2.96 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      1.7 tf* m              | M.[+] Max=      1.4 tf* m - Abcis.= 172 | M.[-] =      3.1  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                   | As =   2.24  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04 | As =   1.50   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2  |                         x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                      | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .38                      |                                        | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 266.   6.49  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 2  /L=  6.18 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      4.5 tf* m              | M.[+] Max=      2.5 tf* m - Abcis.= 309 | M.[-] =      4.9  tf* m
[tf,cm]| As =   3.37  -SRAS-   [  3 B 12.5mm] | AsL=    .00   ------                   | As =   3.62  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .11 | As =   1.80   -SRAS-  [  3 B 10.0mm ]  | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.7  |                         x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                      | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                      |                                        | Asapo[+]=   .45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 589.   6.57  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.063     3.063       .60      .15      4   P15         .00    .00     15      0      0      0      0      0
              2     9.222     9.222       .30      .00      1   T16         .00    .00   8016      0      0      0      0      0
              3     4.690     4.690       .70      .20      4   P16         .00    .00     16      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 CM

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 1  /L=  7.48 /B=  .30 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =      6.6 tf* m              | M.[+] Max=      7.6 tf* m - Abcis.= 374 | M.[-] =      6.7  tf* m
[tf,cm]| As =   4.86  -SRAS-   [  4 B 12.5mm] | AsL=    .00   ------                   | As =   4.95  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .11 | As =   5.65   -SRAS-  [  3 B 16.0mm ]  | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  5.6  |                         x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   271.4                    | M[+]Min =   271.4                      | M[-]Min =   271.4
[cm2  ]| Asapo[+]=  1.41                      |                                        | Asapo[+]=  1.41

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 729.  14.08  70.26   1  45.    1.2    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    10.047     9.536       .19      .00      4   P17         .00    .00     17      0      0      0      0      0
              2     5.693     5.491       .19      .00      4   P18         .00    .00     18      0      0      0      0      0
```


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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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  3.29 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      1.2 tf* m             | M.[+] Max=       .8 tf* m - Abcis.= 166  | M.[-] =      1.8  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.71  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.20   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8   |                         x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                       | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .30                      |                                         | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 306.   4.20  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .3

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 2  /L=  4.51 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      2.4 tf* m             | M.[+] Max=      1.3 tf* m - Abcis.= 227  | M.[-] =      2.4  tf* m
[tf,cm]| As =   2.31  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                    | As =   2.31  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .10 | As =   1.20   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .10
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8   |                         x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                       | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                         | Asapo[+]=   .30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 427.   4.63  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.391     2.391       .30      .03      1   T17          .00    .00   8017      0      0      0      0      0
              2     6.221     6.221       .30      .03      1   T18          .00    .00   8018      0      0      0      0      0
              3     3.278     3.278       .50      .13      4   P19          .00    .00     19      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  2.00 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .3 tf* m - Abcis.= 100  | M.[-] =       .4  tf* m
[tf,cm]| As =    .90  -SRAS-   [  2 B  8.0mm] | AsL=    .00   ------                    | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =    .93   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4   |                         x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                       | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                      |                                         | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 182.   1.96  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.400     1.400       .30      .06      1   T19          .00    .00   8019      0      0      0      0      0
              2     1.400     1.400       .30      .06      1   T20          .00    .00   8020      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  3.29 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=      1.0 tf* m - Abcis.= 109  | M.[-] =      2.0  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm] | AsL=    .00   ------                    | As =   2.71  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .00 | As =   1.32   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .16
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.0   |                         x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                       | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                      |                                         | Asapo[+]=   .33

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 311.   4.08  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0
```


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```
REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     1.702     1.702       .20      .01      2  V225        .00    .00      0      0      0      0      0      0
                2     2.911     2.911       .30      .06      1  T21         .00    .00   8021      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 CM

--------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 1  /L=  1.73 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .2 tf* m - Abcis.=  94      | M.[-] =       .5  tf* m
[tf,cm]| As =    .85  -SRAS-   [  2 B  8.0mm]   | AsL=    .00   ------                         | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05   | As =    .89   -SRAS-  [  2 B  8.0mm ]        | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4        |                          x/dMx= .37
       |                                        |                                              |
[tf,cm]| M[-]Min =    61.9                      | M[+]Min =    61.9                            | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .30                        |                                              | Asapo[+]=   .81

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 155.   1.98  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

--------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 2  /L=  2.06 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .3 tf* m - Abcis.= 138      | M.[-] =       .7  tf* m
[tf,cm]| As =    .89  -SRAS-   [  2 B  8.0mm]   | AsL=    .00   ------                         | As =    .86  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .06   | As =    .89   -SRAS-  [  2 B  8.0mm ]        | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4        |                          x/dMx= .37
       |                                        |                                              |
[tf,cm]| M[-]Min =    61.9                      | M[+]Min =    61.9                            | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .81                        |                                              | Asapo[+]=   .81

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 188.   2.30  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

--------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 3  /L=  1.73 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =       .6 tf* m                 | M.[+] Max=       .2 tf* m - Abcis.=  94      | M.[-] =       .3  tf* m
[tf,cm]| As =    .85  -SRAS-   [  2 B  8.0mm]   | AsL=    .00   ------                         | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05   | As =    .89   -SRAS-  [  2 B  8.0mm ]        | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4        |                          x/dMx= .37
       |                                        |                                              |
[tf,cm]| M[-]Min =    61.9                      | M[+]Min =    61.9                            | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .81                        |                                              | Asapo[+]=   .30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 155.   2.01  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     1.242     1.006       .19      .01      4  P20         .00    .00     20      0      0      0      0      0
                2     2.801     2.652       .50      .16      0  P21         .00    .00     21      0      0      0      0      0
                3     2.790     2.643       .50      .16      0  P22         .00    .00     22      0      0      0      0      0
                4     1.227      .989       .19      .01      4  P23         .00    .00     23      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 CM

--------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 1  /L=  3.04 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .5 tf* m - Abcis.= 153      | M.[-] =      1.4  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]   | AsL=    .00   ------                         | As =   1.30  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05   | As =   1.20   -SRAS-  [  2 B 10.0mm ]        | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8        |                          x/dMx= .37
       |                                        |                                              |
[tf,cm]| M[-]Min =   115.8                      | M[+]Min =   115.8                            | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .30                        |                                              | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 280.   3.32  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

--------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 2  /L=  4.79 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      1.4 tf* m - Abcis.= 241      | M.[-] =      2.8  tf* m
[tf,cm]| As =   2.54  -SRAS-   [  4 B 10.0mm]   | AsL=    .00   ------                         | As =   2.71  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .11   | As =   1.33   -SRAS-  [  2 B 10.0mm ]        | AsL=    .00  ------     x/d  = .11
```


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```
       |                          x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.0      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   115.8                      | M[+]Min =   115.8                          | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                        |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 458.   4.93  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  3.90 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      1.5 tf* m - Abcis.= 259    | M.[-] =       .0  tf* m
[tf,cm]| As =   2.68  -SRAS-   [  4 B 10.0mm]    | AsL=    .00   ------                      | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .11    | As =   1.39   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.1      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   115.8                       | M[+]Min =   115.8                          | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                         |                                            | Asapo[+]=  1.20

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 370.   4.95  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
               1     2.067     2.067       .50      .13      4   P24         .00    .00     25      0      0      0      0      0
               2     5.773     5.773       .30      .03      1   T22         .00    .00   8022      0      0      0      0      0
               3     7.060     7.060       .19      .00      4   P25         .00    .00     26      0      0      0      0      0
               4     2.108     2.108       .20      .00      2   V232        .00    .00      0      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  3.95 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m                 | M.[+] Max=      1.6 tf* m - Abcis.= 136    | M.[-] =      3.0  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]    | AsL=    .00   ------                      | As =   2.17  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .00    | As =   1.50   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .07
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.50                         |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 370.   5.26  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.96 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .3 tf* m - Abcis.= 129    | M.[-] =      2.0  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                      | As =   1.50  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04    | As =   1.50   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                         |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 266.   3.71  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.29 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      4.5 tf* m                 | M.[+] Max=      2.6 tf* m - Abcis.= 314    | M.[-] =      5.1  tf* m
[tf,cm]| As =   3.36  -SRAS-   [  3 B 12.5mm]    | AsL=    .00   ------                      | As =   3.78  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .11    | As =   1.89   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                         |                                            | Asapo[+]=   .47

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 599.   6.72  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
               1     2.224     2.224       .20      .00      2   V235        .00    .00      0      0      0      0      0      0
               2     5.485     5.485       .60      .15      4   P26         .00    .00     27      0      0      0      0      0
               3     7.276     7.276       .30      .00      1   T23         .00    .00   8023      0      0      0      0      0
               4     4.799     4.799       .60      .15      4   P27         .00    .00     28      0      0      0      0      0
```


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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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.57 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .2 tf* m - Abcis.=  52   | M.[-] =       .6  tf* m
[tf,cm]| As =    .85  -SRAS-   [  2 B  8.0mm]  | AsL=    .00   ------                    | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =    .89   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    61.9                     | M[+]Min =    61.9                        | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .22                       |                                          | Asapo[+]=   .81

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 139.   1.98  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.37 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .4 tf* m - Abcis.= 119   | M.[-] =       .7  tf* m
[tf,cm]| As =    .88  -SRAS-   [  2 B  8.0mm]  | AsL=    .00   ------                    | As =    .86  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =    .89   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    61.9                     | M[+]Min =    61.9                        | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .81                       |                                          | Asapo[+]=   .81

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 219.   2.42  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  1.57 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .2 tf* m - Abcis.= 105   | M.[-] =       .3  tf* m
[tf,cm]| As =    .85  -SRAS-   [  2 B  8.0mm]  | AsL=    .00   ------                    | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =    .89   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    61.9                     | M[+]Min =    61.9                        | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .81                       |                                          | Asapo[+]=   .30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 139.   1.95  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.134      .770       .50      .16      4   P28          .00    .00     29      0      0      0      0      0
              2     3.042     2.738       .19      .01      0   P29          .00    .00     30      0      0      0      0      0
              3     3.055     2.725       .19      .01      0   P30          .00    .00     31      0      0      0      0      0
              4     1.078      .808       .50      .16      4   P31          .00    .00     32      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.70 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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=      2.7 tf* m - Abcis.= 235   | M.[-] =      3.5  tf* m
[tf,cm]| As =   2.51  -SRAS-   [  2 B 12.5mm]  | AsL=    .00   ------                    | As =   2.55  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .08  | As =   1.97   -SRAS-  [  3 B 10.0mm ]   | AsL=    .00  ------     x/d  = .08
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  2.9    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   181.0                     | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .49                       |                                          | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 440.   6.15  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  1.85 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =       .9 tf* m             | M.[+] Max=       .0 tf* m - Abcis.= 185   | M.[-] =      1.9  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                    | As =   1.50  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04  | As =   1.50   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                         x/dMx= .37
```


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```
       |                                  |                                  |
[tf,cm]| M[-]Min =   181.0                 | M[+]Min =   181.0                | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                   |                                  | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 155.   2.75  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 3  /L=  6.56 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      6.6 tf* m           | M.[+] Max=      3.5 tf* m - Abcis.= 330 | M.[-] =      7.0  tf* m
[tf,cm]| As =   5.04  -SRAS-   [  4 B 12.5mm] | AsL=    .00   ------               | As =   5.34  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .17 | As =   2.59   -SRAS-  [  4 B 10.0mm ] | AsL=    .00  ------     x/d  = .18
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  3.9 |                          x/dMx= .37
       |                                  |                                  |
[tf,cm]| M[-]Min =   181.0                 | M[+]Min =   181.0                | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                   |                                  | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 626.   8.74  46.84   1  45.     .4    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 4  /L=  6.50 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      6.2 tf* m           | M.[+] Max=      3.2 tf* m - Abcis.= 382 | M.[-] =      5.2  tf* m
[tf,cm]| As =   4.69  -SRAS-   [  3 B 16.0mm] | AsL=    .00   ------               | As =   3.88  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .15 | As =   2.31   -SRAS-  [  3 B 10.0mm ] | AsL=    .00  ------     x/d  = .13
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  3.4 |                          x/dMx= .37
       |                                  |                                  |
[tf,cm]| M[-]Min =   181.0                 | M[+]Min =   181.0                | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                   |                                  | Asapo[+]=   .58

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 621.   7.51  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     4.366     4.366       .30      .00      4   P24          .00    .00     25      0      0      0      0      0
              2     5.205     5.205       .30      .00      1   T17          .00    .00   8017      0      0      0      0      0
              3     8.205     8.205       .30      .00      4   P13          .00    .00     13      0      0      0      0      0
              4    11.128    11.127       .40      .05      4   P7           .00    .00      7      0      0      0      0      0
              5     5.159     5.159       .30      .00      4   P1           .00    .00      1      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  1.82 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m           | M.[+] Max=       .1 tf* m - Abcis.=  46 | M.[-] =      1.4  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm] | AsL=    .00   ------               | As =   1.29  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .00 | As =   1.20   -SRAS-  [  2 B 10.0mm ] | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8 |                          x/dMx= .37
       |                                  |                                  |
[tf,cm]| M[-]Min =   115.8                 | M[+]Min =   115.8                | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.20                   |                                  | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 160.   2.94  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 2  /L=  4.17 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      3.0 tf* m           | M.[+] Max=      1.8 tf* m - Abcis.= 211 | M.[-] =      2.7  tf* m
[tf,cm]| As =   2.82  -SRAS-   [  4 B 10.0mm] | AsL=    .00   ------               | As =   2.57  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .12 | As =   1.68   -SRAS-  [  3 B 10.0mm ] | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.5 |                          x/dMx= .37
       |                                  |                                  |
[tf,cm]| M[-]Min =   115.8                 | M[+]Min =   115.8                | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                   |                                  | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 393.   5.63  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 3  /L=  2.32 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =       .9 tf* m           | M.[+] Max=       .1 tf* m - Abcis.= 118 | M.[-] =       .9  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------               | As =   1.20  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.20   -SRAS-  [  2 B 10.0mm ] | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8 |                          x/dMx= .37
```


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```
       |                                  |                                  |
[tf,cm]| M[-]Min =   115.8                | M[+]Min =   115.8                | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                  |                                  | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 208.   2.41  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 4  /L=  3.96 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      2.6 tf* m           | M.[+] Max=      1.5 tf* m - Abcis.= 166    | M.[-] =      2.2  tf* m
[tf,cm]| As =   2.43  -SRAS-   [  2 B 12.5mm]    | AsL=    .00   ------            | As =   2.04  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .10    | As =   1.38   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .09
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.1    |                          x/dMx= .37
       |                                         |                                  |
[tf,cm]| M[-]Min =   115.8                | M[+]Min =   115.8                | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                  |                                  | Asapo[+]=   .34

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 372.   5.32  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1      .572      .572       .20      .00      2   V218         .00    .00      0      0      0      0      0      0
              2     6.037     6.037       .30      .03      1   T14          .00    .00   8014      0      0      0      0      0
              3     5.348     5.348       .30      .03      1   T9           .00    .00   8009      0      0      0      0      0
              4     5.408     5.408       .30      .03      1   T6           .00    .00   8006      0      0      0      0      0
              5     3.259     3.259       .30      .03      1   T3           .00    .00   8003      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 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  2.35 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m           | M.[+] Max=       .4 tf* m - Abcis.= 118    | M.[-] =       .7  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------            | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.20   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                          x/dMx= .37
       |                                         |                                  |
[tf,cm]| M[-]Min =   115.8                | M[+]Min =   115.8                | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .40                  |                                  | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 211.   2.53  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 2  /L=  2.29 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m           | M.[+] Max=       .3 tf* m - Abcis.= 116    | M.[-] =       .5  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------            | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.20   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                          x/dMx= .37
       |                                         |                                  |
[tf,cm]| M[-]Min =   115.8                | M[+]Min =   115.8                | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                  |                                  | Asapo[+]=   .40

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 205.   2.48  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.622     1.622       .30      .03      1   T22          .00    .00   8022      0      0      0      0      0
              2     3.528     3.528       .30      .03      1   T21          .00    .00   8021      0      0      0      0      0
              3     1.574     1.574       .30      .03      1   T18          .00    .00   8018      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 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  4.17 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      1.9 tf* m           | M.[+] Max=      1.3 tf* m - Abcis.= 208    | M.[-] =      2.0  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------            | As =   1.50  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04    | As =   1.50   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                          x/dMx= .37
       |                                         |                                  |
[tf,cm]| M[-]Min =   181.0                | M[+]Min =   181.0                | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .38                  |                                  | Asapo[+]=  1.42

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


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```
[tf,cm]        0.- 387.   4.45  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.45 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .0 tf* m - Abcis.= 244    | M.[-] =      2.3  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                        | As =   1.65  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------        x/d  = .04    | As =   1.50   -SRAS-  [  2 B 10.0mm ]     | AsL=    .00  ------     x/d  = .05
       |                            x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2     |                          x/dMx= .37
       |                                          |                                           |
[tf,cm]| M[-]Min =   181.0                        | M[+]Min =   181.0                         | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                          |                                           | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 215.   3.58  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.61 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      6.3 tf* m                 | M.[+] Max=      3.3 tf* m - Abcis.= 330    | M.[-] =      5.3  tf* m
[tf,cm]| As =   4.81  -SRAS-   [  4 B 12.5mm]    | AsL=    .00   ------                        | As =   3.93  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------        x/d  = .16    | As =   2.45   -SRAS-  [  2 B 12.5mm ]     | AsL=    .00  ------     x/d  = .13
       |                            x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.7     |                          x/dMx= .37
       |                                          |                                           |
[tf,cm]| M[-]Min =   181.0                        | M[+]Min =   181.0                         | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                          |                                           | Asapo[+]=   .61

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 631.   8.50  46.84   1  45.     .3    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.108     3.108       .30      .00      1   T15          .00    .00   8015      0      0      0      0      0
              2     4.295     4.295       .30      .00      1   T10          .00    .00   8010      0      0      0      0      0
              3     8.631     8.631       .30      .00      1   T7           .00    .00   8007      0      0      0      0      0
              4     5.080     5.080       .30      .00      1   T1           .00    .00   8001      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.01 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .2 tf* m - Abcis.=  51    | M.[-] =      1.4  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]    | AsL=    .00   ------                        | As =   1.80  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------        x/d  = .00    | As =    .93   -SRAS-  [  2 B  8.0mm ]     | AsL=    .00  ------     x/d  = .11
       |                            x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4     |                          x/dMx= .37
       |                                          |                                           |
[tf,cm]| M[-]Min =    65.1                        | M[+]Min =    65.1                         | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                          |                                           | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 183.   2.96  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.02 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .2 tf* m - Abcis.= 155    | M.[-] =       .0  tf* m
[tf,cm]| As =   2.13  -SRAS-   [  3 B 10.0mm]    | AsL=    .00   ------                        | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------        x/d  = .13    | As =    .93   -SRAS-  [  2 B  8.0mm ]     | AsL=    .00  ------     x/d  = .00
       |                            x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4     |                          x/dMx= .37
       |                                          |                                           |
[tf,cm]| M[-]Min =    65.1                        | M[+]Min =    65.1                         | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .85                          |                                           | Asapo[+]=   .90

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 184.   3.13  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1      .748      .748       .20      .01      2   V215         .00    .00      0      0      0      0      0      0
              2     4.284     4.284       .30      .06      1   T13          .00    .00   8013      0      0      0      0      0
              3      .637      .637       .20      .01      2   V210         .00    .00      0      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.50 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      2.6 tf* m              | M.[+] Max=      1.4 tf* m - Abcis.= 225   | M.[-] =      2.2  tf* m
[tf,cm]| As =   1.86  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                     | As =   1.61  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.50   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .38                      |                                          | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 420.   4.84  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

--------------------------------   G E O M E T R I A       E      C A R G A S   --------------------------------
Vao= 2  /L=  1.85 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .0 tf* m - Abcis.= 185   | M.[-] =      2.3  tf* m
[tf,cm]| As =   1.50  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                     | As =   1.67  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   1.50   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                      |                                          | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 155.   3.52  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

--------------------------------   G E O M E T R I A       E      C A R G A S   --------------------------------
Vao= 3  /L=  6.56 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      7.2 tf* m              | M.[+] Max=      4.2 tf* m - Abcis.= 330   | M.[-] =      8.3  tf* m
[tf,cm]| As =   5.47  -SRAS-   [  3 B 16.0mm] | AsL=    .00   ------                     | As =   6.43  -SRAS- [  2 B 20.0mm]
       | AsL=    .00  ------       x/d  = .18 | As =   3.14   -SRAS-  [  4 B 10.0mm ]    | AsL=    .00  ------     x/d  = .21
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  4.7    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                      |                                          | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 626.   9.73  46.84   1  45.    1.0    2.3      2.3  5.0 15.0  2    .0    .0

--------------------------------   G E O M E T R I A       E      C A R G A S   --------------------------------
Vao= 4  /L=  6.21 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      5.3 tf* m              | M.[+] Max=      2.5 tf* m - Abcis.= 312   | M.[-] =      5.8  tf* m
[tf,cm]| As =   4.06  -SRAS-   [  2 B 20.0mm] | AsL=    .00   ------                     | As =   4.49  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .13 | As =   1.88   -SRAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .15
       |                           x/dMx= .37 | Arm.Lat.=[2 X  3 B  4.2mm] - LN=  2.7    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   181.0                    | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.52                      |                                          | Asapo[+]=   .47

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 394.   6.83  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0
            394.- 591.   9.83  46.84   1  45.    1.0    2.3      2.7  5.0 12.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 394.    .00   3.09   5  7.1  11.1  41.1     .0     1.7    .1    .3    .15   S
            394.- 591.    .00   3.09   5  7.1  11.1  41.1     .0     1.7    .1    .3    .21   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     3.452     3.452       .50      .10      4   P25          .00    .00     26      0      0      0      0      0
                2     3.569     3.569       .30      .00      4   P19          .00    .00     19      0      0      0      0      0
                3     8.871     8.871       .30      .00      4   P14          .00    .00     14      0      0      0      0      0
                4    11.657    11.657       .40      .05      4   P8           .00    .00      8      0      0      0      0      0
                5     7.024     7.023       .60      .15      4   P2           .00    .00      2      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 CM

--------------------------------   G E O M E T R I A       E      C A R G A S   --------------------------------
Vao= 1  /L=  3.54 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .7 tf* m - Abcis.= 177   | M.[-] =      1.4  tf* m
[tf,cm]| As =   1.94  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                     | As =   1.92  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .11 | As =    .96   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    65.1                    | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .24                      |                                          | Asapo[+]=   .24

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 336.   3.48  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0
```

```
REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.483     2.483       .60      .21      4   P17         .00    .00     17      0      0      0      0      0
                2     2.473     2.473       .50      .16      4   P11         .00    .00     11      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  2.21 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m           | M.[+] Max=      1.0 tf* m - Abcis.=  91 | M.[-] =      1.3  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                 | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.20   -SRAS-  [  2 B 10.0mm ] | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                     | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .30                      |                                       | Asapo[+]=   .30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 199.   3.82  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0   1.2

-------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2B /L=  1.37 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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  | M[-]=     1.28 tf* m              | As =   1.20   -SRAS-       [   2 B 10.0mm]
BAL.DIR |                          x/d = .05 | AsL=    .00   -
[tf,cm] | M[-]Min=  115.8      -  x/dMx = .50 |                                        | % Baric.Armad.= 1

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.-  98.   2.24  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.579     2.579       .19      .00      4   P28         .00    .00     29      0      0      0      0      0
                2     4.330     4.330       .50      .13      4   P20         .00    .00     20      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  1.97 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.2 tf* m           | M.[+] Max=       .5 tf* m - Abcis.=  49 | M.[-] =       .9  tf* m
[tf,cm]| As =   1.56  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                 | As =   1.19  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .10 | As =    .89   -SRAS-  [  2 B  8.0mm ] | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                     | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .85                      |                                       | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   2.95  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.101      .763       .70      .26      0   P29         .00    .00     30      0      0      0      0      0
                2     1.982      .643       .19      .01      0   P21         .00    .00     21      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  1.97 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.2 tf* m           | M.[+] Max=       .5 tf* m - Abcis.=  49 | M.[-] =       .9  tf* m
[tf,cm]| As =   1.59  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                 | As =   1.21  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .10 | As =    .89   -SRAS-  [  2 B  8.0mm ] | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                     | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .85                      |                                       | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   2.97  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

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


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```
              1     2.121      .748       .70       .26       0   P30          .00     .00      31       0       0       0       0       0
              2     1.996      .623       .19       .01       0   P22          .00     .00      22       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 CM

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 1  /L=  2.23 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m                 | M.[+] Max=      1.2 tf* m - Abcis.=  93   | M.[-] =      2.0  tf* m
[tf,cm]| As =   1.59  -SRAS-   [  2 B 10.0mm]   | AsL=    .00   ------                     | As =   1.59  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04   | As =   1.59   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37   | Arm.Lat.=[2 X  3 B  4.2mm] - LN=  2.2    |                          x/dMx= .37
       |                                        |                                          |
[tf,cm]| M[-]Min =   181.0                      | M[+]Min =   181.0                        | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .53                        |                                          | Asapo[+]=   .40

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 114.   3.64  46.84   1  45.     .0    2.3      2.7  5.0 12.5  2    .0   1.1
              114.- 199.   4.17  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 114.    .00   3.09   5  7.1  11.1  41.1     .0     1.7    .1    .3    .08   S
              114.- 199.    .00   3.09   5  7.1  11.1  41.1     .0     1.7    .1    .3    .09   S

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 2B /L=  1.34 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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  | M[-]=     2.00 tf* m                | As =   1.50   -SRAS-       [   2 B 10.0mm]
BAL.DIR |                        x/d = .05 | AsL=    .00   -
[tf,cm] | M[-]Min=  181.0      -  x/dMx = .50 |                                          | % Baric.Armad.= 1

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.-  98.   2.38  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.600     2.600       .19      .00      4   P31          .00     .00      32       0       0       0       0       0
              2     4.680     4.680       .50      .10      4   P23          .00     .00      23       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 CM

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 1  /L=  3.54 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .7 tf* m - Abcis.= 177   | M.[-] =      1.4  tf* m
[tf,cm]| As =   1.94  -SRAS-   [  3 B 10.0mm]   | AsL=    .00   ------                     | As =   1.92  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .11   | As =    .96   -SRAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                          x/dMx= .37
       |                                        |                                          |
[tf,cm]| M[-]Min =    65.1                      | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .24                        |                                          | Asapo[+]=   .24

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 336.   3.48  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.483     2.483       .60      .21      4   P18          .00     .00      18       0       0       0       0       0
              2     2.473     2.473       .50      .16      4   P12          .00     .00      12       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 CM

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 1  /L=  4.04 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      1.8 tf* m                 | M.[+] Max=      1.1 tf* m - Abcis.= 203   | M.[-] =      2.0  tf* m
[tf,cm]| As =   1.72  -SRAS-   [  3 B 10.0mm]   | AsL=    .00   ------                     | As =   1.84  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07   | As =   1.20   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .08
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                          x/dMx= .37
       |                                        |                                          |
```


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```
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                    | M[-]Min =   115.8
[cm2  ]| Asapo[+]=   .30                      |                                      | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 380.   4.19  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 2  /L=  2.40 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .3 tf* m - Abcis.= 143   | M.[-] =       .6  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                 | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =   1.20   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8  |                          x/dMx= .37
       |                                       |                                      |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                    | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                      | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 216.   2.69  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 3  /L=  2.41 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      .6 tf* m                | M.[+] Max=       .3 tf* m - Abcis.= 102   | M.[-] =      1.0  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                 | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =   1.20   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8  |                          x/dMx= .37
       |                                       |                                      |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                    | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                      | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 217.   2.70  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 4  /L=  4.08 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      1.1 tf* m - Abcis.= 207   | M.[-] =      2.0  tf* m
[tf,cm]| As =   1.85  -SRAS-   [  3 B 10.0mm]  | AsL=    .00   ------                 | As =   1.85  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .08  | As =   1.20   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .08
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8  |                          x/dMx= .37
       |                                       |                                      |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                    | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                      | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 384.   4.20  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 5  /L=  2.41 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      .8 tf* m                | M.[+] Max=      .2 tf* m - Abcis.= 123   | M.[-] =      .9  tf* m
[tf,cm]| As =   1.20  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                 | As =   1.20  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =   1.20   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8  |                          x/dMx= .37
       |                                       |                                      |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                    | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                      | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 217.   2.58  36.66   1  45.     .0    2.3      2.3  6.3 20.0  2    .0    .0

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 6  /L=  4.03 /B=  .20 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      2.4 tf* m               | M.[+] Max=      1.4 tf* m - Abcis.= 236   | M.[-] =      3.1  tf* m
[tf,cm]| As =   2.22  -SRAS-   [  3 B 10.0mm]  | AsL=    .00   ------                 | As =   2.96  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .09  | As =   1.31   -SRAS-  [  2 B 10.0mm ]  | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  2.0  |                          x/dMx= .37
       |                                       |                                      |
[tf,cm]| M[-]Min =   115.8                    | M[+]Min =   115.8                    | M[-]Min =   115.8
[cm2  ]| Asapo[+]=  1.14                      |                                      | Asapo[+]=   .33

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 379.   7.14  36.66   1  45.     .6    2.3      2.3  6.3 20.0  2    .0   1.5

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.902     2.902       .30      .03      4   P26          .00    .00     27      0      0      0      0      0
                2     4.843     4.843       .30      .03      1   T19          .00    .00   8019      0      0      0      0      0
                3     3.178     3.178       .30      .03      4   P15          .00    .00     15      0      0      0      0      0
                4     4.858     4.858       .30      .03      1   T11          .00    .00   8011      0      0      0      0      0
                5     4.639     4.639       .30      .03      4   P9           .00    .00      9      0      0      0      0      0
                6     5.107     5.107       .30      .03      1   T4           .00    .00   8004      0      0      0      0      0
```


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```
              7     5.101     5.100       .30      .03      4   P3          .00    .00      3      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.39 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=      .4 tf* m - Abcis.= 119   | M.[-] =       .6  tf* m
[tf,cm]| As =    .93  -SRAS-   [  2 B  8.0mm]  | AsL=    .00   ------                    | As =    .90  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =    .93   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    65.1                     | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .23                       |                                          | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 221.   2.42  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.40 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =       .6 tf* m             | M.[+] Max=      .4 tf* m - Abcis.= 120   | M.[-] =       .7  tf* m
[tf,cm]| As =    .90  -SRAS-   [  2 B  8.0mm]  | AsL=    .00   ------                    | As =    .93  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =    .93   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    65.1                     | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .85                       |                                          | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 222.   2.43  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.728     1.728       .30      .06      1   T20         .00    .00   8020      0      0      0      0      0
              2     3.265     3.265       .20      .01      2   V216        .00    .00      0      0      0      0      0      0
              3     1.735     1.735       .30      .06      1   T12         .00    .00   8012      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.40 /B=  .20 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=      .6 tf* m - Abcis.= 100   | M.[-] =      1.0  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]  | AsL=    .00   ------                    | As =   1.25  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .00  | As =    .93   -SRAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4    |                         x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =    65.1                     | M[+]Min =    65.1                        | M[-]Min =    65.1
[cm2  ]| Asapo[+]=   .90                       |                                          | Asapo[+]=   .23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 222.   2.91  26.48   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.296     1.296       .20      .01      2   V208        .00    .00      0      0      0      0      0      0
              2     2.080     2.080       .30      .06      1   T5          .00    .00   8005      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  6.61 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      4.7 tf* m               | M.[+] Max=      2.9 tf* m - Abcis.= 330   | M.[-] =      5.8  tf* m
[tf,cm]| As =   3.50  -SRAS-   [  3 B 12.5mm]  | AsL=    .00   ------                    | As =   4.37  -SRAS- [  3 B 16.0mm]
```

```
       | AsL=    .00  ------       x/d  = .11    | As =   2.15   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .14
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.2      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .54                         |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 631.   7.17  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.61 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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=      2.7 tf* m - Abcis.= 330    | M.[-] =      5.5  tf* m
[tf,cm]| As =   4.11  -SRAS-   [  2 B 16.0mm]    | AsL=    .00   ------                      | As =   4.11  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .14    | As =   1.97   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .14
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.9      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                         |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 631.   6.94  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.61 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      5.8 tf* m                  | M.[+] Max=      2.9 tf* m - Abcis.= 330    | M.[-] =      4.7  tf* m
[tf,cm]| As =   4.37  -SRAS-   [  3 B 16.0mm]    | AsL=    .00   ------                      | As =   3.49  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .14    | As =   2.15   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.2      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                         |                                            | Asapo[+]=   .54

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 631.   7.17  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     4.790     4.790       .30      .00      1   T23          .00    .00   8023      0      0      0      0      0
              2    10.082    10.082       .30      .00      1   T16          .00    .00   8016      0      0      0      0      0
              3    10.082    10.082       .30      .00      1   T8           .00    .00   8008      0      0      0      0      0
              4     4.790     4.790       .30      .00      1   T2           .00    .00   8002      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  6.55 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      4.7 tf* m                  | M.[+] Max=      2.9 tf* m - Abcis.= 327    | M.[-] =      5.7  tf* m
[tf,cm]| As =   3.53  -SRAS-   [  3 B 12.5mm]    | AsL=    .00   ------                      | As =   4.26  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .12    | As =   2.08   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .14
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.1      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=   .52                         |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 626.   7.08  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.61 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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=      2.7 tf* m - Abcis.= 330    | M.[-] =      5.5  tf* m
[tf,cm]| As =   4.10  -SRAS-   [  2 B 16.0mm]    | AsL=    .00   ------                      | As =   4.10  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .13    | As =   1.98   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .13
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.0      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   181.0                       | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                         |                                            | Asapo[+]=  1.42

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 631.   6.94  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.55 /B=  .20 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      5.7 tf* m                  | M.[+] Max=      2.9 tf* m - Abcis.= 327    | M.[-] =      4.7  tf* m
[tf,cm]| As =   4.26  -SRAS-   [  3 B 16.0mm]    | AsL=    .00   ------                      | As =   3.52  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .14    | As =   2.08   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .12
```


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```
       |                          x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  3.1      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   181.0                      | M[+]Min =   181.0                          | M[-]Min =   181.0
[cm2  ]| Asapo[+]=  1.42                        |                                            | Asapo[+]=   .52

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 626.   7.08  46.84   1  45.     .0    2.3      2.3  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     4.774     4.774       .30      .00      4   P27          .00    .00     28      0      0      0      0      0
              2    10.016    10.016       .30      .00      4   P16          .00    .00     16      0      0      0      0      0
              3    10.016    10.016       .30      .00      4   P10          .00    .00     10      0      0      0      0      0
              4     4.774     4.774       .30      .00      4   P4           .00    .00      4      0      0      0      0      0
```

pav1

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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  7.90 /B=  .30 /H=   .75  /BCs= 1.09 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     17.4 tf* m                | M.[+] Max=     16.9 tf* m - Abcis.= 395     | M.[-] =      2.6  tf* m
[tf,cm]| As =   8.37  -SRAS-   [  3 B 20.0mm]  | AsL=    .00   ------                       | As =   3.38  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .12  | As =   7.83   -STAS-  [  4 B 16.0mm ]      | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.1      |                          x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.96                        |                                            | Asapo[+]=  3.38

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 758.  19.61 108.45   1  45.     .4    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    13.989    13.076       .60      .07      0   P1           .00    .00      1      0      0      0      0      0
              2     7.533     6.867       .19      .00      0   P2           .00    .00      2      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  9.49 /B=  .30 /H=   .75  /BCs= 1.25 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     17.0 tf* m                | M.[+] Max=     20.6 tf* m - Abcis.= 474     | M.[-] =     23.3  tf* m
[tf,cm]| As =   8.13  -SRAS-   [  4 B 16.0mm]  | AsL=    .00   ------                       | As =  11.42  -SRAS- [  6 B 16.0mm]
       | AsL=    .00  ------       x/d  = .11  | As =   9.53   -STAS-  [  3 B 20.0mm ]      | AsL=    .00  ------     x/d  = .16
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.3      |                          x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  2.38                        |                                            | Asapo[+]=  2.38

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 904.  21.33 108.45   1  45.    1.0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    14.203    13.163       .50      .03      0   P3           .00    .00      3      0      0      0      0      0
              2    15.236    14.116       .60      .07      0   P4           .00    .00      4      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.75 /B=  .30 /H=   .75  /BCs=  .66 /BCi=  .00 /TpS=  8 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E 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=      3.4 tf* m - Abcis.= 246     | M.[-] =      9.0  tf* m
[tf,cm]| As =   3.61  -SRAS-   [  3 B 12.5mm]  | AsL=    .00   ------                       | As =   4.45  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04  | As =   3.61   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.4      |                          x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=   .90                        |                                            | Asapo[+]=  3.45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 443.  10.53 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 443.   1.29  12.52   5 10.7  19.3  64.3    1.2     2.5    .2    .8    .20   N

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  3.67 /B=  .30 /H=   .75  /BCs=  .52 /BCi=  .00 /TpS=  8 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =      5.3 tf* m                | M.[+] Max=      2.9 tf* m - Abcis.=  66     | M.[-] =     10.4  tf* m
```


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```
[tf,cm]| As =   3.61  -SRAS-   [  3 B 12.5mm]    | AsL=    .00   ------                      | As =   5.15  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04    | As =   3.61   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37    | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.8    |                         x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   610.7                       | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.51                         |                                          | Asapo[+]=  3.45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 322.  12.07 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]        0.- 322.    .96  12.52   5 10.7  19.3  64.3     .9     2.5    .2    .8    .19   N

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  4.89 /B=  .30 /H=   .75  /BCs=  .67 /BCi=  .00 /TpS=  8 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                       | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     11.2 tf* m                 | M.[+] Max=      4.4 tf* m - Abcis.= 253   | M.[-] =      2.6  tf* m
[tf,cm]| As =   5.54  -SRAS-   [  3 B 16.0mm]    | AsL=    .00   ------                     | As =   3.64  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .07    | As =   3.64   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37    | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.4    |                         x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   610.7                       | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.47                         |                                          | Asapo[+]=  1.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 452.  12.74 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]        0.- 452.   1.45  12.52   5 10.7  19.3  64.3     1.3     2.5    .3    .9    .23   N

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.613     2.380       .19      .00      2   V315         .00    .00      0      0      0      0      0      0
              2    12.330     8.387       .80      .17      0   P5           .00    .00      5      0      0      0      0      0
              3    16.762    13.361       .80      .17      0   P6           .00    .00      6      0      0      0      0      0
              4      .758      .042       .30      .00      2   V322         .00    .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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  7.75 /B=  .40 /H=   .80  /BCs= 1.95 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .40 /FLt.Ex=  .20   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                       | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     34.0 tf* m                 | M.[+] Max=     37.1 tf* m - Abcis.= 387   | M.[-] =     22.4  tf* m
[tf,cm]| As =  15.46  -SRAS-   [  5 B 20.0mm]    | AsL=    .00   ------                     | As =   9.95  -SRAS- [  8 B 12.5mm]
       | AsL=    .00  ------       x/d  = .15    | As =  16.07   -STAS-  [  5 B 20.0mm ]    | AsL=    .00  ------     x/d  = .10
       |                           x/dMx= .37    | Arm.Lat.=[2 X  3 B 12.5mm] - LN=  2.5    |                         x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   926.5                       | M[+]Min =   926.5                        | M[-]Min =   926.5
[cm2  ]| Asapo[+]=  4.02                         |                                          | Asapo[+]=  4.02

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 182.  43.73 154.78   1  45.    5.8    4.6      5.8  6.3 20.0  4    .0    .0
             182.- 727.  35.35 154.78   1  45.    3.0    4.6      4.6  6.3 25.0  4    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    31.191    28.620       .60      .06      0   P7           .00    .00      7      0      0      0      0      0
              2    25.137    22.819       .50      .01      0   P8           .00    .00      8      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  9.32 /B=  .30 /H=   .80  /BCs= 2.16 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .40 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                       | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     32.7 tf* m                 | M.[+] Max=     36.9 tf* m - Abcis.= 466   | M.[-] =     44.1  tf* m
[tf,cm]| As =  15.20  -SRAS-   [  5 B 20.0mm]    | AsL=    .00   ------                     | As =  21.47  -SRAS- [  7 B 20.0mm]
       | AsL=    .00  ------       x/d  = .20    | As =  15.95   -STAS-  [  5 B 20.0mm ]    | AsL=    .00  ------     x/d  = .29
       |                           x/dMx= .37    | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.2    |                         x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   694.9                       | M[+]Min =   694.9                        | M[-]Min =   694.9
[cm2  ]| Asapo[+]=  3.99                         |                                          | Asapo[+]=  3.99

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 177.  35.41 116.08   1  45.    5.2    3.5      5.2  8.0 17.5  2    .0    .0
             177.- 707.  28.55 116.08   1  45.    2.9    3.5      3.5  8.0 25.0  2    .0    .0
             707.- 884.  48.53 116.08   1  45.    9.7    3.5      9.7  8.0 10.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    25.261    23.141       .60      .06      0   P9           .00    .00      9      0      0      0      0      0
              2    34.666    31.893       .70      .11      0   P10          .00    .00     10      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  7.79 /B=  .30 /H=   .90  /BCs= 1.86 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .45 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

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


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```
FLEXAO-| E S Q U E R D A                          | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     30.2 tf* m                  | M.[+] Max=     42.9 tf* m - Abcis.= 389   | M.[-] =     12.2  tf* m
[tf,cm]| As =  12.06  -SRAS-   [  6 B 16.0mm]    | AsL=    .00   ------                    | As =   4.70  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .14    | As =  16.36   -STAS-  [  6 B 20.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X  9 B  6.3mm] - LN=  2.6    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   879.4                       | M[+]Min =   879.4                        | M[-]Min =   879.4
[cm2  ]| Asapo[+]=  4.09                         |                                          | Asapo[+]=  5.45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 182.  43.64 131.36   1  45.    6.3    3.5      6.3  8.0 15.0  2    .0    .0
             182.- 727.  31.68 131.36   1  45.    2.8    3.5      3.5  8.0 25.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    31.128    28.840       .60      .03      0   P13         .00    .00     13      0      0      0      0      0
                2    22.631    20.651       .50      .00      1   P14         .00    .00     14      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  9.32 /B=  .30 /H=   .80  /BCs= 2.16 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .40 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                          | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     34.1 tf* m                  | M.[+] Max=     37.9 tf* m - Abcis.= 466   | M.[-] =     45.2  tf* m
[tf,cm]| As =  15.90  -SRAS-   [  5 B 20.0mm]    | AsL=    .00   ------                    | As =  22.09  -SRAS- [  7 B 20.0mm]
       | AsL=    .00  ------       x/d  = .21    | As =  16.39   -STAS-  [  6 B 20.0mm ]    | AsL=    .00  ------     x/d  = .29
       |                           x/dMx= .37    | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.3    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   694.9                       | M[+]Min =   694.9                        | M[-]Min =   694.9
[cm2  ]| Asapo[+]=  4.10                         |                                          | Asapo[+]=  4.10

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 177.  39.53 116.08   1  45.    6.6    3.5      6.6  8.0 15.0  2    .0    .0
             177.- 707.  29.19 116.08   1  45.    3.2    3.5      3.5  8.0 25.0  2    .0    .0
             707.- 884.  49.28 116.08   1  45.    9.9    3.5      9.9  8.0 10.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    28.196    25.705       .60      .06      0   P15         .00    .00     15      0      0      0      0      0
                2    35.203    32.207       .70      .11      0   P16         .00    .00     16      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  3.48 /B=  .19 /H=   .75  /BCs=  .45 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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 tf* m                  | M.[+] Max=      1.6 tf* m - Abcis.=   0   | M.[-] =     18.9  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]    | AsL=    .00   ------                    | As =   9.58  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .00    | As =   2.14   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .22
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.3    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.14                         |                                          | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 330.  11.42  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 2  /L=  7.48 /B=  .19 /H=   .75  /BCs=  .64 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     19.8 tf* m                  | M.[+] Max=     23.0 tf* m - Abcis.= 374   | M.[-] =     21.7  tf* m
[tf,cm]| As =  10.32  -SRAS-   [  4 B 20.0mm]    | AsL=    .00   ------                    | As =  11.40  -SRAS- [  4 B 20.0mm]
       | AsL=    .00  ------       x/d  = .24    | As =  10.95   -STAS-  [  4 B 20.0mm ]    | AsL=    .00  ------     x/d  = .26
       |                           x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  5.1    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.74                         |                                          | Asapo[+]=  2.74

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 182.  29.88  68.68   1  45.    6.5    2.2      6.5  8.0 15.0  2    .0    .0
             182.- 547.  16.26  68.68   1  45.    1.6    2.2      2.2  8.0 30.0  2    .0    .0
             547.- 729.  26.64  68.68   1  45.    5.4    2.2      5.4  8.0 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 3  /L=  3.04 /B=  .19 /H=   .75  /BCs=  .42 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     20.6 tf* m                  | M.[+] Max=       .0 tf* m - Abcis.= 304   | M.[-] =       .7  tf* m
[tf,cm]| As =  10.73  -SRAS-   [  4 B 20.0mm]    | AsL=    .00   ------                    | As =   2.14  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .25    | As =   2.14   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.4    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                        | M[-]Min =   386.8
```


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```
[cm2  ]| Asapo[+]=  2.03                        |                                          | Asapo[+]=  3.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 140.  15.50  68.68   1  45.    1.4    2.2      2.2  5.0 17.5  2    .0    .0
             140.- 280.  18.81  68.68   1  45.    2.6    2.2      2.6  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
               1    -2.862    -3.471       .19      .00      2   V315        .00    .00      0      0      0      0      0      0
               2    29.480    27.265       .19      .00      0   P17         .00    .00     17      0      0      0      0      0
               3    29.501    27.244       .19      .00      0   P18         .00    .00     18      0      0      0      0      0
               4   -12.534   -13.439       .30      .00      2   V322        .00    .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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  1.76 /B=  .19 /H=   .40  /BCs=  .45 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m               | M.[+] Max=       .8 tf* m - Abcis.=  78  | M.[-] =      1.9  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.75  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .08
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.14                      |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 155.   5.81  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2  /L=  2.12 /B=  .19 /H=   .40  /BCs=  .32 /BCi=  .00 /TpS=  8 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      1.3 tf* m              | M.[+] Max=       .4 tf* m - Abcis.=  79  | M.[-] =      1.7  tf* m
[tf,cm]| As =   1.23  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.60  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.11                      |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 188.   3.62  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 3  /L=  1.76 /B=  .19 /H=   .40  /BCs=  .45 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .8 tf* m - Abcis.=  94  | M.[-] =       .6  tf* m
[tf,cm]| As =   1.39  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                      |                                          | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 155.   6.29  34.83   1  45.     .2    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
               1     2.628     1.602       .19      .00      0   P20         .00    .00     20      0      0      0      0      0
               2     5.494     5.020       .50      .13      0   P21         .00    .00     21      0      0      0      0      0
               3     5.671     5.069       .50      .13      0   P22         .00    .00     22      0      0      0      0      0
               4     4.495     3.455       .19      .00      0   P23         .00    .00     23      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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  8.00 /B=  .30 /H=   .75  /BCs=  .90 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     12.5 tf* m               | M.[+] Max=     14.5 tf* m - Abcis.= 400  | M.[-] =     13.9  tf* m
[tf,cm]| As =   5.92  -SRAS-   [  3 B 16.0mm] | AsL=    .00   ------                    | As =   6.62  -SRAS- [  4 B 16.0mm]
       | AsL=    .00  ------       x/d  = .08 | As =   6.70   -STAS-  [  4 B 16.0mm ]    | AsL=    .00  ------     x/d  = .09
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.2    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.68                      |                                          | Asapo[+]=  3.21

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


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```
[tf,cm]        0.- 768.  15.23 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  3.90 /B=  .30 /H=   .75  /BCs=  .30 /BCi=  .00 /TpS=  2 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     12.9 tf* m                | M.[+] Max=       .8 tf* m - Abcis.= 292    | M.[-] =       .0  tf* m
[tf,cm]| As =   6.11  -SRAS-   [  3 B 16.0mm]  | AsL=    .00   ------                      | As =    .00  -SRAS- [  0 B  8.0mm]
       | AsL=    .00  ------       x/d  = .09  | As =   3.38   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.1      | Grampos Dir.= 2B  6.3mm x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                       |                                            | Asapo[+]=  3.38

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 371.  10.07 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    10.861     9.942       .50      .03      0   P24         .00    .00     25      0      0      0      0      0
                2    16.772    15.594       .19      .00      0   P25         .00    .00     26      0      0      0      0      0
                3     1.615     1.251       .19      .00      2   V317        .00    .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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.03 /B=  .30 /H=   .75  /BCs=  .30 /BCi=  .00 /TpS=  2 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =       .0 tf* m                | M.[+] Max=      1.3 tf* m - Abcis.= 136    | M.[-] =     14.9  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  8.0mm]  | AsL=    .00   ------                      | As =   7.09  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .00  | As =   3.38   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .10
       | Grampos Esq.= 2B  6.3mm   x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.1      |                           x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.38                       |                                            | Asapo[+]=  3.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 371.  13.09 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  9.39 /B=  .30 /H=   .75  /BCs= 1.00 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     28.0 tf* m                | M.[+] Max=     18.7 tf* m - Abcis.= 473    | M.[-] =     22.5  tf* m
[tf,cm]| As =  13.89  -SRAS-   [  5 B 20.0mm]  | AsL=    .00   ------                      | As =  10.97  -SRAS- [  6 B 16.0mm]
       | AsL=    .00  ------       x/d  = .20  | As =   8.66   -STAS-  [  3 B 20.0mm ]      | AsL=    .00  ------     x/d  = .16
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.6      |                           x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                       |                                            | Asapo[+]=  2.16

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 894.  23.91 108.45   1  45.    1.9    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.141     1.246       .19      .00      2   V320        .00    .00      0      0      0      0      0      0
                2    25.542    24.445       .60      .07      0   P26         .00    .00     27      0      0      0      0      0
                3    14.515    13.045       .60      .07      0   P27         .00    .00     28      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 CM

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.61 /B=  .19 /H=   .40  /BCs=  .31 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      1.2 tf* m - Abcis.=   0    | M.[-] =      1.1  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]  | AsL=    .00   ------                      | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05  | As =   1.14   -STAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1      |                           x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   110.0                     | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.14                       |                                            | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 139.   3.34  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.38 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 )  -   -   -   -   -
```


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```
FLEXAO-| E 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 tf* m                  | M.[+] Max=       .4 tf* m - Abcis.= 119    | M.[-] =       .6  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                      | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.14   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                         |                                            | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 219.   1.89  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  1.61 /B=  .19 /H=   .40  /BCs=  .31 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =       .8 tf* m                  | M.[+] Max=       .6 tf* m - Abcis.= 133    | M.[-] =      1.3  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                      | As =   1.25  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.14   -STAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 139.   2.64  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.628     -.355       .50      .13      0   P28         .00    .00     29      0      0      0      0      0
              2     3.713     1.680       .19      .00      0   P29         .00    .00     30      0      0      0      0      0
              3     3.099     1.297       .19      .00      0   P30         .00    .00     31      0      0      0      0      0
              4     1.885      .174       .50      .13      0   P31         .00    .00     32      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      4.3 tf* m                  | M.[+] Max=      9.2 tf* m - Abcis.= 273    | M.[-] =     12.7  tf* m
[tf,cm]| As =   2.14  -SRAS-   [  3 B 10.0mm]    | AsL=    .00   ------                      | As =   6.17  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   4.25   -STAS-  [  4 B 12.5mm ]      | AsL=    .00  ------     x/d  = .14
       |                           x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.9      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  1.42                         |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 626.  11.56  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .59 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     11.5 tf* m                  | M.[+] Max=      4.9 tf* m - Abcis.= 330    | M.[-] =     12.4  tf* m
[tf,cm]| As =   5.54  -SRAS-   [  3 B 16.0mm]    | AsL=    .00   ------                      | As =   5.98  -SRAS- [  2 B 20.0mm]
       | AsL=    .00  ------       x/d  = .12    | As =   2.27   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .13
       |                           x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.2      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                         |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 626.  10.66  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     12.9 tf* m                  | M.[+] Max=      7.5 tf* m - Abcis.= 382    | M.[-] =      5.3  tf* m
[tf,cm]| As =   6.23  -SRAS-   [  2 B 20.0mm]    | AsL=    .00   ------                      | As =   2.47  -SRAS- [  2 B 12.5mm]
       | AsL=    .00  ------       x/d  = .14    | As =   3.46   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.5      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                         |                                            | Asapo[+]=   .86

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 621.  11.28  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     5.645     4.496       .30      .00      0   P24         .00    .00     25      0      0      0      0      0
              2    13.069    12.747       .30      .00      0   P13         .00    .00     13      0      0      0      0      0
              3    11.984    11.323       .40      .00      0   P7          .00    .00      7      0      0      0      0      0
              4     5.216     3.473       .30      .00      0   P1          .00    .00      1      0      0      0      0      0
```


Rua Riachuelo, 240 - Centro - Campinas - SP - CEP: 13015-320 - Fone / Fax: (19) 3236-1034

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 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  4.58 /B=  .19 /H=   .75  /BCs=  .88 /BCi=  .00 /TpS=  2 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      8.0 tf* m             | M.[+] Max=     10.2 tf* m - Abcis.= 152   | M.[-] =     18.8  tf* m
[tf,cm]| As =   3.81  -SRAS-   [  2 B 16.0mm] | AsL=    .00   ------                    | As =   9.52  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .09 | As =   4.71   -STAS-  [  4 B 12.5mm ]    | AsL=    .00  ------     x/d  = .22
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.6    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  3.06                      |                                          | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 280.  15.59  68.68   1  45.    1.4    2.2      2.2  6.3 25.0  2    .0    .0
             280.- 420.  24.76  68.68   1  45.    4.7    2.2      4.7  6.3 12.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 2  /L=  1.85 /B=  .19 /H=  1.00  /BCs=  .30 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     18.4 tf* m               | M.[+] Max=     22.6 tf* m - Abcis.=  92   | M.[-] =      9.1  tf* m
[tf,cm]| As =   6.65  -SRAS-   [  3 B 20.0mm] | AsL=    .00   ------                    | As =   3.25  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .11 | As =   8.03   -STAS-  [  4 B 16.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X  7 B  6.3mm] - LN=  7.9    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   687.6                    | M[+]Min =   687.6                        | M[-]Min =   687.6
[cm2  ]| Asapo[+]=  2.01                      |                                          | Asapo[+]=  2.68

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 155.  49.42  92.87   1  45.    8.9    2.2     10.8 10.0 12.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 155.    .00   6.96   5  8.0  10.1  91.1     .0     1.8    .1    .8    .53   S

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 3  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .59 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      8.7 tf* m               | M.[+] Max=      3.1 tf* m - Abcis.= 330   | M.[-] =     11.2  tf* m
[tf,cm]| As =   4.14  -SRAS-   [  2 B 16.0mm] | AsL=    .00   ------                    | As =   5.40  -SRAS- [  2 B 20.0mm]
       | AsL=    .00  ------       x/d  = .09 | As =   2.14   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.0    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                      |                                          | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 626.   8.00  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 4  /L=  6.33 /B=  .19 /H=   .75  /BCs=  .66 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     12.9 tf* m               | M.[+] Max=     10.8 tf* m - Abcis.= 474   | M.[-] =     14.9  tf* m
[tf,cm]| As =   6.35  -SRAS-   [  2 B 20.0mm] | AsL=    .00   ------                    | As =   7.44  -SRAS- [  4 B 16.0mm]
       | AsL=    .00  ------       x/d  = .14 | As =   5.10   -STAS-  [  3 B 16.0mm ]    | AsL=    .00  ------     x/d  = .16
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  2.3    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.12                      |                                          | Asapo[+]=  4.01

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 488.  12.97  68.68   1  45.     .4    2.2      2.2  6.3 25.0  2    .0    .0
             488.- 591.  22.45  68.68   1  45.    3.9    2.2      5.6  6.3 10.0  2    .0   1.2

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 488.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .19   S
             488.- 591.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .33   S
```

```
REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    11.123     7.199       .50      .03      0   P25         .00    .00     26      0      0      0      0      0
                2    18.785     7.586       .30      .00      1   P19         .00    .00     19      0      0      0      0      0
                3    34.727    22.034       .30      .00      1   P14         .00    .00     14      0      0      0      0      0
                4    11.155     7.471       .40      .00      0   P8          .00    .00      8      0      0      0      0      0
                5    16.035    11.349       .60      .07      0   P2          .00    .00      2      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.31 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =       .9 tf* m                 | M.[+] Max=      3.6 tf* m - Abcis.= 211    | M.[-] =      7.1  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm]    | AsL=    .00   ------                      | As =   3.42  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04    | As =   2.23   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .07
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.1      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   386.8                       | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.23                         |                                            | Asapo[+]=  2.23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 136.   6.81  68.68   1  45.     .0    2.2      2.3  5.0 15.0  2    .0    .5
              136.- 199.   7.70  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]         0.- 136.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .10   S
              136.- 199.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .11   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     4.856     -.760       .19      .00      0   P28         .00    .00     29      0      0      0      0      0
                2     5.497      .054       .50      .03      0   P20         .00    .00     20      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.00 /B=  .19 /H=   .40  /BCs=  .39 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      3.4 tf* m - Abcis.=   0    | M.[-] =      1.4  tf* m
[tf,cm]| As =   3.23  -SRAS-   [  4 B 10.0mm]    | AsL=    .00   ------                      | As =   1.31  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .14    | As =   3.14   -STAS-  [  4 B 10.0mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.4      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  3.19                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 179.   4.64  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     3.152    -1.260       .70      .23      0   P29         .00    .00     30      0      0      0      0      0
                2     3.316    -1.096       .19      .00      0   P21         .00    .00     21      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.00 /B=  .19 /H=   .40  /BCs=  .39 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=      3.5 tf* m - Abcis.=   0    | M.[-] =      1.4  tf* m
[tf,cm]| As =   3.33  -SRAS-   [  3 B 12.5mm]    | AsL=    .00   ------                      | As =   1.34  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .15    | As =   3.28   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  2.5      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  3.33                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 179.   4.67  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     3.190    -1.375       .70      .23      0   P30         .00    .00     31      0      0      0      0      0
                2     3.335    -1.230       .19      .00      0   P22         .00    .00     22      0      0      0      0      0
```


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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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.31 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      1.1 tf* m                 | M.[+] Max=      4.4 tf* m - Abcis.= 231 | M.[-] =      7.7  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm]   | AsL=    .00   ------                  | As =   3.73  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .04   | As =   2.23   -STAS-  [  3 B 10.0mm ]  | AsL=    .00  ------     x/d  = .08
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.2  |                          x/dMx= .37
       |                                        |                                        |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                      | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.23                        |                                        | Asapo[+]=  2.23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 136.   7.46  68.68   1  45.     .0    2.2      2.4  5.0 15.0  2    .0    .7
              136.- 199.   7.82  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]         0.- 136.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .11   S
              136.- 199.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .11   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     5.320    -1.140       .19      .00      0   P31         .00    .00     32      0      0      0      0      0
                2     5.586     -.459       .50      .03      0   P23         .00    .00     23      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  6.55 /B=  .30 /H=   .75  /BCs= 1.28 /BCi=  .00 /TpS=  2 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =      8.5 tf* m                 | M.[+] Max=     16.6 tf* m - Abcis.= 273 | M.[-] =     27.0  tf* m
[tf,cm]| As =   4.22  -SRAS-   [  3 B 16.0mm]   | AsL=    .00   ------                  | As =  13.62  -SRAS- [  5 B 20.0mm]
       | AsL=    .00  ------       x/d  = .06   | As =   7.93   -STAS-  [  4 B 16.0mm ]  | AsL=    .00  ------     x/d  = .19
       |                           x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.8  |                          x/dMx= .37
       |                                        |                                        |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                      | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.61                        |                                        | Asapo[+]=  3.45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 494.  22.37 108.45   1  45.    1.4    3.5      3.9  8.0 25.0  2    .0    .0
              494.- 626.  27.68 108.45   1  45.    3.3    3.5      7.0  8.0 12.5  2    .0   4.5

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]         0.- 494.    .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .21   S
              494.- 626.    .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .26   S

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.61 /B=  .30 /H=   .75  /BCs= 1.09 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =     24.8 tf* m                 | M.[+] Max=     11.2 tf* m - Abcis.= 330 | M.[-] =     32.3  tf* m
[tf,cm]| As =  12.20  -SRAS-   [  4 B 20.0mm]   | AsL=    .00   ------                  | As =  16.39  -SRAS- [  6 B 20.0mm]
       | AsL=    .00  ------       x/d  = .17   | As =   5.18   -STAS-  [  3 B 16.0mm ]  | AsL=    .00  ------     x/d  = .23
       |                           x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.4  |                          x/dMx= .37
       |                                        |                                        |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                      | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                        |                                        | Asapo[+]=  3.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 473.  27.99 108.45   1  45.    3.4    3.5      3.5  6.3 17.5  2    .0    .0
              473.- 631.  32.38 108.45   1  45.    5.0    3.5      5.0  6.3 12.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.55 /B=  .30 /H=   .75  /BCs=  .79 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =     34.1 tf* m                 | M.[+] Max=     21.8 tf* m - Abcis.= 382 | M.[-] =     10.9  tf* m
[tf,cm]| As =  17.67  -SRAS-   [  6 B 20.0mm]   | AsL=    .00   ------                  | As =   5.37  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .25   | As =  10.46   -STAS-  [  6 B 16.0mm ]  | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.9  |                          x/dMx= .37
       |                                        |                                        |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                      | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.45                        |                                        | Asapo[+]=  3.49

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 164.  38.07 108.45   1  45.    7.0    3.5      9.5  8.0 10.0  2    .0    .0
              164.- 493.  21.78 108.45   1  45.    1.2    3.5      3.7  8.0 25.0  2    .0    .0
              493.- 626.  29.64 108.45   1  45.    4.0    3.5      6.5  8.0 15.0  2    .0    .2

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]         0.- 164.    .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .35   S
```


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```
            164.- 493.    .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .20   S
            493.- 626.    .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .27   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    13.265    10.645       .30      .00      0   P26          .00    .00     27      0      0      0      0      0
              2    35.133    32.922       .30      .00      0   P15          .00    .00     15      0      0      0      0      0
              3    48.728    45.571       .30      .00      0   P9           .00    .00      9      0      0      0      0      0
              4    21.174    18.709       .30      .00      0   P3           .00    .00      3      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 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      5.8 tf* m                 | M.[+] Max=      8.5 tf* m - Abcis.= 218    | M.[-] =     11.4  tf* m
[tf,cm]| As =   2.70  -SRAS-   [  4 B 10.0mm]   | AsL=    .00   ------                       | As =   5.46  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .06   | As =   3.94   -STAS-  [  2 B 16.0mm ]      | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.7      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.14                        |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 626.   9.91  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 2  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .59 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      9.1 tf* m                 | M.[+] Max=      3.1 tf* m - Abcis.= 330    | M.[-] =      9.5  tf* m
[tf,cm]| As =   4.33  -SRAS-   [  3 B 16.0mm]   | AsL=    .00   ------                       | As =   4.52  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .10   | As =   2.14   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .10
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.0      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                        |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 631.   7.37  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 3  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     10.9 tf* m                 | M.[+] Max=      8.3 tf* m - Abcis.= 382    | M.[-] =      6.5  tf* m
[tf,cm]| As =   5.22  -SRAS-   [  3 B 16.0mm]   | AsL=    .00   ------                       | As =   3.07  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .12   | As =   3.83   -STAS-  [  2 B 16.0mm ]      | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.7      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                        |                                            | Asapo[+]=  2.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 626.   9.95  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     4.812     2.640       .30      .00      0   P27          .00    .00     28      0      0      0      0      0
              2     7.754     6.767       .30      .00      0   P16          .00    .00     16      0      0      0      0      0
              3     7.806     6.814       .30      .00      0   P10          .00    .00     10      0      0      0      0      0
              4     4.666     2.476       .30      .00      0   P4           .00    .00      4      0      0      0      0      0
```

VE

```
Viga=  324  VE                            Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  7.48 /B=  .50 /H=   .50  /BCs= 2.00 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .25   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O   D O   V A O                        | D I R E I T A
       | M.[-] =      7.1 tf* m                 | M.[+] Max=     22.0 tf* m - Abcis.= 374    | M.[-] =      7.4  tf* m
[tf,cm]| As =   5.69  -SRAS-   [  8 B 10.0mm]   | AsL=    .00   ------                       | As =   5.92  -SRAS- [  8 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07   | As =  16.51   -STAS-  [  8 B 16.0mm ]      | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37   | Arm.Lat.=[2 X  3 B  5.0mm] - LN=  2.4      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   452.4                      | M[+]Min =   452.4                          | M[-]Min =   452.4
[cm2  ]| Asapo[+]=  5.50                        |                                            | Asapo[+]=  5.50

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 182.  25.63 117.10   1  45.    3.1    5.8      6.6  6.3 17.5  4    .0    .0
             182.- 547.  10.16 117.10   1  45.     .0    5.8      5.8  6.3 20.0  4    .0    .0
             547.- 729.  28.51 117.10   1  45.    4.7    5.8      7.7  6.3 15.0  4    .0    .0
```


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```
T O R C A O-   Xi     Xf     Tsd    TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 182.    1.07  16.57    5 12.5  37.5  37.5     .9     5.8    .5    .5    .28   N
              182.- 547.     .32  16.57    5 12.5  37.5  37.5     .3      .0    .0    .0    .10   N
              547.- 729.     .91  16.57    5 12.5  37.5  37.5     .7     5.8    .5    .5    .30   N

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    18.281    15.733       .19      .00      0   P11          .00    .00     11      0      0      0      0      0
                2    20.366    17.678       .19      .00      0   P12          .00    .00     12      0      0      0      0      0
```

pav2

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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  7.90 /B=  .30 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     13.0 tf* m              | M.[+] Max=     14.8 tf* m - Abcis.= 395   | M.[-] =      2.5  tf* m
[tf,cm]| As =   6.16  -SRAS-   [  3 B 16.0mm] | AsL=    .00   ------                     | As =   3.38  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .09 | As =   7.05   -SRAS-  [  4 B 16.0mm ]    | AsL=    .00  ------      x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  7.0    |                           x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.76                      |                                          | Asapo[+]=  3.38

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 758.  17.48 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    12.470    11.565       .60      .07      1   P1           .00    .00      1      0      0      0      0      0
                2     5.766     5.274       .19      .00      0   P2           .00    .00      2      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  9.49 /B=  .30 /H=   .75  /BCs= 1.25 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     18.3 tf* m              | M.[+] Max=     19.8 tf* m - Abcis.= 474   | M.[-] =     22.7  tf* m
[tf,cm]| As =   8.82  -SRAS-   [  3 B 20.0mm] | AsL=    .00   ------                     | As =  11.10  -SRAS- [  6 B 16.0mm]
       | AsL=    .00  ------       x/d  = .12 | As =   9.17   -STAS-  [  3 B 20.0mm ]    | AsL=    .00  ------      x/d  = .16
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.2    |                           x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  2.29                      |                                          | Asapo[+]=  2.29

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 904.  20.80 108.45   1  45.     .8    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    14.235    13.364       .50      .03      0   P3           .00    .00      3      0      0      0      0      0
                2    14.859    13.906       .60      .07      0   P4           .00    .00      4      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  4.75 /B=  .30 /H=   .75  /BCs=  .66 /BCi=  .00 /TpS=  8 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E 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=      3.1 tf* m - Abcis.= 246   | M.[-] =      8.3  tf* m
[tf,cm]| As =   3.67  -SRAS-   [  3 B 12.5mm] | AsL=    .00   ------                     | As =   4.16  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   3.67   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------      x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.4    |                           x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.22                      |                                          | Asapo[+]=  3.50

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 443.  10.29 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0
```


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```
T O R C A O-   Xi     Xf     Tsd    TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 443.   1.66  12.52    5 10.7  19.3  64.3    1.5     2.5    .3   1.0    .20   N

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 2  /L=  3.67 /B=  .30 /H=   .75  /BCs=  .52 /BCi=  .00 /TpS=  8 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =      6.3 tf* m               | M.[+] Max=      1.3 tf* m - Abcis.= 133   | M.[-] =      7.3  tf* m
[tf,cm]| As =   3.63  -SRAS-   [  2 B 16.0mm]  | AsL=    .00   ------                     | As =   3.66  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04  | As =   3.63   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.8    |                          x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.46                       |                                          | Asapo[+]=  3.46

CISALHAMENTO-  Xi     Xf     Vsd    VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 322.   9.86 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

T O R C A O-   Xi     Xf     Tsd    TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 322.   1.43  12.52    5 10.7  19.3  64.3    1.3     2.5    .3   .9    .21   N

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 3  /L=  4.89 /B=  .30 /H=   .75  /BCs=  .67 /BCi=  .00 /TpS=  8 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     12.7 tf* m                | M.[+] Max=      4.0 tf* m - Abcis.= 253   | M.[-] =      2.6  tf* m
[tf,cm]| As =   6.30  -SRAS-   [  4 B 16.0mm]  | AsL=    .00   ------                     | As =   3.64  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .09  | As =   3.64   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.4    |                          x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.47                       |                                          | Asapo[+]=  1.21

CISALHAMENTO-  Xi     Xf     Vsd    VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 452.  13.84 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

T O R C A O-   Xi     Xf     Tsd    TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 452.   1.46  12.52    5 10.7  19.3  64.3    1.4     2.5    .3   .9    .24   N

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.301     1.718       .19      .00      2   V414        .00    .00      0      0      0      0      0      0
                2    12.993    10.605       .80      .17      0   P5          .00    .00      5      0      0      0      0      0
                3    15.920    13.461       .80      .17      0   P6          .00    .00      6      0      0      0      0      0
                4      .622     -.009       .30      .00      2   V421        .00    .00      0      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 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  7.92 /B=  .40 /H=   .80  /BCs= 1.98 /BCi=  .00 /TpS=  2 /Esp.LS=  .22 /Esp.LI=  .00 FSp.Ex=  .40 /FLt.Ex=  .20   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     26.9 tf* m                | M.[+] Max=     50.6 tf* m - Abcis.= 395   | M.[-] =      3.0  tf* m
[tf,cm]| As =  12.08  -SRAS-   [  6 B 16.0mm]  | AsL=    .00   ------                     | As =   4.80  -SRAS- [  6 B 10.0mm]
       | AsL=    .00  ------       x/d  = .12  | As =  21.98   -STAS-  [  7 B 20.0mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37  | Arm.Lat.=[2 X  3 B 12.5mm] - LN=  3.3    | Grampos Dir.= 4B  8.0mm x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   926.5                     | M[+]Min =   926.5                        | M[-]Min =   926.5
[cm2  ]| Asapo[+]=  5.50                       |                                          | Asapo[+]=  7.33

CISALHAMENTO-  Xi     Xf     Vsd    VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 152.  48.65 154.78   1  45.    7.5    4.6      7.5  6.3 15.0  4    .0    .0
             152.- 758.  33.74 154.78   1  45.    2.5    4.6      4.6  6.3 25.0  4    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    34.702    31.841       .60      .06      1   P7          .00    .00      7      0      0      0      0      0
                2    24.102    22.163       .19      .00      0   P8          .00    .00      8      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 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  9.32 /B=  .30 /H=   .80  /BCs= 2.16 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .40 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     34.4 tf* m                | M.[+] Max=     35.9 tf* m - Abcis.= 466   | M.[-] =     43.8  tf* m
[tf,cm]| As =  16.03  -SRAS-   [  5 B 20.0mm]  | AsL=    .00   ------                     | As =  21.36  -SRAS- [  7 B 20.0mm]
       | AsL=    .00  ------       x/d  = .21  | As =  15.50   -STAS-  [  5 B 20.0mm ]    | AsL=    .00  ------     x/d  = .28
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.1    |                          x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   694.9                     | M[+]Min =   694.9                        | M[-]Min =   694.9
[cm2  ]| Asapo[+]=  3.88                       |                                          | Asapo[+]=  3.88
```


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```
CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 177.  35.14 116.08   1  45.    5.2    3.5      5.2  8.0 17.5  2    .0    .0
              177.- 707.  28.22 116.08   1  45.    2.8    3.5      3.5  8.0 25.0  2    .0    .0
              707.- 884.  48.08 116.08   1  45.    9.5    3.5      9.5  8.0 10.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    25.067    23.182       .60      .06      0   P9          .00    .00       9      0      0      0      0      0
                2    34.342    31.821       .70      .11      0   P10         .00    .00      10      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  9.32 /B=  .30 /H=   .80  /BCs= 2.16 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .40 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-    -    -    -    -    -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -    -    -    -    -
FLEXAO-| E S Q U E R D A                        | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     36.6 tf* m                 | M.[+] Max=     36.3 tf* m - Abcis.= 466    | M.[-] =     44.8  tf* m
[tf,cm]| As =  17.29  -SRAS-   [  6 B 20.0mm]   | AsL=    .00   ------                      | As =  21.87  -SRAS- [  7 B 20.0mm]
       | AsL=    .00  ------       x/d  = .23   | As =  15.70   -STAS-  [  5 B 20.0mm ]      | AsL=    .00  ------     x/d  = .29
       |                           x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.2      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   694.9                      | M[+]Min =   694.9                          | M[-]Min =   694.9
[cm2  ]| Asapo[+]=  3.93                        |                                            | Asapo[+]=  3.93

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 177.  39.73 116.08   1  45.    6.7    3.5      6.7  8.0 15.0  2    .0    .0
              177.- 707.  28.63 116.08   1  45.    3.0    3.5      3.5  8.0 25.0  2    .0    .0
              707.- 884.  48.59 116.08   1  45.    9.7    3.5      9.7  8.0 10.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    28.338    26.148       .60      .06      0   P15         .00    .00      15      0      0      0      0      0
                2    34.708    32.032       .70      .11      0   P16         .00    .00      16      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  3.48 /B=  .19 /H=   .75  /BCs=  .45 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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 tf* m - Abcis.= 348     | M.[-] =     11.5  tf* m
[tf,cm]| As =   2.14  -SRAS-   [  3 B 10.0mm]   | AsL=    .00   ------                      | As =   5.56  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04   | As =   2.14   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .12
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.3      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=   .71                        |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 330.   6.67  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  7.48 /B=  .19 /H=   .75  /BCs=  .64 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     12.4 tf* m                 | M.[+] Max=     15.0 tf* m - Abcis.= 374    | M.[-] =     16.9  tf* m
[tf,cm]| As =   6.00  -SRAS-   [  3 B 16.0mm]   | AsL=    .00   ------                      | As =   8.51  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .13   | As =   7.05   -STAS-  [  4 B 16.0mm ]      | AsL=    .00  ------     x/d  = .19
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.3      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                        |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 547.  15.56  68.68   1  45.    1.4    2.2      2.2  6.3 25.0  2    .0    .0
              547.- 729.  23.63  68.68   1  45.    4.3    2.2      4.3  6.3 12.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  3.04 /B=  .19 /H=   .75  /BCs=  .42 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     16.1 tf* m                 | M.[+] Max=      .0 tf* m - Abcis.= 304     | M.[-] =       .7  tf* m
[tf,cm]| As =   8.06  -SRAS-   [  3 B 20.0mm]   | AsL=    .00   ------                      | As =   2.14  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .18   | As =   2.14   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .04
```


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```
       |                          x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.4      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                        |                                            | Asapo[+]=  2.76

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 280.  17.24  68.68   1  45.    2.0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    -2.282    -2.815       .19      .00      0   PT1         .00    .00     24      0      0      0      0      0
              2    15.863    14.747       .19      .00      0   P17         .00    .00     17      0      0      0      0      0
              3    25.869    23.908       .19      .00      0   P18         .00    .00     18      0      0      0      0      0
              4   -11.492   -12.315       .30      .00      2   V421        .00    .00      0      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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  1.76 /B=  .19 /H=   .40  /BCs=  .45 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .9 tf* m - Abcis.=  78  | M.[-] =      1.8  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                    | As =   1.64  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=   .7    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.14                         |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 155.   6.26  34.83   1  45.     .2    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2  /L=  2.12 /B=  .19 /H=   .40  /BCs=  .32 /BCi=  .00 /TpS=  8 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .4 tf* m - Abcis.= 158  | M.[-] =      1.4  tf* m
[tf,cm]| As =   1.48  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                    | As =   1.27  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07    | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                         |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 188.   3.66  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 3  /L=  1.76 /B=  .19 /H=   .40  /BCs=  .45 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      1.7 tf* m                 | M.[+] Max=       .7 tf* m - Abcis.= 110  | M.[-] =       .5  tf* m
[tf,cm]| As =   1.61  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07    | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=   .7    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                         |                                          | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 155.   5.95  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.812     1.881       .19      .00      0   P20         .00    .00     20      0      0      0      0      0
              2     6.265     5.713       .50      .13      0   P21         .00    .00     21      0      0      0      0      0
              3     5.792     5.254       .50      .13      0   P22         .00    .00     22      0      0      0      0      0
              4     4.189     3.260       .19      .00      0   P23         .00    .00     23      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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  8.00 /B=  .30 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O  D O  V A O                      | D I R E I T A
       | M.[-] =      8.7 tf* m                 | M.[+] Max=     13.1 tf* m - Abcis.= 400  | M.[-] =     15.6  tf* m
[tf,cm]| As =   4.06  -SRAS-   [  2 B 16.0mm]    | AsL=    .00   ------                    | As =   7.46  -SRAS- [  4 B 16.0mm]
       | AsL=    .00  ------       x/d  = .06    | As =   6.19   -SRAS-  [  3 B 16.0mm ]    | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37    | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  6.2    |                          x/dMx= .37
       |                                         |                                          |
[tf,cm]| M[-]Min =   610.7                       | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.55                         |                                          | Asapo[+]=  3.21
```


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```
CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 768.  14.92 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 2  /L=  3.90 /B=  .30 /H=   .75  /BCs=  .30 /BCi=  .00 /TpS=  2 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     14.8 tf* m                 | M.[+] Max=      1.2 tf* m - Abcis.= 292    | M.[-] =       .0  tf* m
[tf,cm]| As =   7.52  -SRAS-   [  4 B 16.0mm]   | AsL=    .00   ------                      | As =    .00  -SRAS- [  0 B  8.0mm]
       | AsL=    .00  ------       x/d  = .10   | As =   3.84   -STAS-  [  2 B 16.0mm ]      | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.1      | Grampos Dir.= 2B  8.0mm x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.67                        |                                            | Asapo[+]=  3.84

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 124.  12.45 108.45   1  45.     .0    3.5      4.8  8.0 20.0  2    .0    .0
             124.- 371.   8.54 108.45   1  45.     .0    3.5      4.2  8.0 22.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 124.   2.60  12.52   5 10.7  19.3  64.3    2.4     2.5    .5   1.5    .32   N
             124.- 371.   2.25  12.52   5 10.7  19.3  64.3    2.1     2.5    .4   1.3    .26   N

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    10.250     9.269       .50      .03      1   P24         .00    .00     25      0      0      0      0      0
                2    18.366    16.958       .19      .00      0   P25         .00    .00     26      0      0      0      0      0
                3     2.347     1.901       .19      .00      2   V416        .00    .00      0      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 CM

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 1  /L=  4.03 /B=  .30 /H=   .75  /BCs=  .30 /BCi=  .00 /TpS=  2 /Esp.LS=  .12 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =       .0 tf* m                 | M.[+] Max=      2.1 tf* m - Abcis.= 136    | M.[-] =    14.0  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  8.0mm]   | AsL=    .00   ------                      | As =   7.08  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .00   | As =   3.82   -STAS-  [  2 B 16.0mm ]      | AsL=    .00  ------     x/d  = .09
       | Grampos Esq.= 2B  8.0mm   x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.1      |                           x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.82                        |                                            | Asapo[+]=  3.65

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 124.   4.46 108.45   1  45.     .0    3.5      4.6  8.0 20.0  2    .0    .0
             124.- 371.  15.12 108.45   1  45.     .0    3.5      4.5  8.0 22.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 124.   2.46  12.52   5 10.7  19.3  64.3    2.3     2.5    .4   1.5    .24   N
             124.- 371.   2.40  12.52   5 10.7  19.3  64.3    2.2     2.5    .4   1.4    .33   N

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 2  /L=  9.39 /B=  .30 /H=   .75  /BCs= 1.00 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                        | M E I O   D O   V A O                      | D I R E I T A
       | M.[-] =     28.9 tf* m                 | M.[+] Max=     18.2 tf* m - Abcis.= 473    | M.[-] =     21.9  tf* m
[tf,cm]| As =  14.36  -SRAS-   [  5 B 20.0mm]   | AsL=    .00   ------                      | As =  10.66  -SRAS- [  6 B 16.0mm]
       | AsL=    .00  ------       x/d  = .20   | As =   8.44   -STAS-  [  3 B 20.0mm ]      | AsL=    .00  ------     x/d  = .15
       |                           x/dMx= .37   | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  2.5      |                           x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   610.7                      | M[+]Min =   610.7                          | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                        |                                            | Asapo[+]=  2.11

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 894.  24.33 108.45   1  45.    2.1    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     3.184     2.393       .19      .00      2   V419        .00    .00      0      0      0      0      0      0
                2    27.345    26.077       .60      .07      0   P26         .00    .00     27      0      0      0      0      0
                3    14.229    12.956       .60      .07      0   P27         .00    .00     28      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 CM

------------------------------  G E O M E T R I A      E     C A R G A S  ------------------------------
Vao= 1  /L=  1.61 /B=  .19 /H=   .40  /BCs=  .31 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .5 tf* m - Abcis.=  26    | M.[-] =       .7  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]   | AsL=    .00   ------                      | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05   | As =   1.14   -STAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1      |                           x/dMx= .37
```


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```
      |                                  |                                  |
[tf,cm]| M[-]Min =   110.0                | M[+]Min =   110.0                | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.14                  |                                  | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 139.   2.46  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2  /L=  2.38 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =       .6 tf* m           | M.[+] Max=       .4 tf* m - Abcis.= 119 | M.[-] =       .6  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                 | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.14   -SRAS-  [  2 B 10.0mm ] | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8 |                          x/dMx= .37
       |                                      |                                  |
[tf,cm]| M[-]Min =   110.0                | M[+]Min =   110.0                | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                  |                                  | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 219.   1.81  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 3  /L=  1.61 /B=  .19 /H=   .40  /BCs=  .31 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =       .8 tf* m           | M.[+] Max=       .6 tf* m - Abcis.= 133 | M.[-] =       .9  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                 | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.14   -STAS-  [  2 B 10.0mm ] | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1 |                          x/dMx= .37
       |                                      |                                  |
[tf,cm]| M[-]Min =   110.0                | M[+]Min =   110.0                | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                  |                                  | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 139.   2.49  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     1.757      .463       .50      .13      0   P28         .00    .00     29      0      0      0      0      0
                2     2.977     1.705       .19      .00      0   P29         .00    .00     30      0      0      0      0      0
                3     3.048     1.768       .19      .00      0   P30         .00    .00     31      0      0      0      0      0
                4     1.543      .245       .50      .13      0   P31         .00    .00     32      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 CM

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 1  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .10   [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.[-] =      2.9 tf* m           | M.[+] Max=      9.3 tf* m - Abcis.= 273 | M.[-] =      8.8  tf* m
[tf,cm]| As =   2.14  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                 | As =   4.18  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   4.43   -SRAS-  [  4 B 12.5mm ] | AsL=    .00  ------     x/d  = .09
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  7.0 |                          x/dMx= .37
       |                                      |                                  |
[tf,cm]| M[-]Min =   386.8                | M[+]Min =   386.8                | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  1.48                  |                                  | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 469.  10.30  68.68   1  45.     .0    2.2      2.2  6.3 25.0  2    .0    .0
            469.- 626.  23.03  68.68   1  45.    4.1    2.2      4.1  6.3 15.0  2    .0    .0

--------------------------------  G E O M E T R I A      E     C A R G A S  --------------------------------
Vao= 2  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .10   [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.[-] =      8.7 tf* m           | M.[+] Max=      4.4 tf* m - Abcis.= 330 | M.[-] =      8.8  tf* m
[tf,cm]| As =   4.12  -SRAS-   [  2 B 16.0mm] | AsL=    .00   ------                 | As =   4.20  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .09 | As =   2.14   -SRAS-  [  3 B 10.0mm ] | AsL=    .00  ------     x/d  = .09
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.2 |                          x/dMx= .37
       |                                      |                                  |
[tf,cm]| M[-]Min =   386.8                | M[+]Min =   386.8                | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                  |                                  | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 157.  33.78  68.68   1  45.    7.9    2.2      7.9  8.0 12.5  2    .0    .0
            157.- 626.   9.18  68.68   1  45.     .0    2.2      2.2  8.0 30.0  2    .0    .0

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


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```
Vao= 3  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      9.3 tf* m              | M.[+] Max=      6.4 tf* m - Abcis.= 382 | M.[-] =      2.8  tf* m
[tf,cm]| As =   4.43  -SRAS-   [  4 B 12.5mm] | AsL=    .00   ------                   | As =   2.14  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .10 | As =   3.00   -SRAS-  [  4 B 10.0mm ]  | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  4.7  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                      | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                      |                                        | Asapo[+]=   .75

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 621.   9.04  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.910     3.323       .30      .00      1   P24          .00    .00     25      0      0      0      0      0
              2   -37.045   -40.341       .30      .00      1   P13          .00    .00     13      0      0      0      0      0
              3     6.877     6.450       .40      .00      1   P7           .00    .00      7      0      0      0      0      0
              4     2.565     1.840       .30      .00      1   P1           .00    .00      1      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 CM

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 1  /L=  5.55 /B=  .19 /H=   .75  /BCs=  .61 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     10.6 tf* m               | M.[+] Max=     11.5 tf* m - Abcis.= 281 | M.[-] =     26.7  tf* m
[tf,cm]| As =   5.09  -SRAS-   [  3 B 16.0mm] | AsL=    .00   ------                   | As =  14.35  -SRAS- [  3 B 25.0mm]
       | AsL=    .00  ------       x/d  = .11 | As =   5.32   -STAS-  [  3 B 16.0mm ]  | AsL=    .00  ------     x/d  = .33
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  2.6  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                      | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  1.33                      |                                        | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 340.  20.20  68.68   1  45.    3.1    2.2      3.1  8.0 30.0  2    .0    .0
             340.- 510.  34.61  68.68   1  45.    8.2    2.2      8.2  8.0 10.0  2    .0    .0

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 2  /L=  7.32 /B=  .19 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     22.8 tf* m               | M.[+] Max=      9.3 tf* m - Abcis.= 370 | M.[-] =     16.1  tf* m
[tf,cm]| As =  11.98  -SRAS-   [  3 B 25.0mm] | AsL=    .00   ------                   | As =   7.97  -SRAS- [  4 B 16.0mm]
       | AsL=    .00  ------       x/d  = .27 | As =   4.43   -SRAS-  [  4 B 12.5mm ]  | AsL=    .00  ------     x/d  = .18
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  7.0  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                      | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                      |                                        | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 172.  22.36  68.68   1  45.    3.8    2.2      3.8  5.0 10.0  2    .0    .0
             172.- 515.  10.95  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0
             515.- 687.  18.51  68.68   1  45.    2.4    2.2      2.4  5.0 15.0  2    .0    .0

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 3  /L=  6.30 /B=  .19 /H=   .75  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     15.3 tf* m               | M.[+] Max=      6.5 tf* m - Abcis.= 422 | M.[-] =     12.2  tf* m
[tf,cm]| As =   7.62  -SRAS-   [  4 B 16.0mm] | AsL=    .00   ------                   | As =   5.99  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .17 | As =   3.15   -SRAS-  [  4 B 10.0mm ]  | AsL=    .00  ------     x/d  = .13
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  4.8  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                      | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.12                      |                                        | Asapo[+]=   .79

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 161.  15.21  68.68   1  45.    1.3    2.2      3.0  6.3 20.0  2    .0    .0
             161.- 483.   8.08  68.68   1  45.     .0    2.2      2.2  6.3 25.0  2    .0    .0
             483.- 586.  23.56  68.68   1  45.    4.3    2.2      6.0  6.3 10.0  2    .0    .7

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 161.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .22   S
             161.- 483.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .12   S
             483.- 586.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .34   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    14.412    11.027       .50      .03      0   P25          .00    .00     26      0      0      0      0      0
              2    39.328    35.294       .60      .07      0   PT1          .00    .00     24      0      0      0      0      0
              3    23.193    21.129       .50      .03      0   P8           .00    .00      8      0      0      0      0      0
              4    16.829    13.861       .60      .07      0   P2           .00    .00      2      0      0      0      0      0
```


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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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.31 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .10   [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.[-] =       .8 tf* m               | M.[+] Max=      3.2 tf* m - Abcis.= 231    | M.[-] =      4.8  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm]  | AsL=    .00   ------                      | As =   2.31  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04  | As =   2.23   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------      x/d  = .05
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37  | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.1      |                           x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   386.8                     | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.23                       |                                            | Asapo[+]=  2.23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 136.   6.56  68.68   1  45.     .0    2.2      2.5  5.0 15.0  2    .0    .7
             136.- 199.   6.62  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla       M E N S A G E M
[tf,cm]        0.- 136.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .10   S
             136.- 199.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .10   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     4.680     -.280       .19      .00      0   P28          .00    .00     29      0      0      0      0      0
                2     4.726     -.070       .50      .03      0   P20          .00    .00     20      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.00 /B=  .19 /H=   .40  /BCs=  .39 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      3.0 tf* m                | M.[+] Max=      2.0 tf* m - Abcis.=   0    | M.[-] =      1.0  tf* m
[tf,cm]| As =   2.84  -SRAS-   [  4 B 10.0mm]  | AsL=    .00   ------                      | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .13  | As =   1.86   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------      x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4      |                           x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   110.0                     | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.90                       |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   4.03  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.878     -.460       .70      .23      0   P29          .00    .00     30      0      0      0      0      0
                2     2.354     -.984       .19      .00      0   P21          .00    .00     21      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 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  2.00 /B=  .19 /H=   .40  /BCs=  .39 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .01   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E 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=      2.0 tf* m - Abcis.=   0    | M.[-] =      1.0  tf* m
[tf,cm]| As =   2.91  -SRAS-   [  4 B 10.0mm]  | AsL=    .00   ------                      | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .13  | As =   1.88   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------      x/d  = .05
       |                           x/dMx= .37  | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4      |                           x/dMx= .37
       |                                       |                                            |
[tf,cm]| M[-]Min =   110.0                     | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.92                       |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   4.15  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.959     -.442       .70      .23      0   P30          .00    .00     31      0      0      0      0      0
                2     2.381    -1.021       .19      .00      0   P22          .00    .00     22      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 CM

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


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```
Vao= 1  /L=  2.31 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =       .9 tf* m              | M.[+] Max=      4.0 tf* m - Abcis.=  96 | M.[-] =      5.1  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                   | As =   2.46  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   2.23   -STAS-  [  3 B 10.0mm ]  | AsL=    .00  ------      x/d  = .05
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.1  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                      | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.23                      |                                        | Asapo[+]=  2.23

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 136.   7.89  68.68   1  45.     .0    2.2      2.8  5.0 12.5  2    .0   1.0
              136.- 199.   7.24  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 136.   .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .11   S
              136.- 199.   .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .11   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     5.627     -.068       .19      .00      0   P31         .00    .00     32      0      0      0      0      0
                2     5.161     -.211       .50      .03      0   P23         .00    .00     23      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 CM

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 1  /L=  6.55 /B=  .30 /H=   .75  /BCs= 1.28 /BCi=  .00 /TpS=  2 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =       8.1 tf* m             | M.[+] Max=     15.9 tf* m - Abcis.= 273 | M.[-] =     26.0  tf* m
[tf,cm]| As =   4.03  -SRAS-   [  4 B 12.5mm] | AsL=    .00   ------                   | As =  13.06  -SRAS- [  5 B 20.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   7.59   -STAS-  [  4 B 16.0mm ]  | AsL=    .00  ------      x/d  = .18
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.7  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                      | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.90                      |                                        | Asapo[+]=  3.45

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 494.  21.41 108.45   1  45.    1.0    3.5      3.5  8.0 25.0  2    .0    .0
              494.- 626.  26.81 108.45   1  45.    3.0    3.5      6.6  8.0 15.0  2    .0   4.1

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 494.   .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .20   S
              494.- 626.   .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .25   S

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 2  /L=  6.61 /B=  .30 /H=   .75  /BCs= 1.09 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =     25.0 tf* m               | M.[+] Max=     11.5 tf* m - Abcis.= 330 | M.[-] =     31.4  tf* m
[tf,cm]| As =  12.30  -SRAS-   [  4 B 20.0mm] | AsL=    .00   ------                   | As =  15.77  -SRAS- [  5 B 20.0mm]
       | AsL=    .00  ------       x/d  = .17 | As =   5.32   -STAS-  [  3 B 16.0mm ]  | AsL=    .00  ------      x/d  = .22
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.5  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                      | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                      |                                        | Asapo[+]=  3.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 473.  28.09 108.45   1  45.    3.4    3.5      3.5  6.3 17.5  2    .0    .0
              473.- 631.  32.23 108.45   1  45.    4.9    3.5      4.9  6.3 12.5  2    .0    .0

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 3  /L=  6.55 /B=  .30 /H=   .75  /BCs=  .79 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O  D O  V A O                    | D I R E I T A
       | M.[-] =     33.5 tf* m               | M.[+] Max=     21.3 tf* m - Abcis.= 382 | M.[-] =      9.8  tf* m
[tf,cm]| As =  17.31  -SRAS-   [  6 B 20.0mm] | AsL=    .00   ------                   | As =   4.84  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .24 | As =  10.21   -STAS-  [  5 B 16.0mm ]  | AsL=    .00  ------      x/d  = .06
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.8  |                          x/dMx= .37
       |                                      |                                        |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                      | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.45                      |                                        | Asapo[+]=  3.40

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 164.  37.44 108.45   1  45.    6.8    3.5      9.3  8.0 10.0  2    .0    .0
              164.- 493.  21.35 108.45   1  45.    1.0    3.5      3.5  8.0 25.0  2    .0    .0
              493.- 626.  29.81 108.45   1  45.    4.1    3.5      6.5  8.0 15.0  2    .0    .2

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 164.   .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .35   S
              164.- 493.   .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .20   S
              493.- 626.   .00  12.52   5 10.7  19.3  64.3     .0     2.5    .2    .8    .27   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1    12.294    10.431       .30      .00      0   P26         .00    .00     27      0      0      0      0      0
                2    36.277    34.410       .30      .00      0   P15         .00    .00     15      0      0      0      0      0
```

```
              3    48.749    45.856       .30       .00       0   P9          .00    .00       9      0      0      0      0      0
              4    21.291    19.174       .30       .00       0   P3          .00    .00       3      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 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      5.0 tf* m               | M.[+] Max=      7.8 tf* m - Abcis.= 273    | M.[-] =     10.0  tf* m
[tf,cm]| As =   2.35  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                      | As =   4.79  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   3.61   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .11
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.6      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.14                      |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 626.   9.19  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 2  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .59 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      8.5 tf* m               | M.[+] Max=      3.3 tf* m - Abcis.= 330    | M.[-] =      8.6  tf* m
[tf,cm]| As =   4.04  -SRAS-   [  2 B 16.0mm] | AsL=    .00   ------                      | As =   4.07  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .09 | As =   2.14   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .09
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.0      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                      |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 631.   7.03  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 3  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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=      7.9 tf* m - Abcis.= 382    | M.[-] =      5.1  tf* m
[tf,cm]| As =   4.83  -SRAS-   [  3 B 16.0mm] | AsL=    .00   ------                      | As =   2.38  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .11 | As =   3.63   -STAS-  [  3 B 12.5mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.6      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                      |                                            | Asapo[+]=  2.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 626.   9.52  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     4.452     2.954       .30      .00      0   P27         .00    .00     28      0      0      0      0      0
                2     7.204     6.536       .30      .00      0   P16         .00    .00     16      0      0      0      0      0
                3     7.359     6.687       .30      .00      0   P10         .00    .00     10      0      0      0      0      0
                4     4.077     2.558       .30      .00      0   P4          .00    .00      4      0      0      0      0      0
```

VE

```
Viga=  423  VE                            Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  7.48 /B=  .50 /H=   .50  /BCs= 2.00 /BCi=  .00 /TpS=  2 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .25   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -   -   -   -   -
FLEXAO-| E 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=     18.7 tf* m - Abcis.= 374    | M.[-] =      4.3  tf* m
[tf,cm]| As =   4.29  -SRAS-   [  6 B 10.0mm] | AsL=    .00   ------                      | As =   4.29  -SRAS- [  6 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =  14.06   -STAS-  [  7 B 16.0mm ]      | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X  3 B  5.0mm] - LN=  2.0      |                          x/dMx= .37
       |                                      |                                            |
[tf,cm]| M[-]Min =   452.4                    | M[+]Min =   452.4                          | M[-]Min =   452.4
[cm2  ]| Asapo[+]=  4.69                      |                                            | Asapo[+]=  4.69

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 182.  25.29 117.10   1  45.    2.9    5.8      6.5  6.3 17.5  4    .0    .0
             182.- 547.   7.39 117.10   1  45.     .0    5.8      5.8  6.3 20.0  4    .0    .0
             547.- 729.  25.06 117.10   1  45.    2.8    5.8      7.7  6.3 15.0  4    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 182.   1.07  16.57   5 12.5  37.5  37.5     .9     5.8    .5    .5    .28   N
             182.- 547.    .91  16.57   5 12.5  37.5  37.5     .7     5.8    .5    .5    .12   N
             547.- 729.   1.50  16.57   5 12.5  37.5  37.5    1.2     5.8    .5    .5    .30   N

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


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```
          1    18.043    16.391       .19       .00       0   P11          .00    .00      11       0       0       0       0       0
          2    17.898    16.248       .19       .00       0   P12          .00    .00      12       0       0       0       0       0
```

cobertura

V501

```
Viga=  501  V501                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 1  /L=  9.49 /B=  .30 /H=   .75  /BCs= 1.25 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-    -    -    -    -    -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -    -    -    -    -
FLEXAO-| E 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=     14.1 tf* m - Abcis.= 474   | M.[-] =     10.6  tf* m
[tf,cm]| As =   4.73  -SRAS-   [  4 B 12.5mm]  | AsL=    .00   ------                     | As =   4.99  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .07  | As =   6.50   -STAS-  [  4 B 16.0mm ]     | AsL=    .00  ------      x/d  = .07
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.6     |                           x/dMx= .37
       |                                       |                                           |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                         | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  1.62                       |                                           | Asapo[+]=  1.62

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 904.  12.51 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     8.320     7.985       .50      .03      1   P3          .00    .00      3       0       0       0       0       0
              2     8.933     8.588       .60      .07      1   P4          .00    .00      4       0       0       0       0       0
```

V502

```
Viga=  502  V502                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 1  /L=  4.75 /B=  .30 /H=   .75  /BCs= 1.01 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-    -    -    -    -    -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -    -    -    -    -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =      .0 tf* m                 | M.[+] Max=      6.2 tf* m - Abcis.= 205   | M.[-] =      8.7  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  8.0mm]  | AsL=    .00   ------                     | As =   4.05  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .00  | As =   3.38   -STAS-  [  3 B 12.5mm ]     | AsL=    .00  ------      x/d  = .06
       | Grampos Esq.= 2B  6.3mm   x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=   .9     |                           x/dMx= .37
       |                                       |                                           |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                         | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.38                       |                                           | Asapo[+]=  3.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 443.  13.95 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

-------------------------------   G E O M E T R I A       E      C A R G A S    --------------------------------
Vao= 2  /L=  3.67 /B=  .30 /H=   .75  /BCs=  .74 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-    -    -    -    -    -   A R M A D U R A S   ( F L E X A O   E   C I S A L H A M E N T O )   -    -    -    -    -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =      9.5 tf* m                | M.[+] Max=      1.5 tf* m - Abcis.= 267   | M.[-] =      4.9  tf* m
[tf,cm]| As =   4.47  -SRAS-   [  3 B 16.0mm]  | AsL=    .00   ------                     | As =   3.38  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .06  | As =   3.38   -STAS-  [  3 B 12.5mm ]     | AsL=    .00  ------      x/d  = .04
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.3     |                           x/dMx= .37
       |                                       |                                           |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                         | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                       |                                           | Asapo[+]=  3.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 322.  13.81 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

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


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```
Vao= 3  /L=  4.84 /B=  .30 /H=   .75  /BCs= 1.03 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     12.4 tf* m                | M.[+] Max=      3.6 tf* m - Abcis.= 292   | M.[-] =      1.4  tf* m
[tf,cm]| As =   5.85  -SRAS-   [  3 B 16.0mm]  | AsL=    .00   ------                     | As =   3.38  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .08  | As =   3.38   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------      x/d  = .04
       |                           x/dMx= .37  | Arm.Lat.=[2 X  8 B  6.3mm] - LN=   .9    | Grampos Dir.= 2B  6.3mm x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   610.7                     | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                       |                                          | Asapo[+]=  3.38

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 452.  13.30 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     5.082     4.581       .19      .00      2   V511        .00    .00      0      0      0      0      0      0
              2    18.996    17.846       .80      .17      1   P5          .00    .00      5      0      0      0      0      0
              3    15.679    13.510       .80      .17      1   P6          .00    .00      6      0      0      0      0      0
              4     2.563     1.305       .19      .00      2   V518        .00    .00      0      0      0      0      0      0
```

V503

```
Viga=  503  V503                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 1  /L=  9.26 /B=  .30 /H=   .70  /BCs= 2.15 /BCi=  .00 /TpS=  2 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .35 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -  A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     17.4 tf* m                | M.[+] Max=     18.5 tf* m - Abcis.= 463   | M.[-] =     19.0  tf* m
[tf,cm]| As =   9.08  -SRAS-   [  3 B 20.0mm]  | AsL=    .00   ------                     | As =   9.96  -SRAS- [  5 B 16.0mm]
       | AsL=    .00  ------       x/d  = .14  | As =   9.19   -STAS-  [  3 B 20.0mm ]    | AsL=    .00  ------      x/d  = .15
       |                           x/dMx= .37  | Arm.Lat.=[2 X  7 B  6.3mm] - LN=  1.3    |                           x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   532.0                     | M[+]Min =   532.0                        | M[-]Min =   532.0
[cm2  ]| Asapo[+]=  2.30                       |                                          | Asapo[+]=  2.30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 884.  23.96 100.81   1  45.    2.6    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     5.406     4.910       .60      .09      1   P9          .00    .00      9      0      0      0      0      0
              2    17.113    16.464       .70      .14      1   P10         .00    .00     10      0      0      0      0      0
```

V504

```
Viga=  504  V504                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 1  /L=  3.48 /B=  .19 /H=   .60  /BCs=  .71 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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 tf* m                | M.[+] Max=       .6 tf* m - Abcis.=  29   | M.[-] =     14.1  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm]  | AsL=    .00   ------                     | As =   9.35  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .00  | As =   1.71   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------      x/d  = .27
       |                           x/dMx= .37  | Arm.Lat.=[2 X  4 B  6.3mm] - LN=   .7    |                           x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   247.5                     | M[+]Min =   247.5                        | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.71                       |                                          | Asapo[+]=  1.62

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 220.   7.86  54.17   1  45.     .0    2.2      2.2  6.3 25.0  2    .0    .0
             220.- 330.  19.54  54.17   1  45.    4.7    2.2      4.7  6.3 12.5  2    .0    .0

-------------------------------  G E O M E T R I A  E  C A R G A S  -------------------------------
Vao= 2  /L=  7.48 /B=  .19 /H=   .60  /BCs= 1.09 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =     15.0 tf* m                | M.[+] Max=     11.4 tf* m - Abcis.= 374   | M.[-] =     13.2  tf* m
[tf,cm]| As =  10.26  -SRAS-   [  4 B 20.0mm]  | AsL=    .00   ------                     | As =   8.70  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .30  | As =   6.79   -STAS-  [  4 B 16.0mm ]    | AsL=    .00  ------      x/d  = .25
       |                           x/dMx= .37  | Arm.Lat.=[2 X  4 B  6.3mm] - LN=  1.9    |                           x/dMx= .37
       |                                       |                                          |
[tf,cm]| M[-]Min =   247.5                     | M[+]Min =   247.5                        | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.70                       |                                          | Asapo[+]=  1.70

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


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```
[tf,cm]        0.- 182.  25.47  54.17   1  45.    7.4    2.2      7.4  8.0 12.5  2    .0    .0
             182.- 547.   9.65  54.17   1  45.     .2    2.2      2.2  8.0 30.0  2    .0    .0
             547.- 729.  17.75  54.17   1  45.    3.9    2.2      3.9  8.0 25.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  2.98 /B=  .19 /H=   .60  /BCs=  .64 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =     12.9 tf* m               | M.[+] Max=       .6 tf* m - Abcis.= 298  | M.[-] =       .1  tf* m
[tf,cm]| As =   8.46  -SRAS-   [  3 B 20.0mm] | AsL=    .00   ------                    | As =   1.71  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .24 | As =   1.71   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X  4 B  6.3mm] - LN=   .7    | Grampos Dir.= 1B  6.3mm x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   247.5                    | M[+]Min =   247.5                        | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.62                      |                                          | Asapo[+]=  2.09

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 280.  12.78  54.17   1  45.    1.6    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     -.076     -.471       .19      .00      2   V511         .00    .00      0      0      0      0      0      0
              2    32.020    31.342       .19      .00      1   P11          .00    .00     11      0      0      0      0      0
              3    21.808    20.784       .19      .00      1   P12          .00    .00     12      0      0      0      0      0
              4    -7.563    -8.354       .19      .00      2   V518         .00    .00      0      0      0      0      0      0
```

V505

```
Viga=  505  V505                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  9.26 /B=  .30 /H=   .70  /BCs= 2.15 /BCi=  .00 /TpS=  2 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .35 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                      | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     19.2 tf* m               | M.[+] Max=     21.0 tf* m - Abcis.= 463  | M.[-] =     21.3  tf* m
[tf,cm]| As =  10.06  -SRAS-   [  5 B 16.0mm] | AsL=    .00   ------                    | As =  11.26  -SRAS- [  6 B 16.0mm]
       | AsL=    .00  ------       x/d  = .15 | As =  10.42   -STAS-  [  6 B 16.0mm ]    | AsL=    .00  ------     x/d  = .17
       |                           x/dMx= .37 | Arm.Lat.=[2 X  7 B  6.3mm] - LN=  1.4    |                           x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   532.0                    | M[+]Min =   532.0                        | M[-]Min =   532.0
[cm2  ]| Asapo[+]=  2.61                      |                                          | Asapo[+]=  2.61

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 884.  25.51 100.81   1  45.    3.2    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1    16.038    15.301       .60      .09      1   P15          .00    .00     15      0      0      0      0      0
              2    18.220    17.437       .70      .14      1   P16          .00    .00     16      0      0      0      0      0
```

V506

```
Viga=  506  V506                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  3.48 /B=  .19 /H=   .60  /BCs=  .71 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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 tf* m                | M.[+] Max=      .5 tf* m - Abcis.=  58   | M.[-] =      9.9  tf* m
[tf,cm]| As =   1.71  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                    | As =   6.17  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   1.71   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .17
       |                           x/dMx= .37 | Arm.Lat.=[2 X  4 B  6.3mm] - LN=   .7    |                           x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   247.5                    | M[+]Min =   247.5                        | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.71                      |                                          | Asapo[+]=  1.62

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 330.   8.61  54.17   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  7.48 /B=  .19 /H=   .60  /BCs= 1.09 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =     10.4 tf* m               | M.[+] Max=      9.0 tf* m - Abcis.= 374   | M.[-] =     12.6  tf* m
[tf,cm]| As =   6.65  -SRAS-   [  4 B 16.0mm] | AsL=    .00   ------                    | As =   8.25  -SRAS- [  4 B 16.0mm]
       | AsL=    .00  ------       x/d  = .19 | As =   5.39   -STAS-  [  3 B 16.0mm ]    | AsL=    .00  ------     x/d  = .23
       |                           x/dMx= .37 | Arm.Lat.=[2 X  4 B  6.3mm] - LN=  1.5    |                           x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   247.5                    | M[+]Min =   247.5                        | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.71                      |                                          | Asapo[+]=  1.71

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.-  69.  17.31  54.17   1  45.    3.7    2.2      5.4  6.3 10.0  2    .0   2.6
              69.- 610.   9.18  54.17   1  45.     .0    2.2      2.2  6.3 25.0  2    .0    .0
             610.- 729.  16.96  54.17   1  45.    3.5    2.2      5.2  6.3 10.0  2    .0   2.4
```


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```
T O R C A O-   Xi     Xf     Tsd    TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.-  69.     .00   3.53   5  7.2  10.1  51.1     .0     1.7    .1    .4    .32   S
               69.- 610.     .00   3.53   5  7.2  10.1  51.1     .0     1.7    .1    .4    .17   S
              610.- 729.     .00   3.53   5  7.2  10.1  51.1     .0     1.7    .1    .4    .31   S

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  2.98 /B=  .19 /H=   .60  /BCs=  .64 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =     12.7 tf* m               | M.[+] Max=       .0 tf* m - Abcis.= 298   | M.[-] =      1.0  tf* m
[tf,cm]| As =   8.21  -SRAS-   [  4 B 16.0mm] | AsL=    .00   ------                    | As =   1.71  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .23 | As =   1.71   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X  4 B  6.3mm] - LN=   .7    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   247.5                    | M[+]Min =   247.5                        | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.62                      |                                          | Asapo[+]=   .57

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 280.   8.33  54.17   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     1.681     1.345       .19      .00      1   PT1         .00    .00     24      0      0      0      0      0
                2    18.223    16.736       .19      .00      1   P17         .00    .00     17      0      0      0      0      0
                3    18.066    15.274       .19      .00      1   P18         .00    .00     18      0      0      0      0      0
                4    -3.396    -4.554       .19      .00      2   V518        .00    .00      0      0      0      0      0      0
```

V507

```
Viga=  507  V507                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  1.76 /B=  .19 /H=   .40  /BCs=  .45 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m                | M.[+] Max=       .6 tf* m - Abcis.= 126   | M.[-] =       .8  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=   .38                      |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 155.   4.15  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.12 /B=  .19 /H=   .40  /BCs=  .32 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .3 tf* m - Abcis.= 158   | M.[-] =       .8  tf* m
[tf,cm]| As =   1.29  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.1    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                      |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 188.   2.99  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  1.76 /B=  .19 /H=   .40  /BCs=  .45 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .5 tf* m - Abcis.= 110   | M.[-] =       .2  tf* m
[tf,cm]| As =   1.39  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.14   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                      |                                          | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 155.   5.68  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     1.403      .887       .19      .00      1   P20         .00    .00     20      0      0      0      0      0
                2     4.618     4.298       .50      .13      0   P21         .00    .00     21      0      0      0      0      0
                3     5.024     4.683       .50      .13      0   P22         .00    .00     22      0      0      0      0      0
                4     2.412     1.868       .19      .00      1   P23         .00    .00     23      0      0      0      0      0
```

V508

```
Viga=  508  V508                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM
```


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```
------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  3.90 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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 tf* m             | M.[+] Max=      4.4 tf* m - Abcis.= 194   | M.[-] =      1.1  tf* m
[tf,cm]| As =   2.14  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                     | As =   2.14  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   2.14   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .04
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.2    | Grampos Dir.= 1B  6.3mm x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.14                      |                                          | Asapo[+]=  2.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 371.   8.33  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     5.940     5.623       .19      .00      0   P25         .00    .00     26      0      0      0      0      0
              2     3.471     3.105       .19      .00      2   V513        .00    .00      0      0      0      0      0      0
```

V509

```
Viga=  509  V509                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  4.03 /B=  .30 /H=   .75  /BCs=  .30 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E 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 tf* m             | M.[+] Max=      2.0 tf* m - Abcis.= 136   | M.[-] =      9.4  tf* m
[tf,cm]| As =   3.38  -SRAS-   [  3 B 12.5mm] | AsL=    .00   ------                     | As =   4.43  -SRAS- [  2 B 20.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   3.38   -STAS-  [  3 B 12.5mm ]    | AsL=    .00  ------     x/d  = .06
       | Grampos Esq.= 2B  6.3mm   x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  3.1    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.38                      |                                          | Asapo[+]=  3.21

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 371.  14.09 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 2  /L=  9.39 /B=  .30 /H=   .75  /BCs= 1.00 /BCi=  .00 /TpS=  8 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .15   [M]
--Solicitações provenientes de modelo de grelha e/ou pórtico espacial---  Estrut. Nós FIXOS  --- DeltaE=1.00   DeltaD=1.00  ---

-   -   -   -   -   -   A R M A D U R A S  ( F L E X A O  E  C I S A L H A M E N T O )  -   -   -   -   -
FLEXAO-| E S Q U E R D A                    | M E I O   D O   V A O                    | D I R E I T A
       | M.[-] =     19.2 tf* m               | M.[+] Max=     12.0 tf* m - Abcis.= 552   | M.[-] =      9.8  tf* m
[tf,cm]| As =   9.26  -SRAS-   [  3 B 20.0mm] | AsL=    .00   ------                     | As =   4.63  -SRAS- [  4 B 12.5mm]
       | AsL=    .00  ------       x/d  = .13 | As =   5.52   -STAS-  [  3 B 16.0mm ]    | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X  8 B  6.3mm] - LN=  1.6    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   610.7                    | M[+]Min =   610.7                        | M[-]Min =   610.7
[cm2  ]| Asapo[+]=  3.21                      |                                          | Asapo[+]=  1.38

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 894.  14.94 108.45   1  45.     .0    3.5      3.5  6.3 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     2.162     1.440       .19      .00      2   V516        .00    .00      0      0      0      0      0      0
              2    20.111    19.479       .60      .07      0   P26         .00    .00     27      0      0      0      0      0
              3     8.224     7.663       .60      .07      1   P27         .00    .00     28      0      0      0      0      0
```

V510

```
Viga=  510  V510                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  1.57 /B=  .19 /H=   .30  /BCs=  .31 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .1 tf* m - Abcis.=  78   | M.[-] =       .2  tf* m
[tf,cm]| As =    .93  -SRAS-   [  2 B  8.0mm] | AsL=    .00   ------                     | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =    .88   -STAS-  [  2 B  8.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .9    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                        | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .22                      |                                          | Asapo[+]=   .81

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

```
[tf,cm]        0.- 139.   1.64  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  2.37 /B=  .19 /H=   .30  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .2 tf* m - Abcis.= 119    | M.[-] =       .4  tf* m
[tf,cm]| As =    .85  -SRAS-   [  2 B  8.0mm]    | AsL=    .00   ------                         | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05     | As =    .89   -SRAS-  [  2 B  8.0mm ]        | AsL=    .00  ------      x/d  = .05
       |                           x/dMx= .37     | Arm.Lat.=[2 X -- B --- mm] - LN=  1.4         |                           x/dMx= .37
       |                                          |                                               |
[tf,cm]| M[-]Min =    61.9                        | M[+]Min =    61.9                             | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .81                          |                                               | Asapo[+]=   .81

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 219.   1.32  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  1.57 /B=  .19 /H=   .30  /BCs=  .31 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .3 tf* m - Abcis.= 131    | M.[-] =       .2  tf* m
[tf,cm]| As =    .85  -SRAS-   [  2 B  8.0mm]    | AsL=    .00   ------                         | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .05     | As =    .88   -STAS-  [  2 B  8.0mm ]        | AsL=    .00  ------      x/d  = .05
       |                           x/dMx= .37     | Arm.Lat.=[2 X -- B --- mm] - LN=   .9         |                           x/dMx= .37
       |                                          |                                               |
[tf,cm]| M[-]Min =    61.9                        | M[+]Min =    61.9                             | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .81                          |                                               | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 139.   1.77  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.085      .600       .50      .16      0   P28          .00    .00     29      0      0      0      0      0
              2     1.564     1.171       .19      .01      0   P29          .00    .00     30      0      0      0      0      0
              3     2.062     1.647       .19      .01      0   P30          .00    .00     31      0      0      0      0      0
              4      .476     -.031       .50      .16      0   P31          .00    .00     32      0      0      0      0      0
```

V511

```
Viga=  511  V511                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  5.55 /B=  .19 /H=   .75  /BCs=  .61 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      5.9 tf* m                 | M.[+] Max=      6.0 tf* m - Abcis.= 281    | M.[-] =      10.5  tf* m
[tf,cm]| As =   2.75  -SRAS-   [  4 B 10.0mm]    | AsL=    .00   ------                         | As =   5.05  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .06     | As =   2.75   -STAS-  [  4 B 10.0mm ]        | AsL=    .00  ------      x/d  = .11
       |                           x/dMx= .37     | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.4         |                           x/dMx= .37
       |                                          |                                               |
[tf,cm]| M[-]Min =   386.8                        | M[+]Min =   386.8                             | M[-]Min =   386.8
[cm2  ]| Asapo[+]=   .69                          |                                               | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 510.   9.16  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  7.32 /B=  .19 /H=   .75  /BCs=  .63 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     10.9 tf* m                 | M.[+] Max=      .9 tf* m - Abcis.= 309     | M.[-] =      8.6  tf* m
[tf,cm]| As =   5.23  -SRAS-   [  3 B 16.0mm]    | AsL=    .00   ------                         | As =   4.06  -SRAS- [  2 B 16.0mm]
       | AsL=    .00  ------       x/d  = .12     | As =   2.14   -STAS-  [  3 B 10.0mm ]        | AsL=    .00  ------      x/d  = .09
       |                           x/dMx= .37     | Arm.Lat.=[2 X  5 B  6.3mm] - LN=   .9         |                           x/dMx= .37
       |                                          |                                               |
[tf,cm]| M[-]Min =   386.8                        | M[+]Min =   386.8                             | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                          |                                               | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 687.   7.62  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.30 /B=  .19 /H=   .75  /BCs=  .66 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      9.4 tf* m                 | M.[+] Max=      9.3 tf* m - Abcis.= 316    | M.[-] =      5.6  tf* m
[tf,cm]| As =   4.56  -SRAS-   [  3 B 16.0mm]    | AsL=    .00   ------                         | As =   2.70  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .10     | As =   4.39   -STAS-  [  4 B 12.5mm ]        | AsL=    .00  ------      x/d  = .06
       |                           x/dMx= .37     | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.9         |                           x/dMx= .37
       |                                          |                                               |
[tf,cm]| M[-]Min =   386.8                        | M[+]Min =   386.8                             | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.12                          |                                               | Asapo[+]=  2.32

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 483.  12.14  68.68   1  45.     .2    2.2      2.2  5.0 17.5  2    .0    .0
```


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```
            483.- 586.  11.39  68.68   1  45.     .0    2.2      3.4  5.0 10.0  2    .0   1.6

T O R C A O-   Xi     Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 483.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .18   S
            483.- 586.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .17   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     5.022     3.158       .50      .03      0   P25          .00    .00     26      0      0      0      0      0
              2    10.471     7.335       .60      .07      1   PT1          .00    .00     24      0      0      0      0      0
              3    13.370    11.107       .50      .03      1   P8           .00    .00      8      0      0      0      0      0
              4     8.017     6.375       .60      .07      1   P2           .00    .00      2      0      0      0      0      0
```

V512

```
Viga=  512  V512                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  3.60 /B=  .19 /H=   .40  /BCs=  .91 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .10   [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.[-] =      1.1 tf* m                 | M.[+] Max=      1.6 tf* m - Abcis.=   0     | M.[-] =      3.8  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]   | AsL=    .00   ------                        | As =   3.74  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .05   | As =   1.42   -STAS-  [  2 B 10.0mm ]       | AsL=    .00  ------     x/d  = .17
       |                           x/dMx= .37   | Arm.Lat.=[2 X -- B --- mm] - LN=   .5       |                          x/dMx= .37
       |                                        |                                             |
[tf,cm]| M[-]Min =   110.0                      | M[+]Min =   110.0                           | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.45                        |                                             | Asapo[+]=   .36

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 336.   6.08  34.83   1  45.     .1    2.2      2.2  5.0 17.5  2    .0   .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1      .434     -.711       .60      .18      1   P17          .00    .00     17      0      0      0      0      0
              2    -3.196    -4.341       .50      .13      1   P11          .00    .00     11      0      0      0      0      0
```

V513

```
Viga=  513  V513                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 1  /L=  2.31 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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 tf* m                 | M.[+] Max=      1.3 tf* m - Abcis.=  77     | M.[-] =      9.7  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm]   | AsL=    .00   ------                        | As =   4.73  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04   | As =   2.23   -STAS-  [  3 B 10.0mm ]       | AsL=    .00  ------     x/d  = .10
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.1       |                          x/dMx= .37
       |                                        |                                             |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                           | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.23                        |                                             | Asapo[+]=   .56

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 125.   7.98  68.68   1  45.     .0    2.2      3.0  5.0 12.5  2    .0   1.2
            125.- 199.  10.58  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0   .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 125.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .12   S
            125.- 199.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .15   S

------------------------------   G E O M E T R I A      E     C A R G A S   ------------------------------
Vao= 2  /L=  4.14 /B=  .19 /H=   .60  /BCs=  .81 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =     10.5 tf* m                 | M.[+] Max=     10.4 tf* m - Abcis.= 208     | M.[-] =       .0  tf* m
[tf,cm]| As =   6.65  -SRAS-   [  4 B 16.0mm]   | AsL=    .00   ------                        | As =   1.71  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .19   | As =   6.14   -STAS-  [  3 B 16.0mm ]       | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37   | Arm.Lat.=[2 X  4 B  6.3mm] - LN=  2.3       |                          x/dMx= .37
       |                                        |                                             |
[tf,cm]| M[-]Min =   247.5                      | M[+]Min =   247.5                           | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.62                        |                                             | Asapo[+]=  2.05

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 127.  16.74  54.17   1  45.    3.4    2.2      3.4  5.0 10.0  2    .0   .0
            127.- 382.  10.40  54.17   1  45.     .5    2.2      2.2  5.0 17.5  2    .0   .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.312      .328       .19      .00      0   P28          .00    .00     29      0      0      0      0      0
              2    18.453    14.926       .50      .03      1   P20          .00    .00     20      0      0      0      0      0
              3     6.101     4.470       .19      .00      2   V506         .00    .00      0      0      0      0      0      0
```


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V514

```
Viga=  514  V514                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  1.97 /B=  .19 /H=   .30  /BCs=  .39 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.2 tf* m             | M.[+] Max=       .6 tf* m - Abcis.=   0 | M.[-] =       .7  tf* m
[tf,cm]| As =   1.52  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                  | As =    .95  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .09 | As =    .88   -STAS-  [  2 B  8.0mm ] | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                     | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .85                      |                                       | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   2.02  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.440      .009       .70      .26      0   P29         .00    .00     30      0      0      0      0      0
              2     1.021     -.411       .19      .01      0   P21         .00    .00     21      0      0      0      0      0
```

V515

```
Viga=  515  V515                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  1.97 /B=  .19 /H=   .30  /BCs=  .39 /BCi=  .00 /TpS=  5 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.1 tf* m             | M.[+] Max=       .6 tf* m - Abcis.=   0 | M.[-] =       .7  tf* m
[tf,cm]| As =   1.46  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                  | As =    .92  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .09 | As =    .88   -STAS-  [  2 B  8.0mm ] | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .7 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                     | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .85                      |                                       | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   1.91  25.15   1  45.     .0    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.360     -.052       .70      .26      0   P30         .00    .00     31      0      0      0      0      0
              2      .880     -.532       .19      .01      0   P22         .00    .00     22      0      0      0      0      0
```

V516

```
Viga=  516  V516                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  2.31 /B=  .19 /H=   .75  /BCs=  .19 /BCi=  .00 /TpS=  8 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =       .6 tf* m             | M.[+] Max=       .5 tf* m - Abcis.=   0 | M.[-] =      9.2  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                  | As =   4.44  -SRAS- [  3 B 16.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   2.23   -STAS-  [  3 B 10.0mm ] | AsL=    .00  ------     x/d  = .10
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.1 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                     | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.23                      |                                       | Asapo[+]=   .56

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 136.   7.51  68.68   1  45.     .0    2.2      2.4  5.0 15.0  2    .0    .7
             136.- 199.   8.44  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 136.    .00   4.79   5  7.6  10.1   66.1     .0     1.8    .1    .6    .11   S
             136.- 199.    .00   4.79   5  7.6  10.1   66.1     .0     1.8    .1    .6    .12   S

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 2  /L=  4.14 /B=  .19 /H=   .60  /BCs=  .81 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .30 /FLt.Ex=  .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.[-] =     10.4 tf* m             | M.[+] Max=      9.1 tf* m - Abcis.= 208 | M.[-] =       .0  tf* m
[tf,cm]| As =   6.55  -SRAS-   [  4 B 16.0mm] | AsL=    .00   ------                  | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------       x/d  = .19 | As =   5.39   -STAS-  [  3 B 16.0mm ] | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37 | Arm.Lat.=[2 X  4 B  6.3mm] - LN=  2.0 |                         x/dMx= .37
       |                                      |                                       |
[tf,cm]| M[-]Min =   247.5                    | M[+]Min =   247.5                     | M[-]Min =   247.5
[cm2  ]| Asapo[+]=  1.62                      |                                       | Asapo[+]=  1.80

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


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```
[tf,cm]        0.- 127.  15.03  54.17   1  45.    2.6    2.2      2.6  5.0 12.5  2    .0    .0
             127.- 382.  10.19  54.17   1  45.     .4    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.432     -.142       .19      .00      0   P31         .00    .00     32      0      0      0      0      0
                2    15.082    12.809       .50      .03      1   P23         .00    .00     23      0      0      0      0      0
                3     5.592     4.351       .19      .00      2   V506        .00    .00      0      0      0      0      0      0
```

V517

```
Viga=  517  V517                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  3.60 /B=  .19 /H=   .40  /BCs=  .91 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.=   0    | M.[-] =     3.6  tf* m
[tf,cm]| As =   1.28  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                     | As =   3.45  -SRAS- [  3 B 12.5mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.20   -STAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .15
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=   .4    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.22                      |                                          | Asapo[+]=   .30

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 336.   3.09  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1      .950     -.273       .60      .18      1   P18         .00    .00     18      0      0      0      0      0
                2      .023    -1.200       .50      .13      1   P12         .00    .00     12      0      0      0      0      0
```

V518

```
Viga=  518  V518                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  6.55 /B=  .19 /H=   .75  /BCs= 1.17 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      5.1 tf* m               | M.[+] Max=    14.6 tf* m - Abcis.= 327    | M.[-] =    13.3  tf* m
[tf,cm]| As =   2.49  -SRAS-   [  4 B 10.0mm] | AsL=    .00   ------                     | As =   6.65  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   6.88   -STAS-  [  4 B 16.0mm ]    | AsL=    .00  ------     x/d  = .15
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.7    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.29                      |                                          | Asapo[+]=  2.12

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 469.  12.74  68.68   1  45.     .4    2.2      2.2  5.0 17.5  2    .0    .0
             469.- 626.  15.88  68.68   1  45.    1.5    2.2      3.3  5.0 10.0  2    .0    .0

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]        0.- 469.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .19   S
             469.- 626.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .23   S

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .98 /BCi=  .00 /TpS=  2 /Esp.LS=  .10 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     12.8 tf* m               | M.[+] Max=     4.3 tf* m - Abcis.= 440    | M.[-] =    16.4  tf* m
[tf,cm]| As =   6.18  -SRAS-   [  2 B 20.0mm] | AsL=    .00   ------                     | As =   8.22  -SRAS- [  3 B 20.0mm]
       | AsL=    .00  ------       x/d  = .14 | As =   2.14   -STAS-  [  3 B 10.0mm ]    | AsL=    .00  ------     x/d  = .19
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=   .6    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                      |                                          | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 473.  10.52  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0
             473.- 631.  20.64  68.68   1  45.    3.2    2.2      3.2  5.0 10.0  2    .0    .0

-------------------------------   G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  5 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =     17.9 tf* m               | M.[+] Max=    19.0 tf* m - Abcis.= 327    | M.[-] =     3.4  tf* m
[tf,cm]| As =   9.12  -SRAS-   [  3 B 20.0mm] | AsL=    .00   ------                     | As =   2.23  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .20 | As =   8.99   -STAS-  [  3 B 20.0mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  3.9    |                         x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   386.8                    | M[+]Min =   386.8                        | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.34                      |                                          | Asapo[+]=  3.00

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 164.  26.60  68.68   1  45.    5.4    2.2      7.1  8.0 12.5  2    .0    .0
```


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```
            164.- 493.  12.12  68.68   1  45.     .1    2.2      2.2  8.0 30.0  2    .0    .0
            493.- 626.  16.21  68.68   1  45.    1.6    2.2      3.4  8.0 25.0  2    .0    .8

T O R C A O-   Xi    Xf    Tsd   TRd2 %dT   he b-nuc h-nuc Asw-1R AswmnNR Asl-b Asl-h ComDia AdPla        M E N S A G E M
[tf,cm]         0.- 164.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .39   S
            164.- 493.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .18   S
            493.- 626.    .00   4.79   5  7.6  10.1  66.1     .0     1.8    .1    .6    .24   S

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     5.182     4.004       .30      .00      0   P26          .00    .00     27      0      0      0      0      0
                2    14.202    12.173       .30      .00      1   P15          .00    .00     15      0      0      0      0      0
                3    33.420    30.666       .30      .00      1   P9           .00    .00      9      0      0      0      0      0
                4    11.027     9.391       .30      .00      1   P3           .00    .00      3      0      0      0      0      0
```

V519

```
Viga=  519  V519                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 1  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  8 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      2.2 tf* m                 | M.[+] Max=      5.3 tf* m - Abcis.= 273    | M.[-] =      6.5  tf* m
[tf,cm]| As =   2.14  -SRAS-   [  3 B 10.0mm]   | AsL=    .00   ------                        | As =   3.06  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04   | As =   2.46   -STAS-  [  2 B 12.5mm ]      | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.1      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=   .62                        |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 626.   6.51  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 2  /L=  6.61 /B=  .19 /H=   .75  /BCs=  .59 /BCi=  .00 /TpS=  8 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      6.1 tf* m                 | M.[+] Max=      2.0 tf* m - Abcis.= 330    | M.[-] =      5.9  tf* m
[tf,cm]| As =   2.85  -SRAS-   [  4 B 10.0mm]   | AsL=    .00   ------                        | As =   2.79  -SRAS- [  4 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06   | As =   2.14   -STAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.0      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                        |                                            | Asapo[+]=  2.03

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 631.   4.94  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

--------------------------------   G E O M E T R I A      E     C A R G A S   --------------------------------
Vao= 3  /L=  6.55 /B=  .19 /H=   .75  /BCs=  .68 /BCi=  .00 /TpS=  8 /Esp.LS=  .15 /Esp.LI=  .00 FSp.Ex=  .38 /FLt.Ex=  .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.[-] =      6.8 tf* m                 | M.[+] Max=      5.5 tf* m - Abcis.= 382    | M.[-] =      1.9  tf* m
[tf,cm]| As =   3.19  -SRAS-   [  4 B 10.0mm]   | AsL=    .00   ------                        | As =   2.14  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .07   | As =   2.52   -STAS-  [  2 B 12.5mm ]      | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37   | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  1.1      |                          x/dMx= .37
       |                                        |                                            |
[tf,cm]| M[-]Min =   386.8                      | M[+]Min =   386.8                          | M[-]Min =   386.8
[cm2  ]| Asapo[+]=  2.03                        |                                            | Asapo[+]=  2.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]         0.- 626.   6.63  68.68   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     3.031     2.454       .30      .00      1   P27          .00    .00     28      0      0      0      0      0
                2     6.561     6.292       .30      .00      1   P16          .00    .00     16      0      0      0      0      0
                3     6.867     6.597       .30      .00      1   P10          .00    .00     10      0      0      0      0      0
                4     2.877     2.289       .30      .00      1   P4           .00    .00      4      0      0      0      0      0
```


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torre

V601

```
Viga=  601  V601                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  3.90 /B=  .19 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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 tf* m             | M.[+] Max=       .6 tf* m - Abcis.= 129  | M.[-] =      2.0  tf* m
[tf,cm]| As =   1.43  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.44  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .04 | As =   1.43   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   171.9                    | M[+]Min =   171.9                        | M[-]Min =   171.9
[cm2  ]| Asapo[+]=  1.43                      |                                          | Asapo[+]=  1.35

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 371.   2.71  44.50   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  6.16 /B=  .19 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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=      1.4 tf* m - Abcis.= 308  | M.[-] =      2.4  tf* m
[tf,cm]| As =   1.49  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.71  -SRAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.43   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   171.9                    | M[+]Min =   171.9                        | M[-]Min =   171.9
[cm2  ]| Asapo[+]=  1.35                      |                                          | Asapo[+]=  1.35

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 597.   3.28  44.50   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 3  /L=  3.90 /B=  .19 /H=   .50  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .25 /FLt.Ex=  .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.[-] =      2.2 tf* m               | M.[+] Max=       .6 tf* m - Abcis.= 259  | M.[-] =       .2  tf* m
[tf,cm]| As =   1.62  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.43  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.43   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .04
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  2.2    | Grampos Dir.= 1B  6.3mm x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   171.9                    | M[+]Min =   171.9                        | M[-]Min =   171.9
[cm2  ]| Asapo[+]=  1.35                      |                                          | Asapo[+]=  1.43

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 371.   2.83  44.50   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     1.030      .932       .19      .00      1   PT2          .00    .00     33      0      0      0      0      0
              2     4.194     4.050       .19      .00      1   PT3          .00    .00     35      0      0      0      0      0
              3     4.352     4.164       .19      .00      1   PT4          .00    .00     36      0      0      0      0      0
              4      .991      .849       .19      .00      1   PT5          .00    .00     34      0      0      0      0      0
```

V602

```
Viga=  602  V602                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 1  /L=  3.92 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m               | M.[+] Max=       .8 tf* m - Abcis.= 168  | M.[-] =      1.5  tf* m
[tf,cm]| As =    .00  -SRAS-   [  0 B  6.3mm] | AsL=    .00   ------                    | As =   1.44  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .00 | As =   1.14   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .06
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.14                      |                                          | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 371.   2.47  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------  G E O M E T R I A      E     C A R G A S   -------------------------------
Vao= 2  /L=  1.61 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =       .8 tf* m               | M.[+] Max=       .0 tf* m - Abcis.= 173  | M.[-] =       .4  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05 | As =   1.14   -SRAS-  [  2 B 10.0mm ]    | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8    |                          x/dMx= .37
       |                                      |                                          |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                        | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                      |                                          | Asapo[+]=  1.08

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


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```
[tf,cm]        0.- 139.   1.34  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 3  /L=  2.38 /B=  .19 /H=   .70  /BCs=  .00 /BCi=  .24 /TpS=  9 /Esp.LS=  .00 /Esp.LI=  .20 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =       .6 tf* m                 | M.[+] Max=      2.2 tf* m - Abcis.= 119    | M.[-] =       .5  tf* m
[tf,cm]| As =   2.00  -STAS-   [  3 B 10.0mm]    | AsL=    .00   ------                        | As =   2.00  -STAS- [  3 B 10.0mm]
       | AsL=    .00  ------       x/d  = .03    | As =   2.00   -SRAS-  [  3 B 10.0mm ]      | AsL=    .00  ------     x/d  = .03
       | Grampos Esq.= 1B  6.3mm   x/dMx= .37    | Arm.Lat.=[2 X  5 B  6.3mm] - LN=  2.9      | Grampos Dir.= 1B  6.3mm x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   336.9                       | M[+]Min =   336.9                          | M[-]Min =   336.9
[cm2  ]| Asapo[+]=  2.00                         |                                            | Asapo[+]=  2.00

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 219.   4.40  63.85   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 4  /L=  1.61 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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 tf* m                 | M.[+] Max=       .0 tf* m - Abcis.= 173    | M.[-] =       .6  tf* m
[tf,cm]| As =   1.14  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                        | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.14   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                         |                                            | Asapo[+]=  1.08

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 139.   1.07  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 5  /L=  3.92 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .8 tf* m - Abcis.= 236    | M.[-] =       .0  tf* m
[tf,cm]| As =   1.43  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                        | As =    .00  -SRAS- [  0 B  6.3mm]
       | AsL=    .00  ------       x/d  = .06    | As =   1.14   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .00
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=  1.08                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 371.   2.47  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     1.056      .964       .19      .00      2  V603        .00    .00      0      0      0      0      0      0
                2     2.682     2.279       .50      .13      1  P28         .00    .00     29      0      0      0      0      0
                3     3.540     3.157       .19      .00      1  P29         .00    .00     30      0      0      0      0      0
                4     3.784     3.237       .19      .00      1  P30         .00    .00     31      0      0      0      0      0
                5     2.460     2.084       .50      .13      1  P31         .00    .00     32      0      0      0      0      0
                6     1.061      .966       .19      .00      2  V604        .00    .00      0      0      0      0      0      0
```

V603

```
Viga=  603  V603                        Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 1B /L=  1.28 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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  | M[-]=     1.23 tf* m                | As =   1.14   -SRAS-       [   2 B 10.0mm]
BAL.ESQ |                        x/d = .05 | AsL=    .00   -
[tf,cm] | M[-]Min=  110.0      -  x/dMx = .50 |                                          | % Baric.Armad.= 1

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.-  90.   2.24  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .9

-------------------------------   G E O M E T R I A       E      C A R G A S    -------------------------------
Vao= 2  /L=  2.98 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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.[-] =      1.3 tf* m                 | M.[+] Max=       .4 tf* m - Abcis.= 223    | M.[-] =       .3  tf* m
[tf,cm]| As =   1.22  -SRAS-   [  2 B 10.0mm]    | AsL=    .00   ------                        | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .05    | As =   1.14   -SRAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =   110.0                       | M[+]Min =   110.0                          | M[-]Min =   110.0
[cm2  ]| Asapo[+]=   .29                         |                                            | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 274.   1.97  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
                1     2.971     2.583       .50      .13      1  P25         .00    .00     26      0      0      0      0      0
                2      .755      .350       .30      .03      1  PT2         .00    .00     33      0      0      0      0      0
```

V604

```
Viga=  604  V604                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1B /L=  1.08 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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  | M[-]=     1.23 tf* m              | As =   1.14   -SRAS-      [   2 B 10.0mm]
BAL.ESQ |                          x/d = .05 | AsL=    .00   -
[tf,cm] | M[-]Min=  110.0      -  x/dMx = .50 |                                          | % Baric.Armad.= 1

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.-  90.   2.25  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .9

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 2  /L=  3.17 /B=  .19 /H=   .40  /BCs=  .00 /BCi=  .00 /TpS=  1 /Esp.LS=  .00 /Esp.LI=  .00 FSp.Ex=  .20 /FLt.Ex=  .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=       .4 tf* m - Abcis.= 264  | M.[-] =       .3  tf* m
[tf,cm]| As =   1.40  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.14  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .06 | As =   1.14   -SRAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  1.8   |                          x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =   110.0                    | M[+]Min =   110.0                       | M[-]Min =   110.0
[cm2  ]| Asapo[+]=   .29                      |                                         | Asapo[+]=  1.14

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 294.   2.12  34.83   1  45.     .0    2.2      2.2  5.0 17.5  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.087     2.719       .30      .03      1   P26          .00    .00     27      0      0      0      0      0
              2      .731      .360       .30      .03      1   PT5          .00    .00     34      0      0      0      0      0
```

V605

```
Viga=  605  V605                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  2.06 /B=  .19 /H=   .30  /BCs=  .40 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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=       .6 tf* m - Abcis.= 120  | M.[-] =       .8  tf* m
[tf,cm]| As =   1.36  -SRAS-   [  2 B 10.0mm] | AsL=    .00   ------                    | As =   1.06  -SRAS- [  2 B 10.0mm]
       | AsL=    .00  ------       x/d  = .08 | As =    .88   -STAS-  [  2 B  8.0mm ]   | AsL=    .00  ------     x/d  = .07
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  .7    |                          x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                       | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .22                      |                                         | Asapo[+]=   .22

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 188.   4.55  25.15   1  45.     .3    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.244     2.815       .50      .16      1   P21          .00    .00     21      0      0      0      0      0
              2     2.891     2.476       .50      .16      1   P22          .00    .00     22      0      0      0      0      0
```

V606

```
Viga=  606  V606                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------  G E O M E T R I A      E     C A R G A S  -------------------------------
Vao= 1  /L=  1.97 /B=  .19 /H=   .30  /BCs=  .39 /BCi=  .00 /TpS=  5 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.7 tf* m             | M.[+] Max=       .9 tf* m - Abcis.=  98  | M.[-] =       .5  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm] | AsL=    .00   ------                    | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .14 | As =   1.09   -STAS-  [  2 B 10.0mm ]   | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37 | Arm.Lat.=[2 X -- B --- mm] - LN=  .8    |                          x/dMx= .37
       |                                      |                                         |
[tf,cm]| M[-]Min =    61.9                    | M[+]Min =    61.9                       | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .27                      |                                         | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus          M E N S A G E M
[tf,cm]        0.- 179.   4.95  25.15   1  45.     .7    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.534     2.548       .70      .26      1   P29          .00    .00     30      0      0      0      0      0
              2     1.808      .824       .19      .01      1   P21          .00    .00     21      0      0      0      0      0
```

V607

```
Viga=  607  V607                          Eng.E=Nao /Eng.D=Nao /Repet= 1 /NAnd= 1 /Red V Ext=Nao /Fat.Alt=1.00 /Cob/S=3.0  .0 CM

-------------------------------   G E O M E T R I A      E      C A R G A S   -------------------------------
Vao= 1  /L=  1.97 /B=  .19 /H=   .30  /BCs=  .39 /BCi=  .00 /TpS=  8 /Esp.LS=  .20 /Esp.LI=  .00 FSp.Ex=  .15 /FLt.Ex=  .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.[-] =      1.7 tf* m                 | M.[+] Max=       .9 tf* m - Abcis.=  98    | M.[-] =       .5  tf* m
[tf,cm]| As =   2.23  -SRAS-   [  3 B 10.0mm]    | AsL=    .00   ------                      | As =    .85  -SRAS- [  2 B  8.0mm]
       | AsL=    .00  ------       x/d  = .14    | As =   1.10   -STAS-  [  2 B 10.0mm ]      | AsL=    .00  ------     x/d  = .05
       |                           x/dMx= .37    | Arm.Lat.=[2 X -- B --- mm] - LN=   .8      |                          x/dMx= .37
       |                                         |                                            |
[tf,cm]| M[-]Min =    61.9                       | M[+]Min =    61.9                          | M[-]Min =    61.9
[cm2  ]| Asapo[+]=   .27                         |                                            | Asapo[+]=   .85

CISALHAMENTO-  Xi    Xf    Vsd   VRd2 MdC Ang. Asw[C] Aswmin Asw[C+T]  Bit  Esp NR AsTrt AsSus           M E N S A G E M
[tf,cm]        0.- 179.   4.88  25.15   1  45.     .6    2.2      2.2  5.0 15.0  2    .0    .0

REAC. APOIO - No.   Maximos   Minimos   Largura    DEPEV  Morte    Nome     M.I.Mx M.I.Mn          Pilares:
              1     3.482     2.514       .70      .26      1   P30          .00    .00     31      0      0      0      0      0
              2     1.848      .884       .19      .01      1   P22          .00    .00     22      0      0      0      0      0
```


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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:  2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1          2          3          4          5          6          7          8          9         10
FdzT       61.7       61.7       61.7       61.7       60.6       60.1       61.5       61.5       61.5       58.5
MdxT      213.1     -213.1         .0         .0      234.6     -614.6      380.7     -179.6     -449.1      233.9
MdyT         .0         .0      203.5     -203.5     1097.2     -747.0     1066.1      460.7     -650.3     1126.6
COMB      (  0 )     (  0 )     (  0 )     (  0 )     (  5 )     ( 15 )     (  2 )     (  2 )     (  2 )     (  9 )
CARR         11         12         13         14         15         16         17         18         19         20
FdzT       58.7       59.1       60.0       60.0       60.0       55.8       55.8       55.8       57.1       57.1
MdxT      231.1       89.6      476.8     -617.7     -247.1      -51.1      276.8      276.8      194.5     -134.7
MdyT     1141.7     -362.5     1074.5     -732.1      431.0      875.8      501.7     -243.7      808.6     -117.7
COMB      ( 18 )     ( 12 )     (  6 )     (  6 )     (  6 )     ( 16 )     ( 16 )     ( 16 )     (  8 )     (  8 )
CARR         21         22         23         24         25         26         27         28         29         30
FdzT       58.5       61.7       61.7       61.7       60.8       60.8       60.1       60.1       57.3       57.3
MdxT     -209.4      377.9     -178.5     -446.3      232.0     -200.9      474.0     -245.8      191.7     -131.6
MdyT     -843.1     1081.4      464.1     -665.1     1112.3     -731.5     1089.8      435.9      823.9     -132.7
COMB      (  9 )     ( 11 )     ( 11 )     ( 11 )     ( 14 )     ( 14 )     ( 15 )     ( 15 )     ( 17 )     ( 17 )
CARR         31         32
FdzT       58.7       61.7
MdxT     -206.4      150.7
MdyT     -858.1     -143.9
COMB      ( 18 )     (  0 )

LANCE:  3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1          2          3          4          5          6          7          8          9         10
FdzT       28.4       28.4       28.4       28.4       28.4       28.1       28.4       27.6       27.6       27.8
MdxT       92.1      -92.1         .0         .0      482.9     -336.8     -389.5      299.9     -264.5      380.7
MdyT         .0         .0       93.6      -93.6     1979.6    -1435.3    -1426.6     1883.4    -1364.7     1866.1
COMB      (  0 )     (  0 )     (  0 )     (  0 )     ( 11 )     ( 14 )     ( 11 )     ( 12 )     ( 12 )     ( 13 )
CARR         11         12         13         14         15         16         17         18         19         20
FdzT       28.1       28.1       27.2       27.2       25.9       25.9       26.3       26.3       26.8       26.8
MdxT      402.1     -330.0      520.1     -415.4      215.9     -207.3      350.1     -295.0      385.8     -327.7
MdyT     1996.8    -1421.3     1902.7    -1396.4     1742.7    -1293.3     1713.7    -1278.9     1931.7    -1410.6
COMB      ( 14 )     (  5 )     ( 15 )     ( 15 )     ( 16 )     ( 16 )     ( 17 )     ( 17 )     ( 18 )     ( 18 )
CARR         21         22
FdzT       28.4       28.4
MdxT      -65.1       65.1
MdyT       66.2      -66.2
COMB      (  0 )     (  0 )
```

P2

```
LANCE:  2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1          2          3          4          5          6          7          8          9         10
FdzT       88.8       88.8       88.8       88.8       85.4       85.4       85.4       88.2       88.2       88.2
MdxT      389.5     -389.5         .0         .0      -69.2     -176.7       37.2      -55.7     -196.7       16.5
MdyT         .0         .0      293.0     -293.0     -507.2      193.8      426.4    -1187.5      660.7     1651.9
COMB      (  0 )     (  0 )     (  0 )     (  0 )     ( 10 )     (  1 )     ( 10 )     ( 15 )     ( 15 )     ( 15 )
CARR         11         12         13         14         15         16         17         18         19         20
FdzT       81.4       81.4       81.4       84.3       84.3       84.3       85.2       85.2       87.3       87.3
MdxT      -53.1     -184.5       34.7      -56.4     -193.7       39.6     -245.9       54.5      -25.3     -180.8
MdyT      210.1     -317.5     -490.3     -196.1      243.2      243.2     -250.9      386.4     -900.8      662.2
COMB      (  3 )     (  3 )     (  3 )     (  4 )     (  4 )     (  4 )     ( 13 )     ( 13 )     (  6 )     (  6 )
CARR         21         22         23         24         25         26         27         28         29         30
FdzT       87.3       76.5       76.5       76.5       81.3       81.3       82.3       82.5       82.5       88.8
MdxT        1.7      -57.7     -187.2       41.9     -202.4       50.1     -236.9     -170.8       -6.4      -64.1
MdyT     1512.0      503.0     -506.9    -1011.9      208.2      208.2     -316.9      194.5      292.6     -926.1
COMB      (  6 )     (  7 )     (  7 )     (  7 )     (  8 )     (  8 )     ( 12 )     (  9 )     (  9 )     ( 11 )
CARR         31         32         33         34         35         36         37         38         39         40
FdzT       88.8       88.8       82.2       82.3       85.2       85.9       85.9       77.4       77.4       77.4
MdxT     -212.4       25.5      -93.7       49.6      -86.9      -60.8       20.6      -88.2     -237.7       56.7
MdyT      468.1     1170.3     -459.3     -347.1     -488.3     -519.8      437.1      216.3     -538.8     -871.9
COMB      ( 11 )     ( 11 )     ( 17 )     ( 12 )     ( 13 )     ( 14 )     ( 14 )     ( 16 )     ( 16 )     ( 16 )
CARR         41         42         43         44         45         46         47         48         49
FdzT       82.2       82.2       83.4       83.4       83.4       88.8       88.8       88.8       88.8
MdxT     -252.4       64.8      -50.3     -181.6        8.3      275.4     -275.4     -275.4     -275.4
MdyT     -244.8      348.2     -511.7     -244.1      432.6      207.2      207.2     -207.2     -207.2
COMB      ( 17 )     ( 17 )     ( 18 )     ( 18 )     ( 18 )     (  0 )     (  0 )     (  0 )     (  0 )

LANCE:  3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1          2          3          4          5          6          7          8          9         10
FdzT       51.4       51.4       51.4       51.4       49.8       49.5       49.8       50.8       50.8       50.6
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MdxT	206.9	-206.9	.0	.0	-241.5	-263.1	203.4	-227.2	-227.2	177.9
MdyT	.0	.0	169.5	-169.5	-889.8	-862.1	764.4	-1128.3	-482.3	1017.4
COMB	(0)	(0)	(0)	(0)	(10)	(13)	(10)	(2)	(2)	(15)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	47.5	47.5	48.9	48.9	48.9	49.5	49.5	49.5	50.0	50.1
MdxT	-259.4	220.2	-255.2	-255.2	191.0	-224.6	-224.6	221.2	-205.2	193.3
MdyT	-812.7	699.9	-844.9	-386.2	463.4	-874.2	-392.1	739.1	-1268.5	770.0
COMB	(17)	(17)	(4)	(4)	(4)	(5)	(5)	(13)	(6)	(14)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	44.8	44.8	46.9	46.9	47.9	48.2	51.4	51.4	48.2	50.1
MdxT	-247.5	186.3	-251.9	190.3	-200.9	218.8	-235.1	195.7	-260.5	-232.5
MdyT	-375.2	164.5	-797.4	430.5	-846.3	579.0	-1145.5	929.9	-608.2	-891.5
COMB	(7)	(7)	(8)	(8)	(9)	(12)	(11)	(11)	(12)	(14)
CARR	31	32	33	34	35	36	37	38		
FdzT	50.6	45.4	45.4	45.4	48.5	48.5	51.4	51.4		
MdxT	-212.9	-255.2	-104.2	216.3	-208.6	174.0	-146.3	146.3		
MdyT	-1283.7	-390.5	173.6	434.0	-861.6	751.4	119.9	-119.9		
COMB	(15)	(16)	(16)	(16)	(18)	(18)	(0)	(0)		

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	13.9	13.9	13.9	13.9	13.4	13.5	13.5	13.1	13.1	13.1
MdxT	63.2	-63.2	.0	.0	16.1	111.5	97.0	14.0	110.6	97.4
MdyT	.0	.0	45.7	-45.7	-474.3	207.8	482.9	-357.3	206.5	516.3
COMB	(0)	(0)	(0)	(0)	(6)	(1)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	12.0	12.0	12.4	12.4	12.4	12.7	12.7	12.7	13.4	13.4
MdxT	109.6	101.5	13.3	112.2	103.3	109.8	107.9	98.4	105.5	88.6
MdyT	234.3	364.1	-152.2	212.9	429.0	-217.7	215.5	466.8	217.7	544.3
COMB	(3)	(3)	(4)	(4)	(4)	(17)	(5)	(17)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	11.6	11.6	12.2	12.2	12.2	12.7	13.1	13.1	13.1	13.6
MdxT	103.9	95.5	15.0	108.3	98.6	16.4	1.8	108.6	94.8	2.4
MdyT	239.0	290.4	-132.9	202.1	398.6	-179.6	-621.7	-248.7	538.2	-770.3
COMB	(7)	(7)	(8)	(8)	(8)	(9)	(10)	(10)	(10)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	13.6	13.6	12.5	12.5	12.9	12.9	12.9	13.2	13.2	13.9
MdxT	111.5	96.5	1.8	100.7	1.7	113.2	102.5	2.5	108.9	2.7
MdyT	-308.1	584.4	-388.2	432.2	-565.2	-226.1	497.0	-593.3	-237.3	-885.6
COMB	(11)	(11)	(12)	(12)	(13)	(13)	(13)	(14)	(14)	(15)
CARR	41	42	43	44	45	46	47			
FdzT	13.9	13.9	12.0	12.7	13.2	13.9	13.9			
MdxT	106.9	88.5	1.8	1.5	2.9	-44.7	-44.7			
MdyT	-354.3	612.5	-249.6	-544.3	-590.9	32.3	-32.3			
COMB	(15)	(15)	(16)	(17)	(18)	(0)	(0)			

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	136.3	136.3	136.3	136.3	133.5	134.7	133.5	136.3	136.3	129.8
MdxT	466.4	-466.4	.0	.0	733.6	387.5	-775.3	594.3	-562.4	354.3
MdyT	.0	.0	408.9	-408.9	864.8	491.8	-506.7	852.9	-447.9	913.4
COMB	(0)	(0)	(0)	(0)	(15)	(1)	(15)	(2)	(2)	(18)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	129.6	131.8	133.2	134.1	134.4	126.9	126.9	126.9	129.6	129.8
MdxT	384.0	95.6	375.6	-220.8	-307.8	-4.3	447.3	325.2	-249.3	-207.2
MdyT	638.8	-254.7	885.2	-491.1	477.8	683.9	490.8	-179.5	-113.1	-579.0
COMB	(17)	(3)	(14)	(5)	(6)	(7)	(7)	(7)	(17)	(18)
CARR	21	22	23	24	25	26	27	28		
FdzT	132.9	132.9	130.8	133.5	125.9	125.9	136.3	136.3		
MdxT	394.0	-254.4	89.6	-310.1	4.8	319.5	-329.8	329.8		
MdyT	791.7	-359.7	-260.3	476.4	687.3	-185.4	289.2	-289.2		
COMB	(10)	(10)	(12)	(15)	(16)	(16)	(0)	(0)		

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	84.3	84.3	84.3	84.3	84.3	84.3	84.3	82.1	82.1	83.0
MdxT	273.5	-273.5	.0	.0	813.0	325.2	-749.4	892.2	-828.7	919.5
MdyT	.0	.0	252.9	-252.9	1056.3	-481.7	-1204.1	1047.8	-1190.1	1063.4
COMB	(0)	(0)	(0)	(0)	(2)	(2)	(2)	(15)	(15)	(6)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	83.0	83.0	83.2	83.2	83.2	79.5	79.5	81.2	81.2	81.2
MdxT	367.8	-830.9	603.8	241.5	-581.4	259.6	-305.1	607.3	242.9	-584.5
MdyT	-478.7	-1196.7	1078.4	-490.9	-1227.2	866.6	-1057.0	829.8	-407.3	-1018.4
COMB	(6)	(6)	(5)	(5)	(5)	(7)	(7)	(8)	(8)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	81.3	81.3	81.3	83.4	83.4	82.3	82.1	78.6	78.6	80.3
MdxT	571.9	228.8	-551.6	314.3	-747.6	-579.6	356.9	232.1	-302.8	579.9
MdyT	1100.3	-494.2	-1235.5	-478.9	-1197.3	-1220.4	-476.1	850.8	-1050.4	814.0
COMB	(9)	(9)	(9)	(11)	(11)	(14)	(15)	(16)	(16)	(17)
CARR	31	32	33	34						
FdzT	80.3	80.4	80.4	84.3						
MdxT	-582.1	544.6	-549.4	-193.4						
MdyT	-1011.8	1084.6	-1228.8	178.8						
COMB	(17)	(18)	(18)	(0)						

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	32.9	32.9	32.9	32.9	32.9	32.9	32.3	32.3	32.0	32.0
MdxT	106.7	-106.7	.0	.0	175.4	-342.7	219.5	-374.8	128.9	-300.7
MdyT	.0	.0	98.6	-98.6	1061.2	-1199.4	1071.3	-1206.8	1101.7	-1234.7
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(2)	(2)	(5)	(5)
CARR	11	12	13	14	15	16	17	18	19	20

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FdzT	32.2	32.2	31.4	31.3	31.8	31.8	31.8	31.2	30.9	31.3
MdxT	271.5	-408.4	-11.9	-483.0	138.9	-301.0	120.7	544.3	-442.5	495.6
MdyT	1070.9	-1178.0	1004.9	-1223.7	954.4	-1121.8	1121.4	1139.6	-1214.4	1139.3
COMB	(6)	(6)	(7)	(11)	(8)	(8)	(9)	(15)	(10)	(11)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	31.3	31.0	31.0	31.2	31.2	30.4	30.4	30.8	30.8	30.7
MdxT	198.2	-408.9	405.0	217.7	-515.1	261.1	-284.3	411.7	164.7	393.7
MdyT	-489.5	-1251.6	1169.6	-478.1	-1195.3	1073.7	-1185.7	1023.3	-455.7	1190.1
COMB	(11)	(14)	(14)	(15)	(15)	(16)	(16)	(17)	(17)	(18)
CARR	31	32	33							
FdzT	30.7	32.9	32.9							
MdxT	157.5	-75.4	75.4							
MdyT	-496.7	69.7	-69.7							
COMB	(18)	(0)	(0)							

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	92.8	92.8	89.9	92.8	92.8	92.3	92.6	92.1	92.8	92.6
MdxT	320.7	-320.7	.0	.0	.0	240.8	449.5	-191.7	-255.7	-574.6
MdyT	.0	.0	-1381.9	306.1	-306.1	-1406.6	-1222.6	971.9	-623.3	588.7
COMB	(0)	(0)	(3)	(0)	(0)	(13)	(2)	(4)	(11)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	89.9	89.9	90.3	91.2	90.3	91.4	91.2	86.7	86.7	86.7
MdxT	334.8	248.4	239.4	589.1	-201.6	-356.7	-838.5	-157.9	338.3	530.3
MdyT	-583.7	910.3	-1433.2	-1127.0	1093.4	-617.4	455.7	-1391.7	-556.7	990.1
COMB	(3)	(3)	(8)	(6)	(8)	(15)	(6)	(7)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	87.6	87.7	87.6	92.8	92.8	90.1	92.3	91.4	91.4	90.5
MdxT	191.8	281.4	-107.0	451.1	-578.5	332.4	-195.6	590.4	-842.0	240.8
MdyT	-1085.6	-629.0	352.4	-1222.5	581.7	-586.8	964.9	-1126.9	448.4	-1433.0
COMB	(9)	(18)	(9)	(11)	(11)	(12)	(13)	(15)	(15)	(17)
CARR	31	32	33	34						
FdzT	90.5	87.7	87.7	92.8						
MdxT	-205.2	193.1	-110.6	226.8						
MdyT	1086.3	-1085.4	345.1	216.5						
COMB	(17)	(18)	(18)	(0)						

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	56.8	56.8	56.8	56.8	56.6	56.6	56.4	56.6	56.8	56.8
MdxT	184.3	-184.3	.0	.0	363.2	145.3	-342.4	530.3	215.3	-445.1
MdyT	.0	.0	187.4	-187.4	-2102.0	843.5	2055.2	-1915.3	795.7	1989.3
COMB	(0)	(0)	(0)	(0)	(13)	(13)	(10)	(2)	(11)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	55.3	55.5	56.4	56.4	56.6	55.5	55.7	55.6	55.9	56.0
MdxT	148.3	-208.9	355.2	142.1	-339.5	351.1	132.6	-334.5	642.2	260.0
MdyT	-2095.7	2103.1	-2105.6	842.8	2108.8	-2094.1	793.4	2074.5	-1777.3	750.1
COMB	(3)	(12)	(4)	(4)	(13)	(8)	(14)	(17)	(6)	(15)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	56.0	53.6	53.6	53.8	54.0	54.2	54.2	56.4	56.8	56.0
MdxT	-510.2	6.9	-150.2	-117.2	298.2	122.4	-292.9	363.2	538.3	649.9
MdyT	1875.3	-2077.2	-830.9	2064.9	-1760.4	746.3	1865.6	-2019.8	-1911.6	-1773.2
COMB	(15)	(7)	(7)	(16)	(9)	(18)	(18)	(10)	(11)	(15)
CARR	31	32	33	34	35					
FdzT	53.8	53.8	55.6	54.2	56.8					
MdxT	14.6	-160.1	358.7	305.9	-130.3					
MdyT	-2073.3	-829.3	-2090.1	-1756.4	-132.5					
COMB	(16)	(16)	(17)	(18)	(0)					

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	21.6	21.6	21.6	21.6	21.5	21.5	21.6	21.6	21.3	21.3
MdxT	70.2	-70.2	.0	.0	219.2	-213.4	294.1	-243.3	109.9	-68.9
MdyT	.0	.0	71.4	-71.4	-1523.5	1325.0	-1475.6	1319.2	-1537.9	-615.2
COMB	(0)	(0)	(0)	(0)	(10)	(10)	(11)	(11)	(12)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	21.3	21.5	21.6	21.2	21.3	21.3	21.6	21.6	21.0	21.0
MdxT	-154.1	214.3	-205.0	184.8	-77.0	-192.5	351.7	-266.6	44.9	-72.9
MdyT	1317.1	-1587.9	1341.5	-1425.9	-579.1	1295.0	-1437.7	1282.0	-1541.4	-616.6
COMB	(12)	(17)	(13)	(5)	(14)	(14)	(15)	(15)	(16)	(16)
CARR	21	22	23	24	25	26				
FdzT	21.0	21.0	21.1	21.6	21.6	21.6				
MdxT	-117.9	174.9	-181.7	211.7	49.7	-49.7				
MdyT	1278.8	-1369.5	1241.7	-1565.9	50.5	-50.5				
COMB	(16)	(9)	(18)	(13)	(0)	(0)				

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	81.2	81.2	81.2	81.2	77.8	77.8	77.8	74.8	74.8	74.8
MdxT	1666.4	-1666.4	.0	.0	-1737.5	143.9	-666.4	-170.4	1706.4	528.2
MdyT	.0	.0	316.9	-316.9	298.5	390.5	-493.6	-253.3	387.2	619.8
COMB	(0)	(0)	(0)	(0)	(2)	(6)	(6)	(16)	(16)	(16)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	73.9	73.9	73.9	79.3	78.6	79.3	77.8	73.9	73.9	71.3
MdxT	-173.2	-1385.9	-75.5	-8.5	-1890.7	-78.8	-1875.3	1690.8	529.9	-15.7
MdyT	-188.4	409.7	585.3	390.5	-279.5	-488.2	-261.4	402.7	604.5	-342.4
COMB	(7)	(4)	(4)	(5)	(15)	(5)	(6)	(7)	(7)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	71.3	71.3	80.4	80.4	80.4	78.6	78.6	76.3	76.3	76.3
MdxT	-1328.6	-65.7	-13.7	-1494.3	-71.3	146.9	-668.1	-101.5	1587.0	280.6

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MdyT	544.0	949.5	544.3	-410.8	-838.5	325.8	-478.5	-116.3	309.6	395.2
COMB	(8)	(8)	(9)	(9)	(9)	(15)	(15)	(12)	(12)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	74.7	74.7	74.7	80.2	80.2	72.2	72.2	72.2	81.2	81.2
MdxT	-6.7	-1403.0	-77.4	-1502.5	-80.8	-12.7	-1344.9	-67.2	-10.9	-1510.8
MdyT	-208.3	394.3	601.7	-278.5	-471.8	-407.1	528.6	964.7	479.6	-428.8
COMB	(13)	(13)	(13)	(14)	(14)	(17)	(17)	(17)	(18)	(18)
CARR	41	42	43	44						
FdzT	81.2	81.2	81.2	81.2						
MdxT	-72.9	1178.3	-1178.3	1178.3						
MdyT	-823.2	224.1	224.1	-224.1						
COMB	(18)	(0)	(0)	(0)						

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	59.0	59.0	59.0	59.0	58.1	58.1	58.1	58.0	57.0	57.0
MdxT	1209.3	-1209.3	.0	.0	-436.5	-1270.4	287.8	366.5	-480.3	-1319.7
MdyT	.0	.0	229.9	-229.9	-1232.8	-493.1	930.9	738.2	-1407.4	-563.0
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(3)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	57.0	55.9	55.9	56.1	58.9	58.9	58.9	57.5	57.5	56.0
MdxT	208.2	-489.6	-1333.3	287.4	-436.5	-1284.7	287.3	1211.8	410.5	274.7
MdyT	1061.9	-1497.3	-598.9	1100.0	-914.2	-365.7	700.0	-316.3	585.2	1155.3
COMB	(3)	(7)	(7)	(4)	(5)	(5)	(5)	(6)	(6)	(13)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	54.4	54.4	54.4	57.9	57.8	56.8	57.3	55.7	54.2	59.0
MdxT	-416.1	-1189.2	278.9	275.5	353.9	195.4	398.2	134.7	266.6	855.1
MdyT	-1588.7	-635.5	1187.6	977.9	793.4	1117.2	639.0	1177.7	1241.2	162.6
COMB	(8)	(8)	(8)	(10)	(11)	(12)	(15)	(16)	(17)	(0)
CARR	31	32								
FdzT	59.0	59.0								
MdxT	-855.1	855.1								
MdyT	162.6	-162.6								
COMB	(0)	(0)								

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	35.6	35.6	35.6	35.6	35.3	35.4	35.1	35.3	35.3	35.1
MdxT	729.4	-729.4	.0	.0	892.8	1273.7	-49.4	1277.8	23.9	1251.8
MdyT	.0	.0	138.7	-138.7	206.2	-409.0	-637.1	-372.6	-666.8	-417.7
COMB	(0)	(0)	(0)	(0)	(2)	(1)	(3)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	35.1	35.6	35.6	35.4	35.2	35.0	34.6	34.6	34.1	34.1
MdxT	1272.0	892.2	1277.4	-28.4	881.9	33.7	1218.4	-88.1	1236.2	-25.9
MdyT	-415.8	294.3	-375.6	-750.7	251.7	-646.1	-412.0	-596.5	-359.2	-492.0
COMB	(10)	(5)	(5)	(9)	(18)	(6)	(7)	(7)	(8)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	35.4	35.0	35.3	34.5	35.3	34.7	34.7	33.9	35.6	35.6
MdxT	880.6	893.9	1276.2	1261.1	893.5	882.7	41.2	1235.1	-515.8	-515.8
MdyT	396.5	59.8	-406.1	-391.6	148.0	104.9	-601.3	-390.3	98.1	-98.1
COMB	(9)	(11)	(14)	(13)	(14)	(15)	(15)	(17)	(0)	(0)

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	85.9	85.9	85.9	85.9	82.3	82.3	82.3	78.7	79.5	78.7
MdxT	1761.5	-1761.5	.0	.0	33.9	-1566.9	-101.9	191.9	-1774.9	-719.6
MdyT	.0	.0	334.9	-334.9	479.6	375.2	-102.3	698.3	319.2	-624.1
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(15)	(2)	(15)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	82.3	83.9	84.3	83.8	78.3	78.3	78.3	77.1	77.1	77.1
MdxT	1876.4	1904.9	-1591.9	-99.8	31.2	-1479.8	-88.6	195.7	-1876.7	-720.6
MdyT	406.7	388.2	619.8	473.5	699.3	301.8	-599.8	659.3	280.2	-589.3
COMB	(7)	(16)	(8)	(4)	(5)	(5)	(5)	(6)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	82.3	84.3	84.3	75.2	75.2	75.2	83.3	83.3	83.3	81.1
MdxT	549.6	28.0	-94.5	24.1	-1408.5	-75.9	30.1	-1583.4	-101.4	130.6
MdyT	463.8	-25.9	831.0	861.1	-382.6	-956.5	506.7	383.5	-126.0	618.1
COMB	(7)	(8)	(8)	(9)	(9)	(9)	(10)	(10)	(10)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	81.1	81.1	85.9	85.9	85.4	79.9	79.9	78.7	83.9	85.9
MdxT	-1806.4	-475.6	1245.5	-1618.5	-99.3	27.3	-88.1	-1907.9	550.3	-93.7
MdyT	331.5	-414.7	236.8	611.7	438.8	738.9	-634.6	292.2	429.0	796.2
COMB	(11)	(11)	(0)	(17)	(13)	(14)	(14)	(15)	(16)	(17)
CARR	41	42	43	44	45					
FdzT	76.7	76.7	76.7	85.9	85.9					
MdxT	20.3	-1435.1	-75.0	-1245.5	1245.5					
MdyT	900.3	-396.6	-991.5	-236.8	-236.8					
COMB	(18)	(18)	(18)	(0)	(0)					

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	54.2	57.8	57.8	57.8	57.8	55.3	55.3	55.7	53.9	53.9
MdxT	-210.3	1185.9	-1185.9	.0	.0	-372.1	-1255.8	1108.8	-263.9	1077.2
MdyT	.0	.0	.0	225.5	-225.5	-498.4	-331.9	-146.2	-138.2	-138.2
COMB	(15)	(0)	(0)	(0)	(0)	(3)	(3)	(11)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	55.8	56.5	56.5	56.0	53.2	53.2	52.4	52.4	54.7	54.7
MdxT	184.4	-389.9	-1320.3	188.9	-1141.0	188.7	-214.5	1107.5	-394.2	-1286.7
MdyT	324.1	-599.1	-384.6	218.0	-180.3	-180.3	8.4	-198.5	-590.5	-366.2
COMB	(8)	(16)	(16)	(4)	(5)	(5)	(6)	(6)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	54.7	55.8	55.8	51.2	51.2	51.2	57.1	57.1	56.9	57.6

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MdxT	55.2	-301.3	-1178.1	-307.4	-1096.6	184.1	-367.6	-1289.6	182.4	179.1
MdyT	183.4	-746.6	-405.4	164.5	-217.6	-339.2	-506.4	-350.2	-76.2	298.1
COMB	(7)	(8)	(8)	(9)	(9)	(9)	(12)	(12)	(10)	(17)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	57.8	57.8	57.8	55.1	54.2	54.2	57.6	57.6	53.0	53.0
MdxT	-311.8	-1223.7	183.4	183.3	1139.7	308.0	-296.9	-1211.4	-303.2	-1130.0
MdyT	-599.9	-373.6	191.2	-207.1	-89.8	-224.6	-755.2	-423.8	156.0	-239.5
COMB	(13)	(13)	(13)	(14)	(15)	(15)	(17)	(17)	(18)	(18)
CARR	41	42	43	44						
FdzT	53.0	57.8	57.8	57.8						
MdxT	178.8	838.5	-838.5	838.5						
MdyT	-365.3	159.4	159.4	-159.4						
COMB	(18)	(0)	(0)	(0)						

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	30.3	30.3	30.3	30.3	29.0	29.0	29.0	28.0	28.0	28.0
MdxT	621.7	-621.7	.0	.0	788.5	1070.4	-42.0	788.9	1067.0	7.3
MdyT	.0	.0	118.2	-118.2	1112.3	-584.9	-1464.5	957.7	-515.3	-1288.3
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(18)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	28.3	28.3	28.3	28.6	28.6	27.8	27.8	27.8	27.7	27.7
MdxT	787.4	1040.2	-72.8	788.2	1063.6	788.1	1046.8	-33.9	1054.1	22.7
MdyT	834.5	-521.7	-1304.2	729.1	-487.6	1063.3	-549.4	-1373.4	-496.0	-1240.1
COMB	(3)	(3)	(3)	(4)	(4)	(5)	(5)	(5)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	28.2	27.3	27.3	27.3	30.2	30.2	30.2	29.8	29.8	29.8
MdxT	-110.3	777.8	1025.1	-45.8	791.0	1098.8	-30.5	791.4	1103.0	11.1
MdyT	-1266.6	1156.7	-552.8	-1381.9	1313.3	-603.2	-1508.1	1223.6	-548.8	-1372.0
COMB	(7)	(9)	(9)	(9)	(10)	(10)	(10)	(11)	(11)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	30.0	30.3	29.5	29.5	29.5	29.4	29.4	29.9	29.0	29.0
MdxT	-69.0	1101.1	790.7	1084.5	-30.1	1089.8	26.3	-106.5	780.4	1062.4
MdyT	-1388.0	-521.1	1329.0	-582.8	-1457.1	-529.1	-1322.7	-1349.2	1419.7	-585.8
COMB	(12)	(13)	(14)	(14)	(14)	(15)	(15)	(16)	(18)	(18)
CARR	41	42								
FdzT	30.3	30.3								
MdxT	-439.6	-439.6								
MdyT	83.6	-83.6								
COMB	(0)	(0)								

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	144.5	144.5	144.5	144.5	143.3	143.8	143.3	143.3	143.8	144.3
MdxT	390.1	-390.1	.0	.0	432.0	-272.6	-825.4	-477.2	424.9	108.5
MdyT	.0	.0	476.8	-476.8	1739.8	1686.3	-924.7	863.1	-827.1	1895.2
COMB	(0)	(0)	(0)	(0)	(2)	(12)	(2)	(2)	(12)	(5)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	144.3	136.3	136.3	136.3	137.1	137.1	135.2	138.1	138.1	143.4
MdxT	-255.5	658.3	-618.6	-1224.4	-508.9	851.9	-103.6	120.3	-275.9	425.3
MdyT	-1232.1	1698.5	828.6	-926.2	1605.2	-758.9	886.7	1957.2	-1438.4	1746.9
COMB	(5)	(6)	(6)	(6)	(16)	(16)	(8)	(9)	(9)	(11)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	143.4	143.4	144.5	144.5	136.5	136.5	136.5	135.4	138.2	138.2
MdxT	-476.0	-818.7	101.8	-248.6	651.6	-617.1	-1217.2	-96.3	113.5	-268.8
MdyT	864.3	-933.0	1902.3	-1240.4	1706.0	829.8	-935.1	887.9	1964.6	-1447.0
COMB	(11)	(11)	(14)	(14)	(15)	(15)	(15)	(17)	(18)	(18)

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	72.1	72.1	72.1	72.1	71.9	71.8	72.0	71.8	71.8	71.8
MdxT	194.6	-194.6	.0	.0	-39.5	140.1	74.1	-33.9	-253.1	207.3
MdyT	.0	.0	237.8	-237.8	3996.3	3967.7	-2928.0	-2839.9	3898.7	-2785.3
COMB	(0)	(0)	(0)	(0)	(1)	(11)	(5)	(11)	(3)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	72.0	67.3	67.3	67.4	67.4	67.7	67.7	71.9	71.9	72.1
MdxT	-38.2	269.2	-113.0	-377.3	277.6	-19.7	56.0	-243.2	192.9	-28.3
MdyT	4077.8	3710.6	-2710.5	3614.0	-2631.7	3912.2	-2869.2	3925.0	-2802.8	4104.2
COMB	(5)	(15)	(15)	(7)	(7)	(9)	(9)	(12)	(12)	(14)
CARR	21	22	23	24	25	26				
FdzT	72.1	67.5	67.5	67.8	67.8	72.1				
MdxT	59.6	-368.3	264.3	-10.8	42.7	-137.6				
MdyT	-2945.3	3639.6	-2648.7	3937.8	-2886.1	-168.1				
COMB	(14)	(16)	(16)	(18)	(18)	(0)				

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	154.1	154.1	154.1	154.1	148.0	149.3	148.0	150.2	150.2	150.2
MdxT	415.9	-415.9	.0	.0	334.7	-571.9	-163.1	439.0	-448.7	-770.1
MdyT	.0	.0	462.2	-462.2	-1287.6	-1247.3	633.5	-1262.0	-699.0	596.1
COMB	(0)	(0)	(0)	(0)	(11)	(7)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	154.1	154.1	154.1	153.1	153.1	142.9	142.9	142.9	149.3	149.3
MdxT	-315.7	313.5	455.7	51.2	-138.0	683.2	-580.0	-1164.9	457.1	874.4
MdyT	-1288.0	-696.6	652.5	-1467.8	875.8	-1203.9	-672.3	553.8	-668.4	647.8
COMB	(3)	(3)	(3)	(4)	(4)	(6)	(6)	(6)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	147.6	147.1	147.6	144.5	144.5	144.5	149.1	148.0	151.8	151.8
MdxT	38.4	-672.8	-113.3	72.9	-176.8	-176.8	-36.3	-717.4	-420.0	301.2
MdyT	-1546.6	-1272.2	1019.6	-904.7	-643.4	182.1	-1287.9	606.1	-1313.6	-705.4

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COMB	(8)	(16)	(8)	(9)	(9)	(9)	(10)	(11)	(12)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	151.8	150.9	150.9	140.7	140.7	140.7	147.1	147.1	145.4	145.4
MdxT	508.6	-52.9	-85.3	582.1	-587.3	-1113.6	445.4	926.1	-62.6	-61.7
MdyT	662.5	-1493.4	885.8	-1228.8	-680.8	563.2	-676.9	657.2	-1571.5	1029.0
COMB	(12)	(13)	(13)	(15)	(15)	(15)	(16)	(16)	(17)	(17)
CARR	41	42								
FdzT	142.3	154.1								
MdxT	-28.1	-294.1								
MdyT	-929.6	326.8								
COMB	(18)	(0)								

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	91.1	91.1	91.1	91.1	87.2	87.2	89.0	89.0	89.9	91.1
MdxT	354.2	-354.2	.0	.0	-294.9	239.0	-303.4	-309.6	240.8	-296.8
MdyT	.0	.0	273.4	-273.4	-259.3	94.8	-521.9	-332.3	268.2	.6
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(11)	(11)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	89.9	91.1	90.8	85.5	85.5	85.5	87.6	86.2	86.7	87.0
MdxT	-321.7	250.5	256.9	-273.0	-288.7	226.1	-278.9	-313.3	235.9	252.8
MdyT	-261.1	-193.3	82.6	-657.2	-345.2	379.3	184.0	-240.0	-262.8	70.7
COMB	(13)	(0)	(4)	(6)	(6)	(6)	(7)	(17)	(16)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	88.9	88.9	89.0	89.9	84.7	84.7	84.7	86.7	86.2	91.1
MdxT	-295.3	-304.2	247.4	263.5	-282.7	-291.2	232.5	-288.5	259.3	250.5
MdyT	-275.0	-252.3	219.1	33.5	-673.5	-373.0	331.8	167.4	23.2	193.3
COMB	(10)	(10)	(11)	(13)	(15)	(15)	(15)	(16)	(17)	(0)
CARR	31	32								
FdzT	91.1	91.1								
MdxT	-250.5	-250.5								
MdyT	193.3	-193.3								
COMB	(0)	(0)								

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	23.3	23.3	23.3	23.3	20.2	22.7	22.7	22.7	23.3	23.3
MdxT	107.8	-107.8	.0	.0	147.1	84.3	176.3	170.9	32.6	162.3
MdyT	.0	.0	69.9	-69.9	47.7	-129.6	187.0	221.3	372.1	130.6
COMB	(0)	(0)	(0)	(0)	(1)	(12)	(12)	(16)	(7)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	23.3	23.1	22.5	22.5	22.7	23.3	23.3	22.2	22.2	22.2
MdxT	121.4	164.8	32.6	177.8	119.4	154.3	110.2	119.4	172.2	119.4
MdyT	-109.5	63.7	-248.9	130.4	352.7	165.3	-214.8	153.0	118.4	-20.4
COMB	(3)	(4)	(6)	(13)	(12)	(7)	(7)	(10)	(10)	(11)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	22.2	22.4	21.9	21.9	21.9	22.7	22.7	22.4	22.4	23.3
MdxT	174.7	119.6	118.0	168.3	73.2	118.0	74.6	117.7	173.4	-76.2
MdyT	114.0	160.0	-140.6	117.2	245.1	480.5	-235.8	180.3	133.0	49.5
COMB	(11)	(14)	(15)	(15)	(15)	(16)	(16)	(17)	(17)	(0)
CARR	31									
FdzT	23.3									
MdxT	-76.2									
MdyT	-49.5									
COMB	(0)									

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	283.1	283.1	283.1	283.1	274.4	276.9	276.9	281.0	281.0	283.1
MdxT	968.7	-968.7	.0	.0	-48.4	-664.6	-48.0	240.5	-674.4	-685.0
MdyT	.0	.0	934.2	-934.2	1516.2	900.9	-581.0	1340.8	924.3	-660.6
COMB	(0)	(0)	(0)	(0)	(9)	(1)	(1)	(2)	(2)	(0)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	282.7	282.7	283.1	280.6	283.1	283.1	283.1	270.9	270.9	270.8
MdxT	-306.6	678.4	685.0	-673.4	-41.4	-679.4	-25.6	420.4	-747.4	-692.7
MdyT	1290.7	929.2	-660.6	943.5	1469.9	910.1	-863.8	1301.3	886.2	-630.4
COMB	(3)	(3)	(0)	(4)	(5)	(5)	(5)	(6)	(6)	(15)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	273.7	273.7	273.7	270.2	270.2	274.3	280.9	282.6	283.0	283.0
MdxT	-489.3	895.1	623.4	-20.3	-648.6	-11.8	-435.4	-309.0	-43.8	-26.2
MdyT	1218.1	894.5	-494.2	1003.0	918.3	-1024.0	-627.1	1283.0	1462.0	-863.4
COMB	(7)	(7)	(7)	(8)	(8)	(18)	(11)	(12)	(14)	(14)
CARR	31	32	33	34	35	36				
FdzT	270.8	273.6	270.1	274.3	283.1	283.1				
MdxT	-748.9	-491.8	-22.8	-51.0	685.0	-685.0				
MdyT	881.7	1210.7	995.7	1508.9	660.6	660.6				
COMB	(15)	(16)	(17)	(18)	(0)	(0)				

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	171.8	171.8	171.8	171.8	167.1	165.4	167.1	170.7	171.8	170.7
MdxT	557.7	-557.7	.0	.0	-93.5	468.8	123.5	174.2	412.3	-93.5
MdyT	.0	.0	567.1	-567.1	1933.4	-767.5	-2085.7	1779.0	-833.8	-1984.2
COMB	(0)	(0)	(0)	(0)	(9)	(6)	(9)	(2)	(5)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	171.5	171.5	171.5	171.8	171.8	165.4	165.4	166.7	166.7	166.7
MdxT	-328.6	-455.3	315.3	-87.1	119.1	341.0	-230.3	-495.0	-277.3	449.4
MdyT	1724.9	-776.9	-1942.4	1907.5	-2084.6	1719.5	-1918.7	1629.5	-739.6	-1849.0
COMB	(3)	(3)	(3)	(5)	(5)	(6)	(6)	(7)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	164.9	164.9	169.8	169.8	169.8	170.8	170.8	171.6	171.8	165.4
MdxT	-60.5	95.8	-26.0	407.5	74.6	206.4	-111.2	416.5	412.4	372.5

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MdyT	1415.4	-1681.8	1703.9	-768.3	-1920.7	1778.3	-1976.7	-773.9	-830.8	1719.1
COMB	(8)	(8)	(10)	(10)	(10)	(11)	(11)	(12)	(14)	(15)
CARR	31	32	33	34						
FdzT	165.4	165.4	171.8	171.8						
MdxT	507.3	-247.4	394.3	-394.3						
MdyT	-764.6	-1911.4	401.0	401.0						
COMB	(15)	(15)	(0)	(0)						

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	61.5	61.5	61.5	61.5	57.4	57.4	60.5	60.9	61.1	60.9
MdxT	199.5	-199.5	.0	.0	-96.6	147.6	-118.0	258.9	171.5	-242.8
MdyT	.0	.0	202.9	-202.9	1234.7	-1781.4	1351.7	-1809.6	-1865.9	1291.4
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(9)	(3)	(5)	(18)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	59.9	60.3	59.9	60.3	61.1	61.4	61.4	61.5	61.5	60.4
MdxT	56.6	315.7	14.4	-282.7	-187.6	-341.5	300.2	-119.5	212.8	-144.8
MdyT	1223.7	-1740.6	-1750.0	1191.5	-710.3	1161.3	-1770.2	-730.5	-1826.3	-684.6
COMB	(6)	(7)	(6)	(7)	(11)	(12)	(12)	(14)	(14)	(15)
CARR	21	22	23	24						
FdzT	60.7	60.7	60.9	61.5						
MdxT	-407.4	356.9	-119.7	141.1						
MdyT	1131.2	-1702.3	-718.4	143.5						
COMB	(16)	(16)	(18)	(0)						

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	182.2	182.2	182.2	182.2	181.3	181.3	182.1	180.1	180.1	180.0
MdxT	630.0	-630.0	.0	.0	-4.5	-435.2	-84.4	258.4	-571.4	-531.9
MdyT	.0	.0	656.1	-656.1	-2455.2	-1195.1	1735.9	-2402.8	-1194.5	1268.0
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(4)	(11)	(11)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	181.9	181.9	181.9	182.2	182.2	179.7	179.8	173.6	173.6	173.5
MdxT	-286.4	619.7	429.2	4.1	-437.4	-32.1	-431.6	437.1	-501.6	-845.6
MdyT	-2443.1	-1174.6	1383.1	-2614.2	-1137.3	-2231.9	-1237.1	-2277.4	-1149.8	1168.9
COMB	(3)	(3)	(3)	(13)	(13)	(5)	(14)	(15)	(15)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	176.7	176.7	176.7	177.2	177.1	173.1	173.2	173.1	182.0	181.3
MdxT	-467.5	434.7	753.5	14.3	-100.9	-44.5	-415.6	9.0	-284.9	-435.2
MdyT	-2350.0	-1120.3	1360.2	-2629.3	1948.0	-1998.2	-1220.7	581.3	-2450.6	-1195.1
COMB	(7)	(7)	(7)	(17)	(8)	(9)	(18)	(9)	(12)	(10)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	180.1	182.0	182.2	179.8	173.6	176.8	176.8	177.2	173.2	182.2
MdxT	-536.3	614.1	-88.8	-30.5	-849.7	-466.1	432.9	-105.0	-43.1	445.5
MdyT	1266.3	-1179.9	1734.2	-2239.2	1166.6	-2356.8	-1125.4	1945.7	-2004.9	463.9
COMB	(11)	(12)	(13)	(14)	(15)	(16)	(16)	(17)	(18)	(0)
CARR	41	42								
FdzT	182.2	182.2								
MdxT	-445.5	-445.5								
MdyT	463.9	-463.9								
COMB	(0)	(0)								

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	110.4	110.4	110.4	110.4	110.0	110.4	110.3	109.3	109.3	109.3
MdxT	358.2	-358.2	.0	.0	-8.4	264.9	57.3	214.5	296.4	-85.5
MdyT	.0	.0	-3978.2	397.4	-3848.2	1605.2	3999.9	-3761.2	1551.6	3879.1
COMB	(0)	(0)	(13)	(0)	(1)	(13)	(4)	(11)	(11)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	110.1	110.1	110.1	110.3	105.9	105.8	105.9	107.3	107.3	107.3
MdxT	-260.4	-352.7	223.2	-7.1	368.9	361.9	-186.3	-415.8	-223.9	321.4
MdyT	-3803.5	1555.2	3888.1	-3967.0	-3546.6	1466.2	3678.1	-3625.2	1480.9	3702.3
COMB	(3)	(3)	(3)	(4)	(15)	(6)	(15)	(7)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	107.7	107.7	107.6	105.5	105.5	110.2	110.2	110.2	110.4	105.9
MdxT	12.5	258.4	45.6	-59.2	97.2	-253.1	-343.9	215.2	49.3	248.4
MdyT	-3907.8	-1563.1	3888.5	-3264.0	3479.1	-3814.6	1560.5	3901.2	4013.1	1471.2
COMB	(17)	(17)	(8)	(9)	(9)	(12)	(12)	(12)	(13)	(15)
CARR	31	32	33	34	35	36	37			
FdzT	107.4	107.4	107.4	107.7	105.6	105.6	110.4			
MdxT	-408.7	-222.8	313.7	37.8	-52.2	89.5	253.3			
MdyT	-3635.5	1486.0	3714.9	3901.2	-3274.3	3491.7	-281.0			
COMB	(16)	(16)	(16)	(17)	(18)	(18)	(0)			

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	39.2	39.2	39.2	39.2	39.2	39.2	39.2	38.9	38.9	39.1
MdxT	127.2	-127.2	.0	.0	-89.9	79.1	122.9	14.0	107.9	-209.6
MdyT	.0	.0	141.1	-141.1	-2780.4	-1112.2	2629.1	-2704.0	-1070.3	-2687.3
COMB	(0)	(0)	(0)	(0)	(4)	(4)	(13)	(11)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	39.1	39.2	38.4	38.4	38.4	38.8	38.8	39.2	39.2	38.3
MdxT	195.3	129.1	86.4	117.6	35.7	-281.1	230.7	-83.2	78.1	-119.3
MdyT	2547.4	2594.6	-2649.8	-1059.9	2455.7	-2641.7	2437.3	-2808.5	-1123.4	-2467.4
COMB	(3)	(4)	(15)	(15)	(6)	(7)	(7)	(13)	(13)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	38.3	39.1	38.9	39.1	39.1	38.4	38.8	38.8	38.9	38.9
MdxT	146.2	117.9	100.2	-202.9	189.1	29.8	-274.7	224.8	-75.5	75.8
MdyT	2377.2	2628.9	-1081.6	-2715.4	2581.9	2489.3	-2669.0	2470.9	-2823.9	-1129.6
COMB	(9)	(10)	(11)	(12)	(12)	(15)	(16)	(16)	(17)	(17)
CARR	31	32	33							
FdzT	38.3	38.3	39.2							

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MdxT      -112.7       140.1       -89.9
MdyT     -2494.8      2410.8        99.8
COMB       ( 18 )       ( 18 )       (  0 )
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LANCE:  2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR            1            2            3            4            5            6            7            8            9           10
FdzT         94.6         94.6         94.6         94.6         93.4         93.4         94.6         94.3         93.4         94.6
MdxT        499.9       -499.9          .0          .0        323.1       -438.3        353.5       -439.8       -437.7        434.6
MdyT           .0           .0        948.8       -948.8       -121.2       -731.1        670.9        811.9     -1126.7         -6.3
COMB        (  0 )       (  0 )       (  0 )       (  0 )       (  3 )       (  1 )       (  0 )       (  2 )       (  3 )       (  5 )
CARR           11           12           13           14           15           16           17           18           19           20
FdzT         94.6         90.1         90.1         88.2         88.6         90.6         90.6         93.0         94.1         87.8
MdxT       -481.3        297.4       -415.9        468.0       -412.5        483.1       -503.4        323.0       -480.0        466.6
MdyT       -718.9        179.1       1040.2       -714.1      -1282.3        -11.9       -708.6       -121.5       -722.6       -718.0
COMB        (  5 )       (  6 )       (  6 )       (  8 )       (  7 )       (  9 )       (  9 )       ( 12 )       ( 14 )       ( 17 )
CARR           21           22           23
FdzT         90.2         90.2         94.6
MdxT        483.0       -502.9        353.5
MdyT        -12.6       -712.7       -670.9
COMB        ( 18 )       ( 18 )       (  0 )

LANCE:  3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR            1            2            3            4            5            6            7            8            9           10
FdzT         68.0         68.0         68.0         68.0         67.1         66.7         67.7         68.0         67.3         67.1
MdxT        273.9       -273.9          .0          .0        349.2       -199.2        449.7       -196.6        449.0       -247.4
MdyT           .0           .0        682.6       -682.6        774.1        109.9        658.2        -46.8        663.3         32.2
COMB        (  0 )       (  0 )       (  0 )       (  0 )       (  3 )       ( 12 )       (  5 )       (  2 )       ( 14 )       ( 13 )
CARR           11           12           13           14           15           16           17           18           19           20
FdzT         67.7         65.8         65.8         64.3         64.9         65.3         67.6         66.7         67.1         65.4
MdxT        449.7        319.1       -183.0        321.4       -405.7        487.8       -197.1        348.6       -105.2       -183.4
MdyT        189.6       -474.3        -87.1        825.9        651.3        652.0        -44.0        775.0        663.0        -84.1
COMB        (  5 )       (  6 )       (  6 )       (  7 )       (  8 )       (  9 )       ( 11 )       ( 12 )       ( 13 )       ( 15 )
CARR           21           22           23           24           25           26
FdzT         63.9         64.5         64.9         68.0         68.0         68.0
MdxT        320.9       -405.1        487.1       -193.7       -193.7        193.7
MdyT        826.7        652.8        654.5        482.7       -482.7       -482.7
COMB        ( 16 )       ( 17 )       ( 18 )       (  0 )       (  0 )       (  0 )

LANCE:  4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR            1            2            3            4            5            6            7            8            9           10
FdzT         41.8         41.8         41.8         41.8         40.5         40.7         41.4         41.8         40.5         40.9
MdxT        150.8       -150.8          .0          .0        124.6       -103.0        125.5       -106.6        -98.3        198.8
MdyT           .0           .0        419.2       -419.2        884.3        205.4        704.7        296.4        319.1        548.8
COMB        (  0 )       (  0 )       (  0 )       (  0 )       ( 12 )       ( 10 )       ( 11 )       (  0 )       ( 12 )       ( 13 )
CARR           11           12           13           14           15           16           17           18           19           20
FdzT         40.9         41.3         40.9         41.8         39.6         39.6         40.4         40.8         40.7         40.4
MdxT         80.1       -183.0         91.2       -106.6        123.6        -91.1        245.3       -231.6        -13.7       -231.3
MdyT        785.1        190.1        780.9       -296.4        942.0        406.1        542.2        194.7        525.1        199.5
COMB        ( 13 )       (  4 )       ( 14 )       (  0 )       ( 16 )       ( 16 )       ( 17 )       (  8 )       (  9 )       ( 17 )
CARR           21           22
FdzT         40.3         41.8
MdxT        -12.2        106.6
MdyT        534.1       -296.4
COMB        ( 18 )       (  0 )
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LANCE:  2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR            1            2            3            4            5            6            7            8            9           10
FdzT         90.5         90.5         90.5         90.5         89.8         90.5         90.1         89.2         89.2         90.1
MdxT        478.4       -478.4          .0          .0       -349.7        430.8        428.6       -349.0        424.0       -461.2
MdyT           .0           .0        908.0       -908.0        136.4       -830.1        715.5       -117.2     -1175.0         42.8
COMB        (  0 )       (  0 )       (  0 )       (  0 )       ( 11 )       (  1 )       (  2 )       (  3 )       (  3 )       ( 13 )
CARR           11           12           13           14           15           16           17           18           19           20
FdzT         90.4         88.6         85.6         85.9         83.9         84.3         86.0         86.3         86.3         83.6
MdxT        482.0       -237.7       -323.1        405.2       -411.5        397.7       -507.9        522.8        522.8       -137.6
MdyT       -816.4         39.2        210.6        992.1       -803.3      -1330.6         42.6       -788.8       -209.9         36.3
COMB        (  4 )       ( 14 )       ( 15 )       (  6 )       (  9 )       (  7 )       ( 17 )       (  8 )       (  8 )       ( 18 )
CARR           21           22           23           24
FdzT         89.8         88.9         90.5         90.5
MdxT        427.5       -349.2       -338.3       -338.3
MdyT        717.5       -115.9        642.0       -642.0
COMB        ( 11 )       ( 12 )       (  0 )       (  0 )

LANCE:  3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR            1            2            3            4            5            6            7            8            9           10
FdzT         61.3         61.3         61.3         61.3         61.3         61.3         60.9         60.0         59.7         60.6
MdxT        246.8       -246.8          .0          .0       -371.6        177.5        186.1       -369.9        184.7       -472.5
MdyT           .0           .0        615.1       -615.1        623.0         45.6        -44.9        694.8        106.1        610.3
COMB        (  0 )       (  0 )       (  0 )       (  0 )       (  1 )       (  1 )       (  2 )       (  3 )       ( 12 )       (  4 )
CARR           11           12           13           14           15           16           17           18           19           20
FdzT         60.6         60.0         58.9         58.9         57.3         57.9         58.3         58.3         60.6         60.6
MdxT        179.1        236.0       -342.2        174.4       -339.9        378.8       -509.9         89.6       -371.7        187.0
MdyT         46.6         39.2       -438.0        -85.3        749.6        584.4        587.3         41.4        618.2        -44.0
COMB        ( 10 )       ( 14 )       (  6 )       (  6 )       (  7 )       (  9 )       (  8 )       (  8 )       ( 10 )       ( 11 )
CARR           21           22           23           24           25           26           27           28
FdzT         59.7         58.6         57.0         57.0         57.6         61.3         61.3         61.3
MdxT       -369.9        175.6       -339.9        171.4        378.9        174.5       -174.5        174.5
MdyT        284.8        -84.1        375.2        164.8        582.9        434.9       -434.9       -434.9
COMB        ( 12 )       ( 15 )       ( 16 )       ( 16 )       ( 18 )       (  0 )       (  0 )       (  0 )
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LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	35.2	35.2	35.2	35.2	35.2	35.2	34.9	34.0	34.0	34.6
MdxT	127.3	-127.3	.0	.0	-132.9	90.0	-141.0	-138.5	82.3	-136.8
MdyT	.0	.0	353.7	-353.7	635.0	250.1	551.4	744.6	284.3	628.1
COMB	(0)	(0)	(0)	(0)	(1)	(0)	(2)	(3)	(3)	(10)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	34.4	34.4	34.4	34.8	33.2	32.9	34.0	34.0	34.6	34.6
MdxT	-217.4	-92.0	167.4	76.4	-133.0	74.9	-263.8	216.2	85.3	-143.2
MdyT	431.2	634.5	155.7	-55.6	812.2	375.2	428.3	160.6	161.6	548.3
COMB	(5)	(5)	(5)	(6)	(7)	(16)	(9)	(9)	(10)	(11)
CARR	21	22	23	24	25	26	27	28		
FdzT	33.7	33.7	34.1	32.9	33.7	33.7	35.2	35.2		
MdxT	-140.7	82.2	-219.5	-135.2	-265.9	216.0	-90.0	90.0		
MdyT	742.1	284.8	430.5	809.9	428.1	161.3	-250.1	-250.1		
COMB	(12)	(12)	(14)	(16)	(18)	(18)	(0)	(0)		

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	134.3	134.3	134.3	134.3	134.3	133.5	134.3	133.5	133.5	134.0
MdxT	464.3	-464.3	.0	.0	103.2	-386.0	-135.0	262.6	-386.0	-86.9
MdyT	.0	.0	443.3	-443.3	1736.8	783.5	-1124.6	1478.3	-699.4	1592.6
COMB	(0)	(0)	(0)	(0)	(5)	(2)	(5)	(2)	(2)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	134.0	134.0	133.3	127.2	127.2	127.2	128.0	128.0	128.0	126.7
MdxT	321.7	165.8	-319.8	372.3	-309.8	-561.0	-206.1	374.8	355.0	-304.2
MdyT	779.5	-882.6	793.4	1391.9	758.2	-612.1	1580.0	750.7	-915.7	773.9
COMB	(12)	(12)	(13)	(6)	(6)	(6)	(16)	(16)	(16)	(17)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	128.5	127.2	128.5	133.6	133.6	133.6	134.3	134.3	127.2	127.2
MdxT	107.0	-309.3	-143.1	258.3	-382.3	-382.3	98.8	-131.3	367.9	-557.2
MdyT	1822.2	760.1	-1319.8	1482.2	785.2	-701.1	1740.9	-1126.4	1396.5	-614.5
COMB	(9)	(15)	(9)	(11)	(11)	(11)	(14)	(14)	(15)	(15)
CARR	31	32	33	34	35					
FdzT	128.5	128.5	128.5	134.3	134.3					
MdxT	102.8	-308.4	-139.3	328.3	328.3					
MdyT	1826.9	736.9	-1322.2	313.5	-313.5					
COMB	(18)	(18)	(18)	(0)	(0)					

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	60.2	60.2	60.2	60.2	60.1	60.2	60.2	60.2	60.2	56.3
MdxT	195.5	-195.5	.0	.0	211.3	-145.3	315.0	-211.3	-53.3	369.2
MdyT	.0	.0	198.8	-198.8	2886.2	-2368.0	2885.1	-2267.0	-2310.4	2664.1
COMB	(0)	(0)	(0)	(0)	(10)	(14)	(11)	(11)	(3)	(15)
CARR	11	12	13	14	15	16	17	18		
FdzT	56.3	56.4	56.3	56.3	60.2	56.4	60.2	60.2		
MdxT	-253.5	6.3	216.7	-143.8	223.4	2.9	-138.2	138.2		
MdyT	-2133.0	-2208.9	2664.2	-2300.9	2885.3	-2214.2	140.6	-140.6		
COMB	(15)	(7)	(18)	(18)	(14)	(16)	(0)	(0)		

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	91.7	91.7	91.7	91.7	84.1	84.9	84.1	91.7	91.7	91.4
MdxT	309.1	-309.1	.0	.0	67.9	-203.7	-90.3	198.7	-207.7	-495.5
MdyT	.0	.0	275.0	-275.0	-984.6	-504.0	480.5	-895.3	-459.7	476.7
COMB	(0)	(0)	(0)	(0)	(10)	(13)	(10)	(2)	(2)	(6)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	82.0	82.0	82.0	87.3	87.3	87.3	86.4	86.4	86.4	91.4
MdxT	-105.1	254.2	178.8	42.8	-209.5	-69.0	50.5	-207.3	-84.6	296.0
MdyT	-896.6	-478.0	395.8	-1045.9	-475.1	643.0	-746.1	-462.6	221.6	-860.3
COMB	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	91.4	75.2	75.2	75.2	84.9	84.1	84.1	81.7	82.5	82.5
MdxT	-266.6	-209.2	201.1	354.2	66.1	-201.8	-58.2	58.8	-198.1	-84.1
MdyT	-435.2	-862.7	-465.7	355.5	-1125.2	-460.9	766.9	-1190.3	-440.1	65.4
COMB	(6)	(7)	(7)	(7)	(13)	(8)	(8)	(17)	(9)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	89.3	89.3	89.0	79.6	79.6	79.6	84.9	83.9	83.9	83.9
MdxT	221.8	-203.0	-506.1	-81.9	239.3	167.6	-80.2	73.8	-201.5	-95.9
MdyT	-974.7	-488.7	515.9	-975.9	-506.9	435.3	682.5	-825.3	-491.5	261.1
COMB	(11)	(11)	(15)	(12)	(12)	(12)	(13)	(14)	(14)	(14)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	89.0	89.0	72.9	72.9	72.9	81.7	81.7	80.2	80.2	80.2
MdxT	317.8	-262.0	-187.3	201.4	343.8	-196.2	-68.6	71.5	-192.4	-94.6
MdyT	-939.4	-464.1	-941.8	-494.7	394.5	-489.8	806.1	-691.0	-469.0	104.6
COMB	(15)	(15)	(16)	(16)	(16)	(17)	(17)	(18)	(18)	(18)
CARR	51									
FdzT	91.7									
MdxT	218.6									
MdyT	194.5									
COMB	(0)									

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	238.9	238.9	238.9	238.9	235.1	238.2	235.1	238.2	238.2	236.9
MdxT	817.6	-817.6	.0	.0	86.0	-722.8	-106.0	361.6	-497.7	-184.9

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MdyT	.0	.0	788.5	-788.5	1577.5	984.2	-740.9	1554.7	-657.6	1654.1
COMB	(0)	(0)	(0)	(0)	(10)	(2)	(10)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	236.9	236.9	236.2	238.9	238.9	231.1	231.1	231.1	228.8	228.8
MdxT	568.5	296.2	-566.8	78.3	-86.0	538.2	-459.4	-754.7	-370.7	609.4
MdyT	971.6	-833.8	998.0	1781.6	-1066.1	1449.0	948.0	-566.0	1614.3	927.0
COMB	(3)	(3)	(4)	(5)	(5)	(6)	(6)	(6)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	228.8	229.1	227.7	229.1	232.3	232.3	232.3	236.2	236.2	236.2
MdxT	566.7	538.7	-546.4	-756.7	67.2	-557.4	-69.6	362.2	-724.8	-499.9
MdyT	-859.2	1445.9	971.0	-564.3	1826.6	904.1	-1246.1	1551.1	980.3	-655.3
COMB	(7)	(15)	(8)	(15)	(9)	(9)	(9)	(11)	(11)	(11)
CARR	31	32	33	34	35	36	37	38	39	
FdzT	236.9	236.9	225.7	225.7	230.3	230.3	238.9	238.9	238.9	
MdxT	79.0	-88.1	100.9	-120.5	67.8	-71.4	578.1	-578.1	578.1	
MdyT	1778.0	-1064.0	1233.5	-177.0	1823.5	-1244.5	557.5	-557.5	-557.5	
COMB	(14)	(14)	(17)	(17)	(18)	(18)	(0)	(0)	(0)	

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	144.5	144.5	144.5	144.5	144.5	144.5	143.3	144.2	144.2	144.2
MdxT	469.0	-469.0	.0	.0	95.9	346.8	-70.4	357.1	357.1	-284.1
MdyT	.0	.0	476.9	-476.9	2124.4	-972.7	-2251.6	1883.7	-897.1	-2242.7
COMB	(0)	(0)	(0)	(0)	(5)	(5)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	143.4	143.4	143.4	144.5	140.3	140.9	140.3	139.0	139.0	139.0
MdxT	-142.1	-344.1	122.6	-70.3	517.4	338.1	-415.1	-312.8	-425.9	261.4
MdyT	2001.3	-933.1	-2332.8	-2431.8	1747.9	-970.2	-2110.8	1943.3	-904.3	-2260.7
COMB	(3)	(3)	(3)	(5)	(6)	(9)	(6)	(7)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	138.3	138.9	138.3	140.9	140.9	142.5	141.5	142.2	142.2	142.2
MdxT	496.6	333.4	-408.5	83.0	-59.5	342.1	-67.9	336.1	455.3	-277.6
MdyT	1726.3	-965.6	-2099.2	2148.2	-2425.5	-968.1	-2250.4	1862.0	-892.4	-2231.0
COMB	(15)	(18)	(15)	(9)	(9)	(14)	(10)	(11)	(11)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	141.4	141.4	142.5	142.5	137.0	137.0	136.5	136.5	136.5	138.9
MdxT	-163.1	129.2	74.9	-63.8	268.0	-333.8	100.7	327.5	-87.6	62.2
MdyT	1979.6	-2321.3	2102.7	-2420.2	-2249.1	1921.6	1521.2	-773.7	-1934.2	2126.6
COMB	(12)	(12)	(14)	(14)	(16)	(16)	(17)	(17)	(17)	(18)
CARR	41	42								
FdzT	138.9	144.5								
MdxT	-52.9	-331.6								
MdyT	-2413.9	337.2								
COMB	(18)	(0)								

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	48.4	48.4	48.4	48.4	48.0	47.8	47.8	48.4	48.4	48.4
MdxT	156.9	-156.9	.0	.0	10.9	131.5	95.3	128.0	128.0	-86.1
MdyT	.0	.0	159.6	-159.6	2407.7	-942.5	-2356.2	2254.4	-938.4	-2346.1
COMB	(0)	(0)	(0)	(0)	(9)	(3)	(3)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	47.8	48.0	47.8	48.3	48.3	48.3	48.0	47.1	47.1	47.2
MdxT	-82.3	196.7	-.7	16.2	116.0	9.9	-146.0	-153.2	156.2	32.6
MdyT	2299.8	2196.7	-2285.2	2381.1	-966.8	-2417.0	-2258.2	2272.2	-2274.9	2061.2
COMB	(3)	(6)	(4)	(5)	(5)	(5)	(6)	(7)	(7)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	47.2	48.0	46.4	46.0	46.4	46.4	46.4	46.4	46.1	45.9
MdxT	-3.8	14.0	131.0	150.8	-28.8	242.8	140.2	-125.0	124.9	56.6
MdyT	-2156.7	-2376.4	2455.6	-937.3	-2423.3	2328.9	-941.0	-2352.4	2483.7	-2362.5
COMB	(8)	(9)	(14)	(10)	(14)	(11)	(11)	(11)	(18)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	46.1	45.9	45.9	46.1	45.2	45.2	45.2	45.2	45.2	48.4
MdxT	310.7	154.4	-39.6	-184.7	-39.3	146.4	117.6	153.7	-42.4	-111.0
MdyT	2272.8	-916.6	-2291.5	-2265.1	2348.2	2137.2	-2281.9	-865.5	-2163.7	112.8
COMB	(15)	(13)	(13)	(15)	(16)	(17)	(16)	(17)	(17)	(0)

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	185.0	185.0	185.0	185.0	184.5	183.6	184.6	184.6	182.3	182.2
MdxT	639.6	-639.6	.0	.0	375.1	-440.6	-593.5	-593.5	-167.9	545.7
MdyT	.0	.0	666.1	-666.1	-2529.4	-1225.3	1460.5	-1206.0	-2434.9	-1236.2
COMB	(0)	(0)	(0)	(0)	(2)	(10)	(11)	(11)	(12)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	182.2	184.9	185.0	180.1	181.9	181.9	179.3	179.4	179.4	175.6
MdxT	370.3	120.5	-146.3	125.9	436.6	-80.6	549.1	-495.2	-904.1	-353.4
MdyT	1201.3	-2690.1	1806.4	-2730.0	-1282.0	861.4	-2451.8	-1143.0	1481.8	-2287.2
COMB	(3)	(4)	(13)	(17)	(14)	(14)	(6)	(15)	(15)	(16)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	175.4	175.4	180.0	180.1	174.8	174.9	174.9	184.6	182.3	182.3
MdxT	696.9	696.9	126.1	-160.2	69.9	419.8	-50.8	374.9	541.3	366.8
MdyT	-1196.3	1055.7	-2719.5	2058.3	-2009.1	-1269.5	485.1	-2540.4	-1240.6	1207.2
COMB	(7)	(7)	(8)	(17)	(9)	(18)	(18)	(11)	(12)	(12)
CARR	31	32	33	34	35	36	37	38		
FdzT	185.0	181.9	179.4	175.6	175.6	174.9	185.0	185.0		
MdxT	120.4	86.5	548.8	693.6	693.6	69.6	452.3	452.3		
MdyT	-2701.2	-2274.3	-2462.2	-1200.6	1061.2	-2019.5	471.0	-471.0		
COMB	(13)	(14)	(15)	(16)	(16)	(18)	(0)	(0)		

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	112.3	112.3	112.3	112.3	111.9	112.3	112.3	112.1	110.8	110.8

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MdxT	364.5	-364.5	.0	.0	382.3	269.6	-135.7	-271.2	-85.5	33.5
MdyT	.0	.0	404.3	-404.3	-3831.0	1638.2	4095.4	3988.0	-3693.5	3907.5
COMB	(0)	(0)	(0)	(0)	(2)	(13)	(13)	(11)	(3)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	112.2	109.5	110.7	109.7	109.1	109.1	109.2	107.3	107.3	107.3
MdxT	167.6	171.9	265.7	-138.9	529.1	277.8	-364.1	-249.1	-338.0	140.0
MdyT	-3982.6	-3926.6	1521.7	3991.0	-3673.9	1523.3	3812.2	-3445.5	1472.4	3681.0
COMB	(4)	(8)	(14)	(17)	(6)	(6)	(15)	(7)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	109.7	106.8	107.0	107.0	112.1	110.9	112.3	109.7	110.7	109.2
MdxT	263.2	108.2	256.7	-88.5	384.2	30.1	169.4	173.6	-105.4	530.7
MdyT	1596.4	-3193.0	1402.6	3506.4	-3825.6	3911.6	-3977.4	-3921.1	3804.2	-3668.4
COMB	(17)	(9)	(18)	(18)	(11)	(12)	(13)	(17)	(14)	(15)
CARR	31	32	33	34	35					
FdzT	109.2	107.4	107.4	107.0	112.3					
MdxT	277.6	-336.0	136.8	109.9	-257.7					
MdyT	1524.9	1474.0	3685.1	-3187.4	-285.9					
COMB	(15)	(16)	(16)	(18)	(0)					

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	40.7	40.7	40.7	40.7	40.4	40.6	40.7	40.6	40.2	40.3
MdxT	132.0	-132.0	.0	.0	62.4	154.4	-27.7	-78.8	-64.7	-96.7
MdyT	.0	.0	146.4	-146.4	-3187.7	-3063.1	2775.6	2715.0	-2987.9	-1211.3
COMB	(0)	(0)	(0)	(0)	(17)	(11)	(13)	(11)	(3)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	40.2	40.2	40.2	39.7	39.7	39.6	39.6	39.6	40.3	40.3
MdxT	40.2	225.0	-116.3	-138.2	80.6	26.5	95.0	-6.6	-62.7	38.2
MdyT	2698.4	-3020.9	2599.0	-2922.8	2594.3	-2796.2	-1118.5	2527.3	-3028.2	2732.7
COMB	(3)	(15)	(15)	(7)	(7)	(18)	(18)	(18)	(12)	(12)
CARR	21	22	23	24	25					
FdzT	40.7	39.7	39.7	40.7	40.7					
MdxT	56.7	-136.1	78.5	93.3	-93.3					
MdyT	-3163.2	-2962.8	2628.4	103.5	103.5					
COMB	(13)	(16)	(16)	(0)	(0)					

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	93.9	93.9	89.0	93.9	93.9	93.3	93.5	93.4	93.7	93.7
MdxT	354.5	-354.5	.0	.0	.0	89.7	196.3	-40.7	71.4	194.0
MdyT	.0	.0	339.4	309.9	-309.9	-437.2	-296.0	389.5	-617.4	506.9
COMB	(0)	(0)	(8)	(0)	(0)	(14)	(12)	(10)	(11)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	93.7	92.7	92.7	92.5	93.3	93.3	89.6	89.6	89.6	89.2
MdxT	-30.9	194.2	-45.1	88.8	207.7	-58.9	62.3	185.5	-23.4	190.6
MdyT	1050.3	-296.4	-296.4	-436.9	-231.9	384.2	-709.0	717.2	1470.8	-578.9
COMB	(11)	(3)	(3)	(5)	(14)	(14)	(15)	(15)	(15)	(16)
CARR	21	22	23	24	25	26	27	28	29	
FdzT	88.3	88.9	88.9	93.5	89.2	93.9	93.9	93.9	93.9	
MdxT	-47.3	209.1	-70.3	-45.5	-47.7	250.7	-250.7	-250.7	250.7	
MdyT	-768.9	-218.0	362.7	-296.0	-768.6	219.1	219.1	-219.1	-219.1	
COMB	(7)	(18)	(18)	(12)	(16)	(0)	(0)	(0)	(0)	

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	51.2	51.2	51.2	51.2	51.2	51.0	51.0	50.1	50.1	50.1
MdxT	206.2	-206.2	.0	.0	55.6	-167.4	-77.6	48.6	-154.1	-170.5
MdyT	.0	.0	169.0	-169.0	-354.2	303.5	590.2	-391.2	-206.0	290.6
COMB	(0)	(0)	(0)	(0)	(1)	(12)	(12)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	50.0	50.1	50.0	50.0	48.6	48.6	48.6	48.3	48.6	48.3
MdxT	67.9	-80.5	-176.9	-85.3	40.5	-139.2	-167.2	72.7	-79.4	-177.6
MdyT	-356.3	591.4	170.2	411.3	-389.3	-261.2	360.0	-331.7	680.5	160.0
COMB	(5)	(3)	(5)	(5)	(6)	(6)	(7)	(9)	(7)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	48.3	51.0	51.0	51.0	50.8	50.8	50.8	49.5	49.5	49.2
MdxT	-87.2	-161.3	40.5	-150.6	59.8	-173.9	-82.3	32.3	-135.5	64.5
MdyT	381.4	183.3	-360.2	-189.1	-325.4	183.1	410.3	-358.1	-244.0	-300.4
COMB	(9)	(10)	(11)	(11)	(14)	(14)	(14)	(15)	(15)	(18)
CARR	31	32	33	34	35	36				
FdzT	49.4	49.4	49.2	49.2	51.2	51.2				
MdxT	-163.9	-76.3	-174.4	-84.1	145.8	145.8				
MdyT	373.0	679.6	173.0	380.4	119.5	-119.5				
COMB	(16)	(16)	(18)	(18)	(0)	(0)				

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	27.9	27.9	27.9	27.9	27.9	27.9	27.9	26.7	26.7	26.7
MdxT	115.6	-115.6	.0	.0	43.7	-108.4	-77.8	40.3	-106.0	-77.7
MdyT	.0	.0	92.1	-92.1	-412.9	-230.6	135.0	-522.5	-308.7	164.5
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	26.7	26.7	26.7	26.4	26.4	26.5	26.3	26.3	26.3	27.5
MdxT	49.1	-106.2	-82.6	38.1	-102.8	-74.1	52.8	-103.1	-82.2	94.1
MdyT	-406.7	-226.3	132.3	-595.7	-362.2	181.6	-403.1	-225.3	128.4	-550.9
COMB	(5)	(5)	(5)	(6)	(6)	(7)	(9)	(9)	(9)	(14)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	27.5	27.5	27.5	27.5	27.5	27.2	27.2	27.2	27.1	27.1

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MdxT	-97.3	-97.3	85.3	-95.4	-92.4	82.6	-92.4	-88.6	97.2	-96.9
MdyT	-300.9	164.8	-666.7	-383.2	197.0	-740.0	-436.8	214.2	-547.3	160.9
COMB	(14)	(14)	(11)	(11)	(12)	(15)	(15)	(16)	(18)	(18)
CARR	31	32	33							
FdzT	27.9	27.9	27.9							
MdxT	81.7	-81.7	81.7							
MdyT	65.1	65.1	-65.1							
COMB	(0)	(0)	(0)							

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	109.8	109.8	109.8	109.8	109.8	109.8	109.8	107.3	107.3	107.3
MdxT	414.5	-414.5	.0	.0	-60.5	-293.1	35.1	-67.1	-222.1	40.0
MdyT	.0	.0	362.4	-362.4	-408.8	-256.2	369.2	-592.8	562.4	1096.5
COMB	(0)	(0)	(0)	(0)	(1)	(0)	(1)	(11)	(11)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	106.4	106.4	107.0	107.0	107.1	101.8	101.8	101.8	100.8	100.8
MdxT	-220.2	28.4	-77.3	55.0	-221.7	-64.1	-210.8	41.3	-208.6	22.4
MdyT	-375.1	-391.2	-407.4	371.4	-374.1	-691.0	796.4	1563.9	-677.9	-908.2
COMB	(3)	(3)	(13)	(13)	(12)	(15)	(15)	(15)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	101.4	101.5	107.8	107.8	107.8	107.1	107.3	101.5	101.9	109.8
MdxT	66.4	-210.2	-61.6	-223.2	35.6	28.8	-222.2	22.8	-211.0	293.1
MdyT	357.7	-677.2	-406.6	-237.9	371.0	-387.9	-248.3	-905.4	-239.0	256.2
COMB	(17)	(16)	(10)	(10)	(10)	(12)	(14)	(16)	(18)	(0)
CARR	31	32								
FdzT	109.8	109.8								
MdxT	-293.1	293.1								
MdyT	256.2	-256.2								
COMB	(0)	(0)								

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	66.0	66.0	66.0	66.0	66.0	66.0	66.0	63.0	63.0	62.9
MdxT	265.8	-265.8	.0	.0	-105.6	234.4	113.1	-112.4	237.0	233.6
MdyT	.0	.0	217.9	-217.9	-484.4	-193.8	462.4	-546.1	-300.6	295.4
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	62.9	62.8	62.8	62.8	60.3	60.3	60.2	60.2	60.1	60.1
MdxT	115.4	-122.4	248.8	126.8	-106.7	223.5	218.0	106.3	-123.3	125.3
MdyT	646.2	-494.1	-197.6	457.2	-546.1	-359.4	374.1	736.0	-459.6	422.0
COMB	(3)	(4)	(4)	(4)	(6)	(6)	(7)	(7)	(8)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	63.6	63.6	63.6	63.6	63.5	63.5	63.5	61.0	61.0	60.9
MdxT	-102.8	232.2	111.2	228.8	-112.7	244.1	122.6	-97.2	218.7	213.3
MdyT	-528.1	-290.3	647.1	304.0	-475.9	-190.3	458.2	-527.7	-348.9	382.9
COMB	(11)	(11)	(12)	(12)	(13)	(13)	(13)	(15)	(15)	(16)
CARR	31	32	33	34	35	36	37			
FdzT	60.9	60.8	60.8	60.8	66.0	66.0	66.0			
MdxT	102.2	-113.7	238.8	121.2	188.0	-188.0	-188.0			
MdyT	736.8	-441.1	-176.5	422.7	154.1	154.1	-154.1			
COMB	(16)	(17)	(17)	(17)	(0)	(0)	(0)			

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	27.9	27.9	27.9	27.9	27.9	27.9	27.9	25.0	25.0	25.1
MdxT	115.6	-115.6	.0	.0	-7.7	63.5	22.0	-14.7	70.6	28.8
MdyT	.0	.0	92.1	-92.1	-449.8	-200.2	266.3	-531.6	-271.4	305.2
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	25.1	25.0	25.0	25.0	24.7	24.7	24.9	24.9	24.7	24.7
MdxT	71.6	-20.6	79.0	33.9	-15.0	66.4	67.9	26.6	-24.9	80.2
MdyT	122.1	-407.1	-177.0	250.7	-610.0	-337.4	153.8	324.9	-402.6	-180.4
COMB	(3)	(4)	(4)	(4)	(6)	(6)	(7)	(7)	(8)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	24.7	26.0	26.0	25.8	25.7	25.7	25.7	25.7	25.7	25.8
MdxT	35.0	-55.7	-87.2	45.6	-61.6	-88.8	50.8	-67.5	-90.6	-106.4
MdyT	234.6	-500.5	-224.0	322.8	-610.4	-312.5	268.4	-485.8	-218.1	-212.4
COMB	(8)	(10)	(10)	(12)	(11)	(11)	(13)	(13)	(13)	(14)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	25.4	25.4	25.6	25.6	25.4	25.4	25.4	25.6	27.9	27.9
MdxT	-61.3	-89.4	43.3	-85.8	-71.1	-92.5	51.7	-98.2	81.7	-81.7
MdyT	-689.6	-378.9	343.0	137.2	-482.3	-221.9	252.7	-212.4	65.1	65.1
COMB	(15)	(15)	(16)	(16)	(17)	(17)	(17)	(18)	(0)	(0)
CARR	41	42								
FdzT	27.9	27.9								
MdxT	-81.7	81.7								
MdyT	-65.1	-65.1								
COMB	(0)	(0)								

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	75.5	75.5	75.5	75.5	75.5	75.5	75.5	62.1	62.1	62.1
MdxT	254.5	-254.5	.0	.0	180.0	-181.2	-180.0	207.6	-179.1	-337.5
MdyT	.0	.0	226.5	-226.5	-160.2	-105.7	160.2	-280.6	-171.5	178.4
COMB	(0)	(0)	(0)	(0)	(0)	(1)	(0)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	66.8	66.8	66.8	64.1	64.1	64.1	64.8	64.8	57.7	57.7
MdxT	-95.6	188.6	175.0	52.1	-153.8	-73.4	59.9	-155.6	304.5	-234.9
MdyT	-207.3	-189.3	38.1	-250.7	128.7	253.5	-237.3	-220.2	-292.7	-157.1

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COMB	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	57.7	65.5	65.5	65.5	61.0	61.0	61.0	62.2	68.3	68.3
MdxT	-502.2	-199.8	193.3	350.6	45.9	-146.4	-62.4	-149.3	53.5	-163.8
MdyT	219.7	-171.1	-171.1	-13.4	-243.2	183.1	345.2	-207.1	-58.0	-58.0
COMB	(6)	(7)	(7)	(7)	(8)	(8)	(8)	(9)	(10)	(10)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	68.3	63.8	63.8	63.8	68.4	65.7	66.5	59.3	59.3	59.3
MdxT	-82.9	202.6	-181.0	-334.7	190.6	-157.8	-159.5	299.5	-236.7	-499.1
MdyT	18.3	-128.1	-128.1	104.2	-55.0	179.3	-111.3	-150.4	-150.4	150.2
COMB	(10)	(11)	(11)	(11)	(12)	(13)	(14)	(15)	(15)	(15)
CARR	41	42	43	44	45	46	47	48		
FdzT	67.1	67.1	62.6	62.6	63.8	63.8	75.5	75.5		
MdxT	-205.0	353.5	-150.3	-59.5	-153.2	-85.7	180.0	-180.0		
MdyT	-28.7	-82.9	200.3	275.8	-201.6	-208.3	160.2	-160.2		
COMB	(16)	(16)	(17)	(17)	(18)	(18)	(0)	(0)		

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	63.2	63.2	55.0	63.2	63.2	52.8	52.8	52.8	62.1	62.1
MdxT	296.7	-296.7	.0	.0	.0	1.1	109.4	-.6	-6.4	128.5
MdyT	.0	.0	108.2	189.6	-189.6	-29.7	111.2	111.2	-340.2	298.6
COMB	(0)	(0)	(10)	(0)	(0)	(1)	(1)	(1)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	62.1	54.8	54.8	54.8	57.3	57.3	59.1	59.6	59.6	63.2
MdxT	9.8	9.8	-113.5	-12.2	-10.6	118.6	22.7	-123.5	-20.4	-11.5
MdyT	600.3	252.0	-190.7	-376.2	-39.9	106.8	-49.1	117.7	117.7	-534.4
COMB	(2)	(3)	(3)	(3)	(4)	(4)	(9)	(5)	(5)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	63.2	63.2	51.1	51.1	51.1	55.2	59.1	55.0	55.0	60.1
MdxT	130.8	16.8	15.5	-105.8	-19.6	132.1	-142.1	.6	113.9	-7.1
MdyT	411.7	916.0	450.4	-306.0	-708.0	95.5	113.5	-21.3	108.2	-327.6
COMB	(6)	(6)	(7)	(7)	(7)	(8)	(9)	(10)	(10)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	60.1	60.1	52.8	52.8	52.8	55.2	57.1	57.6	61.1	61.1
MdxT	124.3	10.4	9.1	-109.3	-11.6	114.3	22.0	-119.2	-12.2	126.6
MdyT	297.8	594.6	264.6	-186.7	-382.1	101.1	-36.7	111.9	-521.9	410.8
COMB	(11)	(11)	(12)	(12)	(12)	(13)	(18)	(14)	(15)	(15)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	61.1	49.1	49.1	49.1	53.1	57.1	63.2	63.2	63.2	63.2
MdxT	17.4	14.8	-101.5	-19.0	130.4	-138.3	209.8	-209.8	-209.8	209.8
MdyT	910.3	462.8	-302.2	-714.1	89.5	107.5	134.1	134.1	-134.1	-134.1
COMB	(15)	(16)	(16)	(16)	(17)	(18)	(0)	(0)	(0)	(0)

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	46.4	46.4	46.4	46.4	38.8	38.8	38.8	46.4	46.4	46.4
MdxT	186.7	-186.7	.0	.0	-28.1	-80.2	26.7	-41.3	-108.5	38.5
MdyT	.0	.0	139.1	-139.1	8.4	-53.6	-53.6	-403.6	-197.8	249.9
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(6)	(6)	(6)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	42.6	42.6	42.6	43.6	43.6	44.9	44.9	40.8	40.8	40.8
MdxT	-16.5	88.2	16.7	-104.2	37.5	-12.9	93.0	-7.8	84.4	8.1
MdyT	195.7	94.1	-186.1	-28.7	-28.7	-34.0	-34.0	344.5	139.0	-291.8
COMB	(3)	(3)	(3)	(4)	(4)	(5)	(5)	(7)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	42.5	42.6	44.3	44.6	41.0	40.6	44.0	44.3	44.3	40.6
MdxT	-114.1	88.2	-40.0	92.4	-84.8	84.0	-35.3	-104.6	38.4	-15.3
MdyT	-29.8	-54.6	-420.8	-37.5	-44.4	-87.4	-271.6	-204.7	252.6	178.5
COMB	(8)	(18)	(15)	(9)	(10)	(12)	(11)	(15)	(15)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	40.6	41.6	41.6	42.9	42.9	38.8	38.8	38.8	40.5	42.6
MdxT	16.4	-100.4	37.2	-11.6	88.8	-6.6	80.2	8.0	-110.4	-.7
MdyT	-183.4	-41.9	-25.9	-51.4	-51.4	327.5	131.0	-289.2	-38.8	-54.6
COMB	(12)	(13)	(13)	(14)	(14)	(16)	(16)	(16)	(17)	(18)
CARR	41	42	43	44						
FdzT	46.4	46.4	46.4	46.4						
MdxT	132.0	-132.0	-132.0	132.0						
MdyT	98.3	98.3	-98.3	-98.3						
COMB	(0)	(0)	(0)	(0)						

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	30.4	30.4	30.0	30.4	30.4	25.2	25.2	25.2	30.4	30.2
MdxT	122.4	-122.4	.0	.0	.0	-14.7	-52.2	-9.4	-62.9	-1.7
MdyT	.0	.0	390.2	91.2	-91.2	191.5	-80.3	-200.8	-73.3	285.9
COMB	(0)	(0)	(7)	(0)	(0)	(1)	(1)	(1)	(5)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	30.2	30.0	30.0	30.1	30.4	30.4	30.0	30.3	30.3	30.3
MdxT	-62.6	-17.2	-62.2	-62.2	3.1	-21.0	-62.2	8.0	-66.6	-24.4
MdyT	114.4	-308.7	156.1	-74.5	123.8	-143.9	-108.2	120.3	-70.4	-136.9
COMB	(3)	(7)	(7)	(4)	(5)	(5)	(6)	(9)	(9)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	27.8	27.8	27.8	28.6	28.5	28.4	28.6	28.5	28.8	28.8
MdxT	-21.4	-59.5	-5.3	-59.3	-66.4	-11.2	-14.1	-25.2	-59.6	-15.0
MdyT	370.4	148.2	-270.8	193.3	138.7	-389.6	483.1	330.8	136.9	-225.5
COMB	(10)	(10)	(10)	(12)	(13)	(16)	(12)	(13)	(14)	(14)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	28.4	28.4	28.2	28.2	28.2	28.7	30.4	30.4	30.4	30.4
MdxT	-12.3	-58.9	-30.8	-74.9	3.1	-18.2	86.5	-86.5	-86.5	86.5
MdyT	586.0	234.4	332.6	140.1	-233.2	-217.8	64.5	64.5	-64.5	-64.5
COMB	(16)	(16)	(17)	(17)	(17)	(18)	(0)	(0)	(0)	(0)

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LANCE: 1
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	54.0	54.0	54.0	54.0	47.0	47.2	52.2	52.2	42.7	47.0
MdxT	111.8	-111.8	.0	.0	-32.5	25.5	-33.2	82.0	-31.4	25.6
MdyT	.0	.0	162.0	-162.0	-64.1	12.2	-45.6	-45.6	27.3	-36.8
COMB	(0)	(0)	(0)	(0)	(4)	(10)	(2)	(2)	(3)	(4)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	47.9	47.9	54.0	54.0	54.0	38.2	45.3	45.3	46.9	46.9
MdxT	-31.9	25.1	-79.1	102.5	118.7	-69.9	-32.5	24.9	-31.6	23.9
MdyT	57.4	57.4	-114.6	-70.0	-9.0	51.1	-100.9	-68.7	88.2	88.2
COMB	(5)	(5)	(0)	(6)	(6)	(7)	(8)	(8)	(9)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	52.1	52.1	42.6	46.9	47.9	47.9	53.9	53.9	38.1	45.2
MdxT	-32.8	81.8	-31.6	-32.1	-31.6	24.8	-33.3	102.3	-70.1	-32.1
MdyT	-49.1	-49.1	23.8	-67.8	57.5	57.5	-73.4	-73.4	47.7	-104.3
COMB	(11)	(11)	(12)	(13)	(14)	(14)	(15)	(15)	(16)	(17)
CARR	31	32	33	34	35					
FdzT	46.8	46.8	54.0	54.0	54.0					
MdxT	-31.2	23.5	79.1	-79.1	79.1					
MdyT	88.3	88.3	114.6	114.6	-114.6					
COMB	(18)	(18)	(0)	(0)	(0)					

LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	47.2	47.2	41.1	47.2	47.2	41.1	40.8	45.7	45.7	37.2
MdxT	221.5	-221.5	.0	.0	.0	85.0	84.5	-44.2	172.6	39.2
MdyT	.0	.0	-22.1	141.5	-141.5	-22.1	94.3	10.8	-38.9	-56.3
COMB	(0)	(0)	(1)	(0)	(0)	(1)	(9)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	37.2	37.2	41.1	41.1	41.9	41.9	47.2	47.2	33.1	33.1
MdxT	120.6	-32.5	-2.8	85.0	-2.4	86.7	-156.6	219.0	66.6	152.8
MdyT	58.2	58.2	31.9	-74.9	-77.3	94.4	100.1	-71.5	-76.4	89.9
COMB	(3)	(3)	(4)	(4)	(5)	(5)	(0)	(6)	(7)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	33.1	39.4	39.4	39.4	40.8	40.8	41.3	41.3	45.7	45.7
MdxT	-65.2	-3.1	81.8	15.7	-2.4	15.3	85.5	14.7	-43.1	171.7
MdyT	89.9	70.1	-98.3	-131.7	-111.6	149.9	-20.6	9.5	12.9	-39.9
COMB	(7)	(8)	(8)	(8)	(9)	(9)	(10)	(10)	(11)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	37.2	37.2	37.2	41.0	41.0	47.1	47.1	33.0	33.0	33.0
MdxT	40.3	122.3	-32.9	-1.7	84.9	-71.0	218.3	67.8	154.3	-65.7
MdyT	-54.3	57.3	57.3	33.9	-76.0	36.8	-72.5	-74.6	89.0	89.0
COMB	(12)	(12)	(12)	(13)	(13)	(15)	(15)	(16)	(16)	(16)
CARR	41	42	43	44	45	46				
FdzT	39.4	39.4	40.8	47.2	47.2	47.2				
MdxT	-2.1	15.1	84.4	156.6	-156.6	156.6				
MdyT	72.1	-132.7	94.5	100.1	-100.1	-100.1				
COMB	(17)	(17)	(18)	(0)	(0)	(0)				

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	32.1	32.1	32.1	32.1	28.9	28.9	28.9	31.5	31.5	31.5
MdxT	129.3	-129.3	.0	.0	17.6	-59.8	-20.2	-39.9	-91.9	33.2
MdyT	.0	.0	96.4	-96.4	205.5	92.3	-164.1	244.9	103.8	-202.3
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	26.8	26.8	26.7	28.8	28.8	28.8	29.4	29.4	29.4	32.1
MdxT	62.2	-79.5	-63.7	10.5	-59.6	-15.3	11.8	-60.9	-16.2	-74.8
MdyT	142.4	72.2	-113.4	269.2	107.7	-226.2	118.0	70.3	-89.6	266.3
COMB	(3)	(3)	(12)	(4)	(4)	(13)	(5)	(5)	(14)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	32.1	32.1	24.3	24.2	27.7	27.7	27.7	29.1	29.1	26.7
MdxT	-100.1	65.9	94.8	-94.4	9.0	-57.3	-14.0	-60.2	-19.5	63.6
MdyT	110.1	-220.5	96.0	-72.8	307.0	122.8	-260.4	91.1	-164.4	140.7
COMB	(6)	(6)	(7)	(16)	(8)	(8)	(17)	(10)	(10)	(12)
CARR	31	32	33	34	35	36	37	38	39	
FdzT	26.7	28.8	29.4	32.1	24.2	27.7	32.1	32.1	32.1	
MdxT	-79.6	12.0	13.2	64.8	96.2	10.5	91.5	-91.5	91.5	
MdyT	71.2	267.7	116.3	-220.6	94.5	305.6	68.1	-68.1	-68.1	
COMB	(12)	(13)	(14)	(15)	(16)	(17)	(0)	(0)	(0)	

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	15.9	17.3	17.3	17.3	17.3	16.0	16.0	16.0	17.1	17.1
MdxT	51.0	70.9	-70.9	.0	.0	58.1	58.1	-54.0	25.1	-56.8
MdyT	.0	.0	.0	51.9	-51.9	-64.4	63.0	115.9	-51.1	67.5
COMB	(13)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	17.1	15.1	15.1	15.1	16.0	16.3	16.3	16.3	17.3	17.3
MdxT	-25.6	74.6	30.4	-67.2	54.4	50.4	55.0	-46.9	50.2	-35.8
MdyT	112.4	-93.0	55.7	124.5	67.6	-129.5	60.4	151.1	-36.7	69.2
COMB	(2)	(3)	(3)	(3)	(9)	(5)	(5)	(5)	(0)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	17.3	14.1	14.1	14.1	15.3	15.3	16.0	16.0	17.1	17.1
MdxT	-9.8	89.6	35.8	-79.0	52.0	-43.7	49.3	-45.1	26.7	-59.0
MdyT	104.7	-105.6	49.8	124.6	54.6	60.3	-166.5	169.0	-36.4	65.9
COMB	(6)	(7)	(7)	(7)	(8)	(8)	(9)	(9)	(11)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	17.1	15.1	15.1	15.1	16.3	16.3	16.3	17.3	17.3	14.1
MdxT	-27.2	76.3	30.9	-68.6	51.9	55.5	-48.3	8.7	-11.2	91.1
MdyT	100.0	-78.3	54.1	112.0	-114.8	56.8	138.6	-21.0	92.1	-90.6
COMB	(11)	(12)	(12)	(12)	(14)	(14)	(14)	(15)	(15)	(16)

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CARR	41	42	43	44	45	46	47	48	49
FdzT	14.1	14.1	15.3	15.3	16.0	16.0	17.3	17.3	17.3
MdxT	36.5	-80.4	52.5	-45.1	50.8	-46.5	50.2	-50.2	-50.2
MdyT	47.9	112.0	47.1	47.7	-151.5	156.4	36.7	36.7	-36.7
COMB	(16)	(16)	(17)	(17)	(18)	(18)	(0)	(0)	(0)

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	7.4	7.4	7.4	7.4	7.0	7.0	7.4	7.4	6.7	6.6
MdxT	15.4	-15.4	.0	.0	-30.8	-10.9	-63.0	13.0	-10.1	-22.6
MdyT	.0	.0	22.3	-22.3	-201.9	1.1	-197.1	12.3	-203.6	-128.3
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(2)	(2)	(3)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	6.7	6.9	6.9	7.2	7.2	7.3	7.3	6.1	6.0	6.1
MdxT	-27.2	-37.0	-9.7	-36.0	-7.4	-76.9	24.2	11.1	-26.4	-42.6
MdyT	8.8	-184.4	12.7	-216.3	13.4	-184.0	11.1	-194.7	-123.3	5.3
COMB	(3)	(4)	(9)	(5)	(5)	(6)	(6)	(7)	(16)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	6.5	6.5	6.9	7.0	6.6	7.1	6.0	6.0	6.9	7.4
MdxT	-33.7	-8.7	-32.1	-31.1	-28.6	-8.8	12.7	-44.1	-11.1	10.9
MdyT	-162.8	3.6	-215.9	-200.3	2.8	7.4	-193.5	-.8	6.6	15.8
COMB	(8)	(8)	(9)	(10)	(12)	(14)	(16)	(16)	(18)	(0)
CARR	31	32								
FdzT	7.4	7.4								
MdxT	-10.9	10.9								
MdyT	15.8	-15.8								
COMB	(0)	(0)								

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LANCE: 1
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	54.2	54.2	54.2	54.2	46.2	46.2	52.0	52.0	41.4	47.2
MdxT	112.2	-112.2	.0	.0	-32.8	25.3	-33.2	83.4	-33.5	-32.1
MdyT	.0	.0	162.7	-162.7	80.6	-.8	-4.1	-12.5	57.0	-44.8
COMB	(0)	(0)	(0)	(0)	(5)	(1)	(2)	(2)	(12)	(4)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	47.2	46.2	54.2	54.2	54.2	36.6	46.2	46.2	44.5	44.5
MdxT	25.3	24.8	-79.4	104.1	121.1	-73.2	-31.6	24.5	-32.8	23.7
MdyT	-44.8	50.0	-115.0	-24.6	-23.0	75.6	-76.7	-76.7	115.9	81.2
COMB	(4)	(5)	(0)	(6)	(6)	(16)	(8)	(8)	(9)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	52.0	41.4	47.2	47.2	46.2	54.2	36.6	46.3	46.3	44.6
MdxT	83.2	-31.5	-31.8	25.1	-32.3	121.0	-30.9	-31.4	24.4	-32.3
MdyT	-13.7	57.0	-46.1	-46.1	82.0	-24.1	75.6	-77.8	-77.8	117.5
COMB	(11)	(12)	(13)	(13)	(14)	(15)	(16)	(17)	(17)	(18)
CARR	31	32	33							
FdzT	54.2	54.2	54.2							
MdxT	79.4	-79.4	79.4							
MdyT	115.0	115.0	-115.0							
COMB	(0)	(0)	(0)							

LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	47.3	47.3	40.4	38.8	47.3	47.3	40.6	40.3	45.4	45.4
MdxT	222.2	-222.2	.0	.0	.0	.0	84.1	14.8	-44.4	173.6
MdyT	.0	.0	-114.1	-146.2	142.0	-142.0	-58.1	100.0	-37.8	-37.8
COMB	(0)	(0)	(14)	(18)	(0)	(0)	(10)	(5)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	36.0	36.0	41.2	41.2	40.3	40.3	47.3	47.3	31.6	31.7
MdxT	122.1	-34.6	-1.8	85.4	-1.3	83.4	-157.1	221.5	69.6	114.3
MdyT	-84.6	59.9	-6.6	-71.1	-115.8	-115.8	-100.4	-61.7	-95.6	-94.1
COMB	(3)	(3)	(4)	(13)	(5)	(5)	(0)	(15)	(7)	(16)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	31.6	40.2	40.2	38.7	38.7	38.7	36.1	36.1	40.4	31.7
MdxT	-68.5	-2.2	15.8	-1.3	80.1	14.0	123.7	-35.0	83.5	70.6
MdyT	88.1	34.2	-126.7	-147.6	80.3	154.8	-82.9	58.0	-114.1	-94.1
COMB	(7)	(8)	(8)	(9)	(9)	(9)	(12)	(12)	(14)	(16)
CARR	31	32	33	34	35	36	37			
FdzT	31.7	40.2	40.2	38.8	47.3	47.3	47.3			
MdxT	-68.7	-1.3	15.4	80.2	157.1	-157.1	157.1			
MdyT	86.1	35.6	-128.5	79.8	100.4	100.4	-100.4			
COMB	(16)	(17)	(17)	(18)	(0)	(0)	(0)			

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	31.9	31.9	31.9	31.9	28.0	28.0	28.0	30.9	30.9	30.9
MdxT	128.3	-128.3	.0	.0	12.0	-58.1	-18.1	-46.6	-100.9	36.4
MdyT	.0	.0	95.6	-95.6	101.1	72.5	-54.5	138.7	87.2	-82.7
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	25.7	25.7	25.7	28.6	28.6	28.6	31.8	31.8	31.8	23.1
MdxT	58.8	-79.0	-62.6	5.9	-59.2	-12.9	-82.3	-103.3	70.3	93.0
MdyT	60.2	60.2	-24.8	175.6	90.7	-122.4	158.8	94.5	-97.3	28.3
COMB	(3)	(3)	(3)	(4)	(4)	(4)	(6)	(6)	(6)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	23.1	23.1	27.9	27.9	27.9	27.0	27.0	25.8	25.8	25.8
MdxT	-38.6	-94.5	5.0	-57.8	-11.8	6.9	-55.9	60.2	-79.2	-63.6
MdyT	28.3	-1.0	220.4	100.4	-163.4	-37.1	67.2	56.1	56.1	-22.5
COMB	(7)	(7)	(8)	(8)	(8)	(18)	(18)	(12)	(12)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	28.7	28.7	28.7	28.1	23.2	23.2	23.2	28.0	28.0	28.0
MdxT	7.3	-59.4	-13.9	-58.1	94.4	-38.7	-95.5	6.3	-58.0	-12.9
MdyT	171.6	89.3	-120.3	19.3	24.4	24.4	1.3	216.3	98.9	-161.3

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COMB	(13)	(13)	(13)	(14)	(16)	(16)	(16)	(17)	(17)	(17)
CARR	41	42	43							
FdzT	31.9	31.9	31.9							
MdxT	90.7	-90.7	90.7							
MdyT	67.6	-67.6	-67.6							
COMB	(0)	(0)	(0)							

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	17.6	17.6	17.6	17.6	16.0	16.0	16.0	17.2	17.2	17.2
MdxT	72.2	-72.2	.0	.0	56.6	58.6	-48.4	24.4	55.2	-21.1
MdyT	.0	.0	52.8	-52.8	-191.4	83.5	208.7	-159.9	77.2	193.1
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	15.1	15.1	16.2	16.2	16.2	15.9	15.9	17.3	17.3	17.3
MdxT	74.1	-61.9	56.0	59.0	-47.7	48.7	-40.9	25.9	57.5	-22.3
MdyT	-193.6	193.2	-192.8	82.2	205.4	-234.2	225.8	-159.5	75.7	189.1
COMB	(3)	(3)	(10)	(10)	(10)	(5)	(5)	(11)	(11)	(11)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	14.0	14.0	15.4	15.4	15.4	15.2	15.2	16.4	16.4	16.4
MdxT	89.0	-73.8	47.0	54.5	-38.8	75.5	-63.1	51.2	58.1	-43.3
MdyT	-199.2	185.5	-267.0	-106.8	240.0	-193.2	189.3	-118.9	66.1	156.5
COMB	(7)	(7)	(9)	(9)	(9)	(12)	(12)	(13)	(13)	(13)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	16.1	16.1	16.1	17.6	17.6	17.6	14.1	14.1	15.5	15.5
MdxT	50.1	56.8	-42.1	8.0	36.4	-7.0	90.6	-74.9	48.4	55.3
MdyT	-233.8	-93.5	221.9	-142.8	72.8	181.3	-198.8	181.6	-266.4	-106.6
COMB	(14)	(14)	(14)	(15)	(15)	(15)	(16)	(16)	(18)	(18)
CARR	41	42	43	44	45					
FdzT	15.5	17.6	17.6	17.6	17.6					
MdxT	-40.0	51.0	-51.0	-51.0	51.0					
MdyT	236.0	37.3	37.3	-37.3	-37.3					
COMB	(18)	(0)	(0)	(0)	(0)					

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	7.1	7.1	7.1	7.1	6.5	6.5	7.1	7.1	6.2	6.2
MdxT	14.6	-14.6	.0	.0	-30.2	-16.7	-60.9	6.9	-8.7	-25.2
MdyT	.0	.0	21.2	-21.2	176.8	-29.1	163.1	-39.2	156.8	87.8
COMB	(0)	(0)	(0)	(0)	(8)	(1)	(2)	(2)	(3)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	6.2	6.8	6.8	6.5	6.5	7.0	7.0	5.6	5.6	5.6
MdxT	-32.8	-34.3	-13.3	-35.3	-15.4	-74.6	18.1	13.3	-28.3	-47.7
MdyT	-45.9	176.0	-46.5	143.9	-45.6	155.4	-33.5	145.3	80.4	-44.8
COMB	(3)	(4)	(4)	(5)	(8)	(6)	(6)	(16)	(16)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	6.1	6.1	6.6	7.0	6.2	6.2	6.7	6.7	6.5	7.0
MdxT	-31.9	-14.3	-30.2	-59.9	-7.7	-33.5	-33.3	-14.0	-34.3	-73.6
MdyT	123.3	-32.6	158.1	163.5	157.2	-34.9	176.5	-35.4	144.3	155.8
COMB	(9)	(9)	(10)	(11)	(12)	(12)	(13)	(13)	(14)	(15)
CARR	31	32	33	34	35	36	37			
FdzT	5.6	6.5	6.5	6.1	6.1	7.1	7.1			
MdxT	-48.4	-29.4	-16.1	-31.1	-15.1	10.3	-10.3			
MdyT	-33.7	177.4	-34.6	123.8	-21.6	15.0	-15.0			
COMB	(16)	(17)	(17)	(18)	(18)	(0)	(0)			

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	61.5	61.5	61.5	60.6	61.5	50.7	50.7	50.7	59.6	59.6
MdxT	289.0	-289.0	.0	.0	.0	8.0	105.0	-2.7	4.1	123.3
MdyT	.0	.0	-587.2	-576.0	184.6	-39.6	113.5	113.5	-376.0	308.5
COMB	(0)	(0)	(6)	(15)	(0)	(1)	(1)	(1)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	59.6	49.6	49.6	49.6	55.4	55.4	53.8	53.8	53.8	61.5
MdxT	5.9	13.0	102.7	-12.2	-3.9	114.7	21.0	-113.7	-22.4	127.4
MdyT	645.7	269.1	-204.7	-421.4	-58.9	122.6	-48.0	102.1	102.1	433.6
COMB	(2)	(3)	(3)	(3)	(4)	(4)	(5)	(5)	(5)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	61.5	45.0	45.0	45.0	54.6	54.6	51.9	51.9	52.8	52.6
MdxT	12.3	15.0	-93.4	-17.9	-13.2	128.7	28.1	-135.0	20.7	108.8
MdyT	991.1	485.4	-329.9	-783.4	-59.8	121.7	-41.9	87.5	-36.8	111.9
COMB	(6)	(7)	(7)	(7)	(8)	(8)	(9)	(9)	(14)	(10)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	52.6	58.6	58.6	58.6	48.7	48.7	48.7	52.8	60.6	60.6
MdxT	-2.8	3.8	121.4	6.2	12.7	100.7	-11.9	-112.0	125.4	12.6
MdyT	111.9	-364.7	309.6	641.9	280.3	-201.4	-425.2	98.4	434.6	987.1
COMB	(10)	(11)	(11)	(11)	(12)	(12)	(12)	(14)	(15)	(15)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	44.0	44.0	44.0	53.7	53.7	53.7	50.9	50.9	61.5	61.5
MdxT	14.8	-91.7	-17.6	-13.3	127.7	29.5	28.0	-133.2	204.3	-204.3
MdyT	496.6	-326.7	-787.5	-48.7	117.6	117.6	-30.7	83.4	130.5	130.5
COMB	(16)	(16)	(16)	(17)	(17)	(17)	(18)	(18)	(0)	(0)
CARR	51	52								
FdzT	61.5	61.5								
MdxT	-204.3	204.3								
MdyT	-130.5	-130.5								
COMB	(0)	(0)								

LANCE: 3

CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	43.7	43.7	35.9	43.7	43.7	36.8	36.8	42.8	42.9	42.8
MdxT	175.9	-175.9	.0	.0	.0	-76.2	5.9	-19.9	-88.8	11.2
MdyT	.0	.0	-304.1	131.1	-131.1	-40.0	-18.6	-520.0	-171.3	326.3
COMB	(0)	(0)	(7)	(0)	(0)	(1)	(1)	(15)	(2)	(15)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	38.2	38.2	38.2	41.0	41.0	40.1	40.1	40.1	43.7	43.7
MdxT	-6.3	-79.2	2.2	-84.9	17.8	2.0	-83.1	-6.2	-21.0	-90.4
MdyT	184.4	84.7	-179.5	-79.1	13.2	-67.9	-99.7	4.6	-499.5	-223.1
COMB	(3)	(3)	(3)	(4)	(4)	(5)	(13)	(5)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	43.7	35.9	35.9	40.6	40.6	39.0	39.2	39.0	38.7	42.0
MdxT	11.8	-2.4	-74.4	-92.6	25.8	11.3	-81.1	-14.1	-80.1	-16.4
MdyT	322.6	357.8	143.1	-80.2	16.4	-61.6	-88.5	2.2	-66.8	-351.8
COMB	(6)	(7)	(7)	(8)	(8)	(9)	(14)	(9)	(10)	(11)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	42.0	42.0	37.3	37.3	37.3	40.1	40.1	39.2	39.2	42.8
MdxT	-86.9	8.7	-5.2	-77.3	1.5	-24.6	17.1	3.1	-6.9	-88.6
MdyT	-181.0	201.2	163.8	-84.7	-175.7	-99.7	16.9	-88.5	8.4	-232.8
COMB	(11)	(11)	(12)	(12)	(12)	(13)	(13)	(14)	(14)	(15)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	35.0	35.0	35.0	39.7	39.7	38.1	38.1	43.7	43.7	43.7
MdxT	-1.3	-72.5	-.8	-90.0	25.1	12.5	-78.9	124.4	-124.4	-124.4
MdyT	337.5	135.0	-300.4	-100.7	20.0	-82.0	-82.0	92.7	92.7	-92.7
COMB	(16)	(16)	(16)	(17)	(17)	(18)	(18)	(0)	(0)	(0)
CARR	51									
FdzT	43.7									
MdxT	124.4									
MdyT	-92.7									
COMB	(0)									

LANCE: 4

CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	27.1	27.1	27.1	27.1	23.7	23.7	23.7	27.1	27.1	26.6
MdxT	109.0	-109.0	.0	.0	44.7	89.6	-38.2	77.1	-77.1	33.6
MdyT	.0	.0	81.2	-81.2	205.2	83.0	-171.5	-57.4	-57.4	415.8
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(0)	(0)	(7)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	26.6	26.9	27.1	26.8	26.6	26.8	27.0	27.0	26.6	26.6
MdxT	77.5	-30.7	-63.5	39.8	92.8	-37.4	27.9	-71.8	-29.4	-40.5
MdyT	167.8	-219.1	65.9	140.6	70.3	-119.7	-141.3	-96.4	-284.2	-118.6
COMB	(7)	(3)	(4)	(5)	(9)	(5)	(6)	(6)	(7)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	25.9	25.9	25.9	26.6	26.1	26.1	26.4	26.6	26.1	26.1
MdxT	36.5	81.0	-35.0	-72.7	33.5	76.8	-30.4	-62.4	44.2	92.0
MdyT	400.5	173.5	-244.7	103.2	633.1	262.9	-306.3	161.8	360.2	165.4
COMB	(10)	(10)	(10)	(11)	(16)	(16)	(12)	(13)	(18)	(18)
CARR	31	32	33	34	35					
FdzT	26.4	26.1	26.1	27.1	27.1					
MdxT	-37.0	-29.1	-40.2	77.1	-77.1					
MdyT	-206.9	-370.7	-205.1	57.4	57.4					
COMB	(14)	(16)	(18)	(0)	(0)					

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LANCE: 2

CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	58.3	58.3	58.3	58.3	58.3	57.9	58.1	56.1	56.7	56.1
MdxT	201.5	-201.5	.0	.0	-249.6	-166.9	226.1	27.7	-340.2	-226.8
MdyT	.0	.0	174.9	-174.9	723.0	335.7	-470.7	600.5	740.3	-231.7
COMB	(0)	(0)	(0)	(0)	(12)	(1)	(3)	(2)	(16)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	56.7	56.7	56.5	57.7	57.5	53.3	53.3	53.3	56.7	54.5
MdxT	-119.0	-174.6	380.2	-102.9	-19.5	118.0	-227.9	-373.2	153.6	-130.6
MdyT	556.5	344.0	-537.2	766.9	-557.2	539.1	331.3	-140.1	297.4	469.8
COMB	(4)	(4)	(7)	(14)	(5)	(6)	(6)	(6)	(16)	(17)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	54.5	54.5	55.7	55.7	55.5	56.4	58.3	53.5	53.5	56.7
MdxT	-188.1	39.1	-96.0	-144.7	-28.1	23.1	229.7	113.4	-227.7	383.9
MdyT	347.3	4.6	813.5	325.4	-681.5	604.4	-470.3	543.2	334.1	-537.0
COMB	(17)	(17)	(18)	(18)	(9)	(11)	(12)	(15)	(15)	(16)
CARR	31	32								
FdzT	58.3	58.3								
MdxT	142.5	-142.5								
MdyT	123.6	-123.6								
COMB	(0)	(0)								

LANCE: 3

CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	28.3	28.3	28.3	28.3	28.3	28.3	27.7	27.6	28.3	28.2
MdxT	91.8	-91.8	.0	.0	-444.9	355.9	-355.7	291.1	-514.5	399.8
MdyT	.0	.0	84.9	-84.9	1337.1	-994.1	1218.7	-884.0	1325.9	-968.4
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(11)	(2)	(12)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	27.9	27.7	26.0	25.9	27.0	26.9	26.3	26.2	26.8	26.6
MdxT	-443.8	353.6	-278.2	240.7	-542.2	421.7	-424.6	344.8	-395.8	317.5
MdyT	1186.9	-859.9	1114.7	-823.2	1293.0	-963.5	1061.6	-783.0	1346.0	-1003.5
COMB	(13)	(4)	(15)	(6)	(16)	(7)	(17)	(8)	(18)	(9)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	28.3	28.3	27.7	28.3	27.9	28.1	28.1	26.0	27.0	26.3
MdxT	-442.1	351.5	290.6	399.4	353.2	-426.4	336.8	240.5	421.4	344.5
MdyT	1344.1	-999.2	-904.3	-988.7	-880.2	1357.7	-1012.8	-842.4	-982.8	-802.3
COMB	(10)	(10)	(11)	(12)	(13)	(14)	(14)	(15)	(16)	(17)
CARR	31	32	33							

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FdzT        26.8        28.3        28.3
MdxT       317.4        64.9       -64.9
MdyT     -1022.8        60.0       -60.0
COMB       ( 18 )      (  0 )      (  0 )
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LANCE:  2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1           2           3           4           5           6           7           8           9          10
FdzT      118.0       118.0       118.0       118.0       107.4       107.4       111.0       111.4       111.0       118.0
MdxT      527.6      -527.6         .0          .0      -222.3        16.7       -42.7      -230.5        27.7       -24.9
MdyT         .0          .0       354.0      -354.0      -232.8       213.2      -462.6       348.7       640.5       274.5
COMB      (  0 )      (  0 )      (  0 )      (  0 )      (  1 )      (  1 )      (  2 )      ( 11 )      (  2 )      ( 12 )
CARR         11          12          13          14          15          16          17          18          19          20
FdzT      117.6       118.0       115.8       114.9       114.9       113.7       113.7       113.7       104.8       105.1
MdxT     -243.5         3.9      -239.8      -237.9        36.5       -16.1      -235.3        -6.3       -48.6      -217.6
MdyT     -285.2      -363.2      -372.9       162.1       162.1      -183.0       193.1       193.1      -645.3       444.6
COMB      (  3 )      ( 12 )      (  7 )      (  4 )      (  4 )      (  5 )      (  5 )      (  5 )      (  6 )      ( 15 )
CARR         21          22          23          24          25          26          27          28          29          30
FdzT      104.8       116.2       115.8       111.4       111.4       109.2       109.2       112.0       111.4       111.4
MdxT       35.7       -17.6        -5.9      -238.0        50.7        -4.3      -226.1      -231.9       -44.8        29.0
MdyT      936.3       468.7      -603.5      -144.6       140.3      -180.2       191.8       125.7      -306.2       562.5
COMB      (  6 )      ( 16 )      (  7 )      (  8 )      (  8 )      (  9 )      (  9 )      ( 10 )      ( 11 )      ( 11 )
CARR         31          32          33          34          35          36          37          38          39          40
FdzT      118.0       115.3       115.3       114.0       105.1       105.1       116.2       116.2       111.7       111.7
MdxT     -373.1      -238.7        37.8       -18.1       -50.7        37.0      -240.5        -4.8      -242.2        51.8
MdyT     -250.3        84.1        84.1       -26.6      -497.1       862.1      -358.6      -677.7        66.1        66.1
COMB      (  0 )      ( 13 )      ( 13 )      ( 14 )      ( 15 )      ( 15 )      ( 16 )      ( 16 )      ( 17 )      ( 17 )
CARR         41          42          43          44          45
FdzT      109.6       109.6       118.0       118.0       118.0
MdxT       -6.3      -226.9       373.1      -373.1       373.1
MdyT      -32.1       117.6       250.3       250.3      -250.3
COMB      ( 18 )      ( 18 )      (  0 )      (  0 )      (  0 )

LANCE:  3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1           2           3           4           5           6           7           8           9          10
FdzT       74.3        74.3        74.3        74.3        69.8        69.0        69.0        70.1        69.7        70.1
MdxT      299.0      -299.0         .0          .0      -142.0      -247.4       106.1      -128.7      -275.1       115.4
MdyT         .0          .0       222.8      -222.8       285.7       216.9        14.4        -2.4       210.3       129.8
COMB      (  0 )      (  0 )      (  0 )      (  0 )      ( 17 )      (  1 )      (  1 )      (  2 )      (  8 )      (  2 )
CARR         11          12          13          14          15          16          17          18          19          20
FdzT       74.3        74.1        74.3        72.7        72.3        72.4        66.0        66.0        66.0        72.9
MdxT     -106.0      -231.2        94.8      -207.9      -271.5       123.5      -129.9      -256.9       117.5       -91.0
MdyT      541.8       300.9      -377.9       344.0       220.3      -207.5      -189.0       156.5       254.8       691.3
COMB      ( 12 )      (  3 )      ( 12 )      (  7 )      (  4 )      ( 13 )      (  6 )      (  6 )      (  6 )      ( 16 )
CARR         21          22          23          24          25          26          27          28          29          30
FdzT       72.9        69.8        70.8        70.8        70.8        74.3        72.4        66.1        66.1        72.9
MdxT       81.8       129.6      -121.2      -251.3       109.2      -234.0      -273.9      -259.5       119.7      -210.7
MdyT     -486.4      -203.1       260.4       181.8      -148.5       263.1       182.6      -159.9       119.7       307.7
COMB      ( 16 )      ( 17 )      ( 10 )      ( 10 )      ( 10 )      ( 12 )      ( 13 )      ( 15 )      ( 15 )      ( 16 )
CARR         31          32          33          34
FdzT       69.8        74.3        74.3        74.3
MdxT     -277.7       211.5      -211.5       211.5
MdyT      174.0       157.6      -157.6      -157.6
COMB      ( 17 )      (  0 )      (  0 )      (  0 )

LANCE:  4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1           2           3           4           5           6           7           8           9          10
FdzT       22.1        22.1        22.1        22.1        18.7        18.7        18.7        19.8        19.8        19.8
MdxT       89.0       -89.0         .0          .0        11.2        58.6        26.5        19.2        52.3        21.4
MdyT         .0          .0        66.3       -66.3       148.3      -225.4      -437.1        21.4      -204.2      -315.0
COMB      (  0 )      (  0 )      (  0 )      (  0 )      (  1 )      (  1 )      (  1 )      (  2 )      (  2 )      (  2 )
CARR         11          12          13          14          15          16          17          18          19          20
FdzT       21.3        21.3        21.3        20.5        20.5        20.5        20.6        20.6        19.2        19.2
MdxT       28.0        63.7        15.1        12.6        63.2        28.3        34.9        72.5        50.8        20.9
MdyT      437.1      -253.7      -634.3       304.4      -218.8      -485.5       215.6      -216.8      -160.7      -185.5
COMB      (  3 )      (  3 )      (  3 )      ( 10 )      (  4 )      (  4 )      (  5 )      (  5 )      (  6 )      (  6 )
CARR         21          22          23          24          25          26          27          28          29          30
FdzT       21.8        21.8        21.8        20.4        20.4        20.5        20.5        20.5        20.1        20.1
MdxT       31.4        69.0        10.5         5.5        32.3        42.7        82.4        -.8        18.2        56.2
MdyT      568.3      -286.9      -717.4       245.1      -469.4       199.6      -204.9      -433.4       158.1      -168.4
COMB      (  7 )      (  7 )      (  7 )      (  8 )      (  8 )      (  9 )      (  9 )      (  9 )      ( 11 )      ( 11 )
CARR         31          32          33          34          35          36          37          38          39          40
FdzT       20.1        21.7        21.7        20.9        20.9        20.9        20.9        20.9        19.5        19.5
MdxT       23.8        27.0        17.6        11.3        67.0        30.7        33.7        71.4        16.0        54.6
MdyT     -345.8       573.7      -665.1       379.5      -206.5      -516.3       352.2      -197.8        14.7      -148.4
COMB      ( 11 )      ( 12 )      ( 12 )      ( 13 )      ( 13 )      ( 13 )      ( 14 )      ( 14 )      ( 15 )      ( 15 )
CARR         41          42          43          44          45          46          47          48          49          50
FdzT       19.5        22.1        22.1        22.1        20.7        20.7        20.9        20.9        22.1        22.1
MdxT       23.1        30.7        68.4        12.7         4.8        34.6        41.9        82.3        62.9       -62.9
MdyT     -218.0       706.3      -299.9      -749.7       383.2      -501.9       337.8      -186.3        46.9        46.9
COMB      ( 15 )      ( 16 )      ( 16 )      ( 16 )      ( 17 )      ( 17 )      ( 18 )      ( 18 )      (  0 )      (  0 )
CARR         51
FdzT       22.1
MdxT      -62.9
MdyT      -46.9
COMB      (  0 )

LANCE:  5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA
CARR          1           2           3           4           5           6           7           8           9          10
FdzT        4.5         4.8         4.8         4.4         4.5         4.8         4.8         4.4         4.4         4.7
MdxT      -23.9        33.0       -33.0         .0          .0          .0          .0       -52.9         1.0         1.0
MdyT         .0          .0          .0       -44.1       -28.3        14.5       -14.5       -57.4       -72.2       -19.6
COMB      (  4 )      (  0 )      (  0 )      (  1 )      ( 17 )      (  0 )      (  0 )      (  2 )      (  2 )      (  3 )
```

CARR	11	12	13	14	15	16	17	18	19	20
FdzT	4.7	4.7	4.6	4.6	4.3	4.3	4.8	4.8	4.8	4.5
MdxT	-50.9	-26.9	1.3	-59.0	1.0	-52.8	23.3	-49.3	-24.9	.6
MdyT	12.8	25.1	-49.0	-35.2	-89.9	-76.4	-10.2	31.2	43.8	-43.3
COMB	(3)	(3)	(9)	(9)	(6)	(6)	(0)	(7)	(7)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	4.5	4.5	4.4	4.4	4.7	4.7	4.6	4.6	4.3	4.3
MdxT	-42.8	-20.0	-46.0	-23.5	-43.8	-20.0	-52.5	-29.0	-46.2	-24.2
MdyT	-30.5	2.1	-72.2	-82.3	-18.9	-22.1	-50.8	-62.0	-92.2	-103.6
COMB	(8)	(8)	(11)	(11)	(12)	(12)	(18)	(18)	(15)	(15)
CARR	31	32	33	34	35					
FdzT	4.8	4.8	4.5	4.5	4.8					
MdxT	.8	-23.3	-35.8	-13.6	23.3					
MdyT	12.7	-10.2	-38.4	-45.2	10.2					
COMB	(16)	(0)	(17)	(17)	(0)					

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	161.2	161.2	161.2	161.2	154.9	155.8	154.9	155.8	155.8	160.8
MdxT	551.6	-551.6	.0	.0	-192.1	-504.0	60.2	60.9	-350.4	-430.4
MdyT	.0	.0	532.0	-532.0	1029.8	526.9	-924.1	615.2	-119.6	824.0
COMB	(0)	(0)	(0)	(0)	(9)	(2)	(9)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	160.8	158.6	158.6	158.6	159.0	158.6	150.2	150.2	158.6	153.9
MdxT	421.8	-587.0	325.0	-192.8	-595.4	49.7	229.7	-605.5	679.1	-369.3
MdyT	-534.4	864.2	464.1	923.4	862.5	-693.1	517.3	508.6	-659.5	351.3
COMB	(3)	(7)	(7)	(5)	(16)	(5)	(6)	(6)	(7)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	153.9	156.1	161.2	161.2	159.0	159.0	159.0	159.0	155.3	155.3
MdxT	14.0	-501.1	-438.8	424.1	-201.2	52.1	323.5	681.7	-200.3	62.7
MdyT	295.0	528.2	822.1	-529.3	921.5	-688.0	465.5	-654.8	1028.3	-919.5
COMB	(8)	(11)	(12)	(12)	(14)	(14)	(16)	(16)	(18)	(18)
CARR	31	32								
FdzT	161.2	161.2								
MdxT	390.1	-390.1								
MdyT	376.2	-376.2								
COMB	(0)	(0)								

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	103.8	103.8	103.8	103.8	100.4	100.4	102.5	102.5	102.5	102.2
MdxT	337.0	-337.0	.0	.0	-328.3	370.6	-652.8	-261.1	620.1	-322.6
MdyT	.0	.0	342.7	-342.7	665.0	-879.9	865.5	-396.3	-990.8	860.9
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(16)	(16)	(16)	(5)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	102.2	98.2	98.2	97.7	102.0	102.0	102.0	100.0	100.0	103.8
MdxT	369.0	133.8	235.6	59.2	-694.3	-277.7	635.6	-319.8	361.9	-506.0
MdyT	-1026.9	446.9	-374.0	-695.0	851.2	-392.2	-980.4	981.7	-1116.5	797.3
COMB	(5)	(15)	(15)	(6)	(7)	(7)	(7)	(9)	(9)	(12)
CARR	21	22	23	24	25	26	27	28		
FdzT	103.8	102.7	102.7	98.2	100.5	100.5	103.8	103.8		
MdxT	517.9	-280.7	353.4	43.8	-278.3	346.5	238.3	-238.3		
MdyT	-956.3	875.6	-1038.0	-705.3	996.0	-1126.9	242.3	-242.3		
COMB	(12)	(14)	(14)	(15)	(18)	(18)	(0)	(0)		

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	45.6	45.6	45.6	45.6	43.5	43.5	44.2	44.2	45.1	44.6
MdxT	148.0	-148.0	.0	.0	-224.7	335.2	-210.7	314.2	-531.0	451.4
MdyT	.0	.0	150.5	-150.5	1221.2	-1269.2	1394.5	-1333.1	1297.1	-1243.5
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(9)	(9)	(14)	(10)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	44.8	44.8	44.5	43.5	45.0	45.0	44.2	44.6	44.6	45.6
MdxT	-530.0	437.5	150.3	48.9	198.2	495.6	146.7	-535.2	-214.1	-765.4
MdyT	1391.9	-1322.0	519.7	1028.7	478.1	-1173.2	557.8	1189.3	-497.4	1192.7
COMB	(18)	(18)	(5)	(6)	(7)	(7)	(9)	(10)	(10)	(16)
CARR	21	22	23	24	25	26	27	28	29	
FdzT	45.6	45.6	45.1	45.1	45.1	44.0	44.0	45.6	45.6	
MdxT	-269.0	552.2	-516.5	-206.6	443.1	-270.5	-110.6	619.1	104.6	
MdyT	-477.0	-1192.4	957.7	-436.9	-1288.4	1025.9	-462.1	-1162.1	106.4	
COMB	(12)	(12)	(13)	(13)	(14)	(15)	(15)	(16)	(0)	

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	4.7	4.7	4.3	4.5	4.3	4.5	4.7	4.5	4.7	4.7
MdxT	32.3	-32.3	.0	.0	.0	.0	.0	.0	.0	.0
MdyT	.0	.0	-15.7	-5.2	-17.9	21.3	32.8	20.2	41.0	-11.3
COMB	(0)	(0)	(1)	(3)	(5)	(10)	(12)	(14)	(16)	(0)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	4.3	4.3	4.3	4.5	4.4	4.4	4.3	4.2	4.2	4.5
MdxT	-43.2	-.6	-39.3	-41.9	-41.5	-37.7	-43.5	-.6	-38.6	-42.8
MdyT	-13.5	-31.2	-27.1	6.0	-59.5	-15.4	-14.9	-39.9	-35.9	13.2
COMB	(1)	(2)	(2)	(3)	(15)	(4)	(5)	(6)	(6)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	4.5	4.4	4.3	4.5	4.5	4.5	4.5	4.5	4.7	4.7
MdxT	-19.9	-35.8	-45.4	-44.9	-22.0	-.6	-42.4	-19.7	-44.9	-21.3
MdyT	14.8	-15.8	-14.7	-36.4	-67.6	6.7	-51.9	-83.9	-25.5	-56.8
COMB	(7)	(8)	(9)	(10)	(10)	(11)	(11)	(11)	(12)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	4.6	4.6	4.6	4.5	4.5	4.4	4.7	4.7	4.6	4.6
MdxT	-.7	-40.7	-17.6	-46.4	-23.2	-19.2	-45.7	-21.7	-.8	-38.7
MdyT	19.5	-40.1	-72.5	-37.2	-68.2	-92.1	-19.0	-47.5	18.8	-40.9

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COMB	(13)	(13)	(13)	(14)	(14)	(15)	(16)	(16)	(17)	(17)
CARR	41	42	43	44	45	46				
FdzT	4.6	4.5	4.5	4.7	4.7	4.7				
MdxT	-15.8	-48.2	-25.1	22.8	-22.8	22.8				
MdyT	-73.4	-36.1	-66.2	8.0	8.0	-8.0				
COMB	(17)	(18)	(18)	(0)	(0)	(0)				

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	89.3	89.3	89.3	89.3	88.6	89.3	88.6	86.7	86.9	86.9
MdxT	308.5	-308.5	.0	.0	-147.6	-371.8	18.1	77.4	-395.2	-390.5
MdyT	.0	.0	294.5	-294.5	-1185.9	-1075.5	655.9	-1259.6	-538.8	844.3
COMB	(0)	(0)	(0)	(0)	(1)	(12)	(1)	(2)	(11)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	89.0	89.0	89.0	89.0	87.1	87.9	86.9	83.7	83.9	83.9
MdxT	198.2	435.4	-133.6	-7.1	-161.1	-516.9	52.2	229.9	-385.3	-660.9
MdyT	-585.8	427.3	-1327.1	981.3	-1018.2	-972.2	290.5	-1285.2	-517.9	956.1
COMB	(3)	(3)	(13)	(13)	(14)	(16)	(5)	(6)	(15)	(15)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	87.6	87.6	87.5	87.5	84.3	84.3	84.0	88.6	86.9	89.3
MdxT	303.9	710.5	-120.7	-23.2	-166.6	-246.4	73.1	-147.0	77.0	196.4
MdyT	-585.3	269.6	-1390.6	1184.5	-876.5	-617.1	41.4	-1186.8	-1269.8	-588.6
COMB	(7)	(7)	(17)	(17)	(18)	(18)	(9)	(10)	(11)	(12)
CARR	31	32	33	34	35	36	37	38		
FdzT	89.3	87.1	83.9	87.9	87.9	84.3	89.3	89.3		
MdxT	432.5	49.1	229.5	302.2	707.7	70.3	-218.2	218.2		
MdyT	436.4	299.6	-1294.9	-588.0	278.2	50.1	208.3	-208.3		
COMB	(12)	(14)	(15)	(16)	(16)	(18)	(0)	(0)		

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	54.8	54.8	54.8	54.8	54.5	54.5	53.9	53.4	53.7	54.8
MdxT	177.8	-177.8	.0	.0	-235.3	281.0	-198.7	176.7	248.5	-422.7
MdyT	.0	.0	180.8	-180.8	-1918.4	1940.0	-2058.0	-797.0	2007.3	-1757.7
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(17)	(2)	(8)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	54.8	54.6	54.7	54.6	54.6	53.7	53.5	51.9	51.9	51.9
MdxT	-169.1	395.4	-216.2	125.6	265.2	-247.1	289.1	94.6	131.8	71.8
MdyT	735.1	1832.9	-2030.7	-812.1	2012.2	-1720.2	1803.5	-1994.6	-797.8	1958.3
COMB	(12)	(3)	(13)	(4)	(4)	(14)	(5)	(6)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	54.0	54.0	53.8	53.7	52.1	52.0	53.6	54.8	54.7	54.7
MdxT	-542.1	-216.8	465.1	121.8	-250.0	288.3	176.0	394.9	124.9	264.7
MdyT	-1603.8	685.6	1708.7	-823.0	-1541.3	1659.7	-797.2	1837.8	-812.3	2017.3
COMB	(16)	(16)	(7)	(8)	(18)	(9)	(11)	(12)	(13)	(13)
CARR	31	32	33	34	35	36	37	38	39	
FdzT	53.7	52.0	52.0	52.0	54.0	53.9	53.9	52.1	54.8	
MdxT	288.7	93.2	130.1	71.4	464.8	121.2	248.2	288.0	125.7	
MdyT	1808.4	-1995.1	-798.1	1963.5	1713.9	-823.2	2012.5	1664.9	-127.8	
COMB	(14)	(15)	(15)	(15)	(16)	(17)	(17)	(18)	(0)	

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	20.7	20.7	20.7	20.7	20.7	20.7	20.6	20.3	20.1	20.2
MdxT	67.1	-67.1	.0	.0	-250.2	120.2	333.2	-146.2	109.8	244.6
MdyT	.0	.0	68.2	-68.2	-1350.9	-540.3	1227.9	-1360.5	-548.7	1191.0
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(12)	(11)	(15)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	20.6	20.6	20.6	20.7	20.6	20.7	20.3	20.2	20.2	20.1
MdxT	-330.8	133.6	334.0	-229.5	113.5	296.0	-247.5	118.0	295.0	-82.0
MdyT	-1280.2	-500.0	1199.1	-1424.8	-557.8	1242.5	-1215.9	-474.2	1148.6	-1371.7
COMB	(12)	(3)	(3)	(13)	(4)	(10)	(14)	(5)	(5)	(15)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	20.0	20.0	20.6	20.5	20.6	20.6	20.0	19.9	19.9	20.7
MdxT	110.5	206.6	-389.3	355.9	-220.6	108.7	-250.7	116.3	290.6	-246.7
MdyT	-536.6	1155.3	-1238.0	1168.6	-1479.0	-579.5	-1130.9	-440.3	1084.3	-1360.5
COMB	(6)	(6)	(16)	(7)	(17)	(8)	(18)	(9)	(9)	(10)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	20.7	20.3	20.3	20.6	20.7	20.7	20.3	20.3	20.6	20.6
MdxT	118.4	107.3	243.7	133.3	113.1	282.8	117.7	294.1	354.9	108.4
MdyT	-544.2	-544.2	1219.8	-512.1	-569.9	1270.5	-486.4	1177.3	1197.3	-591.6
COMB	(10)	(11)	(11)	(12)	(13)	(13)	(14)	(14)	(16)	(17)
CARR	41									
FdzT	20.7									
MdxT	-47.4									
MdyT	48.2									
COMB	(0)									

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	30.5	30.5	30.5	30.5	23.8	23.8	23.8	12.1	12.1	24.7
MdxT	136.3	-136.3	.0	.0	6.6	-58.5	-16.9	59.8	-92.1	-39.8
MdyT	.0	.0	91.4	-91.4	64.7	64.7	-32.3	28.8	44.1	102.6
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	24.7	24.7	17.2	17.2	17.2	19.6	19.6	19.6	8.0	8.0
MdxT	92.2	55.6	9.1	-50.3	-17.1	10.9	-56.4	-18.9	91.8	-140.1
MdyT	-58.5	-116.6	7.7	76.3	92.8	123.8	-73.2	-165.3	-1.4	100.4
COMB	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30

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FdzT	28.9	28.9	28.9	16.4	16.4	16.4	20.5	20.5	20.5	22.0
MdxT	-73.6	126.4	105.4	7.4	-46.1	-15.1	10.6	-56.4	-18.2	9.4
MdyT	121.2	-86.1	-166.6	-36.7	113.9	181.6	156.4	-110.8	-247.9	155.8
COMB	(7)	(7)	(7)	(8)	(8)	(8)	(9)	(9)	(9)	(18)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	22.3	22.0	13.7	13.7	26.3	26.3	26.3	18.8	18.8	18.8
MdxT	-56.6	-57.3	58.4	-91.4	-41.2	96.2	56.0	7.7	-51.5	-16.5
MdyT	66.6	-111.7	28.1	46.2	101.9	-59.5	-114.5	7.0	79.5	94.9
COMB	(10)	(18)	(11)	(11)	(12)	(12)	(12)	(13)	(13)	(13)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	21.2	21.2	21.2	9.6	9.6	30.5	30.5	30.5	18.0	18.0
MdxT	9.7	-57.7	-18.3	90.6	-139.4	-75.0	130.5	106.0	6.2	-47.0
MdyT	123.1	-74.1	-163.1	-2.0	102.3	120.7	-87.1	-164.6	-37.2	116.8
COMB	(14)	(14)	(14)	(15)	(15)	(16)	(16)	(16)	(17)	(17)
CARR	51	52	53	54	55					
FdzT	18.0	22.0	30.5	30.5	30.5					
MdxT	-14.4	-17.5	96.4	-96.4	-96.4					
MdyT	183.5	-246.0	64.6	64.6	-64.6					
COMB	(17)	(18)	(0)	(0)	(0)					

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	20.1	20.1	12.9	15.5	14.0	15.8	20.1	20.1	18.3	18.3
MdxT	81.0	-81.0	.0	.0	.0	.0	.0	.0	-1.4	38.0
MdyT	.0	.0	150.4	80.8	-233.1	51.5	60.3	-60.3	-155.8	-68.7
COMB	(0)	(0)	(4)	(14)	(17)	(18)	(0)	(0)	(1)	(1)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	18.3	10.3	10.3	16.6	16.6	16.6	12.9	12.9	14.0	14.0
MdxT	6.0	47.2	-34.2	-33.6	-65.8	32.3	5.5	26.7	8.0	29.0
MdyT	116.9	-196.7	144.8	-110.6	-50.9	88.5	-206.2	-82.5	-100.9	-44.3
COMB	(1)	(2)	(2)	(3)	(3)	(3)	(4)	(4)	(5)	(5)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	14.0	8.2	8.2	18.7	18.7	18.7	12.5	12.5	12.5	14.4
MdxT	-2.2	73.2	-55.6	-61.2	-63.8	55.0	3.8	25.9	2.0	29.8
MdyT	82.7	-216.7	156.2	-73.5	-41.5	62.6	-232.7	-93.1	165.6	-82.5
COMB	(5)	(6)	(6)	(7)	(7)	(7)	(8)	(8)	(8)	(13)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	14.4	14.4	16.8	16.8	16.8	11.8	11.8	11.8	18.1	18.1
MdxT	29.8	-2.5	-2.9	34.7	6.6	43.7	45.9	-32.1	-37.1	-72.4
MdyT	-30.5	53.2	-160.2	-69.6	116.5	-196.7	-78.7	142.7	-110.6	-53.5
COMB	(9)	(9)	(10)	(10)	(10)	(11)	(11)	(11)	(12)	(12)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	18.1	14.4	14.4	15.5	15.5	9.7	9.7	20.1	20.1	20.1
MdxT	34.4	2.0	2.5	4.5	32.1	69.7	-53.5	-64.7	-68.9	57.1
MdyT	86.4	-206.2	148.4	-100.9	-46.9	-217.0	154.6	-73.9	-44.1	60.9
COMB	(12)	(13)	(13)	(14)	(14)	(15)	(15)	(16)	(16)	(16)
CARR	51	52	53	54	55	56	57			
FdzT	14.0	14.0	15.8	15.8	20.1	20.1	20.1			
MdxT	28.9	4.2	4.5	32.8	57.3	-57.3	57.3			
MdyT	-93.2	164.1	-58.0	-33.2	42.7	42.7	-42.7			
COMB	(17)	(17)	(18)	(18)	(0)	(0)	(0)			

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	11.9	11.9	11.9	11.9	11.9	11.9	11.9	7.3	7.3	7.3
MdxT	47.8	-47.8	.0	.0	-26.9	37.1	29.4	13.4	27.2	-1.1
MdyT	.0	.0	35.6	-35.6	79.4	-79.7	-162.0	96.0	-75.5	-175.3
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	8.6	8.6	8.6	7.8	7.8	7.8	8.1	8.1	8.1	6.9
MdxT	-39.6	-16.0	37.4	-14.0	36.7	19.2	-12.2	26.3	17.1	31.1
MdyT	123.2	-64.3	-160.9	72.9	-72.3	-153.0	146.3	-73.2	-183.1	82.9
COMB	(3)	(3)	(3)	(4)	(15)	(4)	(5)	(5)	(5)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	6.9	6.9	9.1	9.1	9.1	7.7	7.7	7.7	8.2	8.2
MdxT	33.4	-14.0	-57.3	-22.9	50.1	-14.6	26.3	19.7	-11.6	32.1
MdyT	-78.3	-172.1	128.0	-59.2	-148.0	44.4	-72.5	-135.0	166.5	-74.1
COMB	(6)	(6)	(7)	(7)	(7)	(8)	(8)	(8)	(9)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	8.2	9.9	9.9	9.9	8.2	9.5	9.5	8.7	8.7	8.7
MdxT	16.2	-25.2	33.9	30.0	13.3	-39.6	39.8	-14.1	30.4	21.6
MdyT	-185.2	126.4	-68.7	-171.8	110.5	137.6	-158.6	87.4	-66.0	-150.8
COMB	(9)	(10)	(10)	(10)	(11)	(12)	(12)	(13)	(13)	(13)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	9.0	9.0	7.8	7.8	10.0	10.0	10.0	9.1	9.1	11.9
MdxT	-12.3	19.5	30.9	-11.6	-57.3	-22.9	52.5	-11.6	18.6	33.8
MdyT	160.7	-180.9	97.0	-169.7	142.2	-58.2	-145.6	180.6	-182.8	25.2
COMB	(14)	(14)	(15)	(15)	(16)	(16)	(16)	(18)	(18)	(0)
CARR	51	52								
FdzT	11.9	11.9								
MdxT	-33.8	-33.8								
MdyT	25.2	-25.2								
COMB	(0)	(0)								

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	4.4	4.4	4.3	3.9	4.1	4.0	4.2	4.4	4.4	4.3
MdxT	30.2	-30.2	.0	.0	.0	.0	.0	.0	.0	23.8
MdyT	.0	.0	-128.9	-127.7	-133.7	-138.9	-98.0	-111.7	79.8	64.4
COMB	(0)	(0)	(1)	(6)	(17)	(8)	(12)	(10)	(10)	(1)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	4.3	3.9	3.9	4.1	4.1	4.0	4.0	4.0	3.9	3.9
MdxT	4.9	26.6	-15.4	25.9	7.0	-18.9	-5.7	-26.5	-41.9	-22.1
MdyT	161.0	-49.2	109.8	47.4	118.6	-51.9	127.0	68.7	-51.1	104.2
COMB	(1)	(2)	(2)	(3)	(3)	(4)	(5)	(15)	(6)	(6)

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CARR	21	22	23	24	25	26	27	28	29	30
FdzT	4.2	4.2	4.0	4.0	4.0	4.4	4.0	4.0	4.2	4.1
MdxT	35.7	15.0	-16.1	-24.8	-6.3	9.1	27.4	-19.6	20.2	-25.8
MdyT	47.5	118.9	-55.6	53.1	132.9	-44.7	-46.8	73.8	-39.2	-53.0
COMB	(7)	(7)	(8)	(9)	(9)	(10)	(11)	(11)	(12)	(13)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	4.1	4.1	4.0	4.3	4.3	4.1	4.4	4.4	4.4	4.4
MdxT	-10.5	28.1	-46.9	31.5	10.8	-23.5	21.4	-21.4	-21.4	21.4
MdyT	97.4	-36.5	-50.8	-36.3	83.4	-63.3	9.4	9.4	-9.4	-9.4
COMB	(18)	(14)	(15)	(16)	(16)	(17)	(0)	(0)	(0)	(0)

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LANCE: 1
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	43.0	43.0	43.0	43.0	38.8	38.8	38.8	35.4	35.4	41.7
MdxT	89.1	-89.1	.0	.0	21.4	21.4	-10.5	23.7	-11.9	12.7
MdyT	.0	.0	154.9	-154.9	172.2	164.4	152.7	807.7	906.2	-504.5
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	41.7	39.8	39.8	39.8	37.3	37.3	32.6	32.6	43.0	43.0
MdxT	-6.9	30.9	29.8	-6.7	6.6	-11.9	27.6	-13.6	9.0	-4.8
MdyT	-615.9	163.1	157.5	149.2	159.6	152.9	1231.3	1398.5	-950.8	-1132.5
COMB	(12)	(13)	(4)	(4)	(14)	(5)	(6)	(6)	(16)	(16)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	39.9	39.9	35.6	38.5	35.4	35.4	41.7	39.8	39.8	37.3
MdxT	37.9	39.1	-13.4	21.3	24.6	-12.2	12.7	30.9	-6.9	-12.0
MdyT	154.0	153.9	140.5	173.2	806.6	904.1	-337.4	156.8	147.3	152.3
COMB	(8)	(17)	(9)	(10)	(11)	(11)	(12)	(13)	(13)	(14)
CARR	31	32	33	34	35	36	37	38	39	
FdzT	32.6	32.6	43.0	39.9	35.7	43.0	43.0	43.0	43.0	
MdxT	28.7	-13.7	9.0	39.1	-13.6	63.0	-63.0	-63.0	63.0	
MdyT	1229.8	1396.1	-678.3	149.8	140.2	109.5	109.5	-109.5	-109.5	
COMB	(15)	(15)	(16)	(17)	(18)	(0)	(0)	(0)	(0)	

LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	35.8	35.8	35.8	35.8	32.4	32.4	32.1	29.4	29.4	29.4
MdxT	168.2	-168.2	.0	.0	10.8	67.0	-8.7	-3.1	60.9	9.7
MdyT	.0	.0	129.0	-129.0	-36.5	126.3	158.2	-273.7	373.7	730.0
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(10)	(2)	(11)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	34.8	34.8	34.8	33.4	33.4	33.4	30.8	30.8	30.8	26.8
MdxT	23.1	-94.7	-25.8	-13.0	69.6	13.3	23.7	-94.9	-29.4	-12.0
MdyT	177.4	-238.9	-426.4	-62.9	119.0	154.0	-44.9	118.9	149.4	-416.1
COMB	(12)	(3)	(3)	(8)	(13)	(4)	(5)	(14)	(5)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	26.9	26.8	35.8	35.8	35.8	33.5	33.4	29.2	29.2	29.2
MdxT	76.0	21.6	31.4	-115.4	-37.4	96.2	27.6	32.3	-113.8	-43.5
MdyT	535.9	1101.7	326.9	-417.1	-821.0	112.1	144.1	-35.7	112.1	136.4
COMB	(15)	(6)	(16)	(7)	(7)	(17)	(8)	(9)	(18)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	32.1	29.4	34.8	33.4	26.9	35.8	33.5	33.5	35.8	35.8
MdxT	66.5	9.8	-25.6	13.4	-12.2	-37.2	-13.2	27.7	119.0	-119.0
MdyT	128.8	728.3	-428.1	152.5	-406.8	-822.9	-53.6	142.2	91.2	91.2
COMB	(10)	(11)	(12)	(13)	(15)	(16)	(17)	(17)	(0)	(0)
CARR	41	42								
FdzT	35.8	35.8								
MdxT	-119.0	119.0								
MdyT	-91.2	-91.2								
COMB	(0)	(0)								

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	26.7	26.7	23.0	26.7	26.7	24.8	24.8	24.8	22.9	22.9
MdxT	107.6	-107.6	.0	.0	.0	-55.4	-77.7	46.8	-46.1	-90.4
MdyT	.0	.0	-178.6	312.5	-96.2	-215.2	-149.7	37.7	-511.7	-282.2
COMB	(0)	(0)	(9)	(16)	(0)	(8)	(8)	(8)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	22.9	26.3	26.3	26.3	25.1	25.1	25.1	24.0	24.0	24.0
MdxT	38.9	-14.0	-54.4	10.1	-46.6	-94.0	39.2	-13.4	-49.8	9.9
MdyT	144.5	95.8	-61.1	-102.6	-219.0	-154.3	33.0	-197.0	-149.3	8.7
COMB	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	21.0	21.0	21.0	26.7	26.7	26.7	22.9	26.3	26.3	25.1
MdxT	-54.5	-68.4	46.5	-1.3	-55.3	-1.5	37.9	-12.5	-54.4	38.1
MdyT	-701.5	-362.1	222.9	307.7	151.2	-188.2	146.0	100.2	-58.4	34.7
COMB	(6)	(6)	(6)	(7)	(16)	(7)	(11)	(12)	(12)	(13)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	24.1	24.1	21.1	26.7	24.8	23.0	26.7	26.7	26.7	26.7
MdxT	-49.8	9.0	45.5	-2.5	45.8	1.4	76.1	-76.1	-76.1	76.1
MdyT	-146.0	10.2	224.0	-187.0	38.8	-173.9	68.0	68.0	-68.0	-68.0
COMB	(14)	(14)	(15)	(16)	(17)	(18)	(0)	(0)	(0)	(0)

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	18.3	18.3	16.9	18.3	18.3	17.4	17.4	17.4	16.7	16.6
MdxT	75.0	-75.0	.0	.0	.0	23.7	-69.7	-34.7	40.7	-60.2
MdyT	.0	.0	169.7	65.8	-65.8	242.8	-104.0	-260.0	183.4	-170.5
COMB	(0)	(0)	(17)	(0)	(0)	(1)	(1)	(1)	(9)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	16.6	18.2	18.2	18.3	17.4	17.4	15.4	15.4	15.4	18.2
MdxT	-28.4	32.2	-74.4	-36.0	33.2	-39.6	10.2	-54.0	-25.1	-37.5
MdyT	-276.4	388.9	206.7	-172.6	185.2	-229.5	-44.7	-204.3	-303.5	-132.0

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COMB	(2)	(7)	(7)	(3)	(5)	(5)	(6)	(6)	(6)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	16.9	16.9	16.9	16.7	16.6	16.6	18.3	17.4	17.4	15.4
MdxT	1.7	-46.8	-18.9	-43.5	-58.8	-27.4	-34.9	31.9	-38.5	-52.4
MdyT	160.9	-85.7	-209.6	-226.0	-170.6	-282.8	-179.1	194.5	-235.9	-207.9
COMB	(8)	(8)	(8)	(9)	(11)	(11)	(12)	(14)	(14)	(15)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	15.4	18.2	18.2	18.2	16.9	16.9	16.7	16.7	18.3	18.3
MdxT	-23.9	30.8	-72.8	-36.3	-45.1	-17.8	39.3	-42.4	53.0	-53.0
MdyT	-309.5	397.7	209.7	-137.9	-86.2	-215.6	192.2	-231.8	46.6	-46.6
COMB	(15)	(16)	(16)	(16)	(17)	(17)	(18)	(18)	(0)	(0)
CARR	41									
FdzT	18.3									
MdxT	53.0									
MdyT	-46.6									
COMB	(0)									

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	12.9	12.9	12.9	12.9	12.5	12.5	12.3	12.3	12.8	12.8
MdxT	26.7	-26.7	.0	.0	47.9	-16.0	47.6	-14.8	48.0	-14.0
MdyT	.0	.0	46.4	-46.4	215.6	197.0	219.0	193.3	270.2	204.7
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(10)	(10)	(12)	(12)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	12.5	12.6	11.2	11.2	11.2	12.4	12.4	11.6	11.6	11.9
MdxT	52.4	-14.8	35.3	27.8	-6.9	47.3	-14.7	28.0	-4.9	54.6
MdyT	204.3	161.4	81.2	81.3	89.9	299.3	223.3	191.0	154.3	189.4
COMB	(14)	(5)	(15)	(6)	(15)	(16)	(16)	(17)	(17)	(18)
CARR	21	22	23	24	25					
FdzT	11.9	11.2	12.9	12.9	12.9					
MdxT	-16.5	27.7	-18.9	-18.9	18.9					
MdyT	158.9	86.4	32.8	-32.8	-32.8					
COMB	(18)	(15)	(0)	(0)	(0)					

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LANCE: 1
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	45.8	45.8	35.6	45.8	45.8	38.4	38.4	33.9	34.1	43.4
MdxT	94.8	-94.8	.0	.0	.0	-23.0	7.4	-11.1	10.5	-29.7
MdyT	.0	.0	156.1	164.9	-164.9	171.1	149.2	823.3	925.4	-528.2
COMB	(0)	(0)	(17)	(0)	(0)	(10)	(10)	(11)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	43.2	37.2	37.2	37.4	39.9	40.1	30.1	30.3	45.6	45.8
MdxT	2.1	-8.5	9.2	9.0	-32.8	3.4	-4.6	13.6	-36.5	-1.1
MdyT	-644.6	163.4	156.1	145.7	154.1	135.7	999.9	1434.3	-987.4	-1176.4
COMB	(12)	(13)	(13)	(4)	(14)	(5)	(15)	(6)	(16)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	35.6	35.8	40.1	33.9	43.2	37.2	39.9	30.1	45.6	45.6
MdxT	11.1	10.8	-40.7	10.9	-30.2	9.2	3.8	13.9	-36.5	-.7
MdyT	148.3	137.3	140.7	924.8	-528.0	145.2	135.1	1433.5	-702.7	-1177.3
COMB	(17)	(8)	(18)	(11)	(12)	(13)	(14)	(15)	(16)	(16)
CARR	31	32	33	34	35					
FdzT	35.6	45.8	45.8	45.8	45.8					
MdxT	11.1	67.0	-67.0	-67.0	67.0					
MdyT	136.5	116.6	116.6	-116.6	-116.6					
COMB	(17)	(0)	(0)	(0)	(0)					

LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	38.6	38.6	24.4	38.6	38.6	32.2	32.2	32.0	28.1	27.9
MdxT	181.2	-181.2	.0	.0	.0	4.9	66.6	4.2	3.8	59.0
MdyT	.0	.0	-391.6	138.9	-138.9	-30.7	126.5	155.8	-261.2	383.5
COMB	(0)	(0)	(15)	(0)	(0)	(1)	(1)	(10)	(2)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	28.1	36.5	36.5	36.5	30.9	30.7	30.9	33.8	33.6	33.6
MdxT	10.6	10.2	75.5	-6.4	-6.6	86.5	23.4	28.7	83.9	-19.2
MdyT	741.2	166.5	-253.7	-446.2	-41.4	122.2	152.5	-54.0	112.5	142.4
COMB	(2)	(3)	(3)	(3)	(4)	(13)	(4)	(9)	(5)	(5)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	24.5	24.4	24.5	38.6	38.6	38.6	29.3	29.1	29.3	33.8
MdxT	.8	65.4	16.7	11.5	-79.9	-11.8	-16.4	106.7	37.9	-105.2
MdyT	-399.4	552.1	1123.4	311.5	-441.4	-850.8	-34.2	117.7	144.5	103.8
COMB	(6)	(15)	(6)	(7)	(7)	(7)	(8)	(17)	(8)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	33.8	32.0	27.9	36.3	36.3	30.7	30.7	33.4	33.4	24.4
MdxT	-32.9	66.1	11.6	9.4	-5.6	-7.4	24.4	19.7	82.1	17.5
MdyT	127.8	128.8	740.9	174.7	-446.6	-33.3	152.2	-45.2	115.3	1122.8
COMB	(9)	(10)	(11)	(12)	(12)	(13)	(13)	(14)	(14)	(15)
CARR	41	42	43	44	45	46	47	48	49	
FdzT	38.4	38.4	29.1	29.1	33.6	38.6	38.6	38.6	38.6	
MdxT	10.6	-10.9	-17.2	38.8	-103.8	128.1	-128.1	-128.1	128.1	
MdyT	319.3	-851.5	-26.3	143.8	106.2	98.2	98.2	-98.2	-98.2	
COMB	(16)	(16)	(17)	(17)	(18)	(0)	(0)	(0)	(0)	

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	28.6	28.6	28.6	28.6	25.5	25.5	25.5	23.4	23.4	23.2
MdxT	115.1	-115.1	.0	.0	-28.7	-69.0	19.0	-34.2	-74.8	22.4
MdyT	.0	.0	102.9	-102.9	-182.7	-146.3	-1.3	-507.9	-286.1	130.9
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(11)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	27.6	27.8	27.8	25.0	25.0	24.8	26.2	26.2	26.0	21.2
MdxT	-18.8	-57.6	12.3	-43.1	-89.1	32.2	-9.7	-54.2	2.8	-37.9

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MdyT	121.1	66.3	-106.0	-192.6	-150.7	2.4	-200.8	-149.2	22.5	-703.6
COMB	(12)	(3)	(3)	(4)	(4)	(13)	(5)	(5)	(14)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	21.2	21.2	28.4	28.6	28.4	23.9	23.9	23.7	25.9	25.9
MdxT	-77.4	24.1	-12.2	-59.2	8.4	-52.8	-76.9	40.7	2.9	-53.5
MdyT	-370.1	206.4	337.5	164.6	-187.7	-179.6	-142.2	-7.7	-193.2	-142.7
COMB	(6)	(6)	(16)	(7)	(16)	(8)	(8)	(17)	(9)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	25.9	25.3	23.2	23.2	27.6	27.6	24.8	24.8	26.0	21.0
MdxT	-8.4	19.2	-34.4	-75.0	-57.2	12.7	-43.4	-89.3	-9.9	-38.1
MdyT	26.2	4.8	-501.2	-281.7	70.1	-105.8	-185.9	-146.3	-194.0	-696.8
COMB	(9)	(10)	(11)	(11)	(12)	(12)	(13)	(13)	(14)	(15)
CARR	41	42	43	44	45	46	47			
FdzT	21.0	28.4	23.7	28.6	28.6	28.6	28.6			
MdxT	24.4	-58.8	-53.1	81.4	-81.4	-81.4	81.4			
MdyT	206.1	168.3	-172.8	72.7	72.7	-72.7	-72.7			
COMB	(15)	(16)	(17)	(0)	(0)	(0)	(0)			

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	19.1	19.1	19.1	19.1	18.0	18.0	18.0	17.6	17.5	17.5
MdxT	78.3	-78.3	.0	.0	25.1	-65.0	-30.7	43.4	-67.4	-32.9
MdyT	.0	.0	68.7	-68.7	212.9	-100.0	-249.9	148.3	-184.6	-284.3
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(18)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	18.9	18.9	19.1	18.4	18.4	18.4	16.2	16.2	16.2	17.4
MdxT	30.0	65.2	-29.5	38.8	54.6	-38.6	21.8	-65.3	-32.6	6.3
MdyT	362.3	205.8	-148.7	148.4	-91.1	-206.6	-63.1	-218.3	-321.7	161.7
COMB	(7)	(7)	(3)	(5)	(5)	(5)	(6)	(6)	(6)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	17.7	17.7	17.7	17.4	17.4	18.9	18.2	18.2	18.2	16.1
MdxT	45.5	56.9	-42.1	22.5	-30.4	-26.9	36.7	73.4	-36.1	-61.8
MdyT	137.6	-86.2	-192.9	38.6	-289.1	-153.4	159.2	-89.4	-211.4	-218.9
COMB	(9)	(9)	(9)	(11)	(11)	(12)	(14)	(14)	(14)	(15)
CARR	31	32	33	34	35	36	37	38	39	
FdzT	16.1	18.8	18.8	17.3	17.3	17.6	19.1	19.1	19.1	
MdxT	-30.1	27.9	62.1	4.2	-40.8	-39.6	-55.3	-55.3	55.3	
MdyT	-326.1	373.0	210.3	172.3	-94.1	-197.3	48.6	-48.6	-48.6	
COMB	(15)	(16)	(16)	(17)	(17)	(18)	(0)	(0)	(0)	

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	13.0	13.0	13.0	13.0	12.4	12.5	12.4	12.9	12.9	12.7
MdxT	26.8	-26.8	.0	.0	-30.7	14.6	-31.8	-28.4	14.4	-38.4
MdyT	.0	.0	46.7	-46.7	212.4	194.0	130.3	264.9	208.9	197.7
COMB	(0)	(0)	(0)	(0)	(10)	(1)	(11)	(12)	(12)	(13)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	12.7	11.5	11.5	11.5	12.3	12.3	12.0	12.0	11.8	11.8
MdxT	17.4	-30.4	-23.3	11.1	-24.8	14.1	-41.3	19.2	-13.7	6.0
MdyT	170.1	71.4	84.6	93.4	295.1	227.6	183.4	163.1	183.1	157.9
COMB	(13)	(15)	(15)	(15)	(16)	(16)	(17)	(17)	(18)	(18)
CARR	21	22	23	24						
FdzT	12.4	13.0	13.0	13.0						
MdxT	15.0	19.0	-19.0	19.0						
MdyT	193.6	33.0	-33.0	-33.0						
COMB	(10)	(0)	(0)	(0)						

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LANCE: 2
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	28.7	28.7	28.7	28.7	22.9	22.9	22.9	12.7	12.7	23.7
MdxT	130.6	-130.6	.0	.0	6.6	-58.8	-16.7	64.3	-98.0	-45.4
MdyT	.0	.0	86.0	-86.0	38.4	38.4	-9.5	9.9	63.3	74.6
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	23.7	23.7	19.0	19.0	19.0	17.5	17.5	17.5	9.0	9.0
MdxT	95.1	63.3	11.3	-57.7	-19.2	7.6	-49.0	-15.1	99.5	-150.5
MdyT	-54.8	-93.7	-16.7	84.6	114.1	101.2	-67.2	-144.5	-13.6	115.9
COMB	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	27.3	27.3	27.3	19.4	19.4	19.4	16.9	16.9	16.9	21.7
MdxT	-82.6	129.5	117.9	11.6	-58.0	-19.0	5.3	-43.4	-12.3	6.4
MdyT	93.9	-82.1	-144.9	-58.1	120.4	200.6	138.3	-102.8	-229.7	35.1
COMB	(7)	(7)	(7)	(8)	(8)	(8)	(9)	(9)	(9)	(10)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	21.7	21.7	14.1	14.1	25.1	25.1	25.1	20.4	20.4	20.4
MdxT	-57.5	-16.8	63.3	-97.9	-46.2	98.6	63.4	10.4	-59.2	-18.9
MdyT	35.1	-8.1	5.2	67.3	70.0	-55.9	-89.6	-21.4	86.8	118.2
COMB	(10)	(10)	(11)	(11)	(12)	(12)	(12)	(13)	(13)	(13)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	18.9	18.9	18.9	10.3	10.3	28.7	28.7	28.7	20.7	20.7
MdxT	6.6	-50.6	-15.0	98.6	-150.2	-83.4	133.1	118.0	10.8	-59.5
MdyT	96.6	-68.2	-140.4	-18.1	119.7	89.6	-83.2	-141.1	-62.4	122.6
COMB	(14)	(14)	(14)	(15)	(15)	(16)	(16)	(16)	(17)	(17)
CARR	51	52	53	54	55	56	57			
FdzT	20.7	18.2	18.2	18.2	28.7	28.7	28.7			
MdxT	-18.8	4.5	-44.9	-12.2	92.4	-92.4	-92.4			
MdyT	204.4	133.8	-103.9	-226.0	60.8	60.8	-60.8			
COMB	(17)	(18)	(18)	(18)	(0)	(0)	(0)			

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	13.0	18.3	18.3	14.1	18.3	18.3	16.6	16.6	16.6	9.5

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MdxT	26.8	73.7	-73.7	.0	.0	.0	-3.6	34.3	6.7	50.1
MdyT	.0	.0	.0	121.0	54.9	-54.9	-120.3	-62.1	74.8	-151.3
COMB	(18)	(0)	(0)	(17)	(0)	(0)	(1)	(1)	(1)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	9.5	15.3	15.3	15.3	12.7	12.7	12.7	12.1	12.1	12.1
MdxT	-37.9	-42.8	-49.2	39.5	6.0	26.4	-1.5	1.4	24.9	3.1
MdyT	91.7	-64.5	-38.7	45.8	-163.2	-71.2	105.0	-52.6	-33.1	32.3
COMB	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	7.5	7.5	17.1	17.1	12.9	12.9	12.9	11.7	11.7	11.7
MdxT	80.2	-63.0	-74.2	65.8	6.7	26.6	-2.5	-1.0	24.3	5.2
MdyT	-172.8	100.0	-28.7	23.7	-192.8	-82.2	122.4	-8.7	-8.7	1.4
COMB	(6)	(6)	(7)	(7)	(8)	(8)	(8)	(9)	(9)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	15.4	15.4	15.4	10.8	10.8	16.5	16.5	16.5	14.1	14.1
MdxT	-5.5	31.9	7.3	46.5	-35.8	-46.3	-53.8	41.6	3.1	29.2
MdyT	-107.8	-54.6	71.4	-144.5	90.2	-57.8	-36.8	44.4	-186.1	-80.2
COMB	(10)	(10)	(10)	(11)	(11)	(12)	(12)	(12)	(17)	(17)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	14.0	13.3	13.3	13.3	8.7	8.7	18.3	18.3	18.3	13.0
MdxT	.6	-2.2	27.5	5.2	76.6	-60.9	-77.8	-52.1	67.9	-4.5
MdyT	103.6	-45.9	-31.1	30.9	-166.0	98.7	-22.0	38.8	22.4	-2.1
COMB	(13)	(14)	(14)	(14)	(15)	(15)	(16)	(0)	(16)	(18)
CARR	51	52	53							
FdzT	18.3	18.3	18.3							
MdxT	52.1	-52.1	52.1							
MdyT	38.8	-38.8	-38.8							
COMB	(0)	(0)	(0)							

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	9.2	9.2	5.3	9.2	9.2	9.2	9.2	5.3	5.3	6.6
MdxT	37.0	-37.0	.0	.0	.0	-29.3	31.9	13.7	23.5	-44.0
MdyT	.0	.0	-131.2	27.5	-27.5	101.5	-142.4	58.7	-61.6	89.9
COMB	(0)	(0)	(2)	(0)	(0)	(1)	(1)	(2)	(2)	(3)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	6.6	6.6	6.1	6.1	6.1	5.8	5.9	5.8	4.9	4.9
MdxT	-17.6	41.3	-14.0	22.5	19.5	-17.1	22.7	22.4	32.9	32.9
MdyT	-50.2	-125.6	38.2	-59.7	-112.8	132.0	-57.6	-149.1	46.1	-64.1
COMB	(3)	(3)	(4)	(4)	(4)	(9)	(5)	(9)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	4.9	7.1	7.1	7.1	6.2	6.2	6.2	5.8	7.6	7.6
MdxT	-13.7	-63.0	-25.2	54.6	-13.0	22.4	18.3	22.6	-25.9	31.4
MdyT	-127.7	98.0	-47.5	-118.7	12.0	-61.0	-97.3	-59.6	55.3	-122.5
COMB	(6)	(7)	(7)	(7)	(8)	(8)	(8)	(9)	(10)	(10)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	6.0	6.0	6.0	7.2	7.2	6.7	6.7	6.7	6.5	6.5
MdxT	15.1	26.1	1.5	-42.6	42.7	-12.5	25.9	20.9	-15.5	26.1
MdyT	37.2	-63.8	-119.3	68.3	-113.8	16.8	-61.9	-100.9	111.2	-52.8
COMB	(11)	(11)	(11)	(12)	(12)	(13)	(13)	(13)	(18)	(14)
CARR	41	42	43	44	45	46	47	48	49	50
FdzT	6.5	5.6	5.6	5.6	7.7	7.7	7.7	6.8	6.8	6.8
MdxT	23.8	34.4	34.4	-12.5	-61.5	-24.6	56.0	-11.5	25.8	19.7
MdyT	-137.5	25.2	-66.2	-116.1	77.1	-42.8	-107.1	-8.8	-59.6	-85.7
COMB	(18)	(15)	(15)	(15)	(16)	(16)	(16)	(17)	(17)	(17)
CARR	51	52	53							
FdzT	6.5	9.2	9.2							
MdxT	26.1	26.1	-26.1							
MdyT	-55.0	19.5	-19.5							
COMB	(18)	(0)	(0)							

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	4.1	4.1	4.0	4.0	3.6	3.8	3.7	3.7	3.9	4.1
MdxT	28.1	-28.1	.0	.0	.0	.0	.0	.0	.0	.0
MdyT	.0	.0	161.8	-49.1	157.1	162.1	181.7	172.2	145.3	133.7
COMB	(0)	(0)	(1)	(1)	(2)	(18)	(9)	(5)	(7)	(10)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	3.8	3.9	4.1	4.0	3.6	3.6	3.8	3.7	3.7	3.7
MdxT	.0	.0	.0	8.4	-36.3	-25.1	22.4	25.6	-8.0	-21.5
MdyT	152.0	100.5	-12.3	82.3	92.4	-21.4	94.8	79.3	-16.0	107.7
COMB	(14)	(17)	(0)	(1)	(2)	(6)	(3)	(4)	(4)	(5)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	3.6	3.9	3.8	3.8	3.7	4.1	3.7	3.9	3.8	3.8
MdxT	-43.5	33.2	26.3	-8.3	-18.8	-34.0	-51.1	-27.6	-22.0	-38.2
MdyT	89.7	91.9	74.9	-22.5	113.5	90.0	88.2	91.5	14.6	104.9
COMB	(6)	(7)	(13)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
CARR	31	32	33	34	35	36	37			
FdzT	3.7	4.0	3.9	3.8	4.1	4.1	4.1			
MdxT	-57.8	8.3	26.6	-36.3	19.9	-19.9	19.9			
MdyT	86.6	91.0	65.0	113.3	8.7	-8.7	-8.7			
COMB	(15)	(16)	(17)	(18)	(0)	(0)	(0)			

PT1

LANCE: 3
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	86.0	86.0	86.0	86.0	86.0	86.0	86.0	83.2	83.2	83.2
MdxT	346.1	-346.1	.0	.0	-247.1	-297.6	194.2	-263.1	-291.1	218.3
MdyT	.0	.0	283.7	-283.7	-466.9	-227.7	414.8	-997.1	485.5	1213.8
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	80.2	80.6	80.2	81.7	81.7	81.7	82.8	82.6	82.8	80.2
MdxT	-276.3	-286.2	189.3	-272.7	-289.0	230.2	-264.9	-289.3	221.3	-251.3
MdyT	693.1	-318.6	-576.1	-416.6	-211.7	365.4	-928.2	-241.6	1076.2	-1338.4

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COMB	(6)	(3)	(12)	(4)	(4)	(4)	(11)	(10)	(11)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	80.2	75.5	75.8	75.5	77.7	77.7	77.7	78.3	78.3	78.3
MdxT	214.5	-219.5	-268.4	163.1	-267.5	-273.0	234.4	-202.2	-271.8	141.4
MdyT	1732.8	598.5	-496.8	-1147.4	-373.2	-197.7	321.9	-434.1	-205.5	395.9
COMB	(6)	(16)	(7)	(16)	(8)	(8)	(8)	(9)	(9)	(9)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	80.2	81.3	81.3	81.3	81.7	79.8	79.8	75.5	77.3	77.3
MdxT	-285.2	-274.5	-287.9	233.2	-287.3	-252.7	216.6	-267.4	-268.8	-272.0
MdyT	-373.1	-347.8	-224.9	227.8	-229.6	-1270.9	1600.6	-548.7	-305.8	-209.6
COMB	(12)	(13)	(13)	(13)	(14)	(15)	(15)	(16)	(17)	(17)
CARR	41	42	43	44	45					
FdzT	77.3	78.0	86.0	86.0	86.0					
MdxT	236.5	-270.8	244.7	-244.7	244.7					
MdyT	189.6	-217.4	200.6	200.6	-200.6					
COMB	(17)	(18)	(0)	(0)	(0)					

LANCE: 4
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	18.6	18.6	18.6	18.6	18.6	18.6	18.6	15.6	15.6	15.6
MdxT	77.1	-77.1	.0	.0	-26.7	125.5	122.5	-33.2	121.9	121.9
MdyT	.0	.0	61.4	-61.4	-48.4	55.0	55.0	-579.9	-139.6	100.9
COMB	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(15)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	14.6	14.6	14.8	15.0	15.1	15.3	15.3	15.3	15.9	15.9
MdxT	-26.0	123.3	128.2	-36.4	125.2	-33.7	125.0	125.0	-29.1	111.3
MdyT	231.4	132.3	-83.5	21.6	4.9	-421.5	-206.3	167.2	-423.6	-217.7
COMB	(3)	(3)	(13)	(8)	(4)	(11)	(11)	(11)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	15.9	14.3	14.3	14.3	15.2	15.2	15.4	15.4	15.4	14.3
MdxT	111.3	-21.7	113.4	113.4	-14.4	111.3	-29.8	125.3	125.3	-29.3
MdyT	143.8	403.9	208.0	-133.0	-41.3	-41.3	-201.3	-92.3	122.1	75.6
COMB	(6)	(7)	(7)	(7)	(9)	(9)	(10)	(10)	(10)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	14.3	14.8	14.8	14.8	14.8	14.8	15.6	15.6	14.0	14.0
MdxT	126.3	-38.1	128.2	-24.9	123.2	123.2	114.7	114.7	-25.6	116.8
MdyT	64.3	-154.1	71.1	-191.8	-95.8	97.3	-284.9	209.0	247.5	139.9
COMB	(12)	(13)	(13)	(14)	(14)	(14)	(15)	(15)	(16)	(16)
CARR	41	42	43	44	45	46	47			
FdzT	14.0	14.7	14.8	14.8	18.6	18.6	18.6			
MdxT	116.8	-40.3	-18.5	111.6	-54.5	-54.5	54.5			
MdyT	-67.6	-134.7	-197.5	-101.1	43.4	-43.4	-43.4			
COMB	(16)	(17)	(18)	(18)	(0)	(0)	(0)			

PT2

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	2.8	2.8	2.8	2.8	2.6	2.6	2.6	2.7	2.7	2.7
MdxT	5.8	-5.8	.0	.0	20.9	5.4	-13.4	15.3	7.8	-13.3
MdyT	.0	.0	6.8	-6.8	5.6	-10.8	-17.2	-17.9	52.1	30.1
COMB	(0)	(0)	(0)	(0)	(5)	(1)	(5)	(2)	(11)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	2.4	2.4	2.4	2.5	2.5	2.6	2.8	2.8	2.8	2.3
MdxT	13.7	5.5	-13.2	8.1	-13.0	9.3	15.7	8.1	-12.6	13.2
MdyT	29.5	-31.0	-67.6	6.0	-20.2	-10.6	-33.9	65.6	63.0	45.1
COMB	(3)	(3)	(3)	(4)	(4)	(5)	(6)	(15)	(6)	(7)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	2.3	2.3	2.5	2.6	2.6	2.6	2.6	2.6	2.7	2.7
MdxT	5.3	-12.6	-12.3	25.1	12.0	12.3	6.9	-6.6	13.6	-6.6
MdyT	-44.0	-99.7	-20.7	5.2	-9.9	-2.2	35.4	56.4	-20.0	95.9
COMB	(7)	(7)	(8)	(9)	(9)	(10)	(10)	(10)	(11)	(11)
CARR	31	32	33	34	35	36				
FdzT	2.5	2.6	2.6	2.8	2.8	2.8				
MdxT	-6.4	13.5	-6.9	14.0	-6.6	-4.1				
MdyT	45.6	32.4	49.8	-36.0	128.8	-4.8				
COMB	(13)	(18)	(18)	(15)	(15)	(0)				

PT3

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	6.3	6.3	6.1	6.3	6.3	6.2	6.2	6.2	6.2	6.2
MdxT	13.0	-13.0	.0	.0	.0	15.5	13.0	23.1	19.0	14.7
MdyT	.0	.0	16.5	26.5	-26.5	130.3	47.1	31.6	46.9	-81.8
COMB	(0)	(0)	(18)	(0)	(0)	(6)	(1)	(5)	(5)	(7)
CARR	11	12	13	14	15	16	17	18	19	
FdzT	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.3	6.3	
MdxT	27.6	21.7	12.8	19.1	11.6	16.4	23.4	-9.2	-9.2	
MdyT	31.5	46.7	123.7	45.9	-88.1	46.0	30.9	18.7	-18.7	
COMB	(9)	(9)	(15)	(18)	(16)	(14)	(18)	(0)	(0)	

PT4

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	6.5	6.5	6.5	6.5	6.4	6.4	6.3	6.2	6.3	6.3
MdxT	13.4	-13.4	.0	.0	-30.4	-22.6	13.0	-28.7	-13.8	13.6
MdyT	.0	.0	27.4	-27.4	32.8	48.5	47.9	31.9	132.9	82.3
COMB	(0)	(0)	(0)	(0)	(17)	(17)	(9)	(4)	(6)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	6.3	6.3	6.2	6.2	6.3	6.3	6.3	6.3	6.2	6.2
MdxT	-21.1	13.6	-16.9	13.9	13.4	-20.4	-12.1	13.4	-33.0	-19.4
MdyT	32.2	-31.5	47.3	26.5	120.3	32.3	-79.7	-69.6	31.8	47.1

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COMB	(3)	(3)	(4)	(8)	(6)	(7)	(7)	(7)	(8)	(8)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	6.4	6.4	6.4	6.4	6.5	6.4	6.5	6.5	6.5	6.5
MdxT	-19.9	-16.9	2.0	-25.8	2.1	2.4	-15.1	2.0	9.5	9.5
MdyT	48.7	131.3	117.9	32.9	-33.9	24.1	-82.2	-71.8	19.4	-19.4
COMB	(13)	(15)	(15)	(13)	(12)	(17)	(16)	(16)	(0)	(0)

PT5

LANCE: 5
CARREGAMENTOS DE ESFORCOS FINAIS DE CALCULO PARA DIMENSIONAMENTO APOS A ENVOLTORIA

CARR	1	2	3	4	5	6	7	8	9	10
FdzT	2.6	2.5	2.8	2.8	2.3	2.8	2.8	2.6	2.7	2.7
MdxT	-4.1	.6	5.7	-5.7	.0	.0	.0	-8.5	-11.8	-9.3
MdyT	.0	.0	.0	.0	15.3	6.7	-6.7	-4.9	-19.9	21.4
COMB	(1)	(9)	(0)	(0)	(10)	(0)	(0)	(1)	(2)	(2)
CARR	11	12	13	14	15	16	17	18	19	20
FdzT	2.7	2.5	2.5	2.5	2.6	2.6	2.6	2.8	2.8	2.8
MdxT	-2.1	-9.2	-7.6	-2.0	-21.4	-12.4	-3.9	-12.5	-9.8	-2.1
MdyT	44.7	22.3	-25.2	-52.9	1.8	-3.5	.8	-34.0	35.3	77.0
COMB	(2)	(3)	(3)	(3)	(8)	(4)	(5)	(6)	(6)	(6)
CARR	21	22	23	24	25	26	27	28	29	30
FdzT	2.4	2.4	2.4	2.6	2.5	2.3	2.4	2.4	2.4	2.2
MdxT	-8.4	-7.0	-2.1	-15.0	-2.5	-3.4	-4.8	-4.8	-3.2	-3.2
MdyT	36.4	-39.0	-85.4	-3.2	-5.3	103.6	-4.5	92.1	152.6	55.2
COMB	(7)	(7)	(7)	(8)	(9)	(10)	(11)	(11)	(11)	(12)
CARR	31	32	33	34	35	36	37	38	39	40
FdzT	2.4	2.3	2.3	2.3	2.3	2.5	2.5	2.5	2.1	2.1
MdxT	-14.6	-8.0	-2.9	4.8	-3.5	-5.7	-5.5	-3.2	-1.7	-3.1
MdyT	17.1	69.4	104.4	67.4	103.2	-18.8	105.4	184.1	51.7	39.6
COMB	(17)	(13)	(13)	(18)	(14)	(15)	(15)	(15)	(16)	(16)
CARR	41	42	43	44	45					
FdzT	2.4	2.3	2.3	2.8	2.8					
MdxT	-10.7	7.3	-3.6	4.1	4.1					
MdyT	69.2	15.8	101.8	4.7	-4.7					
COMB	(17)	(18)	(18)	(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 CAD/PILAR) (kgf/cm2)
Lbd       : Índice de Esbeltez (Maior Lambda)
Ni        : Força Normal Admensional (Nsd / Ac*Fcd) (Carga Vertical: Combinação 1 CAD/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)
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P1

PILAR:P1 num: 1 Lances: 2 à 3

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM	
3	106,75m	30.x 60.	1800.0	14	12.5	N N	17.2	.95	6.3	15.0	N	30.0	3.0	15.6	39.	.0728	----	
2	103,35m	30.x 60.	1800.0	18	12.5	N N	22.5	1.25	6.3	15.0	N	30.0	3.0	33.6	43.	.1568	ELOL	KAPA

P2

PILAR:P2 num: 2 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM	
4	110,15m	19.x 60.	1140.0	8	10.0	N N	10	.88	5.0	12.0	N	30.0	3.0	11.8	68.	.0551	ELOL	KAPA
3	106,75m	19.x 60.	1140.0	8	10.0	N N	10	.88	5.0	12.0	N	30.0	3.0	43.9	62.	.2047	ELOL	KAPA
2	103,35m	19.x 60.	1140.0	8	10.0	N N	10	.88	5.0	12.0	N	30.0	3.0	74.9	66.	.3495	ELOL	KAPA

P3

PILAR:P3 num: 3 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM	
4	110,15m	30.x 50.	1500.0	8	16	N N	16	1.07	6.3	15.0	N	30.0	3.0	21.9	39.	.1022	ELOL	KAPA
3	106,75m	30.x 50.	1500.0	8	16	N N	16	1.07	6.3	15.0	N	30.0	3.0	56.0	39.	.2612	----	
2	103,35m	30.x 50.	1500.0	8	16	N N	16	1.07	6.3	15.0	N	30.0	3.0	89.8	42.	.4191	ELOL	KAPA

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P4

PILAR:P4 num: 4 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x 60.	1800.0	12	12.5	N N	15	.83	6.3	15.0	N	30.0	3.0	11.9	39.	.0558	----
3	106,75m	30.x 60.	1800.0	12	12.5	N N	15	.83	6.3	15.0	N	30.0	3.0	31.3	39.	.1460	ELOL KAPA
2	103,35m	30.x 60.	1800.0	12	12.5	N N	15	.83	6.3	15.0	N	30.0	3.0	51.0	43.	.2379	ELOL KAPA

P5

PILAR:P5 num: 5 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x 80.	2400.0	18	20.0	N N	56.5	2.36	6.3	20.0	N	30.0	3.0	14.7	122.	.0688	ELOL N,M,1/
3	106,75m	30.x 80.	2400.0	18	20.0	N S	56.5	2.36	6.3	20.0	N	30.0	3.0	24.2	122.	.1131	ELOL N,M,1/
2	103,35m	30.x 80.	2400.0	18	20.0	N S	56.5	2.36	6.3	20.0	N	30.0	3.0	32.3	122.	.1509	ELOL N,M,1/

P6

PILAR:P6 num: 6 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x 80.	2400.0	18	20.0	N N	56.5	2.36	6.3	20.0	N	30.0	3.0	12.1	122.	.0563	ELOL N,M,1/
3	106,75m	30.x 80.	2400.0	18	20.0	N S	56.5	2.36	6.3	20.0	N	30.0	3.0	23.2	122.	.1083	ELOL N,M,1/
2	103,35m	30.x 80.	2400.0	18	20.0	N S	56.5	2.36	6.3	20.0	N	30.0	3.0	34.3	122.	.1600	ELOL N,M,1/

P7

PILAR:P7 num: 7 Lances: 2 à 3

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
3	106,75m	40.x 60.	2400.0	14	20.0	N N	43.94	1.83	6.3	20.0	N	30.0	3.0	30.0	29.	.1398	----
2	103,35m	40.x 60.	2400.0	14	20.0	N N	43.94	1.83	5.0	12.0	N	30.0	3.0	59.9	32.	.2795	----

P8

PILAR:P8 num: 8 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x 50.	950.0	8	10.0	N N	8	0.08	12.0	N	30.0	3.0	21.2	69.	.0991	ELOL KAPA	
3	106,75m	19.x 50.	950.0	8	12.5	N N	10	1.05	5.0	12.0	N	30.0	3.0	91.7	60.	.4281	ELOL KAPA
2	103,35m	40.x 50.	2000.0	12	12.5	N N	15	.75	5.0	12.0	N	30.0	3.0	74.0	32.	.3453	----

P9

PILAR:P9 num: 9 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x 60.	1800.0	8	12.5	N N	10	0.6	6.3	15.0	N	30.0	3.0	31.9	39.	.1488	ELOL KAPA
3	106,75m	30.x 60.	1800.0	8	12.5	N N	10	0.6	6.3	15.0	N	30.0	3.0	92.7	39.	.4324	ELOL KAPA
2	103,35m	30.x 60.	1800.0	14	12.5	N N	17.5	0.9	6.3	19.0	N	30.0	3.0	153.8	42.	.7179	ELOL KAPA

P10

PILAR:P10 num: 10 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x 70.	2100.0	10	16	N N	20	.95	6.3	15.0	N	30.0	3.0	18.6	39.	.0869	ELOL KAPA
3	106,75m	30.x 70.	2100.0	10	16	N N	20	.95	6.3	15.0	N	30.0	3.0	52.4	39.	.2444	ELOL KAPA
2	103,35m	30.x 70.	2100.0	10	16	N N	20	.95	6.3	15.0	N	30.0	3.0	86.4	43.	.4030	ELOL KAPA

P11

PILAR:P11 num: 11 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x 50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	43.0	73.	.2007	ELOL KAPA
3	106,75m	19.x 50.	950.0	8	20.0	S N	25.1	2.65	6.3	19.0	N	30.0	3.0	70.6	73.	.3296	ELOL KAPA
2	103,35m	19.x 50.	950.0	8	20.0	S N	25.1	2.65	6.3	19.0	N	30.0	3.0	98.3	75.	.4586	ELOL KAPA

P12

PILAR:P12 num: 12 Lances: 2 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x 50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	37.1	73.	.1732	ELOL KAPA

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3	106,75m	19.x	50.	950.0	8	20.0	S N	25.1	2.65	6.3	19.0	N	30.0	3.0	64.5	73.	.3011	ELOL KAPA
2	103,35m	19.x	50.	950.0	8	20.0	S N	25.1	2.65	6.3	19.0	N	30.0	3.0	95.2	75.	.4445	ELOL KAPA

P13

PILAR:P13 num: 13 Lances: 2 à 3

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
3	106,75m	30.x	60.	1800.0	10	16	N N	20	1.11	6.3	15.0	N	30.0	3.0	33.4	39.	.1559	ELOL KAPA
2	103,35m	30.x	60.	1800.0	10	16	N N	20	1.11	6.3	15.0	N	30.0	3.0	74.2	43.	.3461	ELOL KAPA

P14

PILAR:P14 num: 14 Lances: 2 à 2

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
2	103,35m	30.x	50.	1500.0	8	12.5	N N	10.0	.67	5.0	12.0	N	30.0	3.0	55.7	42.	.2597	ELOL KAPA

P15

PILAR:P15 num: 15 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x	60.	1800.0	10	16.0	N N	20.0	1.11	6.3	15.0	N	30.0	3.0	26.5	39.	.1238	ELOL KAPA
3	106,75m	30.x	60.	1800.0	10	16.0	N N	20.0	1.11	6.3	15.0	N	30.0	3.0	79.6	39.	.3714	ELOL KAPA
2	103,35m	30.x	60.	1800.0	10	16.0	N N	20.0	1.11	6.3	15.0	N	30.0	3.0	131.6	42.	.6140	ELOL KAPA

P16

PILAR:P16 num: 16 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x	70.	2100.0	10	16.0	N N	20.0	.95	6.3	15.0	N	30.0	3.0	19.2	39.	.0897	ELOL KAPA
3	106,75m	30.x	70.	2100.0	10	16.0	N N	20.0	.95	5.0	12.0	N	30.0	3.0	53.1	39.	.2477	ELOL KAPA
2	103,35m	30.x	70.	2100.0	10	16.0	N N	20.0	.95	5.0	12.0	N	30.0	3.0	87.4	43.	.4078	ELOL KAPA

P17

PILAR:P17 num: 17 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x	60.	1140.0	8	10.0	N N	6.4	.56	5.0	12.0	N	30.0	3.0	24.5	63.	.1142	ELOL KAPA
3	106,75m	19.x	60.	1140.0	8	10.0	N N	6.4	.56	5.0	12.0	N	30.0	3.0	44.9	62.	.2096	ELOL KAPA
2	103,35m	19.x	60.	1140.0	8	10.0	N N	6.4	.56	5.0	12.0	N	30.0	3.0	82.1	59.	.3831	ELOL KAPA

P18

PILAR:P18 num: 18 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x	60.	1140.0	8	10.0	N N	6.4	.56	5.0	12.0	N	30.0	3.0	24.5	63.	.1142	ELOL KAPA
3	106,75m	19.x	60.	1140.0	8	10.0	N N	6.4	.56	5.0	12.0	N	30.0	3.0	57.9	62.	.2703	ELOL KAPA
2	103,35m	19.x	60.	1140.0	8	10.0	N N	6.4	.56	5.0	12.0	N	30.0	3.0	96.3	59.	.4495	ELOL KAPA

P19

PILAR:P19 num: 19 Lances: 2 à 2

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
2	103,35m	30.x	50.	1500.0	8	12.5	N N	10.0	.67	5.0	12.0	N	30.0	3.0	50.3	42.	.2349	ELOL KAPA

P20

PILAR:P20 num: 20 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	26.6	62.	.1239	ELOL KAPA
3	106,75m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	40.8	62.	.1904	ELOL KAPA
2	103,35m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	55.6	69.	.2596	ELOL KAPA

P21

PILAR:P21 num: 21 Lances: 1 à 5

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	7.3	27.	.0343	----
4	110,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	16.9	63.	.0788	ELOL KAPA
3	106,75m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	30.4	62.	.1419	ELOL KAPA

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2	103,35m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	43.2	69.	.2018	ELOL KAPA
1	99,50m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	49.4	16.	.2304	----

P22

PILAR:P22 num: 22 Lances: 1 à 5

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	6.9	27.	.0321	----
4	110,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	16.9	63.	.0787	ELOL KAPA
3	106,75m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	29.5	62.	.1378	ELOL KAPA
2	103,35m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	42.5	69.	.1982	ELOL KAPA
1	99,50m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	48.6	16.	.2268	----

P23

PILAR:P23 num: 23 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	25.0	62.	.1165	ELOL KAPA
3	106,75m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	38.7	62.	.1808	ELOL KAPA
2	103,35m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	53.4	69.	.2491	ELOL KAPA

P24

PILAR:P24 num: 25 Lances: 2 à 3

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
3	106,75m	30.x	50.	1500.0	12	12.5	N N	15.0	1.00	5.0	12.0	N	30.0	3.0	18.9	39.	.0880	----
2	103,35m	30.x	50.	1500.0	12	12.5	N N	15.0	1.00	5.0	12.0	N	30.0	3.0	38.6	43.	.1802	ELOL KAPA

P25

PILAR:P25 num: 26 Lances: 2 à 5

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x	50.	950.0	8	10.0	N S	6.4	.67	5.0	12.0	N	30.0	3.0	4.6	87.	.0216	ELOL KAPA
4	110,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	19.7	62.	.0919	ELOL KAPA
3	106,75m	19.x	50.	950.0	8	12.5	N N	10.0	1.05	5.0	12.0	N	30.0	3.0	72.7	62.	.3390	ELOL KAPA
2	103,35m	19.x	50.	950.0	8	16.0	N N	16.0	1.68	6.3	19.0	N	30.0	3.0	113.0	67.	.5274	ELOL KAPA

P26

PILAR:P26 num: 27 Lances: 2 à 5

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x	30.	570.0	4	10.0	N S	3.20	.56	5.0	12.0	N	30.0	3.0	7.5	87.	.0350	ELOL KAPA
4	110,15m	30.x	60.	1800.0	8	12.5	N N	10.0	.56	6.3	15.0	N	30.0	3.0	24.1	39.	.1127	ELOL KAPA
3	106,75m	30.x	60.	1800.0	8	12.5	N N	10.0	.56	6.3	15.0	N	30.0	3.0	55.8	39.	.2603	ELOL KAPA
2	103,35m	30.x	60.	1800.0	8	16.0	N N	16.0	.89	6.3	15.0	N	30.0	3.0	86.8	42.	.4051	ELOL KAPA

P27

PILAR:P27 num: 28 Lances: 2 à 4

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	30.x	60.	1800.0	10	12.5	N N	12.5	.69	6.3	15.0	N	30.0	3.0	11.5	39.	.0536	----
3	106,75m	30.x	60.	1800.0	10	12.5	N N	12.5	.69	6.3	15.0	N	30.0	3.0	30.3	39.	.1414	ELOL KAPA
2	103,35m	30.x	60.	1800.0	12	12.5	N N	15.0	.83	6.3	15.0	N	30.0	3.0	49.2	43.	.2296	ELOL KAPA

P28

PILAR:P28 num: 29 Lances: 2 à 5

Lance	Título	Seção [cm]		Área [cm2]	NFer	Bitola [mm]	PDD x y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x	50.	950.0	8	10.0	N S	6.4	.67	5.0	12.0	N	30.0	3.0	4.5	87.	.0210	ELOL KAPA
4	110,15m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	12.5	62.	.0583	ELOL KAPA
3	106,75m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	19.3	62.	.0901	ELOL KAPA
2	103,35m	19.x	50.	950.0	8	10.0	N N	6.4	.67	5.0	12.0	N	30.0	3.0	25.1	67.	.1170	ELOL KAPA

P29

PILAR:P29 num: 30 Lances: 1 à 5

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Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	9.4	33.	.0437	----
4	110,15m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	13.1	63.	.0611	ELOL KAPA
3	106,75m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	18.6	62.	.0870	ELOL KAPA
2	103,35m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	24.3	69.	.1136	ELOL KAPA
1	99,50m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	29.2	16.	.1361	----

P30

PILAR:P30 num: 31 Lances: 1 à 5

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	9.4	33.	.0438	----
4	110,15m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	13.6	63.	.0633	ELOL KAPA
3	106,75m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	19.2	62.	.0894	ELOL KAPA
2	103,35m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	24.2	69.	.1129	ELOL KAPA
1	99,50m	19.x 70.	1330.0	10	10.0	N	N	8.0	.60	5.0	12.0	N	30.0	3.0	29.0	16.	.1354	----

P31

PILAR:P31 num: 32 Lances: 2 à 5

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 50.	950.0	8	10.0	N	S	6.4	.67	5.0	12.0	N	30.0	3.0	4.3	87.	.0199	ELOL KAPA
4	110,15m	19.x 50.	950.0	8	10.0	N	N	6.4	.67	5.0	12.0	N	30.0	3.0	9.7	62.	.0451	ELOL KAPA
3	106,75m	19.x 50.	950.0	8	10.0	N	N	6.4	.67	5.0	12.0	N	30.0	3.0	17.4	62.	.0813	ELOL KAPA
2	103,35m	19.x 50.	950.0	8	10.0	N	N	6.4	.67	5.0	12.0	N	30.0	3.0	24.1	68.	.1126	ELOL KAPA

PT1

PILAR:PT1 num: 24 Lances: 3 à 4

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
4	110,15m	19.x 60.	1140.0	8	10.0	N	N	6.4	.56	5.0	12.0	N	30.0	3.0	16.3	63.	.0762	ELOL KAPA
3	106,75m	19.x 60.	1140.0	8	16.0	N	N	16.0	1.4	6.3	15.0	N	30.0	3.0	75.4	62.	.3519	ELOL KAPA

PT2

PILAR:PT2 num: 33 Lances: 5 à 5

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 30.	570.0	4	10.0	N	N	3.1	.55	5.0	12.0	N	30.0	3.0	4.5	33.	.0211	----

PT3

PILAR:PT3 num: 35 Lances: 5 à 5

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 30.	570.0	4	10.0	S	N	3.1	.55	5.0	12.0	N	30.0	3.0	10.9	53.	.0510	ELOL KAPA

PT4

PILAR:PT4 num: 36 Lances: 5 à 5

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 30.	570.0	4	10.0	S	N	3.1	.55	5.0	12.0	N	30.0	3.0	11.1	53.	.0520	ELOL KAPA

PT5

PILAR:PT5 num: 34 Lances: 5 à 5

Lance	Título	Seção [cm]	Área [cm2]	NFer	Bitola [mm]	PDD x	PDD y	As [cm2]	Taxa [%]	Estr [mm]	C/ [cm]	PP	fck (MPa)	Cobr (cm)	T	Lbd	Ni	2OrdM
5	112,15m	19.x 30.	570.0	4	12.5	N	N	5.0	.88	5.0	12.0	N	30.0	3.0	4.5	33.	.0209	----

Rua Riachuelo, 240 - Centro - Campinas - SP - CEP: 13015-320 - Fone / Fax: (19) 3236-1034

Projeto - TP15		
Área construída	1755,95	m²
Volume de Concreto Superestrutura	457,00	m³
Consumo de aço Superestrura	46108,00	kgf
Volume de Concreto Baldrames e Blocos	98,00	m³
Consumo de aço Baldrames e Blocos	7073,00	kgf
Espessura média superestrutura	0,26	m
Espessura média fundações	0,06	m
Relação Aço / Concreto (exceto estaqueamento)	96,39	kgf/m³

Tipo de Peça	Área de Forma (m²)	Volume de Concreto (m³)	Peso Aço (kgf)	Aço / Concreto (kgf / m³)	Forma / Concreto (m² / m³)
Estacas	xxxx	133,00	2194,00	16,50	xxxx
Blocos	171,94	70,00	4687,00	66,96	2,46
Vigamentos	1146,00	136,70	14396,00	105,31	8,38
Pilares	552,70	48,80	6778,00	138,89	11,33
Lajes	1470,00	271,50	24934,00	91,84	5,41
Total	**3340,64**	**660,00**	**52989,00**		

Assinado de forma digital por EDUARDO JOSE BARBOZA DE OLIVEIRA PRATA:30924256850
Dados: 2020.12.17 21:52:21 -03'00'

JOAO LUIS MARANHAO BISCAIA:00097950904

Assinado de forma digital por JOAO LUIS MARANHAO BISCAIA:00097950904
Dados: 2021.02.03 16:11:56 -03'00'

Eduardo Prata

Engenheiro Civil, Técnico em Mecânica e Técnico em Eletrotécnica

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