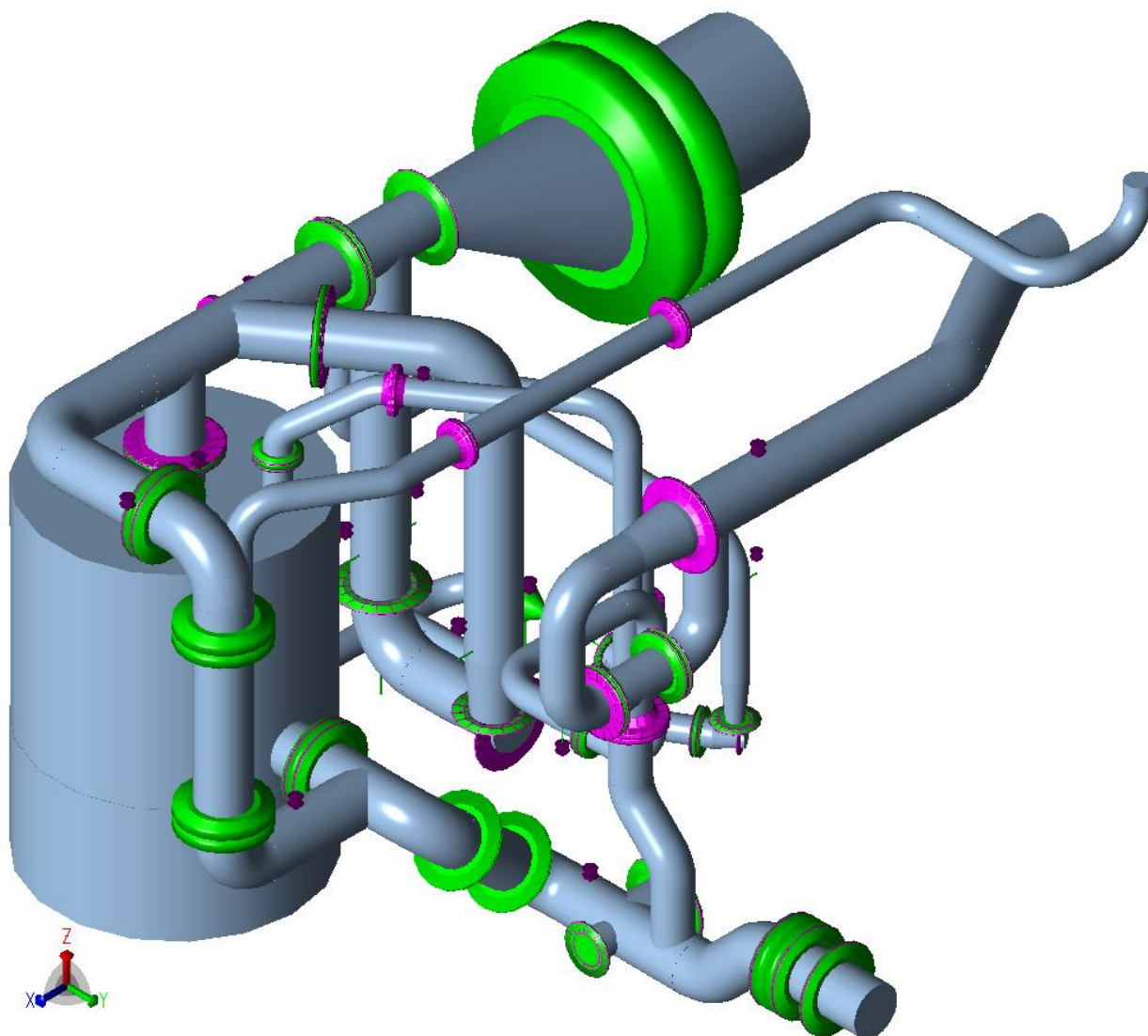


# **DGA / CEPr de SACLAY**

## **Tuyauteries Alimentation Air Procédé**

## **Sécheur Atmosphérique CHAUMECA**

**Calcul de flexibilité**  
**CODETI 2006 – Division 1**



Révision	Date	Redacteur	Vérificateur	Approbateur
A	29/04/2013	GAMIETTE Thierry	DELTOUR Hervé	PONTUS F.

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## 1 OBJET

Le but de la présente note est de réaliser le calcul de flexibilité des tuyauteries d'alimentation Amont et Aval du sécheur atmosphérique CHAUMECA installé sur le réseau d'Air Procédé de DGA/EP situé dans le bâtiment 504 du centre DGA du CEPr de SACLAY. Cet ensemble de tuyauteries en acier inoxydable austénitique, destiné à l'alimentation en air dans différentes conditions de pressions et températures, est raccordé sur le Collecteur CPO.

## 2 DOCUMENTS DE REFERENCE

### 2.1 DOCUMENTS APPLICABLES

- |       |                                  |   |
|-------|----------------------------------|---|
| [1.1] | FA6H1 - CCTP / 20 / DAS /10-03   | Cahier des Clauses Techniques Particulières 09/08/2010.   |
| [1.2] | Analyse de Risques du 01/08/2011 | Analyse de Conformité aux Exigences Essentielles de Ind. 6<br>Sécurité de la DESP 97/23/CE<br>Ensemble Sécheur Atmosphérique. |

### 2.2 CODES ET SPECIFICATIONS

- |        |  |  |
|--------|--|--|
| [2.1]  | CODETI 2006 – Division 1<br>Révision 03 – 2010 | Code de construction des tuyauteries industrielles   |
| [2.2]  | CODAP 2010 – Division 2.<br>Révision 03 – 2011 | Code de Construction des Appareils à Pression.<br>non soumis à l'action de la flamme.  |
| [2.3]  | NF EN 10028-7 - Août 2008                      | Produits plats en aciers pour appareils à pression<br>Partie 7 : Aciers Inoxydables.   |
| [2.4]  | NF EN 10217-7 - Mars 2005                      | Tubes soudés en acier pour service sous pression. Tubes<br>en aciers inoxydables.  |
| [2.5]  | NF EN 10216-5 - Mars 2005                      | Tubes sans soudure en acier pour service sous pression –<br>Tubes en aciers inoxydables.   |
| [2.6]  | NF EN 10028-2 – Septembre 2009                 | Produits plats en aciers pour appareils à pression<br>Partie 2 : Aciers non alliés et alliés avec caractéristiques<br>spécifiées à température élevée. |
| [2.7]  | NF EN 14917 – Avril 2009                       | Compensateurs de dilatation à soufflets métalliques pour<br>appareils à pression.  |
| [2.8]  | NF EN 1092-1 - Novembre 2007                   | Brides circulaires pour tubes, appareils de robinetterie,<br>raccords et accessoires, désignés PN.<br>Partie 1 – Brides en acier.                      |
| [2.9]  | NF EN 1759-1 - Mai 2005                        | Brides circulaires pour tubes, appareils de robinetterie,<br>raccords et accessoires, désignés Class.<br>Partie 1 – Brides en acier NPS ½ à 24.        |
| [2.10] | NF EN 1515-1 – Janvier 2000                    | Boulonnerie.<br>Partie 1 – Sélection de la boulonnerie.  |
| [2.11] | NF EN 1514-1 – Juillet 1997                    | Dimensions des joints pour les brides désignées PN.<br>Partie 1 – Joints plats non-métalliques avec ou sans insert.                                    |
| [2.12] | NF EN 12560-1 – Mars 2001                      | Dimensions des joints pour les brides désignées Class.<br>Partie 1 – Joints plats non-métalliques avec ou sans insert.                                 |

### **2.3 DOCUMENTS FOURNISSEUR**

- |  |  |
|--|--|
| [3.1] PD - 6-25-6379 - 0001 Rév. H         | Isométrie DGA – EP / Sécheur Atmosphérique.<br>Bâtiment 504.     |
| [3.2] PD - 6-25-6379 - 0002 Rév. H         | Isométrie DGA – EP / Sécheur Atmosphérique.<br>Bâtiment 504.     |
| [3.3] PD - 6-25-6379 - 0003 Rév. G         | Isométrie DGA – EP / Sécheur Atmosphérique.<br>Bâtiment 504.     |
| [3.4] PD - 6-25-6379 - 0004 Rév. 01        | Isométrie DGA – EP / Sécheur Atmosphérique.<br>Bâtiment 504.     |
| [3.5] PD - 6-25-6379 - 0005 Rév. 0         | Isométrie DGA – EP / Sécheur Atmosphérique.<br>Bâtiment 504.     |
| [3.6] PD - 6-25-6379 – T0 à T014<br>Rév. 0 | DGA/EP – Sécheur Atmosphérique Bâtiment 504<br>Tronçon T0 à T14. |

### **2.4 AUTRES DOCUMENTS**

- |   |   |
|---|---|
| [4.1] OF-1160200/001-17531 – Rév. M           | Plan Général.<br>Colonne de Séchage Diamètre 6604.              |
| [4.2] OF-1160200/001-17535 – Rév. J           | Plan de Détails<br>Colonne de Séchage Diamètre 6604.            |
| [4.3] 01110037-N° 32185 Rév. 07               | Zonage Analyse de Risque<br>Sécheur d'Air Atmosphérique 30Kg/s. |
| [4.4] 6128/01110037<br>N° 0000031325 – Rév. C | Plan d'Ensemble.<br>Caisson de Refroidissement.                 |
| [4.5] N° FCF885KD000001-Rév. 3                | Plan de Détail RESISTOR<br>Batterie de Chauffage d'Air          |
| [4.6] Plan N° GDFY5710- Rév. 01               | Disque de Rupture DR 001 et DR 002.                             |
| [4.7] Plan N° D12-47442-01- Rév. 00           | Plan de Détails Compensateur à Charnières DN 1200.              |
| [4.8] Plan N° D12-47442-02- Rév. 00           | Plan de Détails Compensateur à Cardans DN 1200.                 |

### **2.5 LOGICIELS**

- |                                |   |
|--------------------------------|---|
| [5.1] CAESAR II - Version 5.30 | Logiciel de calcul des contraintes dans les réseaux de tuyauteries industrielles. |
| [5.2] SICAPNet – V1.5.0.0      | Logiciel de calcul d'équipements chaudronnés suivant CODAP 2010 – Division 2.     |
| [5.3] BDMat – Version 4.02     | Banque de données matériaux CETIM / SNCT  |



### 3 HYPOTHESES DE CALCUL

#### 3.1 DONNEES TECHNIQUES

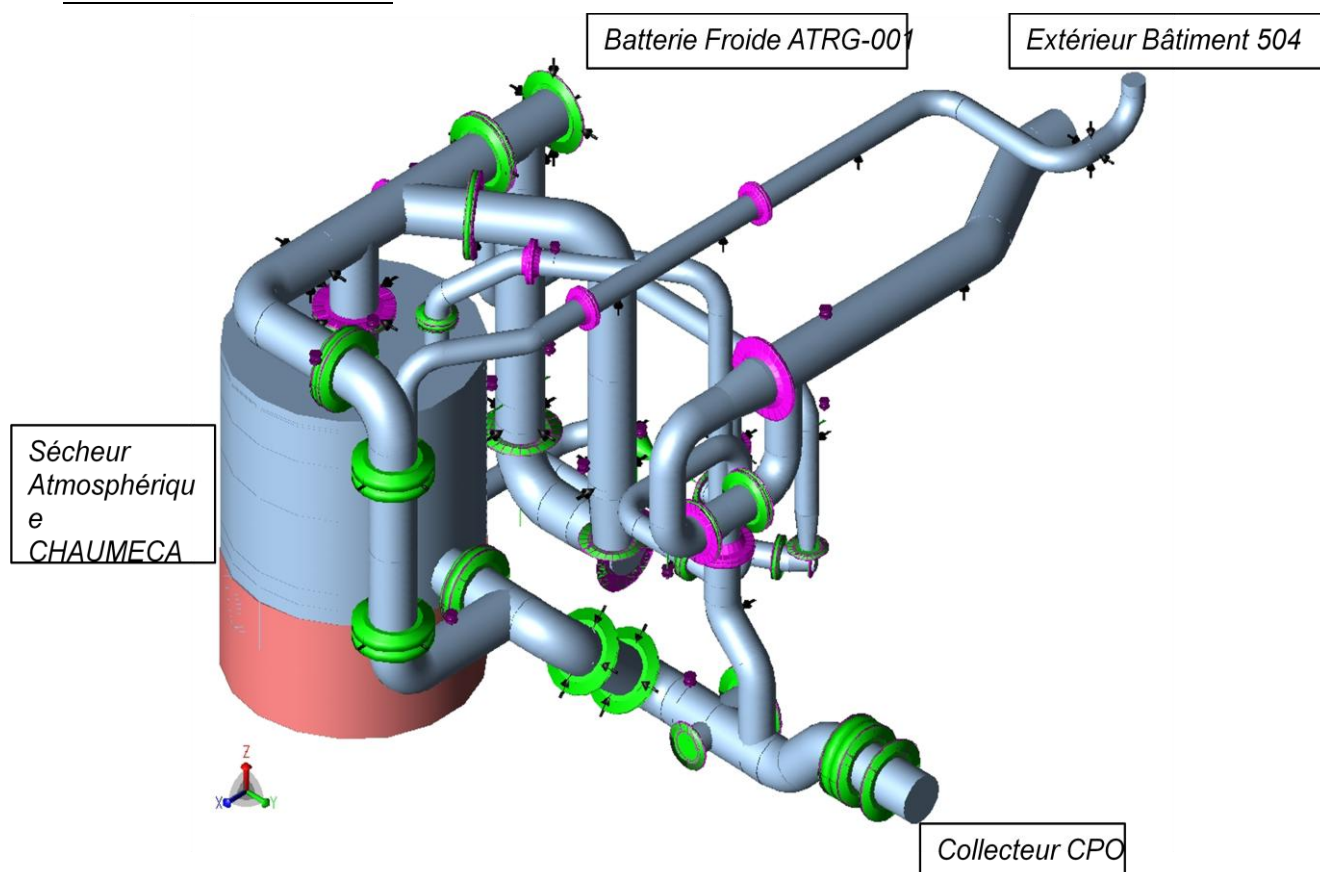
Les données techniques de construction des tuyauteries Procédé du Sécheur Atmosphérique sont définies en §4.1.2.3 de la référence [1.1], complétées des informations figurant dans la Réf.[1.2] ainsi que celles issues de la Réf. [4.3] et sont résumées ci-dessous.

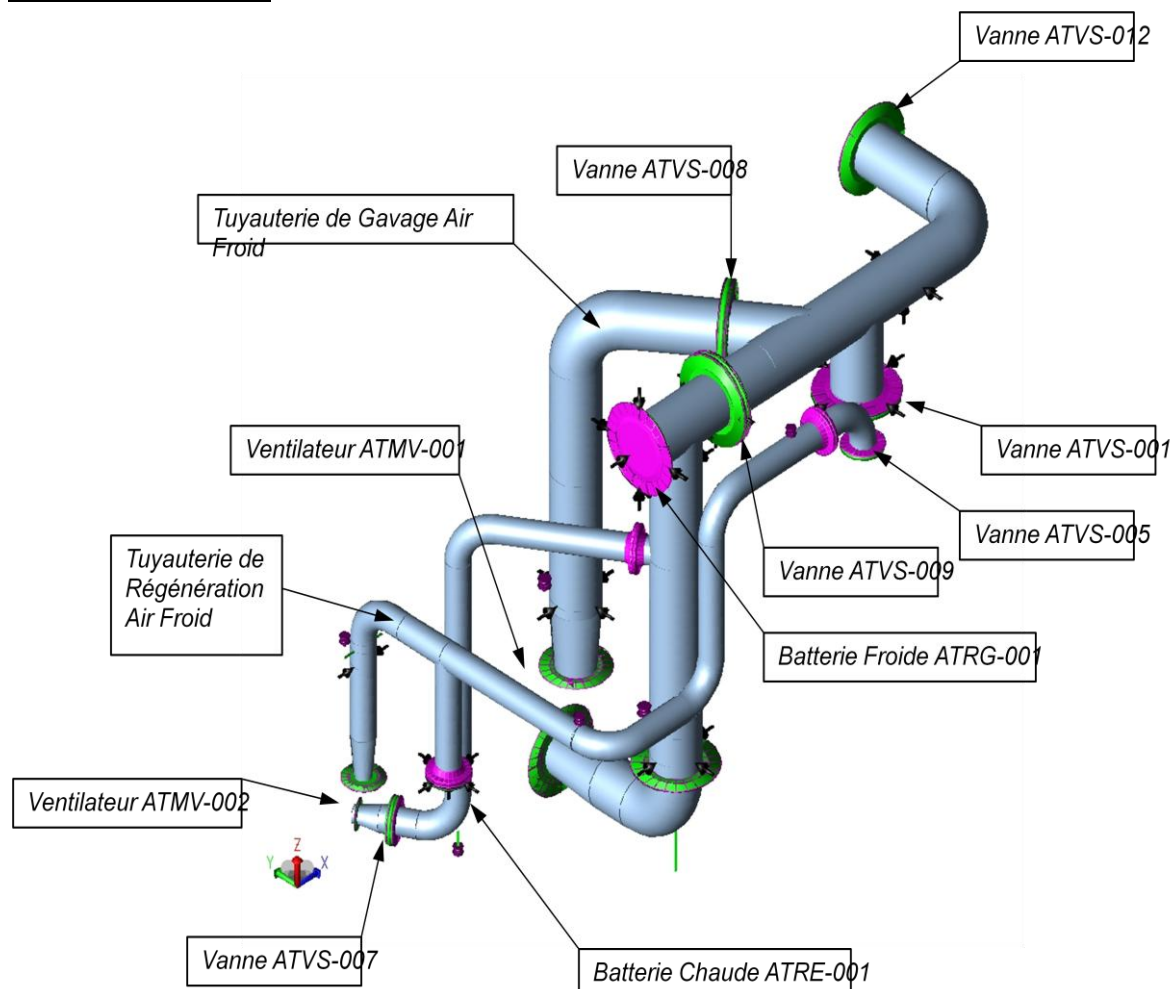
- Catégorie de Construction : A CODETI 2006 référence [2.1]
- Coefficient de Joint :  $z = 1$  CODETI 2006 référence [2.1]
- Catégorie de Risques : III DESP et AM 99/1046
- Module d'évaluation de la conformité DESP : G DESP et AM 99/1046
- Approvisionnement des matériaux : Avec contrôle spécifique (CCPU - Certificat type 3.1).

#### 3.2 CONDITIONS DE SERVICE

Pour cette analyse de flexibilité, plusieurs tronçons ont été considérés et sont décrits sur les pages suivantes. Le détail des conditions de service, pour les parties neuves, figure sur le Schéma Réf. [4.3].

Vue Globale de l'installation



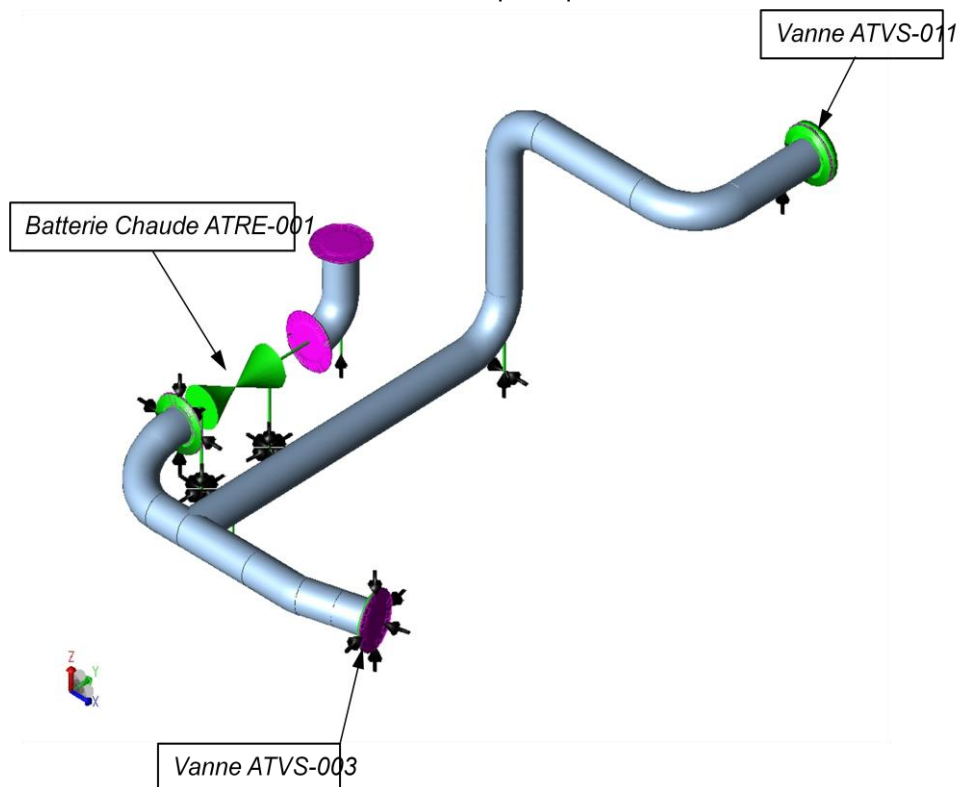
Alimentation Air Froid.

En fonction des différents modes de fonctionnement choisis, ce réseau d'alimentation en Air Froid concerne :

- la tuyauterie reliant l'ensemble "Batterie Froide" ATRG-001 au Sécheur Atmosphérique CHAUMECA et sa vanne ATVS-001 sur tubulure #N1, via la vanne ATVS-009 (Mode Normal - Voir plan de détail isométrique de la Réf. [3.1]),
- la tuyauterie reliant l'ensemble "Batterie Froide" ATRG-001 au Sécheur Atmosphérique CHAUMECA et sa vanne ATVS-001 sur tubulure #N1, via la vanne ATVS-008 et le ventilateur ATVM-001 (Mode Gavage Air Froid - Voir plans de détails isométriques des Réf. [3.1] et [3.4]),
- la tuyauterie reliant l'ensemble "Batterie Froide" ATRG-001 au Sécheur Atmosphérique CHAUMECA et sa vanne ATVS-005 sur tubulure #N5, via la vanne ATVS-007 et le ventilateur ATVM-002 (Mode Régénération Air Froid - Voir plans de détails isométriques des Réf. [3.1] et [3.4]),
- la tuyauterie reliant le ventilateur de régénération ATVM-002 à l'ensemble "Batterie Chaude" ATRE-001, au Sécheur Atmosphérique CHAUMECA et sa vanne ATVS-005 sur tubulure #N5, via la vanne ATVS-007 (Mode Régénération Air Chaud - Voir plan de détails isométrique de la Réf. [3.2]),
- la tuyauterie reliant les vannes ATVS-008 et/ou ATVS-009 à la vanne ATVS-012 (Mode alimentation Air Froid CPO - Voir plan de détails isométrique de la Réf. [3.1]).

Les conditions de Service décrites sur le schéma Réf. [1.1] et prises en compte sont les suivantes :

- Conditions Normales de Service : -0,1 bars @ -5°C (Déprimé Froid)
- Conditions Normales de Service : -0,1 bars @ 40°C (Déprimé Chaud)
- Conditions Maximale de Service : 0,2 bars @ 40°C
- Température de montage 20°C
- Fluide : Air de 1,0 à 1,35 kg/m<sup>3</sup>

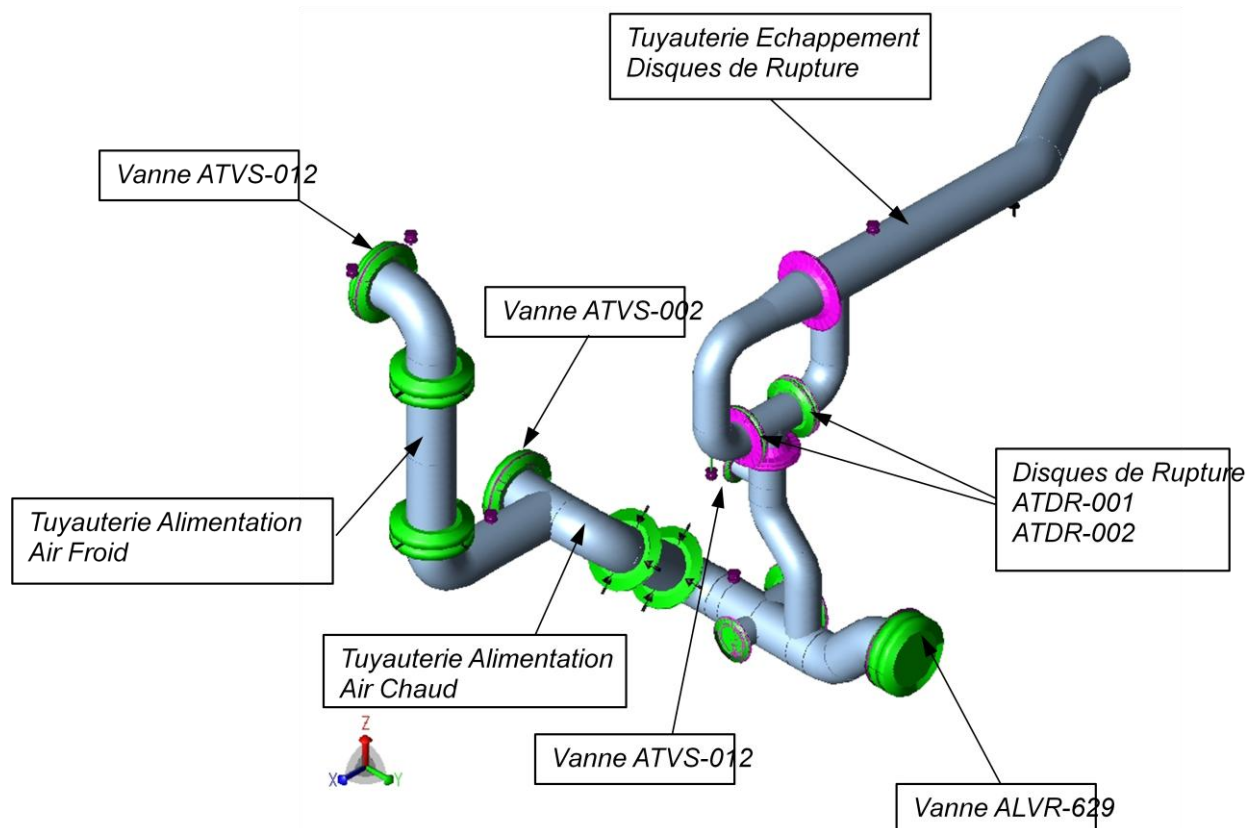
Alimentation Air Chaud et Sécheur Atmosphérique CHAUMECA

En fonction des différents modes de fonctionnement choisis, ce réseau d'alimentation en Air Chaud concerne :

- la tuyauterie reliant l'ensemble "Batterie Chaude" ATRE-001 au Sécheur Atmosphérique CHAUMECA et sa vanne ATVS-003 sur tubulure #N3 (Mode Régénération Air Chaud Sécheur - Voir plan de détails isométrique de la Réf. [3.2]),
- la tuyauterie reliant l'ensemble "Batterie Chaude" ATRE-001 à la vanne ATVS-011 (Mode Régénération Air Chaud CPO - Voir plan de détails isométrique de la Réf. [3.2]),
- le sécheur atmosphérique CHAUMECA et ses tubulures #N1 à #N6, y compris leurs vannes ATVS-001, ATVS-002, ATVS-003, ATVS-004, ATVS-005 et ATVS-006.

Les conditions de Service décrites sur le schéma Réf. [1.1] et prises en compte sont les suivantes :

- ✚ Conditions Normales de Service : -0,11 bars @ -5°C (Déprimé Froid)
- ✚ Conditions Normales de Service : -0,11 bars @ 200°C (Déprimé Chaud)
- ✚ Conditions Maximale de Service : 0,5 bars @ 200°C
- ✚ Température de montage 20°C
- ✚ Fluide : Air de 0,7 à 1,2 kg/m<sup>3</sup>

Alimentation Air Chaud / Air Froid CPO.

En fonction des différents modes de fonctionnement choisis, ce réseau d'alimentation en Air Chaud ou Froid concerne :

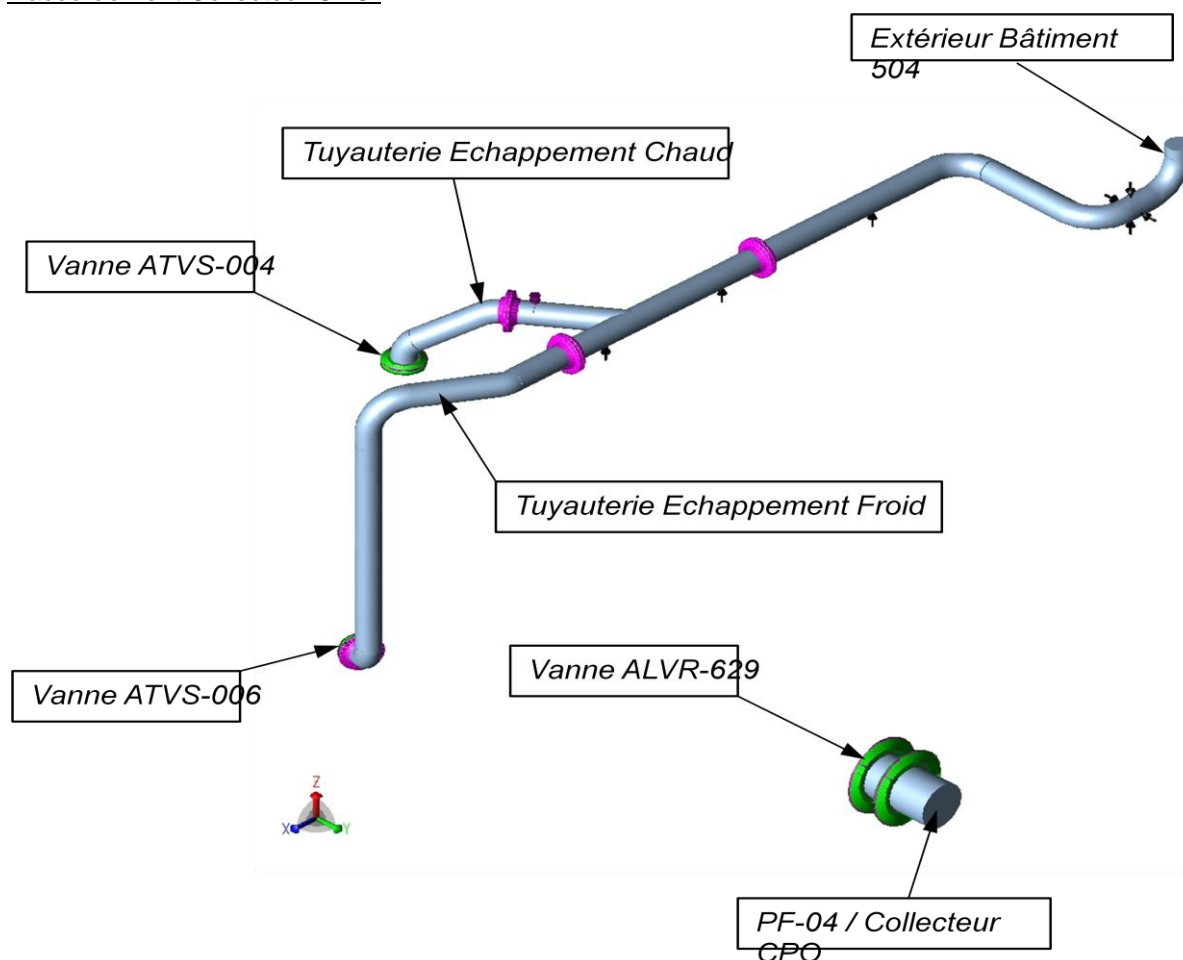
- la tuyauterie reliant la vanne ATVS-002 de la tubulure #N2 du Sécheur Atmosphérique CHAUMECA à la vanne ALVR-629 (Mode Alimentation Air Chaud CPO - Voir plan de détails isométrique de la Réf. [3.1]),
- la tuyauterie reliant la vanne ATVS-011 à la vanne ALVR-629 (Mode Régénération Air Chaud CPO - Voir plan de détails isométrique de la Réf. [3.1]),
- la tuyauterie reliant la vanne ATVS-012 à la vanne ALVR-629 (Mode Alimentation Air Froid CPO - Voir plan de détails isométrique de la Réf. [3.1]),
- la tuyauterie Amont du système de protection de surpressions (Piquage DN 900 des disques de rupture ATDR-001 et ATDR-002 - Voir plan de détails isométrique de la Réf. [3.1]),

Ces tronçons sont protégés des risques de surpression par des disques de rupture ATDR-001 et ATDR-002 conformément à [EX-18] du cahier des charges Réf. [1.1] et dont les caractéristiques sont décrites dans le document Réf.[4.6]. Ce système de protection de surpression concerne :

- la tuyauterie Aval d'échappement du système de protection de surpression, allant des disques de rupture ATDR-001 et ATDR-002 à l'extérieur du bâtiment 503 (Voir plan de détails isométrique de la Réf. [3.5]).

Les conditions de Service décrites sur le schéma Réf. [1.1] et prises en compte sont les suivantes :

- Conditions Normales de Service : -0,1 bars @ -5°C (Déprimé Froid)
- Conditions Maximale de Service : 0,9 bars @ 200°C (Débit d'échappement 30 kg /s)
- Conditions Exceptionnelles de Service : 0,9 bars @ 250°C (Débit d'échappement 110 kg/s)
- Température de montage 20°C
- Fluide : Air de 1,2 à 1,4 kg/m<sup>3</sup>

Raccordement Collecteur CPO.

Ce tronçon concerne :

- la tuyauterie allant de la vanne ALVR-629 au point Fixe PF-04 du Collecteur CPO. (Voir plan de détail isométrique de la Réf. [3.1]).

Les conditions de Service décrites sur le schéma Réf. [1.1] et prises en compte sont les suivantes :

- Condition Normale de Service : -0,95 bars @ -75°C (Déprimé Froid)
- Condition Normale de Service : -0,95 bars @ 150°C (Déprimé Chaud)
- Condition Normale de Service : 4,0 bars @ 250°C (Comprimé Chaud)
- Condition Maximale de Service : 7,8 bars @ 50°C (Système de protection du CPO)
- Température de montage 20°C
- Fluide : Air de 0,1 à 9,5 kg/m<sup>3</sup>

Echappements Sécheur Atmosphérique CHAUMECA.

Ce système d'échappement du sécheur atmosphérique CHAUMECA concerne :

- la tuyauterie allant de la vanne ATVS-004 sur tubulure #N4 du sécheur atmosphérique à l'extérieur du bâtiment 503. (Voir plan de détail isométrique de la Réf. [3.3]).
- la tuyauterie allant de la vanne ATVS-006 sur tubulure #N6 du sécheur atmosphérique à l'extérieur du bâtiment 503. (Voir plan de détail isométrique de la Réf. [3.3]).

Les conditions de Service décrites sur le schéma Réf. [1.1] et prises en compte sont les suivantes :

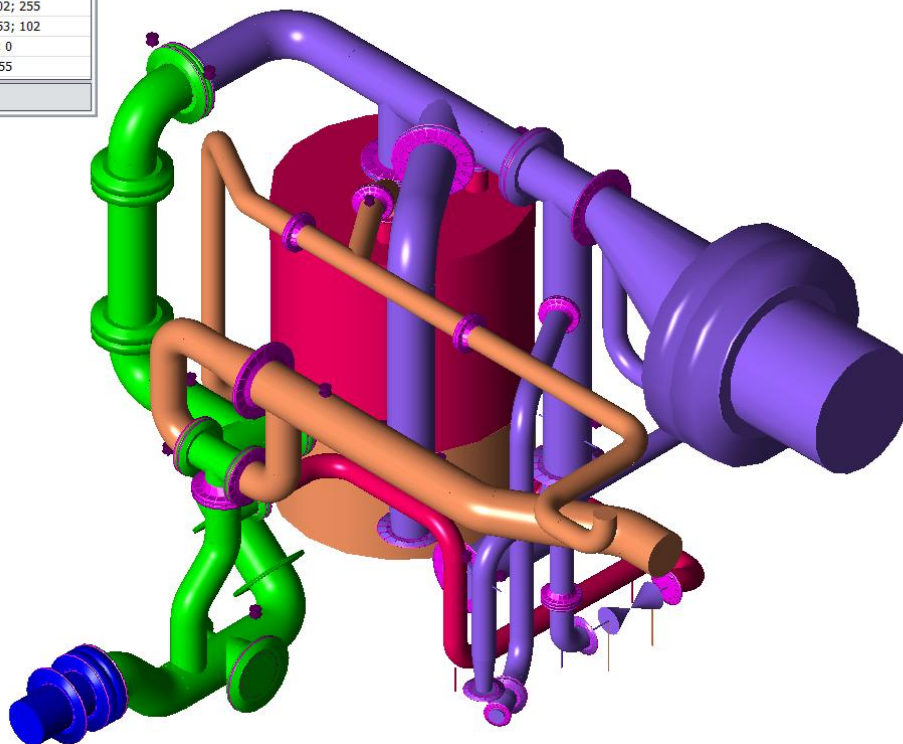
- Condition Normale de Service : P<sub>Atmos</sub> @ 40°C (Air Froid)
- Condition Normale de Service : P<sub>Atmos</sub> @ 220°C (Air Chaud)
- Température de montage 20°C
- Fluide : Air de 0,7 à 1,15 kg/m<sup>3</sup>



Visualisation des différentes conditions de Service

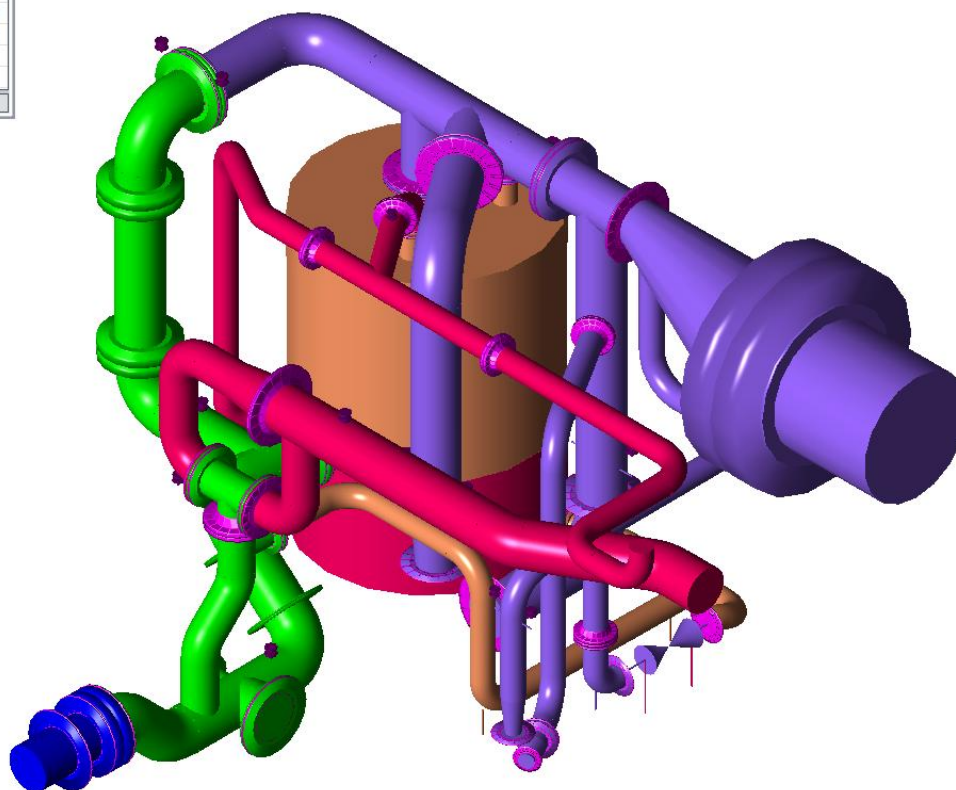
- Pressions Normales de Service (PS)

Legend	
Pressure 1 (bars)	
-0.1100	255; 0; 102
-0.1000	153; 102; 255
0.0000	255; 153; 102
0.9000	0; 255; 0
4.0000	0; 0; 255



- Pressions Maximales de Service (PMS)

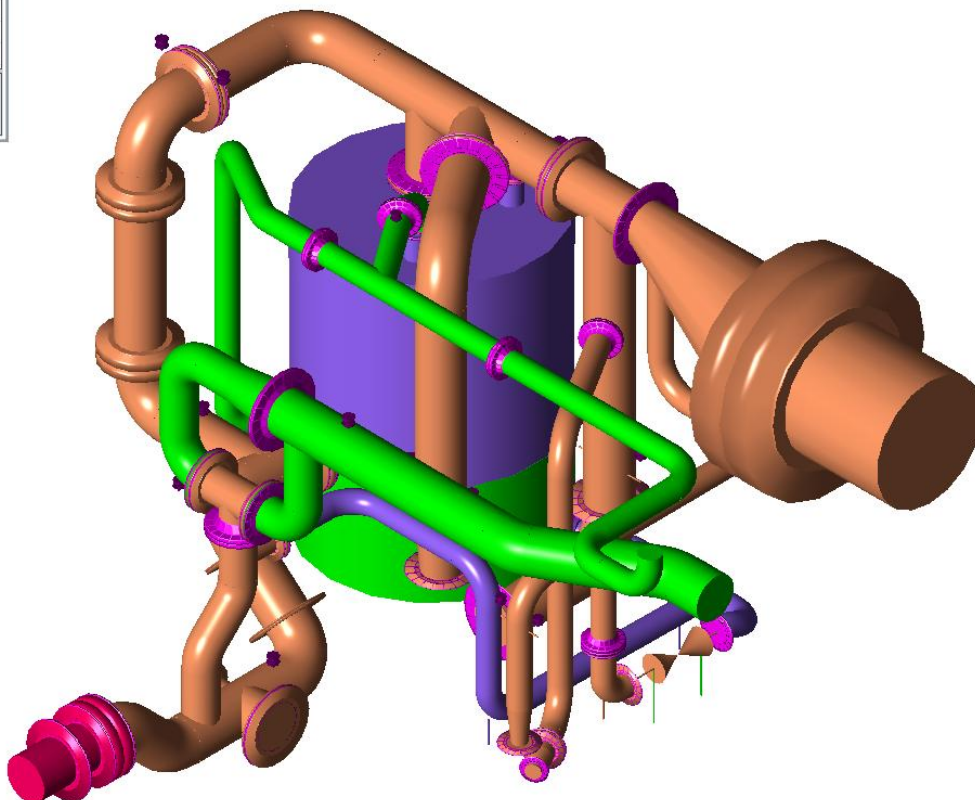
Legend	
Pressure 2 (bars)	
0.0000	255; 0; 102
0.2000	153; 102; 255
0.5000	255; 153; 102
0.9000	0; 255; 0
7.8000	0; 0; 255





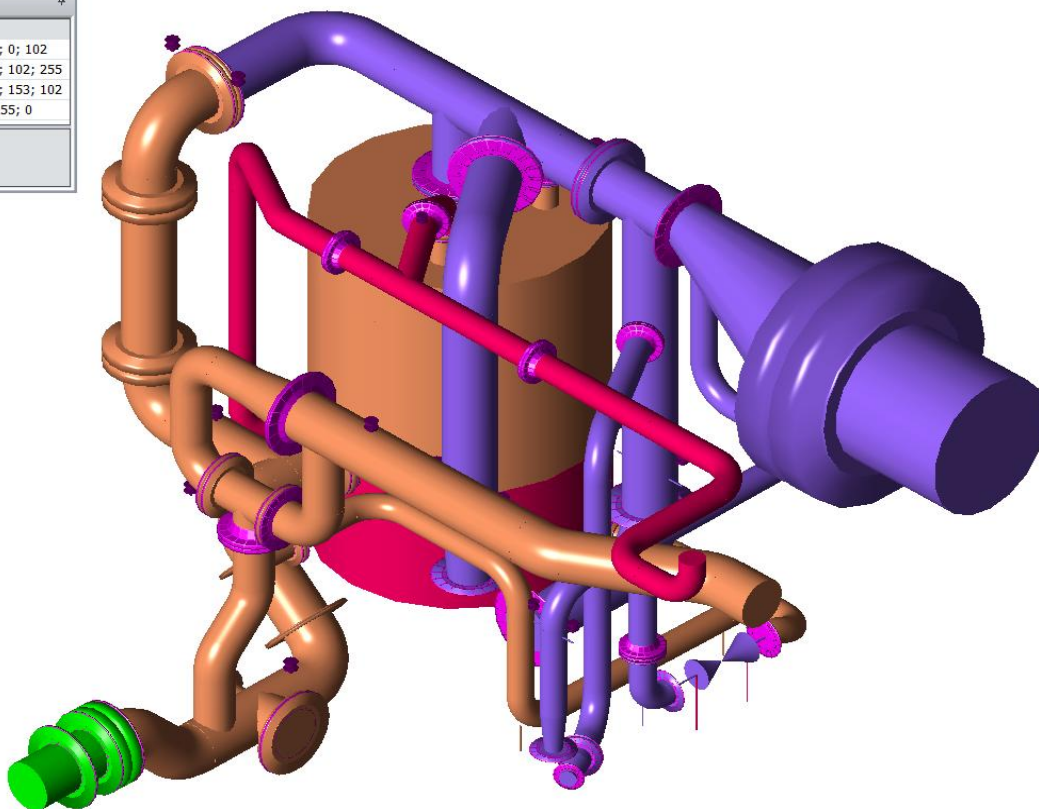
- Pressions Minimales de Service (PS Min)

Legend	
Pressure 3 (bars)	
-0.9500	255; 0; 102
-0.1100	153; 102; 255
-0.1000	255; 153; 102
0.0000	0; 255; 0



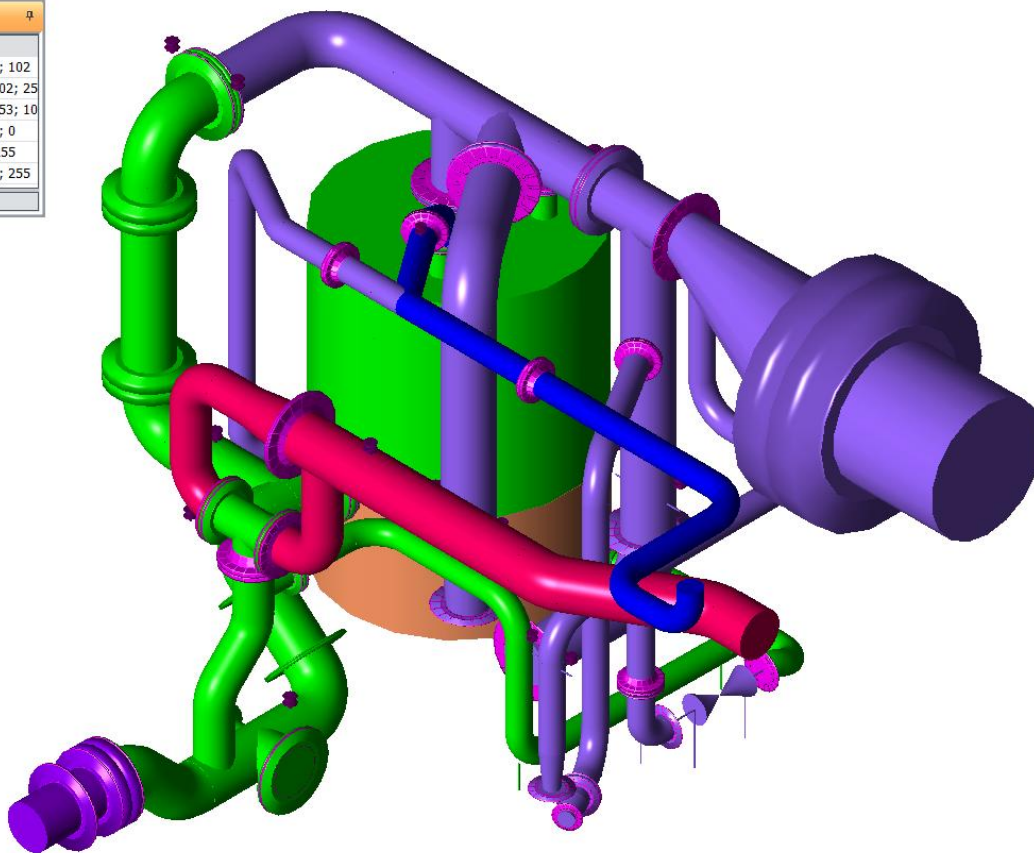
- Pressions Exceptionnelles de Service (Eclatement des disques de Rupture)

Legend	
Pressure 4 (bars)	
0.0000	255; 0; 102
0.5000	153; 102; 255
0.9000	255; 153; 102
4.0000	0; 255; 0



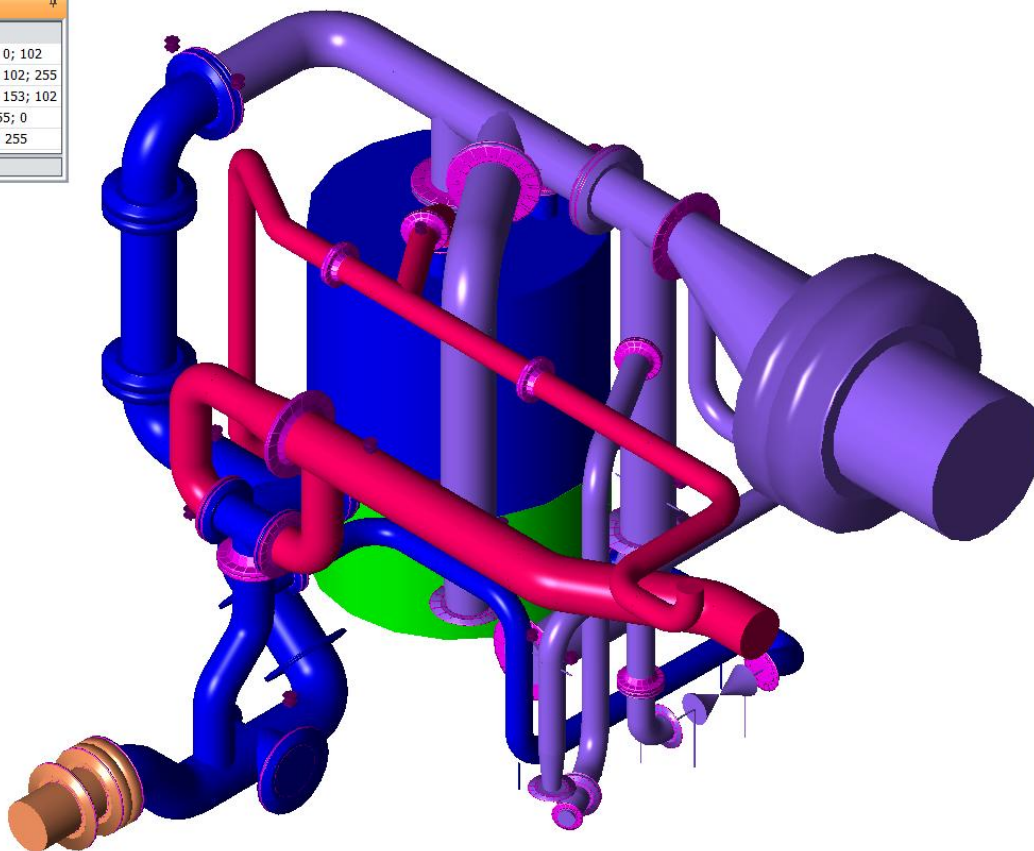
- Températures Maximales de Service (TMS)

Legend	
Temp 1 (C)	
20.0000	255; 0; 102
40.0000	153; 102; 25
80.0000	255; 153; 10
200.0000	0; 255; 0
220.0000	0; 0; 255
250.0000	153; 0; 255



- Températures Normales de Service (TS)

Legend	
Temp 2 (C)	
20.0000	255; 0; 102
40.0000	153; 102; 255
50.0000	255; 153; 102
80.0000	0; 255; 0
200.0000	0; 0; 255

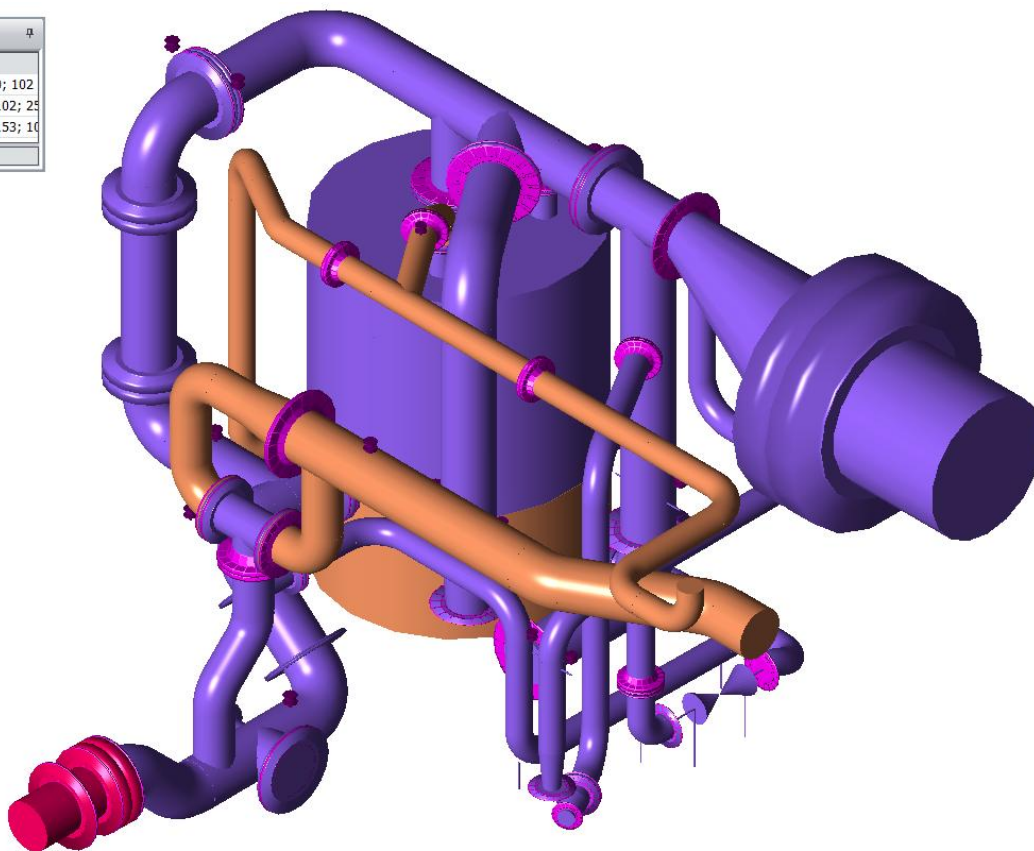




- Températures Minimales de Service (TS Mini)

Legend

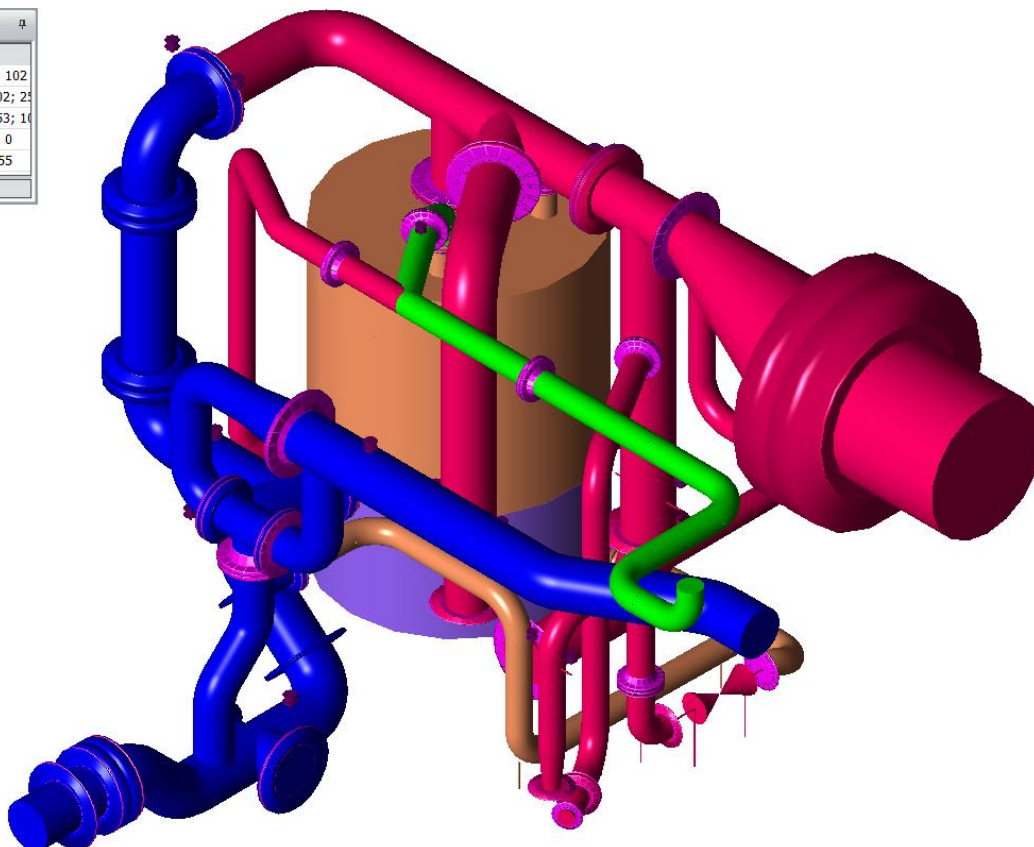
Temp 3 (C)	
-75.0000	255; 0; 102
-5.0000	153; 102; 25
20.0000	255; 153; 10



- Températures Exceptionnelles de Service (TExS)

Legend

Temp 4 (C)	
40.0000	255; 0; 102
80.0000	153; 102; 25
200.0000	255; 153; 10
220.0000	0; 255; 0
250.0000	0; 0; 255



- Efforts dynamiques dus à l'éclatement des disques de rupture.

Lors de ces situations occasionnelles, les tuyauteries d'échappement sont soumises aux efforts dynamiques dus à l'éclatement d'un ou des disques de rupture, et aux efforts dynamiques non équilibrés dans les coudes dus à la circulation de l'Air (effet de jet).

Ces tuyauteries d'échappement étant rigidement liées par brides aux disques de rupture, les efforts d'éclatement sont internes au système et ne sollicitent que les assemblages à brides. Dans le modèle CAESAR, 2 efforts égaux et de sens opposé sont introduits sur une des brides des disques et sur le coude de sortie afin de prendre en compte cette surpression équivalente dans la vérification des assemblages à brides.

Dans notre cas, pour les disques de rupture ATDR-001 et ATDR-002, l'effort dynamique d'éclatement est issu du document FIKE Réf. [4.6] dont la valeur est la suivante :

$$\underline{F = 97360 \text{ N}}$$

Afin d'être conservatif, 2 situations occasionnelles sont considérées telles que décrites ci-dessous :

- ✚ Eclatement d'un seul disque à 0,9 bar @ 250°C,
- ✚ Eclatement simultané des 2 disques à 0,9 bar @ 250°C,

Pour le calcul des effets de jet sur la tuyauterie d'échappement vers l'extérieur du bâtiment 504, le débit pris en compte est celui du collecteur CPO (110 kg/s @ 250°C) raccordé en Aval de la vanne ALVR-629 considérée défaillante conformément à [EX-18] du §4.1.2.3 de la Réf. [1.1]. Pour mémoire, l'échappement étant à la pression atmosphérique, la valeur des efforts dynamiques non équilibrés est obtenue par la formule  $F_{\text{Dyn}} = Q_m \cdot V$ .

Dans la situation de l'éclatement d'un disque de rupture, le débit de 110 kg/s est constant sur l'ensemble du tracé.

$$\text{Avec } V = \frac{4 \cdot Q_m}{\pi \cdot d_i^2 \cdot \rho_{\text{Air}}}, \gamma_{\text{Air}} = 0,675 \text{ kg/m}^3 \text{ pour } P_{\text{Atm}} @ 250^\circ\text{C et } Q_m = 110 \text{ kg/s.}$$

Nous obtenons :

$$V_{900} = \frac{4 \times 110}{(\pi \times 0,9^2 \times 0,675)} = 256,2 \text{ m/s} \quad \text{d'où } F_{\text{Dyn}} = 110 \cdot 256,2 = 28180 \text{ N} \quad (\text{Coude DN 900})$$

$$V_{1200} = \frac{4 \times 110}{(\pi \times 1,2^2 \times 0,675)} = 144,1 \text{ m/s} \quad \text{d'où } F_{\text{Dyn}} = 110 \cdot 144,1 = \underline{15850 \text{ N}} \quad (\text{Coudes DN 1200})$$

De part le tracé et les différents diamètres rencontrés, le coude DN 900 n'est pas équilibré et un effort résiduel est à introduire à cet endroit. La valeur de cet effort est la suivante :

$$F_{\text{Dyn}} = (28180 - 15850) = \underline{12330 \text{ N}}$$

Dans la situation de l'éclatement des 2 disques de rupture, le débit de 110 kg/s est obtenu en aval du té de raccordement DN 1200 x 900. Pour les tronçons en sortie des disques de rupture, le débit est de 55 kg/s.

$$\text{Avec } V = \frac{4 \cdot Q_m}{\pi \cdot d_i^2 \cdot \rho_{\text{Air}}}, \gamma_{\text{Air}} = 0,675 \text{ kg/m}^3 \text{ pour } P_{\text{Atm}} @ 250^\circ\text{C et } Q_m = 55 \text{ kg/s ou } 110 \text{ kg/s..}$$

Nous obtenons :

$$V_{900} = \frac{4 \times 55}{(\pi \times 0,9^2 \times 0,675)} = 128,1 \text{ m/s} \quad \text{d'où } F_{\text{Dyn}} = 110 \cdot 128,1 = 14100 \text{ N} \quad (\text{Coude DN 900})$$

$$V_{1200} = \frac{4 \times 55}{(\pi \times 1,2^2 \times 0,675)} = 72,1 \text{ m/s} \quad \text{d'où } F_{\text{Dyn}} = 110 \cdot 72,1 = 7925 \text{ N} \quad (\text{Té DN 1200})$$

$$V_{1200} = \frac{4 \times 110}{(\pi \times 1,2^2 \times 0,675)} = 144,1 \text{ m/s} \quad \text{d'où } F_{\text{Dyn}} = 110 \cdot 144,1 = \underline{15850 \text{ N}} \quad (\text{Coudes DN 1200})$$

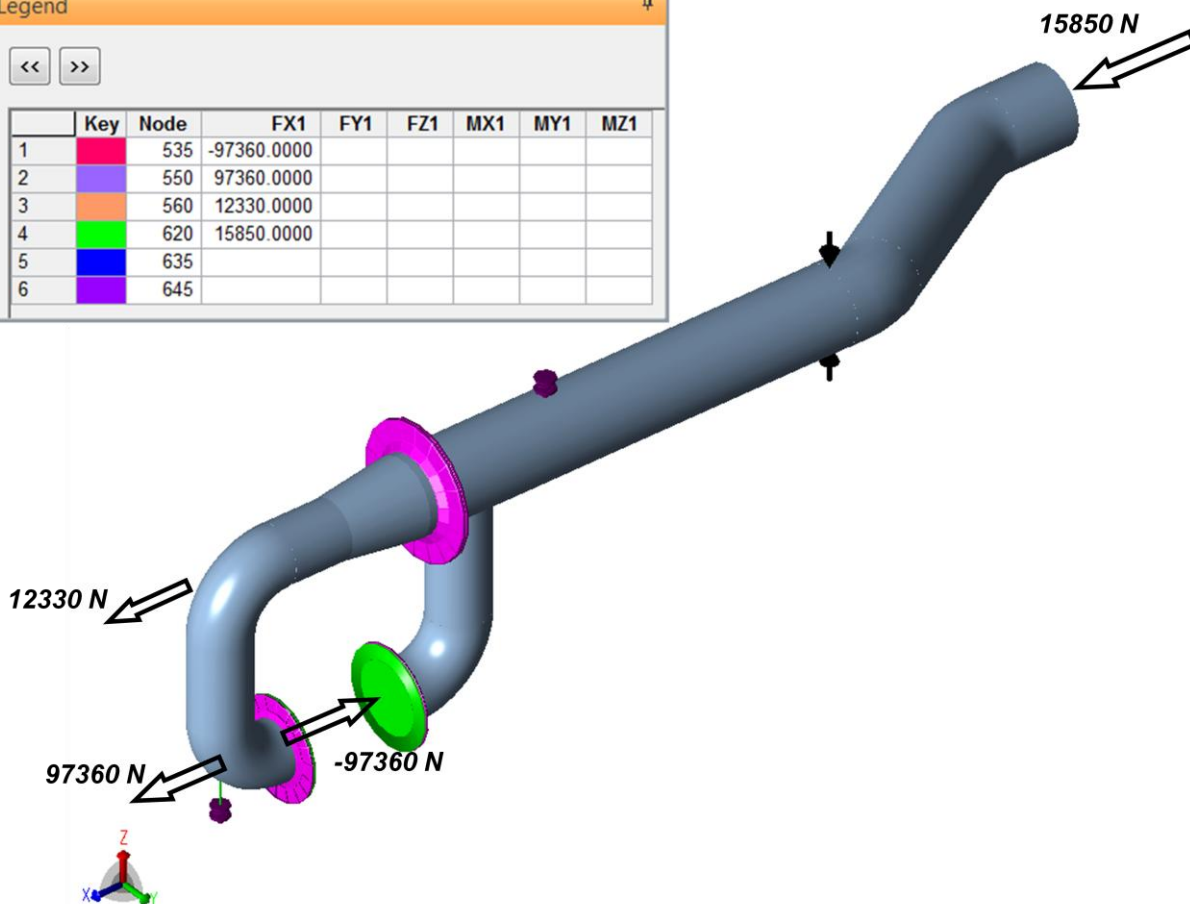
De part le tracé et les différents diamètres rencontrés, le coude DN 900 n'est pas équilibré et un effort résiduel est à introduire à cet endroit. La valeur de cet effort est la suivante :

$$F_{\text{Dyn}} = (24100 + 7925) - 15850 = \underline{6180 \text{ N}}$$

Ces efforts sont appliqués en sortie (Effet de Jet) et sur le coude DN 900 (Diamètres différents sur le tracé).

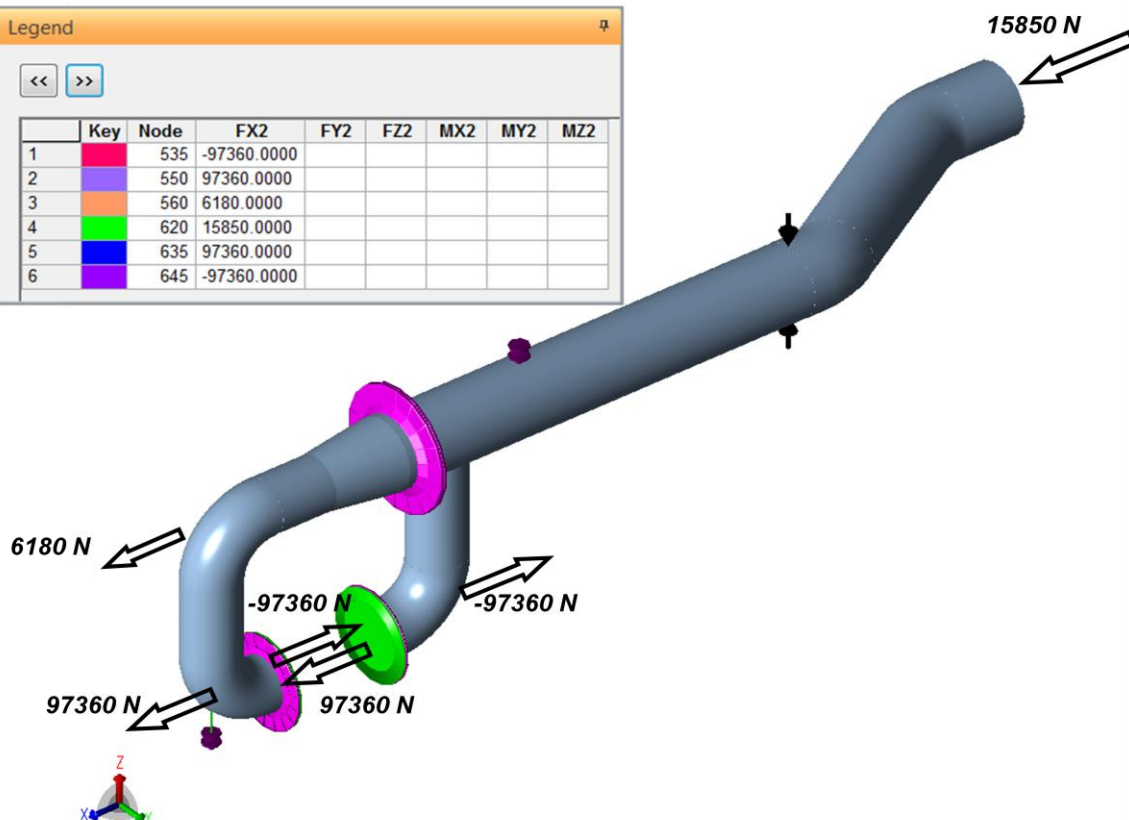
**Eclatement d' 1 Disque**

Legend									
<div style="display: flex; justify-content: space-between;"> <span>&lt;&lt;</span> <span>&gt;&gt;</span> </div>									
	Key	Node	FX1	FY1	FZ1	MX1	MY1	MZ1	
1		535	-97360.0000						
2		550	97360.0000						
3		560	12330.0000						
4		620	15850.0000						
5		635							
6		645							



**Eclatement de 2 Disques**

Legend									
<div style="display: flex; justify-content: space-between;"> <span>&lt;&lt;</span> <span>&gt;&gt;</span> </div>									
	Key	Node	FX2	FY2	FZ2	MX2	MY2	MZ2	
1		535	-97360.0000						
2		550	97360.0000						
3		560	6180.0000						
4		620	15850.0000						
5		635	97360.0000						
6		645	-97360.0000						



### 3.3 DETERMINATION DES PRESSIONS D'EPREUVES

D'une façon conservative, les pressions d'épreuves minimales des tronçons de tuyauteries neuves sont déterminées pour les conditions de Service les plus sévères en fonction des différentes caractéristiques des matériaux utilisés pour la construction de l'installation.

Ces différentes pressions d'épreuves, d'après § I1.6.2.1 de [1.1], ont pour valeur :

$$P_{Epreuve} = \text{MAX} \left[ \left( 1,25 \times PS \times \frac{f_{Froid}}{f_{TMS}} \right); \left( 1,25 \times PMS \times \frac{f_{Froid}}{f_{TS}} \right); (1,43 \times PS) \right]$$

#### Alimentation Air Froid.

$$P_{Epreuve} = \text{MAX} \left[ \left( 1,25 \times 0,2 \times \frac{160}{150,2} \right); (1,43 \times 0,2) \right]$$

$$P_{Epreuve} = \text{MAX}[(0,27); (0,29)]$$

$$P_{Epreuve} = \underline{\underline{0,29 \text{ Bar arrondie à } 0,3 \text{ Bar.}}}$$

#### Alimentation Air Chaud Sécheur Atmosphérique.

$$P_{Epreuve} = \text{MAX} \left[ \left( 1,25 \times 0,5 \times \frac{160}{98} \right); (1,43 \times 0,5) \right]$$

$$P_{Epreuve} = \text{MAX}[(1,02); (0,72)]$$

$$P_{Epreuve} = \underline{\underline{1,02 \text{ Bar arrondie à } 1,1 \text{ Bar.}}}$$

#### Alimentation Air Chaud CPO.

$$P_{Epreuve} = \text{MAX} \left[ \left( 1,25 \times 0,9 \times \frac{160}{98} \right); (1,43 \times 0,9) \right]$$

$$P_{Epreuve} = \text{MAX}[(1,84); (1,29)]$$

$$P_{Epreuve} = \underline{\underline{1,84 \text{ Bar arrondie à } 1,9 \text{ Bar.}}}$$

#### Raccordement Collecteur CPO.

$$P_{Epreuve} = \text{MAX} \left[ \left( 1,25 \times 4,0 \times \frac{160}{91,3} \right); \left( 1,25 \times 7,8 \times \frac{160}{145,3} \right); (1,43 \times 7,8) \right]$$

$$P_{Epreuve} = \text{MAX}[(8,8); (10,8); (11,2)]$$

$$P_{Epreuve} = \underline{\underline{11,2 \text{ Bar arrondie à } 12 \text{ Bar.}}}$$

Ces différentes valeurs minimales de pressions d'épreuves sont prises en compte pour la vérification des composants soumis à la pression en Annexe 1. Aucune épreuve hydraulique n'étant prévue sur site, cette situation n'est pas prise en compte dans les différents cas de chargement présents dans l'analyse de flexibilité.

### 3.4 CONDITIONS CLIMATIQUES

Pour cette analyse de flexibilité, l'ensemble des tuyauteries analysées sont situées à l'intérieur du bâtiment 504 du CEPr de SACLAY, il n'y a donc aucune condition climatique à prendre en compte.



### 3.5 CARACTERISTIQUES DES MATERIAUX

Le matériau utilisé pour la construction des tuyauteries neuves des réseaux Amont et Aval d'alimentation d'Air du Sécheur Atmosphérique CHAUMECA est la nuance 304L ou X2 CrNi 18-10 dont la désignation internationale UNS (Unified Numbering System) est 1,4307. Les différentes caractéristiques nécessaires à l'analyse de flexibilité en fonction des différentes situations de Service sont issues des références [2.3] et [2.4] relatives aux tôles et tubes roulés/soudés respectivement, et figurent dans le tableau ci-dessous.

Matériaux	Ts °C	R <sub>p1,0</sub> <sup>t</sup> (MPa)	R <sub>p0,2</sub> <sup>t</sup> (MPa)	R <sub>m</sub> (MPa)	α (10 <sup>6</sup> /°C)	E (MPa)	f <sub>Chaud</sub> (MPa)	f <sub>a</sub> (MPa)	f <sub>a</sub> +f <sub>Chaud</sub> (MPa)
X2 Cr Ni 18-09 Réf. [2.3]	≤ 20	240	200,0	500	16,4	195000	160,0	240,0	400,0
X2 Cr Ni 18-09 Réf. [2.3]	40	225	186,7	477	16,5	193750	150,2	236,0	386,3
X2 Cr Ni 18-09 Réf. [2.3]	50	218	180,0	466	16,6	193125	145,3	234,1	379,4
X2 Cr Ni 18-09 Réf. [2.3]	150	162	132,0	380	17,1	186000	108,0	216,5	324,5
X2 Cr Ni 18-09 Réf. [2.3]	200	147	118,0	360	17,3	183000	98,0	210,7	308,7
X2 Cr Ni 18-09 Réf. [2.3]	220	143	114,0	356	17,34	181400	95,3	208,2	303,6
X2 Cr Ni 18-09 Réf. [2.3]	250	137	108,0	350	17,4	179000	91,3	204,5	295,9
X2 Cr Ni 18-09 Réf. [2.4]	≤ 20	215	180,0	460	16,4	195000	143,3	215,0	358,3
X2 Cr Ni 18-09 Réf. [2.4]	40	205	170,0	/	16,5	193750	136,7	212,0	348,6
X2 Cr Ni 18-09 Réf. [2.4]	50	200	165,0	/	16,6	193125	133,3	210,5	343,8
X2 Cr Ni 18-09 Réf. [2.4]	150	160	130,0	/	17,1	186000	106,7	196,3	303,0
X2 Cr Ni 18-09 Réf. [2.4]	200	145	118,0	/	17,3	183000	96,7	190,8	287,5
X2 Cr Ni 18-09 Réf. [2.4]	220	141	114,0	/	17,34	181400	94,0	188,5	282,5
X2 Cr Ni 18-09 Réf. [2.4]	250	135	108,0	/	17,4	179000	90,0	185,1	275,1

Les valeurs coloriées dans le tableau ci-dessus sont celles prises en compte dans l'analyse des contraintes.

### 3.6 CONTRAINTES NOMINALES DE CALCUL

L'ensemble du réseau d'alimentation en Air Procédé du Sécheur Atmosphérique CHAUMECA et ses tronçons de tuyauteries neuves concernés par cette analyse sont en Acier Inoxydable Austénitique, les contraintes admissibles sont donc, d'après le tableau GA5.6.1-1 de la référence [2.1], les suivantes :

Tuyauteries & Accessoires en Acier Inoxydable

Situation Normale de Calcul		
$30 \leq A\% < 35$	$f_1 = \frac{R^t_{p1,0}}{1,5}$	$f_2 = \frac{R^t_{p1,0}}{1,6}$
$A\% \geq 35$	Si seule $R^t_{p1,0}$ est spécifiée $f_1 = \frac{R^t_{p1,0}}{1,5}$	Si seule $R^t_{p1,0}$ est spécifiée $f_2 = \frac{R^t_{p1,0}}{1,6}$
	Si $R^t_{p1,0}$ et $R^t_m$ sont spécifiées $f_1 = \frac{R^t_{p1,0}}{1,5}$ ou $f_1 = MIN \left[ \left( \frac{R^t_{p1,0}}{1,2} \right), \left( \frac{R^t_m}{3} \right) \right]$	Si $R^t_{p1,0}$ et $R^t_m$ sont spécifiées $f_2 = \frac{R^t_{p1,0}}{1,6}$ ou $f_2 = MIN \left[ \left( \frac{R^t_{p1,0}}{1,3} \right), \left( \frac{R^t_m}{3,25} \right) \right]$
	Si seule $R^t_m$ est spécifiée $f_1 = \left( \frac{R^t_m}{3} \right)$	Si seule $R^t_m$ est spécifiée $f_2 = \left( \frac{R^t_m}{3,25} \right)$

Situation Accidentelle ou d'Essai de Résistance
Si seule $R^t_{p1,0}$ est spécifiée $f_E = 0,95 \times R^t_{p1,0}$
Si $R^t_{p1,0}$ et $R^t_m$ sont spécifiées $f_E = MAX \left[ \left( 0,95 \times R^t_{p1,0} \right), \left( \frac{R^t_m}{2} \right) \right]$
Si seule $R^t_m$ est spécifiée $f_E = \left( \frac{R^t_m}{2} \right)$

Avec :

$R^t_{p0,2}$  Valeur minimale spécifiée de la limite conventionnelle d'élasticité à 0,2% à la température de calcul

$R^t_{p1,0}$  Valeur minimale spécifiée de la limite conventionnelle d'élasticité à 1 % à la température de calcul

$R^t_m$  Valeur minimale spécifiée de la résistance à la rupture à la température de calcul.

### 3.7 VERIFICATION DES COMPOSANTS SOUMIS A PRESSION

#### 3.7.1 VERIFICATION DE LA TENUE EN PRESSION

Pour la vérification de la tenue en pression intérieure des différentes tuyauteries et composants tubulaires en conditions de Service Normal, Exceptionnel et d'Epreuve, les calculs sont réalisés à l'aide des formules du § C2.2 du CODETI 2006 – Division 1 Réf. [2.1].

Pour les éléments suivants :

- ⇒ Réductions suivant § C2.2.4 et § C2.3.4,
- ⇒ Renforcements d'ouvertures suivant § C2.2.7,
- ⇒ Brides suivant § C2.2.8.

Ces calculs sont réalisés à l'aide du logiciel référence [5.2] et figurent en Annexe 1.

Pour les éléments suivants :

- ⇒ Tubes suivant § C2.2.1 et § C2.3.3,
- ⇒ Coudes à souder suivant § C2.2.2.3,
- ⇒ Coudes à secteurs (Onglets) suivant § C2.2.3.

Le résultat de ces calculs, pour les différents diamètres utilisés dans la construction du réseau Amont/Aval d'Alimentation Air du Sécheur Atmosphérique, figure dans les tableaux des pages suivantes.

Certaines conditions de Service, en fonction des différents tronçons de cette installation, ne concernent pas tous les diamètres indiqués. Les résultats, dans ces cas là, sont donnés à titre indicatif (Exemple, les conditions de Service du CPO ne concerne que le DN 1200).

#### Réseau Alimentation Air Sécheur Atmosphérique CHAUMECA

Service Normal 0,2 Bar @ 40°C							
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	5.90 mm	6.86 mm	3.80 mm	5.00 mm	7.00 mm	9.00 mm	9.00 mm
Di	156.50 mm	205.38 mm	398.80 mm	600.00 mm	702.00 mm	902.00 mm	1202.00 mm
Dm	162.40 mm	212.24 mm	402.60 mm	605.00 mm	709.00 mm	911.00 mm	1211.00 mm
Corrosion	0.5	0.5	0.5	0.5	0.5	0.5	0.5
z	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Ps	0.2 Bar	0.2 Bar	0.2 Bar	0.2 Bar	0.2 Bar	0.2 Bar	0.2 Bar
Ts	40 °	40 °	40 °	40 °	40 °	40 °	40 °
f <sub>1</sub>	136.7 MPa	136.7 MPa	136.7 MPa	136.7 MPa	150.2 MPa	150.2 MPa	150.2 MPa
De/Di	1.075	1.067	1.019	1.017	1.020	1.020	1.015
e <sub>Min</sub>	0.01 mm	0.02 mm	0.03 mm	0.05 mm	0.06 mm	0.07 mm	0.10 mm
Rc	229 mm	305 mm	610 mm	914 mm	/	/	/
e <sub>Int</sub>	0.02 mm	0.02 mm	0.04 mm	0.07 mm	/	/	/
e <sub>Ext</sub>	0.01 mm	0.02 mm	0.03 mm	0.05 mm	/	/	/

#### Coudes à Secteurs

$\alpha$	$\theta$	Rs	PMA			
90 °	15.00 °	1220 mm				7.9 Bar
45 °	11.25 °	1220 mm				9.3 Bar
30 °	15.00 °	1220 mm				7.9 Bar
90 °	15.00 °	920 mm				11.3 Bar
45 °	11.25 °	920 mm				13.2 Bar
30 °	15.00 °	920 mm				11.3 Bar
90 °	15.00 °	610 mm		8.2 Bar		
30 °	15.00 °	610 mm		8.2 Bar		
25 °	12.50 °	610 mm		9.1 Bar		
15 °	7.50 °	610 mm		11.6 Bar		

Service Normal 0,9 Bar @ 200°C							
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	5.90 mm	6.86 mm	3.80 mm	5.00 mm	7.00 mm	9.00 mm	9.00 mm
Di	156.50 mm	205.38 mm	398.80 mm	600.00 mm	702.00 mm	902.00 mm	1202.00 mm
Dm	162.40 mm	212.24 mm	402.60 mm	605.00 mm	709.00 mm	911.00 mm	1211.00 mm
Corrosion	0.5	0.5	0.5	0.5	0.5	0.5	0.5
z	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Ps	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar
Ts	200 °	200 °	200 °	200 °	200 °	200 °	200 °
f <sub>1</sub>	96.7 MPa	96.7 MPa	96.7 MPa	96.7 MPa	98.0 MPa	98.0 MPa	98.0 MPa
De/Di	1.075	1.067	1.019	1.017	1.020	1.020	1.015
e <sub>Min</sub>	0.09 mm	0.12 mm	0.22 mm	0.33 mm	0.38 mm	0.49 mm	0.66 mm
Rc	229 mm	305 mm	610 mm	914 mm	/	/	/
e <sub>Int</sub>	0.12 mm	0.15 mm	0.28 mm	0.42 mm	/	/	/
e <sub>Ext</sub>	0.08 mm	0.10 mm	0.19 mm	0.29 mm	/	/	/

**Coudes à Secteurs**

α	θ	Rs	PMA				
90 °	15.00 °	1220 mm					5.1 Bar
40 °	10.00 °	1220 mm					6.4 Bar
30 °	7.50 °	1220 mm					7.3 Bar
90 °	15.00 °	920 mm				7.4 Bar	
45 °	11.25 °	920 mm				8.6 Bar	
30 °	7.50 °	920 mm				10.3 Bar	
90 °	15.00 °	610 mm		5.8 Bar			
30 °	15.00 °	610 mm		5.8 Bar			
25 °	12.50 °	610 mm		6.4 Bar			
15 °	7.50 °	610 mm		8.2 Bar			

Service Exceptionnel 0,9 Bar @ 250°C							
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	6.40 mm	7.36 mm	4.30 mm	5.50 mm	7.50 mm	9.50 mm	9.50 mm
Di	155.50 mm	204.38 mm	397.80 mm	599.00 mm	701.00 mm	901.00 mm	1201.00 mm
Dm	161.90 mm	211.74 mm	402.10 mm	604.50 mm	708.50 mm	910.50 mm	1210.50 mm
Corrosion	0.5	0.5	0.5	0.5	0.5	0.5	0.5
z	1	1	1	1	1	1	1
Ps	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar	0.9 Bar
Ts	250 °	250 °	250 °	250 °	250 °	250 °	250 °
f <sub>1</sub>	90.0 MPa	90.0 MPa	90.0 MPa	90.0 MPa	91.3 MPa	91.3 MPa	91.3 MPa
De/Di	1.082	1.072	1.022	1.018	1.021	1.021	1.016
e <sub>Min</sub>	0.08 mm	0.11 mm	0.20 mm	0.30 mm	0.35 mm	0.45 mm	0.60 mm
Rc	229 mm	305 mm	610 mm	914 mm	/	/	/
e <sub>Int</sub>	0.11 mm	0.14 mm	0.25 mm	0.38 mm	/	/	/
e <sub>Ext</sub>	0.07 mm	0.09 mm	0.18 mm	0.27 mm	/	/	/

**Coudes à Secteurs**

α	θ	Rs	PMA			
90 °	15.00 °	1220 mm				6.0 Bar
40 °	10.00 °	1220 mm				7.5 Bar
30 °	7.50 °	1220 mm				8.6 Bar
90 °	15.00 °	920 mm				8.7 Bar
45 °	11.25 °	920 mm				10.1 Bar
30 °	7.50 °	920 mm				12.0 Bar
90 °	15.00 °	610 mm		7.2 Bar		
30 °	15.00 °	610 mm		7.2 Bar		
25 °	12.50 °	610 mm		8.0 Bar		
15 °	7.50 °	610 mm		10.1 Bar		

Epreuve Hydraulique @ 1,9 Bar							
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	6.40 mm	7.36 mm	4.30 mm	5.50 mm	7.50 mm	9.50 mm	9.50 mm
Di	155.50 mm	204.38 mm	397.80 mm	599.00 mm	701.00 mm	901.00 mm	1201.00 mm
Dm	161.90 mm	211.74 mm	402.10 mm	604.50 mm	708.50 mm	910.50 mm	1210.50 mm
Corrosion	0	0	0	0	0	0	0
z	1	1	1	1	1	1	1
Ps	1.9 Bar	1.9 Bar	1.9 Bar	1.9 Bar	1.9 Bar	1.9 Bar	1.9 Bar
Ts	20 °	20 °	20 °	20 °	20 °	20 °	20 °
f <sub>1</sub>	204.3 MPa	204.3 MPa	204.3 MPa	204.3 MPa	228.0 MPa	228.0 MPa	228.0 MPa
De/Di	1.082	1.072	1.022	1.018	1.021	1.021	1.016
e <sub>Min</sub>	0.08 mm	0.10 mm	0.19 mm	0.28 mm	0.30 mm	0.38 mm	0.51 mm
Rc	229 mm	305 mm	610 mm	914 mm	/	/	/
e <sub>Int</sub>	0.10 mm	0.13 mm	0.24 mm	0.35 mm	/	/	/
e <sub>Ext</sub>	0.07 mm	0.09 mm	0.16 mm	0.25 mm	/	/	/

**Coudes à Secteurs**

α	θ	Rs	PMA			
90 °	15.00 °	1220 mm				15.1 Bar
40 °	10.00 °	1220 mm				18.8 Bar
30 °	7.50 °	1220 mm				21.4 Bar
90 °	15.00 °	920 mm			21.7 Bar	
45 °	11.25 °	920 mm			25.2 Bar	
30 °	7.50 °	920 mm			30.0 Bar	
90 °	15.00 °	610 mm		16.3 Bar		
30 °	15.00 °	610 mm		16.3 Bar		
25 °	12.50 °	610 mm		18.1 Bar		
15 °	7.50 °	610 mm		22.8 Bar		



Raccordement sur Collecteur CPO

	Service Normal 4 Bar @ 250°C						
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	5.90 mm	6.86 mm	3.80 mm	5.00 mm	7.00 mm	9.00 mm	9.00 mm
Di	156.50 mm	205.38 mm	398.80 mm	600.00 mm	702.00 mm	902.00 mm	1202.00 mm
Dm	162.40 mm	212.24 mm	402.60 mm	605.00 mm	709.00 mm	911.00 mm	1211.00 mm
Corrosion	0.5	0.5	0.5	0.5	0.5	0.5	0.5
z	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Ps	4.0 Bar	4.0 Bar	4.0 Bar	4.0 Bar	4.0 Bar	4.0 Bar	4.0 Bar
Ts	250 °	250 °	250 °	250 °	250 °	250 °	250 °
f <sub>1</sub>	90.0 MPa	90.0 MPa	90.0 MPa	90.0 MPa	91.3 MPa	91.3 MPa	91.3 MPa
De/Di	1.075	1.067	1.019	1.017	1.020	1.020	1.015
e <sub>Min</sub>	0.43 mm	0.56 mm	1.04 mm	1.55 mm	1.80 mm	2.31 mm	3.06 mm
Rc	229 mm	305 mm	610 mm	914 mm	914 mm	1372 mm	/
e <sub>Int</sub>	0.55 mm	0.71 mm	1.29 mm	1.94 mm	2.38 mm	2.89 mm	/
e <sub>Ext</sub>	0.37 mm	0.48 mm	0.91 mm	1.36 mm	1.55 mm	2.02 mm	/

Coudes à Secteurs

α	θ	Rs	PMA			
90 °	15.00 °	1420 mm				
60 °	10.00 °	1420 mm				
45 °	11.25 °	1420 mm				
90 °	15.00 °	1220 mm				4.8 Bar
45 °	11.25 °	1220 mm				5.6 Bar
30 °	15.00 °	1220 mm				4.8 Bar
90 °	15.00 °	920 mm			6.9 Bar	
45 °	11.25 °	920 mm			8.0 Bar	
30 °	15.00 °	920 mm			6.9 Bar	
90 °	15.00 °	610 mm		5.4 Bar		
30 °	15.00 °	610 mm		5.4 Bar		
25 °	12.50 °	610 mm		6.0 Bar		
15 °	7.50 °	610 mm		7.6 Bar		

	Service Normal 7,8 Bar @ 50°C						
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	5.90 mm	6.86 mm	3.80 mm	5.00 mm	7.00 mm	9.00 mm	9.00 mm
Di	156.50 mm	205.38 mm	398.80 mm	600.00 mm	702.00 mm	902.00 mm	1202.00 mm
Dm	162.40 mm	212.24 mm	402.60 mm	605.00 mm	709.00 mm	911.00 mm	1211.00 mm
Corrosion	0.5	0.5	0.5	0.5	0.5	0.5	0.5
z	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Ps	7.8 Bar	7.8 Bar	7.8 Bar	7.8 Bar	7.8 Bar	7.8 Bar	7.8 Bar
Ts	50 °	50 °	50 °	50 °	50 °	50 °	50 °
f <sub>1</sub>	133.3 MPa	133.3 MPa	133.3 MPa	133.3 MPa	145.3 MPa	145.3 MPa	145.3 MPa
De/Di	1.075	1.067	1.019	1.017	1.020	1.020	1.015
e <sub>Min</sub>	0.56 mm	0.73 mm	1.35 mm	2.03 mm	2.19 mm	2.82 mm	3.74 mm
Rc	229 mm	305 mm	610 mm	914 mm	914 mm	1372 mm	/
e <sub>Int</sub>	0.72 mm	0.93 mm	1.69 mm	2.54 mm	2.90 mm	3.53 mm	/
e <sub>Ext</sub>	0.48 mm	0.63 mm	1.18 mm	1.78 mm	1.88 mm	2.46 mm	/

**Coudes à Secteurs**

α	θ	Rs	PMA				
90 °	15.00 °	1420 mm					
60 °	10.00 °	1420 mm					
45 °	11.25 °	1420 mm					
90 °	15.00 °	1220 mm					7.6 Bar
40 °	10.00 °	1220 mm					9.5 Bar
30 °	7.50 °	1220 mm					10.8 Bar
90 °	15.00 °	920 mm				11.0 Bar	
45 °	11.25 °	920 mm				12.8 Bar	
30 °	7.50 °	920 mm				15.2 Bar	
90 °	15.00 °	610 mm		8.0 Bar			
30 °	15.00 °	610 mm		8.0 Bar			
25 °	12.50 °	610 mm		8.9 Bar			
15 °	7.50 °	610 mm		11.3 Bar			

Epreuve Hydraulique @ 12 Bar							
DN	150	200	400	600	700	900	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1220.0 mm
e <sub>Nom</sub>	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm
Tol	10%	10%	10%	0.50	0.50	0.50	0.50
e <sub>Admise</sub>	6.40 mm	7.36 mm	4.30 mm	5.50 mm	7.50 mm	9.50 mm	9.50 mm
Di	155.50 mm	204.38 mm	397.80 mm	599.00 mm	701.00 mm	901.00 mm	1201.00 mm
Dm	161.90 mm	211.74 mm	402.10 mm	604.50 mm	708.50 mm	910.50 mm	1210.50 mm
Corrosion	0	0	0	0	0	0	0
z	1	1	1	1	1	1	1
Ps	12.0 Bar	12.0 Bar	12.0 Bar	12.0 Bar	12.0 Bar	12.0 Bar	12.0 Bar
Ts	20 °	20 °	20 °	20 °	20 °	20 °	20 °
f <sub>1</sub>	204.3 MPa	204.3 MPa	204.3 MPa	204.3 MPa	228.0 MPa	228.0 MPa	228.0 MPa
De/Di	1.082	1.072	1.022	1.018	1.021	1.021	1.016
e <sub>Min</sub>	0.48 mm	0.63 mm	1.16 mm	1.74 mm	1.84 mm	2.36 mm	3.13 mm
Rc	229 mm	305 mm	610 mm	914 mm	914 mm	1372 mm	/
e <sub>Int</sub>	0.62 mm	0.80 mm	1.45 mm	2.18 mm	2.43 mm	2.95 mm	/
e <sub>Ext</sub>	0.42 mm	0.54 mm	1.01 mm	1.52 mm	1.58 mm	2.06 mm	/

**Coudes à Secteurs**

α	θ	Rs	PMA				
90 °	15.00 °	1420 mm					
60 °	10.00 °	1420 mm					
45 °	11.25 °	1420 mm					
90 °	15.00 °	1220 mm					15.1 Bar
40 °	10.00 °	1220 mm					18.8 Bar
30 °	7.50 °	1220 mm					21.4 Bar
90 °	15.00 °	920 mm				21.7 Bar	
45 °	11.25 °	920 mm				25.2 Bar	
30 °	7.50 °	920 mm				30.0 Bar	
90 °	15.00 °	610 mm		16.3 Bar			
30 °	15.00 °	610 mm		16.3 Bar			
25 °	12.50 °	610 mm		18.1 Bar			
15 °	7.50 °	610 mm		22.8 Bar			

### 3.7.2 VERIFICATION DE LA TENUE AU VIDE

Pour la vérification de la tenue en pression extérieure des différentes tuyauteries et composants tubulaires en conditions de Service Normal, les calculs sont réalisés à l'aide des formules du § C2.3 du CODETI 2006 – Division 1 Réf. [2.1].

Pour les éléments suivants :

⇒ Réductions suivant § C2.3.4,

Ces calculs sont réalisés à l'aide du logiciel référence [5.2] et figurent en Annexe 1.

Pour les éléments suivants :

⇒ Tubes suivant § C2.3.3,

- Le résultat de ces calculs, pour les différents diamètres utilisés dans la construction du réseau Amont/Aval d'Alimentation Air du Sécheur Atmosphérique, figure dans les tableaux des pages suivantes pour les situations enveloppes "Déprimé Froid" et "Déprimé Chaud" du Collecteur CPO (Conservatif).

Dépression 0,95 Bar @ 150 °C (Déprimé Chaud)								
DN	150	200	400	600	700	900	1000	1200
De	168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1000.0 mm	1220.0 mm
en	7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm	10.00 mm
Matériau	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique
Température	150 °C	150 °C	150 °C	150 °C	150 °C	150 °C	150 °C	150 °C
R <sub>p1,0</sub>	160.0 MPa	160.0 MPa	160.0 MPa	160.0 MPa	162.0 MPa	162.0 MPa	162.0 MPa	162.0 MPa
R <sub>p0,2</sub>	130.0 MPa	130.0 MPa	130.0 MPa	130.0 MPa	132.0 MPa	132.0 MPa	132.0 MPa	132.0 MPa
S	128.0 MPa	128.0 MPa	128.0 MPa	128.0 MPa	129.6 MPa	129.6 MPa	129.6 MPa	129.6 MPa
E <sub>t</sub>	186000 MPa	186000 MPa	186000 MPa	186000 MPa	186000 MPa	186000 MPa	186000 MPa	186000 MPa
v	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Type Tolérance	%	%	%	mm	mm	mm	mm	mm
Valeur Tolérance	10.00	10.00	10.00	0.50	0.50	0.50	0.50	0.50
e <sub>Mini</sub>	6.40 mm	7.36 mm	4.30 mm	5.50 mm	7.50 mm	9.50 mm	9.50 mm	9.50 mm
Corrosion	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm
L	100000 mm	100000 mm	100000 mm	10000 mm	100000 mm	100000 mm	100000 mm	8950 mm
e <sub>u</sub>	5.90 mm	6.86 mm	3.80 mm	5.00 mm	7.00 mm	9.00 mm	9.00 mm	9.00 mm
R <sub>m</sub>	81.20 mm	106.12 mm	201.30 mm	302.50 mm	354.50 mm	455.50 mm	495.50 mm	605.50 mm
Py	9.299 MPa	8.277 MPa	2.418 MPa	2.116 MPa	2.559 MPa	2.561 MPa	2.354 MPa	1.926 MPa
Z	0.0025510	0.0033338	0.0063240	0.0950332	0.0111369	0.0143100	0.0155666	0.2125402
n <sub>Cyl</sub>	2	2	2	2	2	2	2	2
ε	0.001449905	0.001148725	9.8005E-05	7.70846E-05	0.000107125	0.000107264	9.06473E-05	0.000103328
P <sub>m</sub>	19.592 MPa	13.816 MPa	0.344 MPa	0.237 MPa	0.393 MPa	0.394 MPa	0.306 MPa	0.286 MPa
P <sub>m</sub> / Py	2.1069	1.6692	0.1424	0.1120	0.1537	0.1539	0.1301	0.1483
Pr / Py	0.7654	0.7089	0.0709	0.0558	0.0766	0.0767	0.0648	0.0739
Pr	7.117 MPa	5.867 MPa	0.171 MPa	0.118 MPa	0.196 MPa	0.196 MPa	0.153 MPa	0.142 MPa
Dépression Max en Service	47.45 Bar	39.11 Bar	1.14 Bar	0.79 Bar	1.31 Bar	1.31 Bar	1.02 Bar	0.95 Bar

Dépression 0,95 Bar @ -75 °C (Déprimé Froid)							
150	200	400	600	700	900	1000	1200
168.3 mm	219.1 mm	406.4 mm	610.0 mm	716.0 mm	920.0 mm	1020.0 mm	1220.0 mm
7.11 mm	8.18 mm	4.78 mm	6.00 mm	8.00 mm	10.00 mm	10.00 mm	10.00 mm
Austénitique	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique	Austénitique
-75 °C	-75 °C	-75 °C	-75 °C	-75 °C	-75 °C	-75 °C	-75 °C
215.0 MPa	215.0 MPa	215.0 MPa	215.0 MPa	240.0 MPa	240.0 MPa	240.0 MPa	240.0 MPa
180.0 MPa	180.0 MPa	180.0 MPa	180.0 MPa	200.0 MPa	200.0 MPa	200.0 MPa	200.0 MPa
172.0 MPa	172.0 MPa	172.0 MPa	172.0 MPa	192.0 MPa	192.0 MPa	192.0 MPa	192.0 MPa
195000 MPa	195000 MPa	195000 MPa	195000 MPa	195000 MPa	195000 MPa	195000 MPa	195000 MPa
0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
%	%	%	mm	mm	mm	mm	mm
10.00	10.00	10.00	0.50	0.50	0.50	0.50	0.50
6.40 mm	7.36 mm	4.30 mm	5.50 mm	7.50 mm	9.50 mm	9.50 mm	9.50 mm
0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm
10000 mm	10000 mm	10000 mm	10000 mm	10000 mm	10000 mm	10000 mm	9200 mm
5.90 mm	6.86 mm	3.80 mm	5.00 mm	7.00 mm	9.00 mm	9.00 mm	9.00 mm
81.20 mm	106.12 mm	201.30 mm	302.50 mm	354.50 mm	455.50 mm	505.50 mm	605.50 mm
12.495 MPa	11.122 MPa	3.249 MPa	2.843 MPa	3.791 MPa	3.794 MPa	3.418 MPa	2.854 MPa
0.0255099	0.0333383	0.0632399	0.0950332	0.1113695	0.1430995	0.1588075	0.2067646
2	2	2	2	2	2	2	2
0.00145038	0.001149383	9.85314E-05	7.70846E-05	0.000110961	0.00011697	0.000101215	9.90081E-05
20.546 MPa	14.493 MPa	0.363 MPa	0.248 MPa	0.427 MPa	0.451 MPa	0.351 MPa	0.287 MPa
1.6443	1.3031	0.1117	0.0874	0.1127	0.1188	0.1028	0.1006
0.7054	0.6204	0.0556	0.0435	0.0561	0.0592	0.0512	0.0501
8.814 MPa	6.900 MPa	0.181 MPa	0.124 MPa	0.213 MPa	0.224 MPa	0.175 MPa	0.143 MPa
58.76 Bar	46.00 Bar	1.20 Bar	0.82 Bar	1.42 Bar	1.50 Bar	1.17 Bar	0.95 Bar

Pour le DN 1200, la Pression Extérieure Maximale admissible en Service Normal est de 0,95 Bar, ce qui correspond à la Pression Extérieure Normale de Service de 0,95 Bar du tronçon Aval ALVR-629 vers CPO.

Pour garantir la tenue du réseau Amont/Aval d'Alimentation Air du Sécheur Atmosphérique, pour cette situation, il convient donc de s'assurer que des anneaux renforts soient installés, et dont la distance entre eux, ne doit pas dépasser 9,20 m. Les éléments comme les brides de raccordement sont considérés comme des éléments renforts vis-à-vis de la tenue à la pression extérieure.

Pour le DN 600, la Pression Extérieure Maximale admissible en Service Normal est de 0,79 Bar, ce qui est supérieur à la Pression Extérieure Normale de Service de 0,11 Bar @ -5°C de ce tronçon. Il n'est donc pas nécessaire, ainsi que pour tous les autres diamètres, de prévoir de dispositifs de renforcement.

L'ensemble de l'installation est correcte vis-à-vis de la pression extérieure pour toutes les températures de fonctionnement prévues.

### 3.8 VERIFICATION DES ASSEMBLAGES A BRIDES

Les brides neuves utilisées pour le montage des différents tronçons sont des brides PN 6, PN 10 et PN 25 (Vanne ALVR-629 et CPO), en acier inoxydable austénitique.

La pression admissible pour ces brides, en fonction de la température, est donnée par le tableau G4.1-4, pour un groupe de matériau 10 E0 de la norme [2.8] , est rappelée dans le tableau ci-dessous :

PN	Groupe	N° de Matériau	Température Maximale Admissible TS en °C					
			≤ 50	100	150	200	250	300
			Pression Maximale Admissible PS en Bar					
6	10 E0	1.4307	6	5,1	4,6	4,2	3,9	3,6
10	10 E0	1.4307	10	8,6	7,7	7,0	6,5	6,0
25	10 E0	1.4307	25	21,5	19,2	17,5	16,3	15,1

Les brides neuves utilisées pour le raccordement des vannes ATVS-001 à ATVS-012 sont des brides PN 20 (Class 150#-US) en acier inoxydable austénitique.

La pression admissible pour ces brides, en fonction de la température, est donnée par le tableau G4.1-4, pour un groupe de matériau 2,3 de la norme [2.9] , est rappelée dans le tableau ci-dessous :

Class	Groupe	N° de Matériau	Température Maximale Admissible TS en °C						
			≤ 20	50	100	150	200	250	300
			Pression Maximale Admissible PS en Bar						
150	2,3	1.4307	18,4	16,6	13,5	12,1	10,9	9,9	9,2



### 3.9 ANALYSE DE FLEXIBILITE

#### 3.9.1 RAPPEL DES CRITERES DU CODE

L'analyse des contraintes est réalisée suivant le Chapitre § C3.3 du CODETI 2006 – Division 1 référence [2.1]. Pour la détermination des contraintes admissibles nécessaires à cette analyse, il a été considéré que les différents composants tubulaires constituant les réseaux de tuyauteries ont été approvisionnés comme ci-dessous :

- Avec contrôle spécifique (certificat type 3.1) pour les parties neuves. Dans ces conditions, les contraintes admissibles issues du tableau GA5.6.1-1 de la référence [2.1] sont du type  $f_1$ .

Le tableau ci-dessous résume les différentes contraintes admissibles nécessaires à la réalisation de l'analyse de flexibilité.

DN ≤ 600

Situation	Type de contraintes	Admise	Contraintes admissibles (MPa)						
			≤ 20°C	40°C	50°C	150°C	200°C	220°C	250°C
Poids propre + pression	Primaires	$f_{\text{Chaud}}$	143.3	136.7	133.3	106.7	96.7	94.0	90.0
Sollicitations thermiques	Secondaires	$f_a$	215.0	212.0	210.5	196.3	190.8	188.5	185.1
Poids propre + pression + thermique	Primaires + Secondaires	$f_a + f_{\text{Chaud}}$	358.3	348.7	343.8	303.0	287.5	282.5	275.1
Eclatement des disques de Rupture	Occasionnelles	$1.2 f_{\text{Chaud}}$			160.0				108.0

DN > 600

Situation	Type de contraintes	Admise	Contraintes admissibles (MPa)						
			≤ 20°C	40°C	50°C	150°C	200°C	220°C	250°C
Poids propre + pression	Primaires	$f_{\text{Chaud}}$	160.0	150.3	145.3	108.0	98.0	95.3	91.3
Sollicitations thermiques	Secondaires	$f_a$	240.0	236.0	234.1	216.5	210.7	208.2	204.5
Poids propre + pression + thermique	Primaires + Secondaires	$f_a + f_{\text{Chaud}}$	400.0	386.3	379.4	324.5	308.7	303.5	295.8
Eclatement des disques de Rupture	Occasionnelles	$1.2 f_{\text{Chaud}}$			174.4				109.6

#### 3.9.2 CONTRAINTES DUES AUX CHARGES PERMANENTES

- Contraintes primaires

$$\sigma_1 \leq f_{\text{Chaud}} \quad (\text{C3.3.2})$$

#### 3.9.3 CONTRAINTES DUES AUX CHARGES OCCASIONNELLES OU EXCEPTIONNELLES

- Contraintes primaires

$$\sigma_2 \leq k \cdot f_{\text{Chaud}} \quad (\text{C3.3.3})$$

Avec :

$k = 1$

Lorsque la durée d'application de la sollicitation occasionnelle considérée est supérieure à 10% de toute période de service de 24 heures. Cas des situations climatiques normales.

$k = 1,2$

Lorsque la durée d'application de la sollicitation occasionnelle considérée est inférieure à 1% de toute période de service de 24 heures. Cas des charges dynamiques dues à l'ouverture / fermeture des robinets / vannes.

$k = 1,3$

Pour les charges exceptionnelles très peu probables en particulier charges dues à la neige et au vent dont les valeurs sont supérieures à 1,75 fois les valeurs normales.

#### 3.9.4 ETENDUE DE VARIATION DE CONTRAINTE

- Contraintes secondaires de flexibilité

$$\sigma_3 \leq f_a = U \cdot (1,25 \cdot f_{\text{Froid}} + 0,25 \cdot f_{\text{Chaud}}) \times \frac{E_{\text{Chaud}}}{E_{\text{Froid}}} \quad (\text{C3.3.4-1})$$

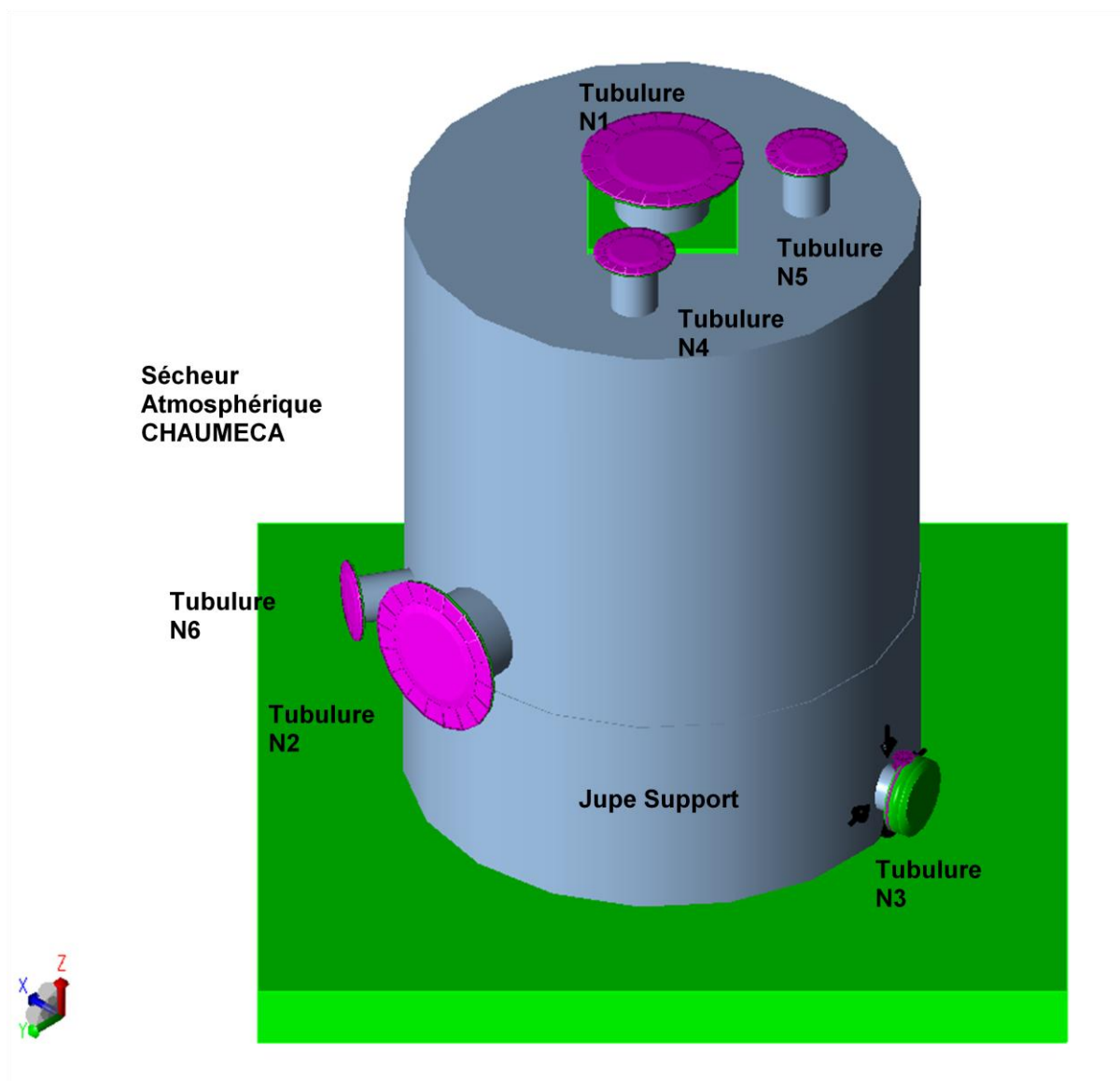
Si cette vérification n'est pas validée, la vérification suivante doit l'être.

- Contraintes secondaires + primaires

$$\sigma_4 \leq f_{\text{Chaud}} + f_a \quad (\text{C3.3.4-2})$$

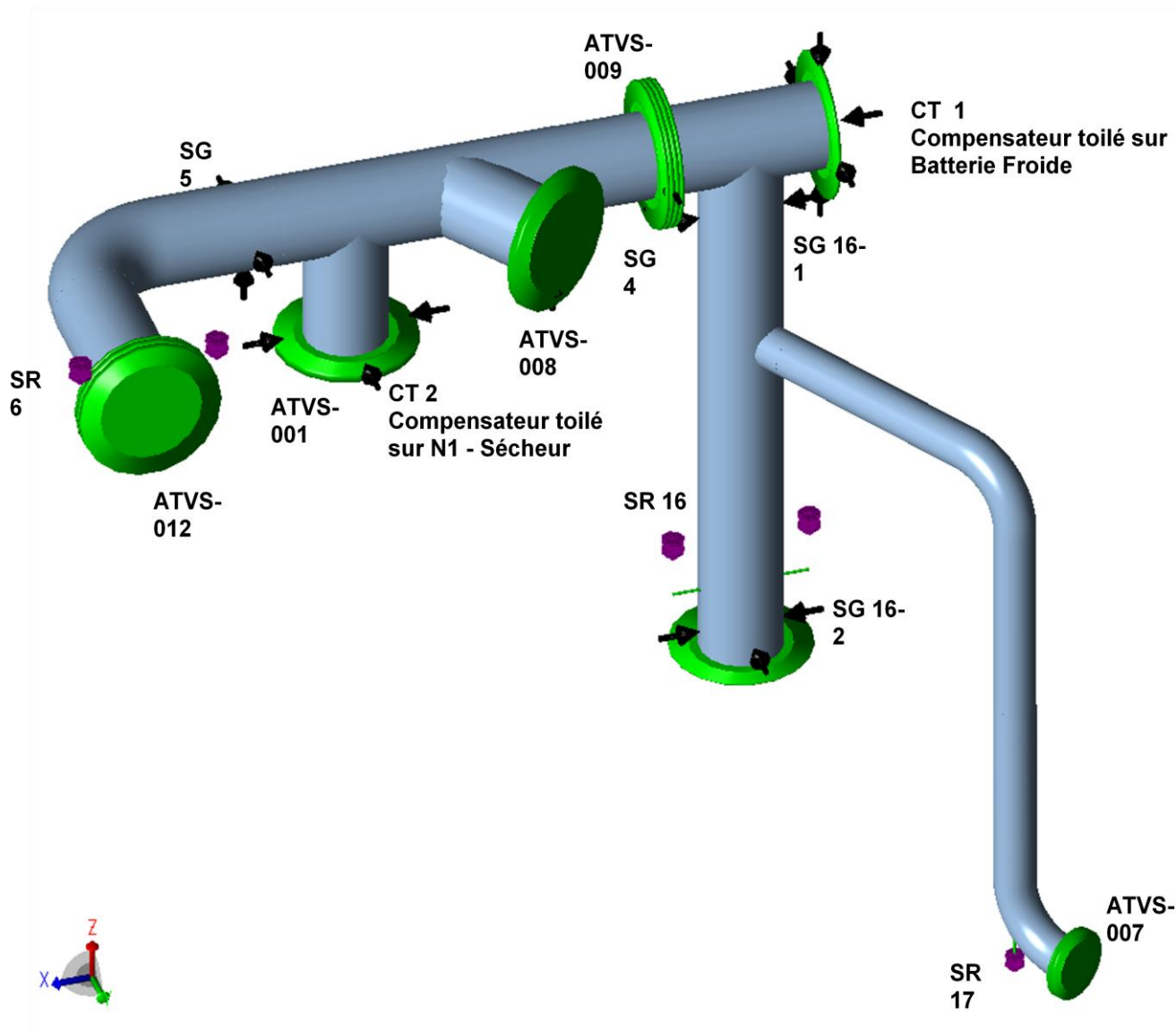
### 3.10 ISOMETRIQUES DE CALCUL

#### 3.10.1 ENSEMBLE SECHEUR

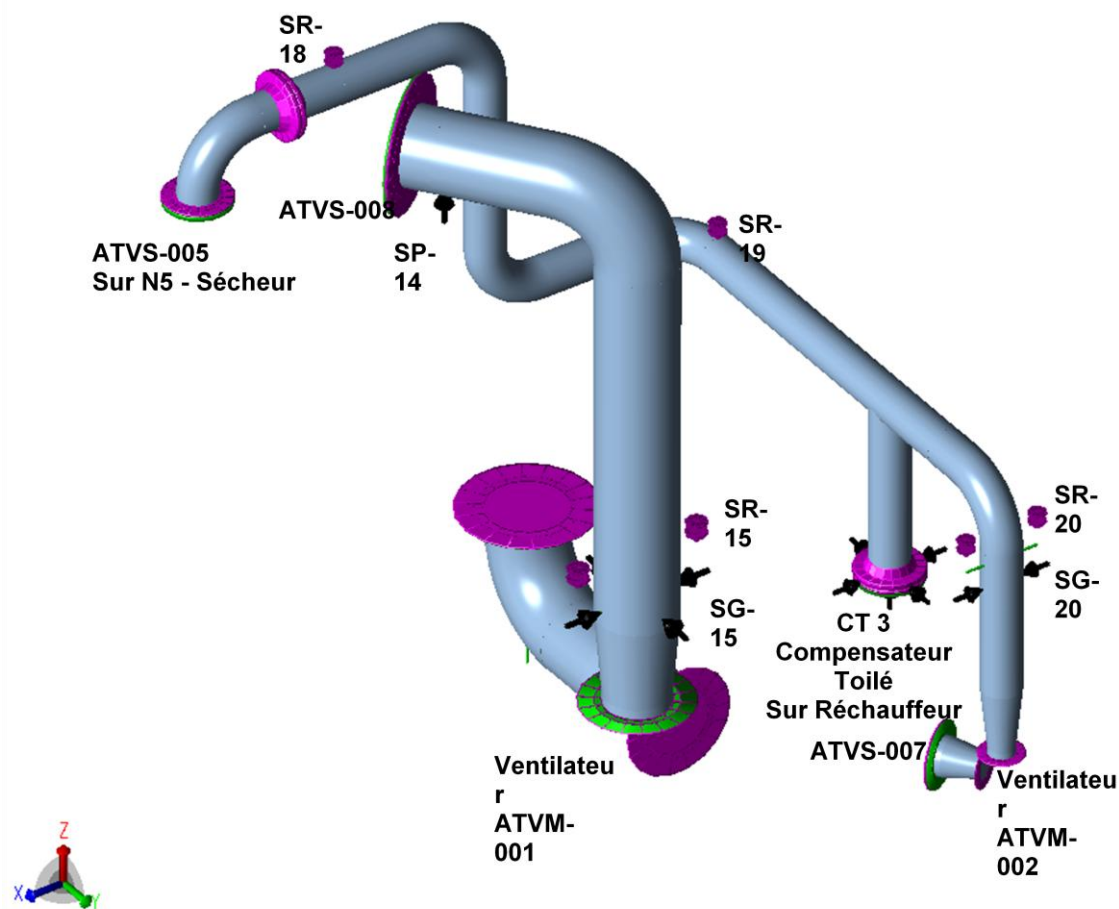


La prise en compte dans le modèle CAESAR de cet ensemble "Sécheur CHAUMECA" est nécessaire pour l'analyse globale de flexibilité des tuyauteries d'alimentation d'Air Procédé raccordées, pour l'ensemble des situations de fonctionnement de l'installation.

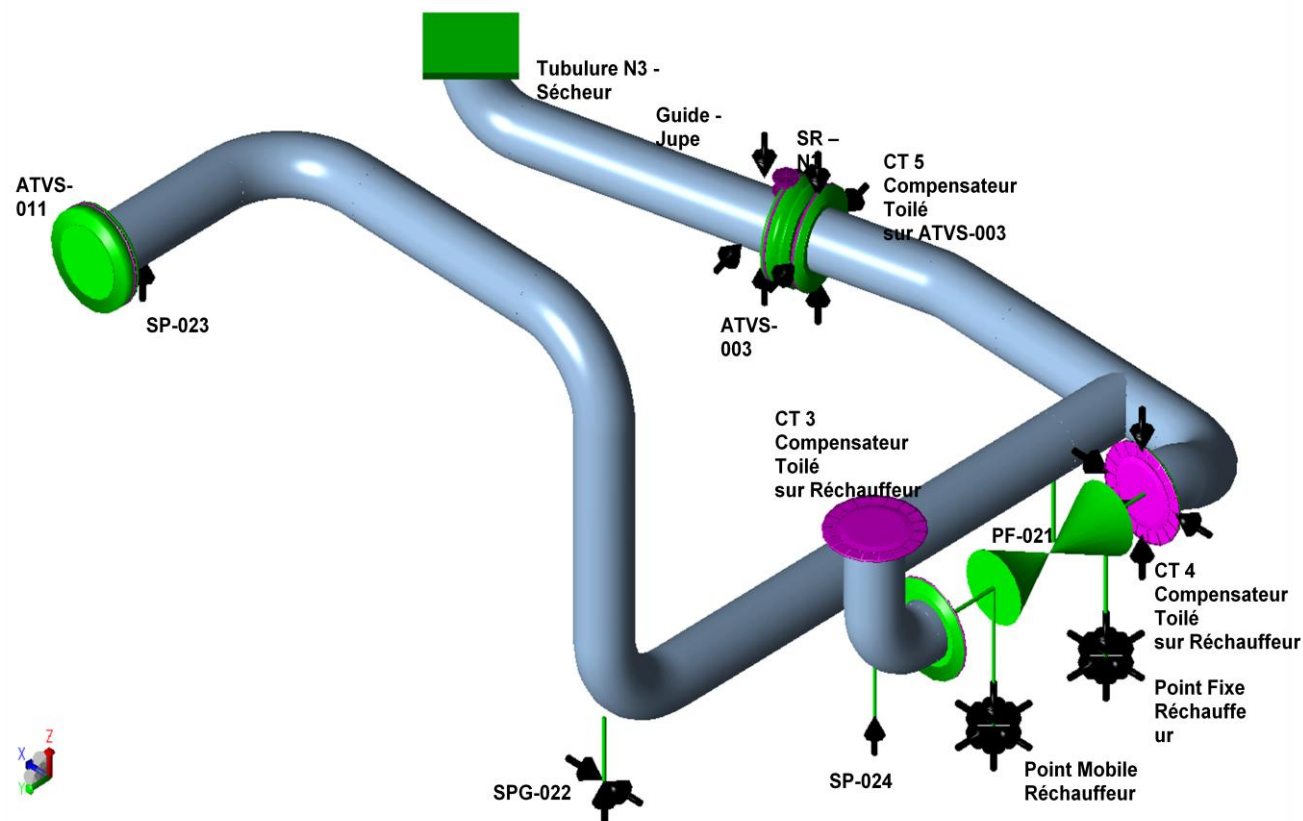
### 3.10.2 ALIMENTATION AIR FROID



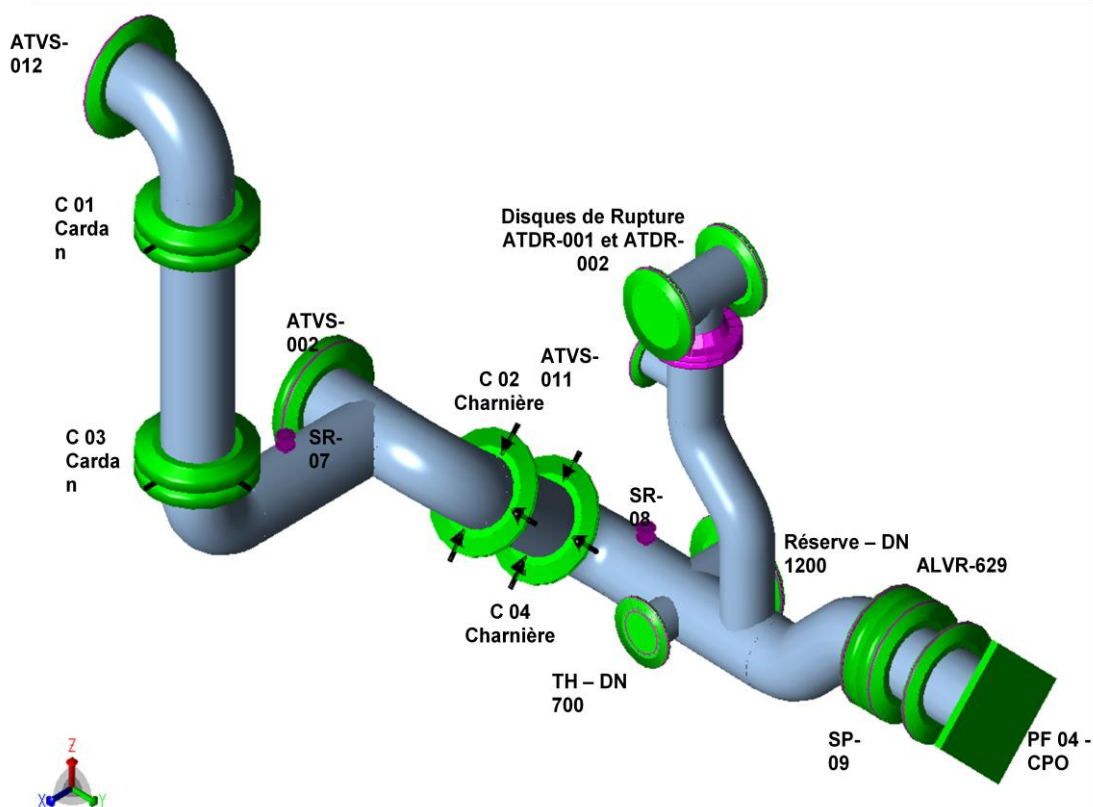
### 3.10.3 GAVAGE ET REGENERATION AIR FROID



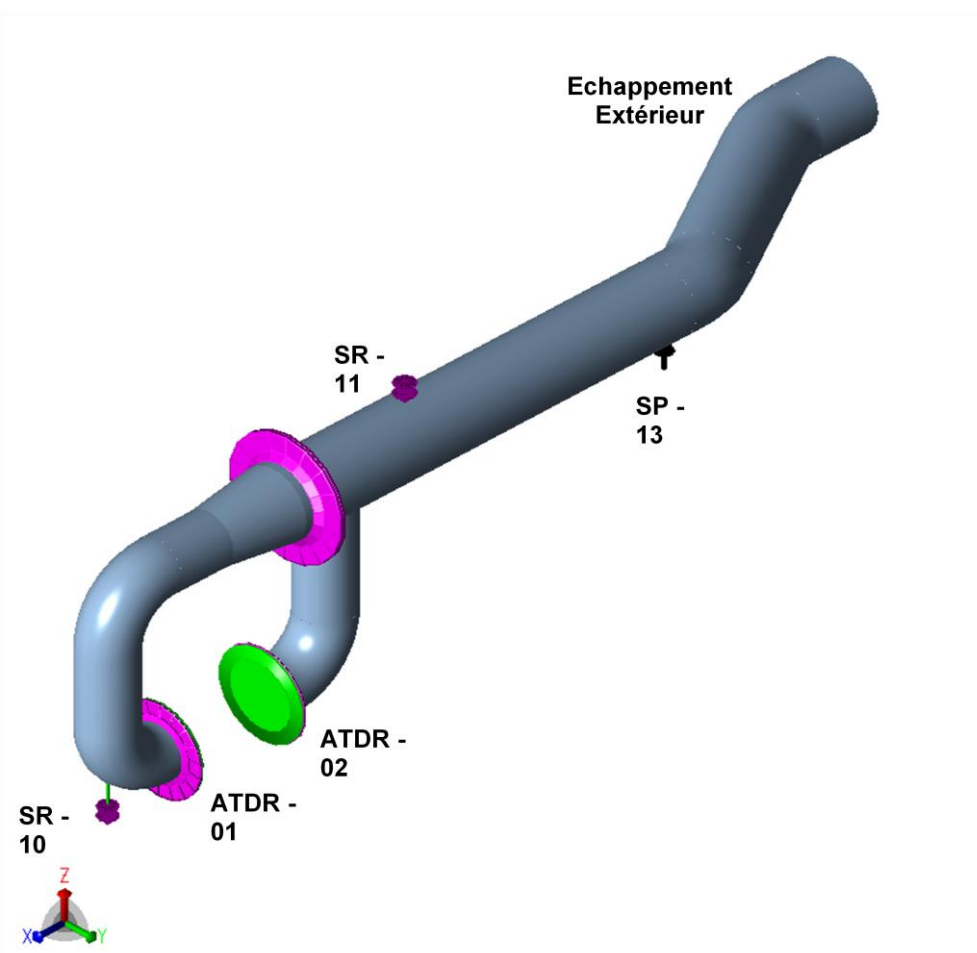
### 3.10.4 REGENERATION AIR CHAUD



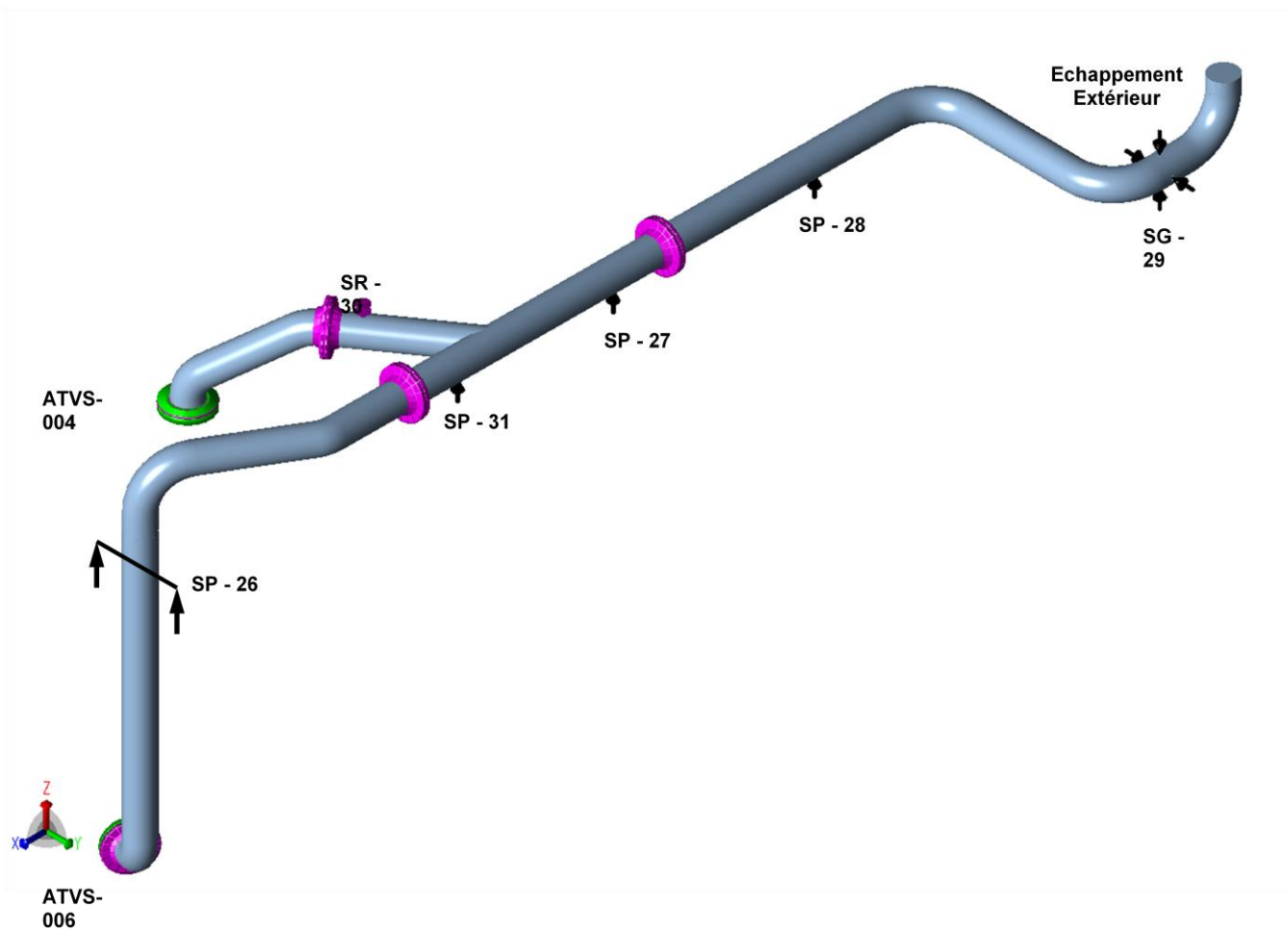
### 3.10.5 ALIMENTATION CPO



### 3.10.6 ECHAPPEMENT DISQUES DE RUPTURE





**3.10.7 ECHAPPEMENTS SECHEUR ATMOSPHERIQUE**

### 3.11 SUPPORTS

#### 3.11.1 FONCTIONS DES SUPPORTS

Repères Supports	Nœuds Supports	Fonction	Directions Bloquées					
			UX	UY	UZ	RX	RY	RZ
GC - Jupe	10	Ancrage	X	Y	Z	RX	RY	RZ
Jupe_N3	134	Guide		Y	Z			
SR_N3	135	SR			Z			
SG_5	265	SG		Y	Z			
SR6_1	275	SR			Z			
SR6_2	281	SR			Z			
CP01_T	285	Tirant	X	Y	Z			
CP01_C	286	Cardan						RZ
CP03_T	300	Tirant	X	Y	Z			
CP03_C	301	Cardan						RZ
SR_07	435	SR			Z			
CP02_T	320	Tirant	X	Y	Z			
CP02_C	321	Charnière				RX	RY	
CP04_T	340	Tirant	X	Y	Z			
CP04_C	341	Charnière				RX	RY	
SR_8	355	SR			Z			
SP_9	395	PL			Z			
PF4_CPO	430	PF	X	Y	Z	RX	RY	RZ
SR_10	545	SR			Z			
SR_11	595	SR			Z			
SP_13	596	PL			Z			
SG_04	745	SG		Y	Z			
SP_03	791	PL			Z			
SB_02	800	CB	X	Y	Z	RX		
SG_01	810	SG		Y	Z			
SP_14	865	PL			Z			
SG_15	875	SG	X	Y				
SR_15_1	876	SR			Z			
SR_15_2	877	SR			Z			
SG_16_1	772	SG	X					
SG_16_2	915	SG	X	Y				
SR_16_1	916	SR			Z			
SR_16_2	917	SR			Z			
SR_17	1005	SR			Z			
SR_18	1135	SR			Z			
SR_19	1165	SR			Z			
SG_20	1186	SG	X					
SR_20_1	1183	SR			Z			
SR_20_2	1184	SR			Z			
SP_24	1225	PL			Z			
PG_ATRE	1245	PG	X		Z		RY	
PF_ATRE	1255	CB	X	Y	Z		RY	
PF_21	1325	PF	X	Y	Z	RX	RY	RZ
SG_22	1335	SG	X		Z			
SP_23	1350	PL			Z			

Repères Supports	Nœuds Supports	Fonction	Directions Bloquées					
			UX	UY	UZ	RX	RY	RZ
SP_26	1415	PL			Z			
SP_31	1445	PL			Z			
SP_27	1451	PL			Z			
SP_28	1455	PL			Z			
SG_29	1475	SG		Y	Z			

Le repérage des supports et leurs positions sur les diverses tuyauteries sont indiqués sur les isométriques figurant au § 3.9.1.

Pour les supports désignés PF, pour lesquels 6 DDL's sont bloqués, les fonctions prises en compte par le logiciel CAESAR sont du type ANCRAGE.

### 3.12 COMPENSATEURS

Les raideurs retenues pour les compensateurs à cardans et à charnières sont issues du document Réf.[4.1].Elles ont pour valeurs :

Raideurs	DN 1200
Raideur axiale (N/mm)	/
Raideur latérale (N/mm)	/
Raideur de flexion (N.m/°)	2427,0
Raideur de torsion (N.m/°)	/

### 3.13 SUPPORTS A RESSORT

Pour les supports (SR) avec boîtes à ressort du commerce, les raideurs et efforts de précontrainte sont calculés par le logiciel Réf. [5.1]. Les valeurs obtenues devant être spécifiées lors de l'achat figure ci-dessous.

Repère Support	Nœud	Nombre	Type LISEGA	Raideur (N/mm)	Effort de Tarage (N)	Déplacements Maxis (mm)	
						Vertical	Horizontal
SR_N3	135	1	2141	133	7115	-2.8	12.6
SR06_1	275	1	2172	400	47470	22.4	8.3
SR06_2	281	1	2163	133	29745	29.5	14.6
SR_08	355	1	2171	800	40835	-3.3	30.6
SR_07	435	1	2171	800	49265	6.9	19.0
SR_10	545	1	2182	533	74480	22.2	20.5
SR_11	595	1	2162	267	38050	11.6	22.7
SR_15_1	876	1	2151	267	15895	-3.1	1.2
SR_15_2	877	1	2151	267	16975	-3.0	1.2
SR_16_2	917	1	2121	33	1380	-6.4	0.6
SR_17	1005	1	2151	267	11800	-9.5	3.4
SR_18	1135	1	2153	67	19700	28.1	7.5
SR_19	1165	1	2143	33	9760	21.9	6.2
SR_20_1	1183	1	2132	33	4705	21.1	4.8
SR_20_2	1184	1	2142	67	7435	21.9	3.7
SR_30	1540	1	2162	267	29345	20.7	25.3

Les types figurant dans ce tableau sont ceux proposés par le logiciel et il convient de les adapter en fonction de la configuration du supportage.

Pour information :

- Type 21 : Boîte à ressort pendue. (Tiges).
- Type 25 : Boîte à ressort sur support pendu. (Tiges + Charpente)
- Type 29 : Boîte à ressort à Charge posée.

## 4 RESULTATS DE L'ANALYSE DE FLEXIBILITE

### 4.1 ANALYSE DES CONTRAINTES

L'analyse des contraintes est réalisée pour les situations de service normales ou exceptionnelles décrites ci-dessous :

#### Contraintes Primaires

Les cas (7) à (9) sont des situations normales de Service.

Les cas (10) et (12) sont des situations exceptionnelles de Service.

- 7 Poids + PS en Normal
- 8 Poids + PMS en Normal
- 9 Poids + PS Mini en Normal
- 10 Poids + PMS + 1 Système Sécurité
- 12 Poids + PMS + 2 Systèmes Sécurité

Pour l'analyse des contraintes primaires de ces situations, il est tenu compte du décollement de certains supports ne disposant pas de systèmes anti-envol. Ces supports sont les suivants :

Repère Supports	Nœuds	Décollement en Service				
		Case (3)	Case (4)	Case (5)	Case (6)	Case (11)
		Case (7)	Case (8)	Case (9)	Case (10)	Case (12)
SG_5	265	x	x	x	x	x
SP_3	791	x	x	x	x	x
SP_14	865	x	x		x	x
SP_23	1350	x	x	x	x	x
SP_24	1225	x	x		x	x
SP_26	1415	x	x		x	x
SP_27	1451			x		

#### Contraintes Secondaires

Les cas (11) à (13) sont des situations normales de Service.

Le cas (14) est une situation exceptionnelle de Service.

- 13 Thermique @ TMS
- 14 Thermique @ TS
- 15 Thermique @ TS Mini
- 16 Thermique @ TMS en Exceptionnel

#### Contraintes Primaires + Secondaires



Les cas (3) à (5) et (6) sont des situations normales de Service.

Le cas (6) est une situation exceptionnelle de Service.

- 3 Poids + PS + TMS en Normal
- 4 Poids + PMS + TS en Normal
- 5 Poids + PS Mini + TS Mini en Normal
- 6 Poids + PMS + TS + 1 Système Sécurité
- 11 Poids + PMS + TS + 2 Système Sécurité

Récapitulatif des résultats d'analyses de contraintes

Types de Contraintes	Cas	Désignation	Situations	Contraintes Maxis	Contraintes Admissibles	Ratios	Localisation
<b>Primaires</b>	7	En Service PS @ TMS	Normale	64.0 MPa	98.0 MPa	65.31%	Nœud 440
	8	En Service PMS @ TS	Normale	64.0 MPa	98.0 MPa	65.31%	Nœud 440
	9	En Service Déprimé @TS Mini	Normale	62.9 MPa	160.0 MPa	39.31%	Nœud 440
	10	Eclatement 1 Disque de Rupture @ 250°C	Exceptionnelle	97.7 MPa	109.6 MPa	89.14%	Nœud 590
	12	Eclatement 2 Disques de Rupture @ 250°C	Exceptionnelle	63.6 MPa	109.6 MPa	58.03%	Nœud 440
<b>Secondaires</b>	13	Thermique @ TMS	Thermique	240.0 MPa	190.8 MPa	125.79%	Nœud 1329
	14	Thermique @ TS	Thermique	235.5 MPa	236.0 MPa	99.79%	Nœud 770
	15	Thermique @TS Mini	Thermique	19.7 MPa	212.0 MPa	9.29%	Nœud 1430
	16	Thermique @ 250 °C	Thermique	285.5 MPa	236.0 MPa	120.97%	Nœud 770
<b>Primaires + Secondaires</b>	3	En Service PS @ TMS	Normale	251.9 MPa	386.3 MPa	65.21%	Nœud 770
	4	En Service PMS @ TS	Normale	252.3 MPa	386.3 MPa	65.31%	Nœud 770
	5	En Service Déprimé @TS Mini	Normale	72.8 MPa	308.7 MPa	23.58%	Nœud 440
	6	Eclatement 1 Disque de Rupture @ 250°C	Exceptionnelle	304.7 MPa	386.3 MPa	78.88%	Nœud 770
	11	Eclatement 2 Disques de Rupture @ 250°C	Exceptionnelle	304.4 MPa	386.3 MPa	78.80%	Nœud 770

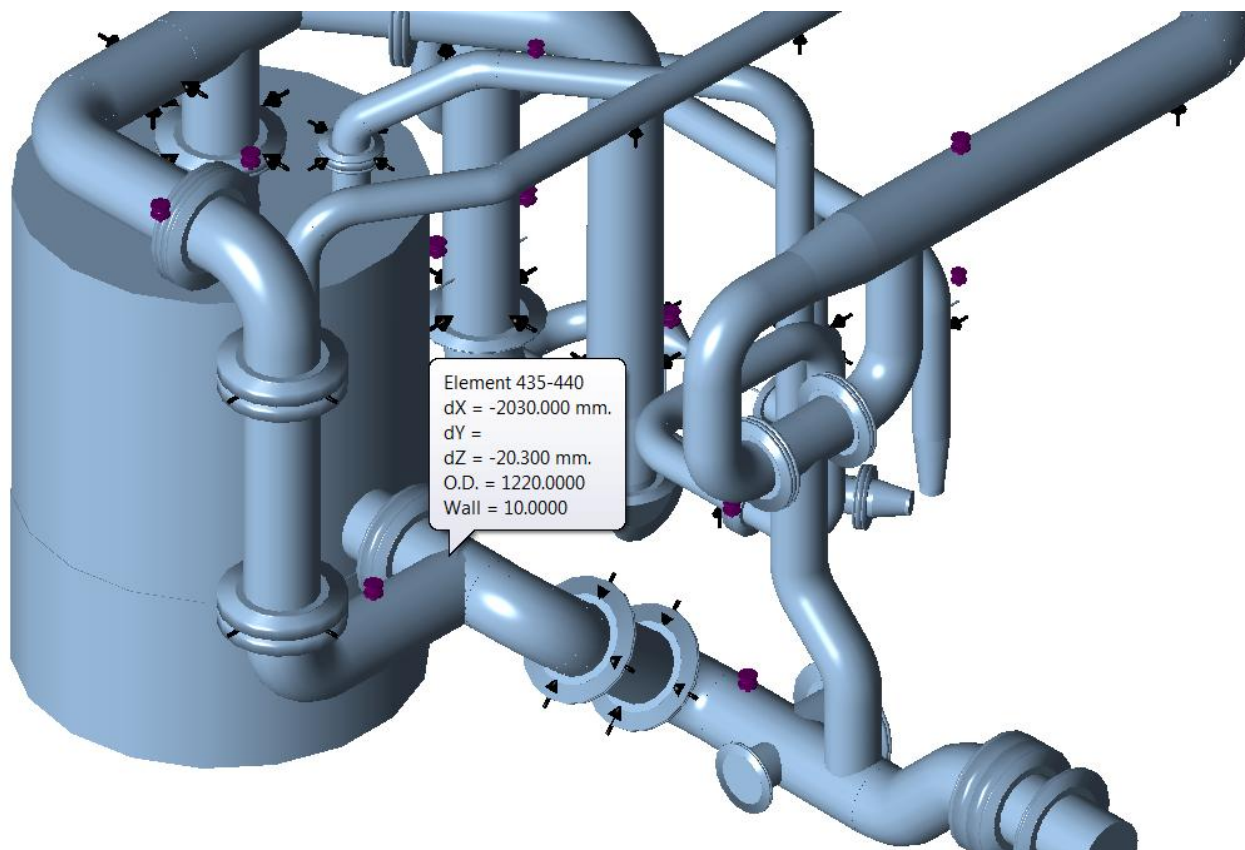
 Situation dimensionnante en Normale de Service  
 Situation dimensionnante en Exceptionnelle de Service

Pour les situations identifiées ci-dessus, les visualisations des zones de contraintes maximales figurent dans les pages suivantes.

Contraintes Primaires

1) Conditions de Service Poids + Pression PS Normale Cas (7)

$\sigma_{1 \text{ maxi}} = 64,1 \text{ MPa} < f_{\text{Chaud}} = 98,0 \text{ MPa}$  (C3.3.2)  
au nœud 440, (avec supports décollants)  
(voir Zone ci-dessous)



Element Viewer

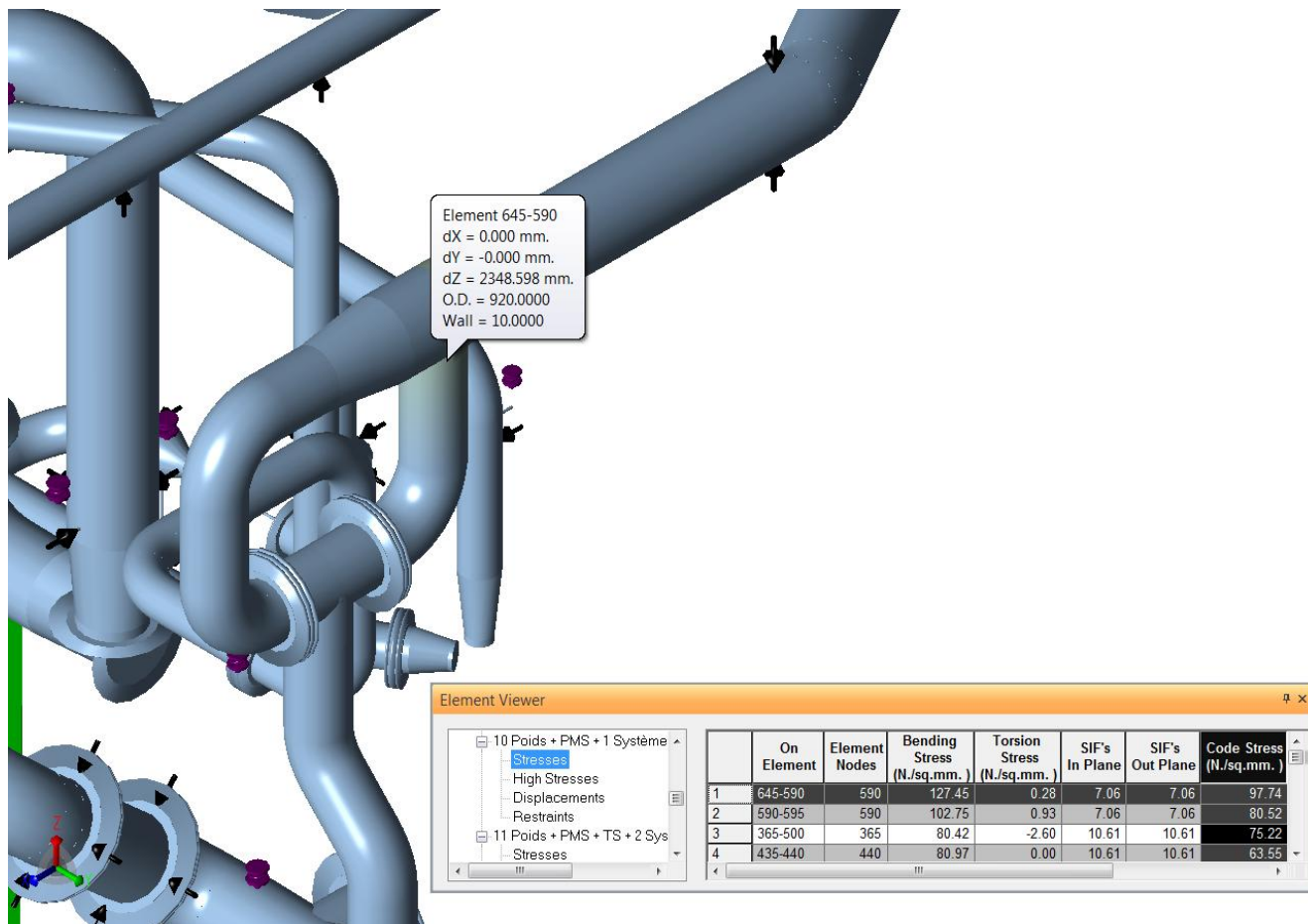
6 Poids + PMS + TS + Systè  
7 Poids + PS en Normal  
Stresses  
High Stresses  
Displacements  
Restraints  
8 Poids + PMS en Normal

	On Element	Element Nodes	Bending Stress (N./sq.mm.)	Torsion Stress (N./sq.mm.)	SIF's In Plane	SIF's Out Plane	Code Stress (N./sq.mm.)
1	435-440	440	83.45	0.00	10.61	10.61	65.41
2	440-450	440	1.49	2.14	10.61	10.61	35.96
3	509-510	510	39.53	0.20	7.28	7.28	31.83
4	508-509	509	38.59	0.28	7.28	7.28	31.21



2) Conditions de Service Exceptionnelles Cas (10)

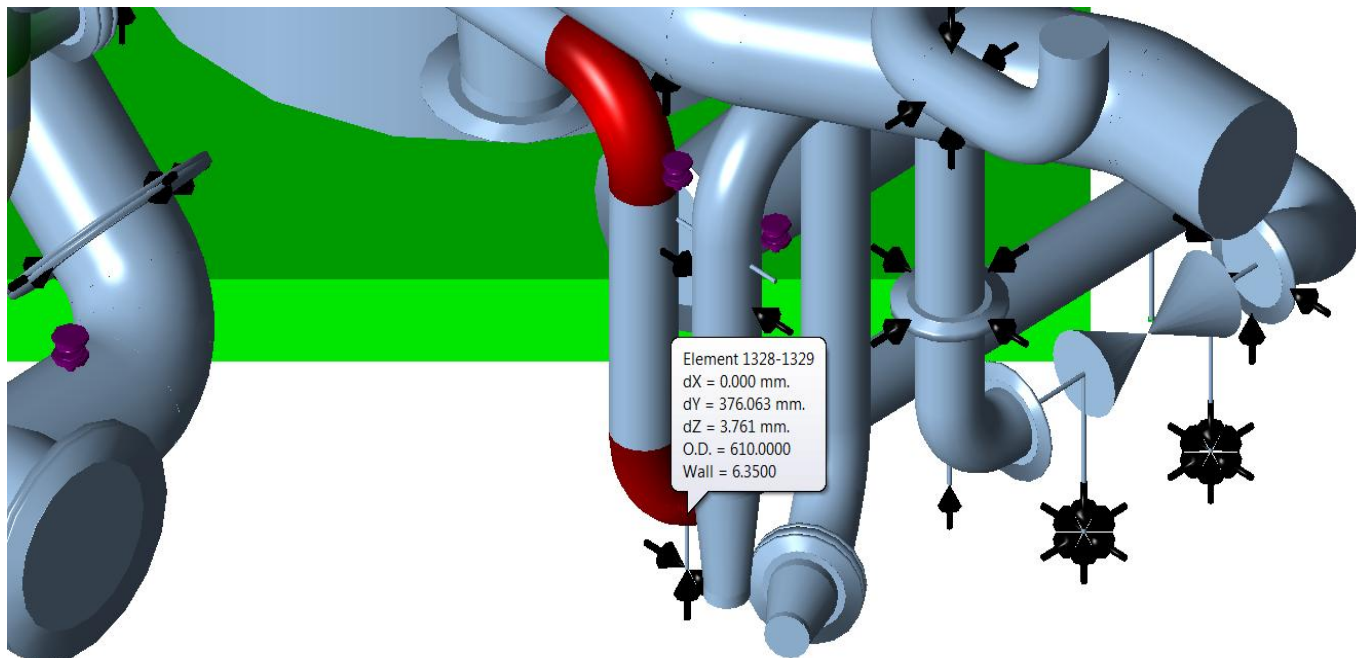
$\sigma_{2 \text{ maxi}} = 97,7 \text{ MPa} < f_{\text{Chaud}} = 109,6 \text{ MPa}$  (C3.3.3)  
au nœud 590, (avec supports décollants)  
(voir Zone ci-dessous)



Contraintes Secondaires

1) Température @ TMS Cas (13)

$\sigma_{3 \text{ maxi}} = 240,8 \text{ MPa} > f_a = 190,8 \text{ MPa}$  (C3.3.4-1)  
au nœud 1329 (voir Zone ci-dessous)



Element Viewer

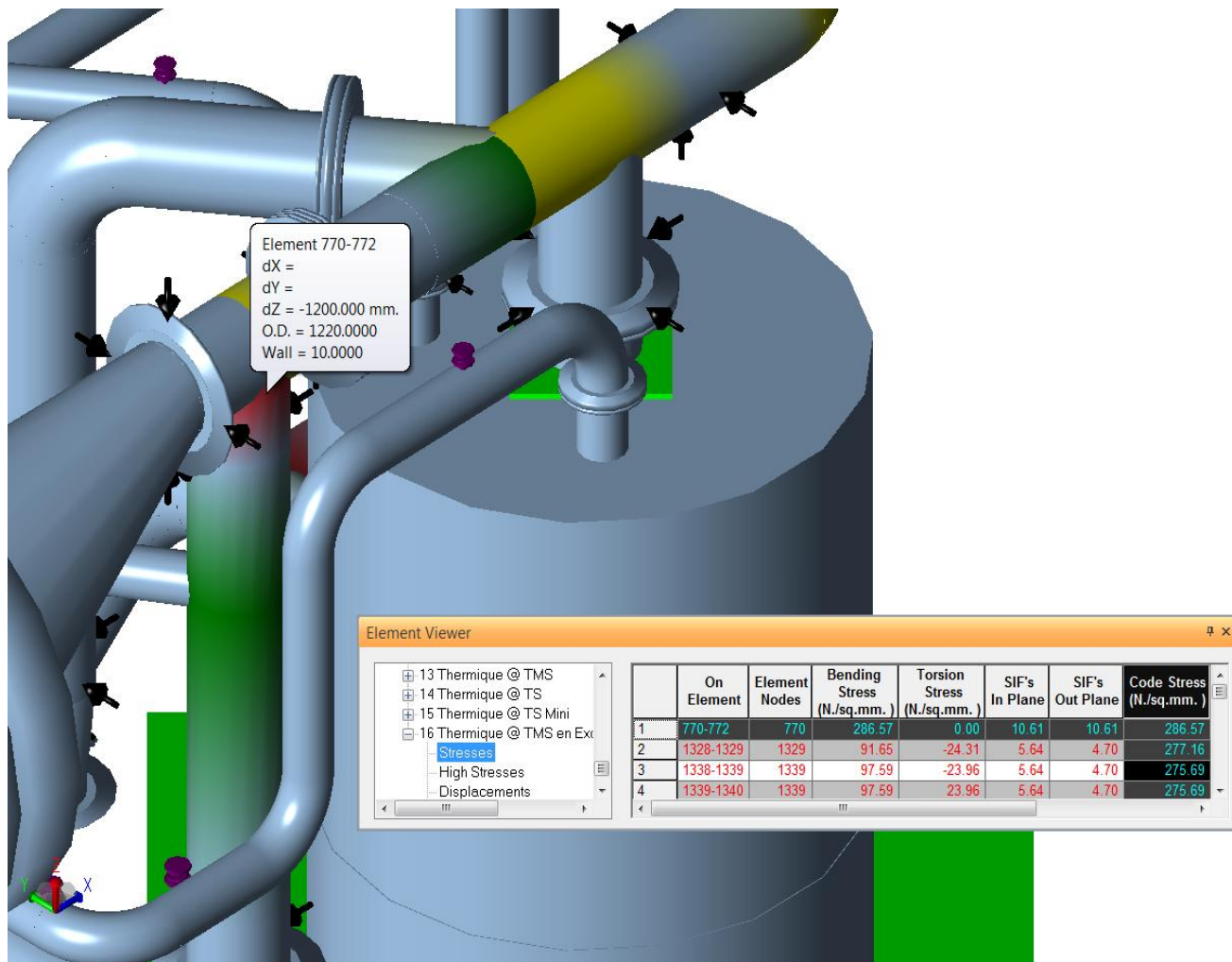
	On Element	Element Nodes	Bending Stress (N./sq.mm.)	Torsion Stress (N./sq.mm.)	SIF's In Plane	SIF's Out Plane	Code Stress (N./sq.mm.)
1	1328-1329	1329	82.70	-21.02	5.64	4.70	240.82
2	1338-1339	1339	71.12	-20.99	5.64	4.70	236.80
3	1339-1340	1339	71.12	20.99	5.64	4.70	236.80
4	770-772	770	235.47	0.00	10.61	10.61	235.47



2) Température Exceptionnelle @ 250°C Cas (16)

$$\sigma_{3 \text{ maxi}} = 286,6 \text{ MPa} > f_a = 236,0 \text{ MPa} \quad (\text{C3.3.4-1})$$

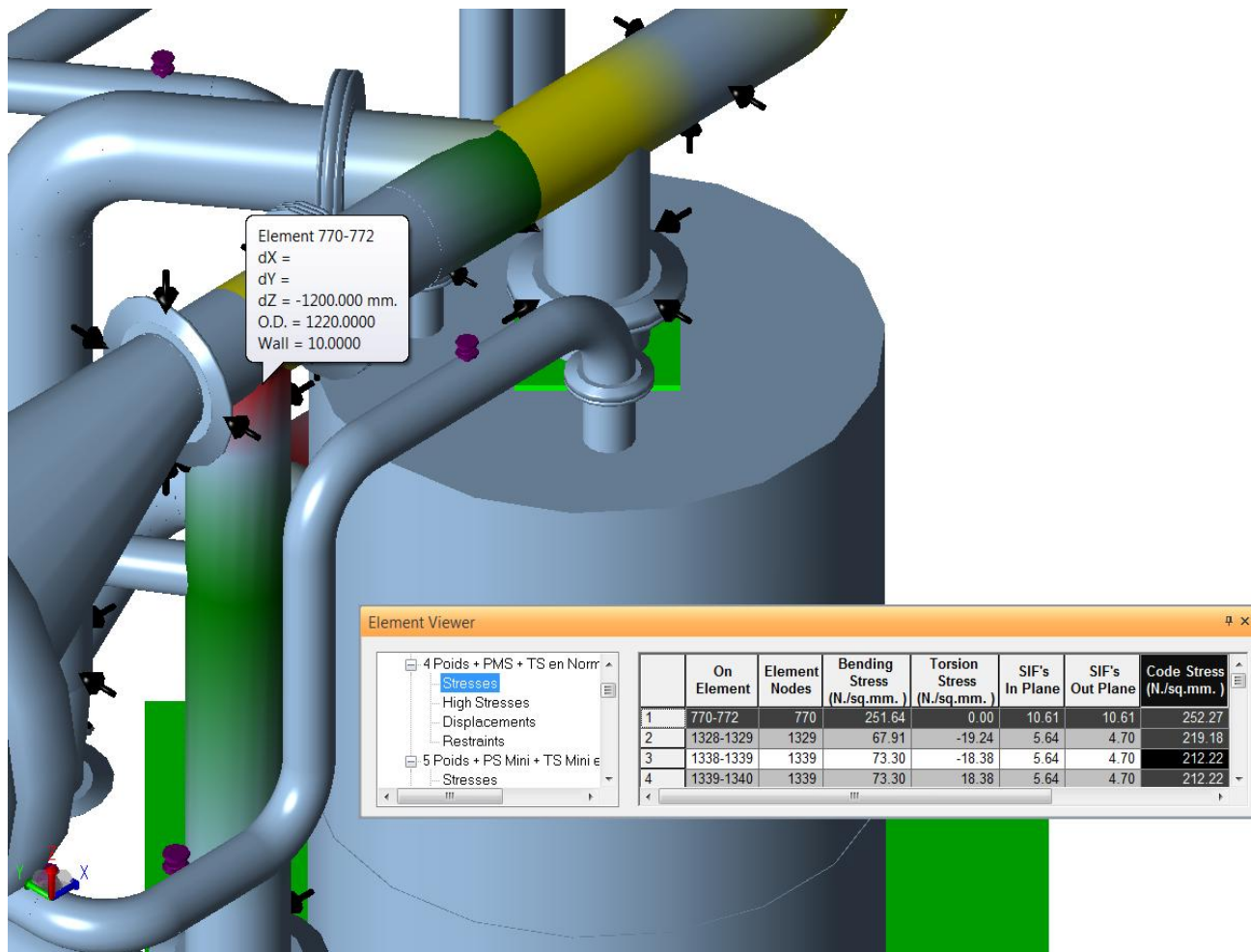
au nœud 770 (voir Zone ci-dessous)



Contraintes Primaires + Secondaires

1) Poids + Pression PS + Température TMS @ 250°C Cas (4)

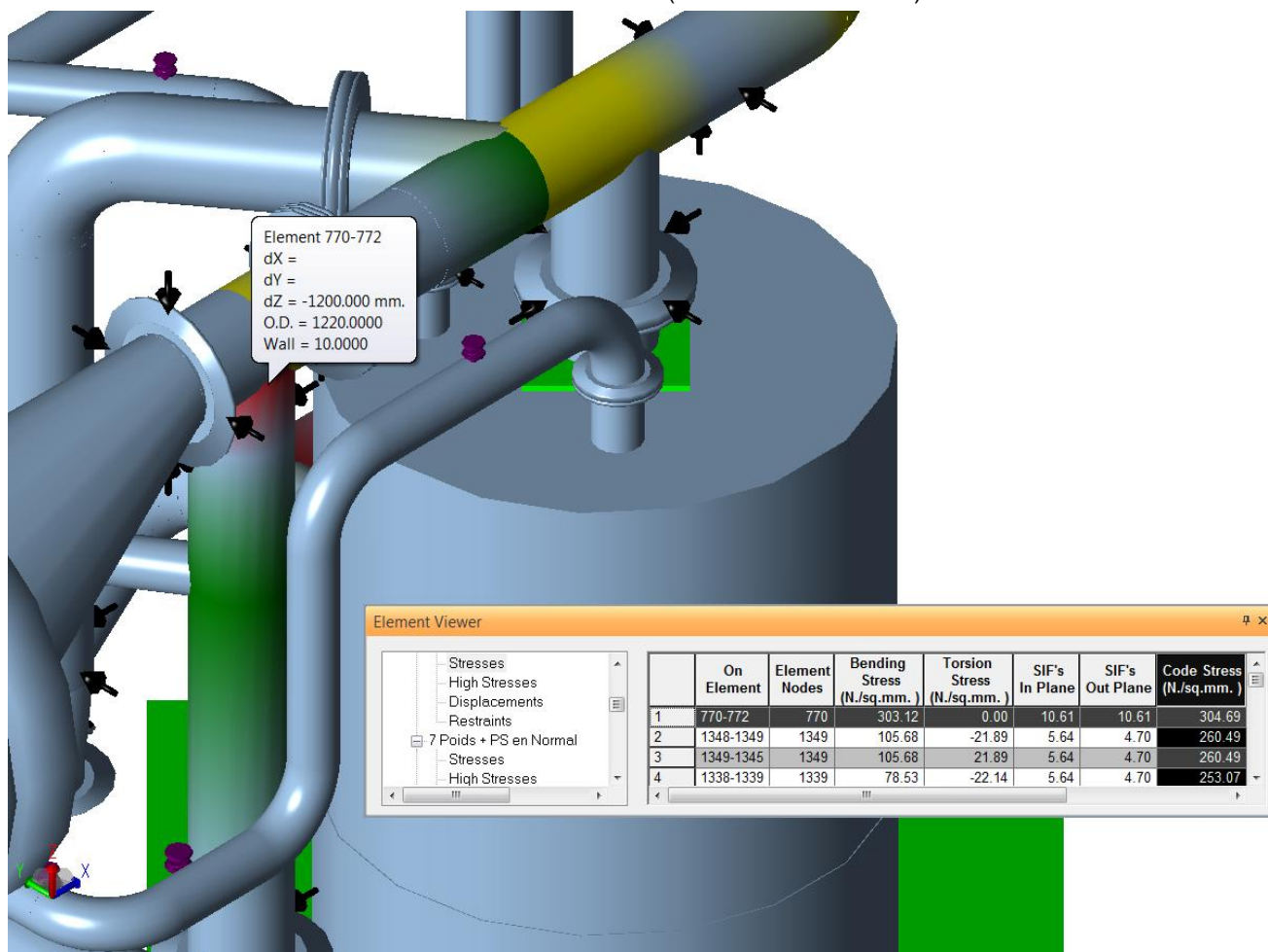
$\sigma_{4 \text{ maxi}} = 252,3 \text{ MPa} < f_{\text{Chaud}} + f_a = 386,3 \text{ MPa}$  (C3.3.4-2)  
au nœud 770 (voir Zone ci-dessous)



2) Conditions de Service Exceptionnelles Cas (6)

$$\sigma_{4 \text{ maxi}} = 303,7 \text{ MPa} < f_{\text{Chaud}} + f_a = 386,3 \text{ MPa} \quad (\text{C3.3.4-2})$$

au nœud 770 (voir Zone ci-dessous)

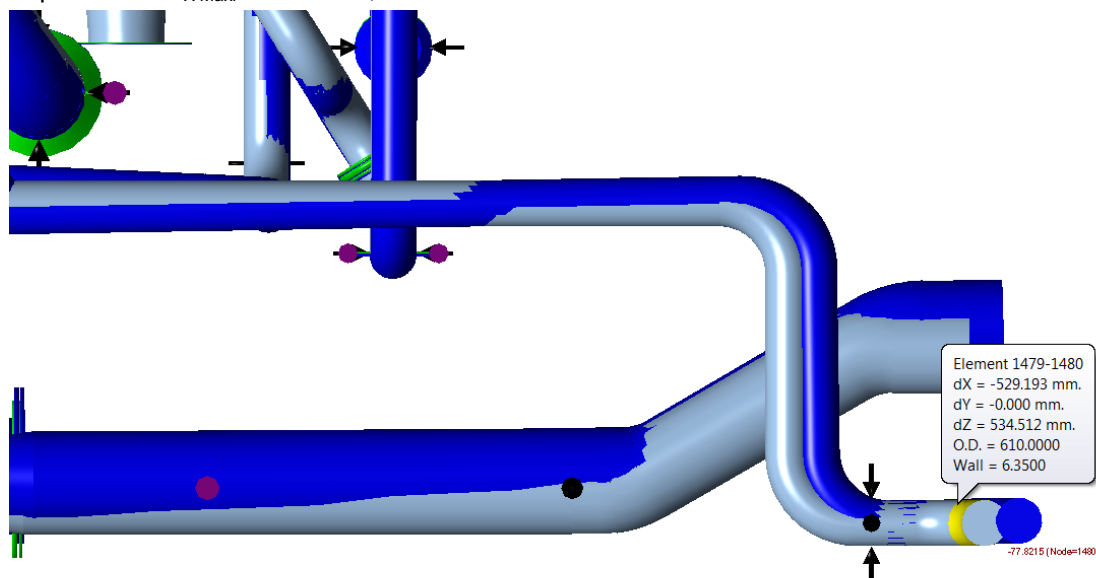


L'analyse des contraintes suivant §C3.3 du CODETI 2006 – Division 1 est correcte.



## 4.2 ANALYSE DES DEPLACEMENTS

Déplacement  $\delta_X$  Maxi = -77,8 mm

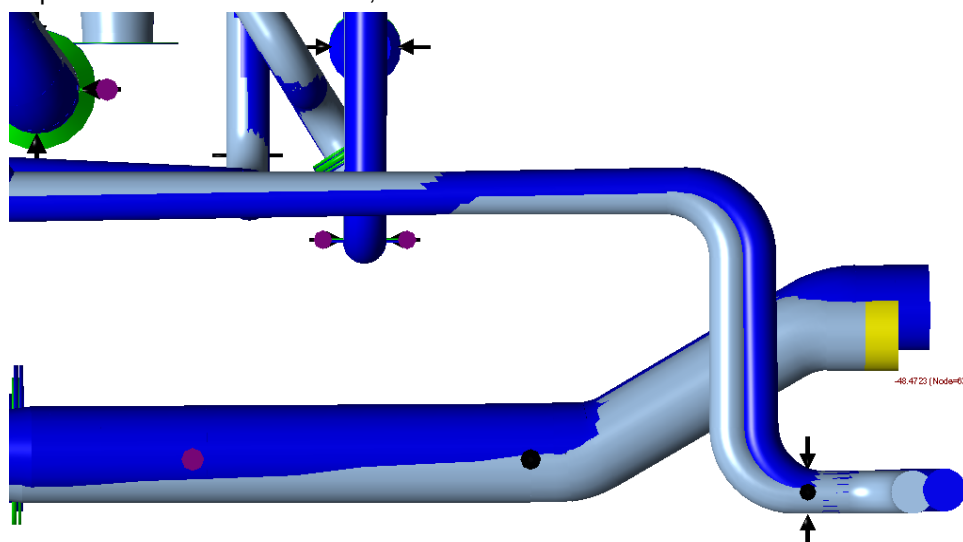


Element Viewer

	Node	dX (mm.)	dY (mm.)	dZ (mm.)
1	1480	-77.8215	-5.0587	4.7743
2	1490	-77.6092	-5.1379	5.9232
3	1479	-77.2545	-4.0348	2.0748
4	1478	-74.9613	-1.9014	0.5223
5	620	-73.6687	-48.4723	-25.0964



Déplacement  $\delta_Y$  Maxi = -41,8 mm



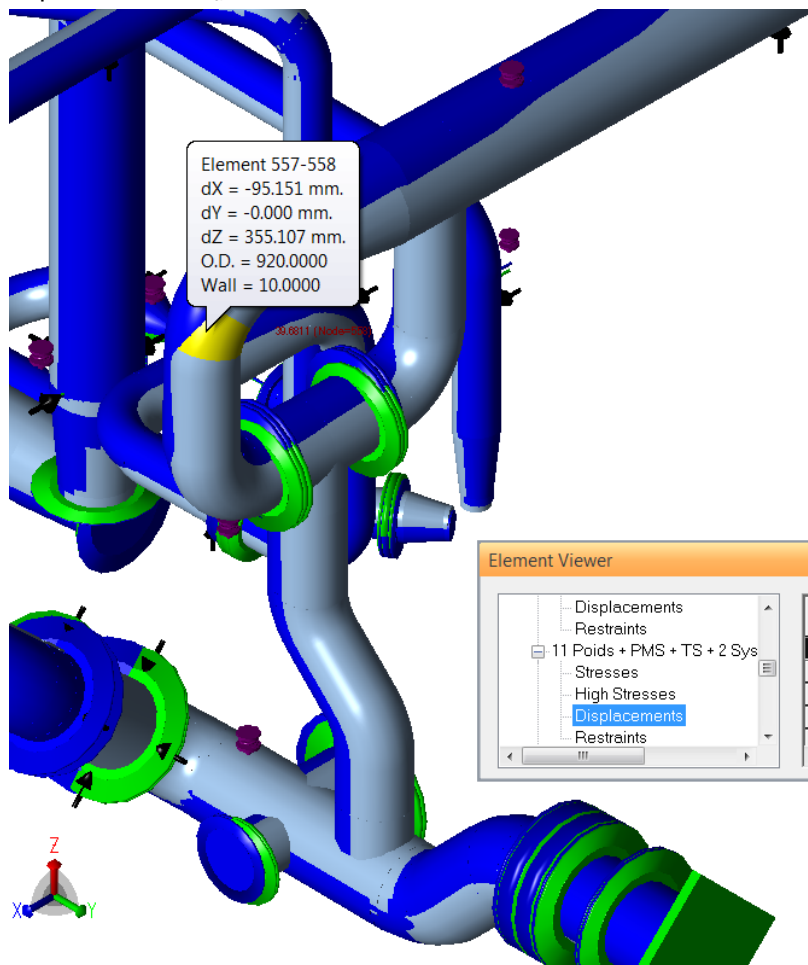
Element Viewer

	Node	dX (mm.)	dY (mm.)	dZ (mm.)
1	620	-73.6687	-48.4723	-25.0964
2	615	-71.5782	-47.8128	-22.7934
3	610	-69.2050	-47.0643	-20.1786
4	609	-68.5330	-46.8022	-19.4221
5	608	-67.3202	-46.0241	-17.9599





Déplacement  $\delta_Z$  Maxi = 39,7 mm



Element Viewer				
<ul style="list-style-type: none"> <li>Displacements</li> <li>Restraints</li> <li>11 Poids + PMS + TS + 2 Sys</li> <li>Stresses</li> <li>High Stresses</li> <li>Displacements</li> <li>Restraints</li> </ul>				
	Node	dX (mm.)	dY (mm.)	dZ (mm.)
1	558	-10.9067	-19.8828	39.6811
2	559	-13.6122	-19.9670	39.2306
3	557	-8.2574	-20.1500	38.7640
4	560	-14.8221	-20.1336	38.4824
5	278	16.5721	10.0863	37.2002

### 4.3 ANALYSE DES ASSEMBLAGES A BRIDES

L'analyse des assemblages à brides est réalisée en calculant la pression équivalente aux torseurs qui s'appliquent sur les brides. Cette pression équivalente est donnée par la formule (C2.2.8-2), rappelée ci-dessous et issue du § C2.2.8.2-c) du code référence [2.1] :

$$P_{eq} = P + \frac{4F}{\pi.G^2} + \frac{16|M|}{\pi.G^3}$$

Avec :

P : Pression de service,

F : Effort axial s'exerçant sur le jeu de brides, compté positivement s'il tend à séparer les brides,

M : Moment de flexion s'exerçant sur le jeu de brides,

G : Diamètre du cercle sur lequel s'applique la force de compression du joint. Pour sa détermination, nous considérons que les joints utilisés sont du type plat montés de part et d'autre du cercle de perçage définis dans les normes référence [2.11] ou [2.12].

Le calcul des Pressions Maxi de Service indiquées dans les tableaux des pages suivantes sont déterminées avec les hypothèses suivantes :

- Les dimensions sont conformes à la norme EN 1092-1 Réf. [2.8] pour les brides PN 16 et PN 25, et à la norme EN 1759-1 Réf. [2.9] pour les brides CLASS installées sur les soupapes SP-660A et 660B,
- Les joints sont du type Plat (FF) montés de part et d'autre du cercle de perçage des boulons et leurs dimensions sont conformes à la norme EN 1514-1 Réf. [2.11] pour les brides PN et à la norme EN 12560-1 Réf. [2.12] pour les brides CLASS,
- La nature des joints est du type "Fibre" dont les caractéristiques sont issues du tableau C2.A6.3.1 du CODETI 2006 Division 1, pour une classe d'étanchéité Standard T2,
- La nuance de la boulonnerie est X5 CrNiMo 17-12-02 (UNS 1,4404) et doit être choisie conformément au Tableau 1 de la norme Réf. [2.10].

Situation Normales de Service

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
120 (Bride_N2)	1200	4941 N	10745 Nm	1273.62 mm	0.19 Bars
170 (Bride_N4)	600	2560 N	489 Nm	670.20 mm	0.05 Bars
200 (Bride_N5)	600	4391 N	1594 Nm	670.20 mm	0.28 Bars
230 (Bride_N6)	600	1772 N	5358 Nm	670.20 mm	0.85 Bars
272 (BR1_VS012)	1200	363 N	36682 Nm	1273.62 mm	0.81 Bars
273 (BR2_VS012)	1200	258 N	33980 Nm	1273.62 mm	1.74 Bars
390 (BR1_VR629)	1200	26289 N	22743 Nm	1359.00 mm	1.54 Bars
400 (BR2_VR629)	1200	26832 N	19365 Nm	1359.00 mm	4.58 Bars
415 (BR1_CPO)	1200	26510 N	4343 Nm	1359.00 mm	4.27 Bars
415 (BR1_CPO)	1200	26510 N	4343 Nm	1359.00 mm	4.27 Bars
460 (BR1_VS002)	1200	4941 N	18381 Nm	1273.62 mm	1.39 Bars
500 (BR1_DN900)	900	20128 N	76462 Nm	982.00 mm	5.28 Bars
515 (BR2_DN900)	900	24590 N	137344 Nm	982.00 mm	8.61 Bars
530 (DR_001)	900	26345 N	83674 Nm	987.63 mm	5.67 Bars
535 (BR2_DR001)	900	26344 N	79184 Nm	987.63 mm	4.53 Bars
585 (BR1_DN1200)	1200	26725 N	16000 Nm	987.63 mm	1.19 Bars
630 (BR1_DR002)	900	26997 N	2226 Nm	987.63 mm	1.37 Bars
635 (BR2_DR002)	900	26996 N	3046 Nm	987.63 mm	0.51 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
740 (BR2_VS009)	1200	6773 N	140630 Nm	1273.62 mm	3.42 Bars
750 (BR1_VS009)	1200	6002 N	144383 Nm	1273.62 mm	3.51 Bars
840 (BR1_VS008)	1200	1962 N	35833 Nm	1273.62 mm	0.80 Bars
850 (BR2_VS008)	1200	2026 N	34080 Nm	1273.62 mm	0.76 Bars

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	0.58 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	0.58 Bars
995 (BR1_DN600)	600	25 N	1186 Nm	674.00 mm	0.10 Bars
1110 (VS_005)	600	6031 N	1584 Nm	670.20 mm	0.34 Bars
1132 (BR2_DN600)	600	176 N	8990 Nm	670.20 mm	1.43 Bars
1240 (Réchauffer)	600	0 N	1875 Nm	674.00 mm	0.21 Bars
1370 (BR1_VS011)	600	21437 N	22049 Nm	670.20 mm	4.23 Bars
1380 (VS_011)	600	21396 N	23218 Nm	670.20 mm	5.43 Bars
1400 (BR2_VS006)	600	1772 N	7659 Nm	670.20 mm	1.24 Bars
1440 (BR3_DN600)	600	3071 N	10214 Nm	674.00 mm	1.79 Bars
1440 (BR3_DN600)	600	3071 N	10214 Nm	674.00 mm	1.79 Bars
1452 (BR4_DN600)	600	4 N	2229 Nm	674.00 mm	0.37 Bars
1452 (BR4_DN600)	600	4 N	2229 Nm	674.00 mm	0.37 Bars
1501 (BR2_VS004)	600	0 N	0 Nm	670.20 mm	0.00 Bars
1530 (BR5_DN600)	600	1806 N	10528 Nm	674.00 mm	1.80 Bars
1530 (BR5_DN600)	600	1849 N	10501 Nm	674.00 mm	1.80 Bars

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
80 (Bride_N1)	1200	6611 N	0 Nm	1273.62 mm	0.55 Bars
120 (Bride_N2)	1200	4200 N	9434 Nm	1273.62 mm	0.77 Bars
140 (Bride_N3)	600	43 N	418 Nm	670.20 mm	0.57 Bars
170 (Bride_N4)	600	2560 N	342 Nm	670.20 mm	0.63 Bars
200 (Bride_N5)	600	4391 N	1594 Nm	670.20 mm	0.89 Bars
230 (Bride_N6)	600	2000 N	5631 Nm	670.20 mm	1.51 Bars
240 (VS_001)	1200	201 N	0 Nm	1273.62 mm	0.20 Bars
272 (BR1_VS012)	1200	367 N	35805 Nm	1273.62 mm	1.09 Bars
273 (BR2_VS012)	1200	254 N	33028 Nm	1273.62 mm	1.72 Bars
390 (BR1_VR629)	1200	23145 N	20642 Nm	1359.00 mm	1.48 Bars
400 (BR2_VR629)	1200	23564 N	20393 Nm	1359.00 mm	8.38 Bars
415 (BR1_CPO)	1200	23356 N	8455 Nm	1359.00 mm	8.13 Bars
415 (BR1_CPO)	1200	23356 N	8455 Nm	1359.00 mm	8.13 Bars
460 (BR1_VS002)	1200	4200 N	17201 Nm	1273.62 mm	1.36 Bars
500 (BR1_DN900)	900	19817 N	71552 Nm	982.00 mm	5.01 Bars
515 (BR2_DN900)	900	25278 N	132560 Nm	982.00 mm	8.36 Bars
530 (DR_001)	900	26176 N	82628 Nm	987.63 mm	5.61 Bars
535 (BR2_DR001)	900	26175 N	78217 Nm	987.63 mm	4.48 Bars
585 (BR1_DN1200)	1200	26557 N	18803 Nm	987.63 mm	1.34 Bars
630 (BR1_DR002)	900	26803 N	3561 Nm	987.63 mm	1.44 Bars
635 (BR2_DR002)	900	26802 N	4431 Nm	987.63 mm	0.58 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
740 (BR2_VS009)	1200	6773 N	140654 Nm	1273.62 mm	3.72 Bars
750 (BR1_VS009)	1200	6002 N	144408 Nm	1273.62 mm	3.81 Bars
790 (CT_BF)	1200	0 N	0 Nm	1273.62 mm	0.20 Bars
840 (BR1_VS008)	1200	1961 N	35835 Nm	1273.62 mm	1.10 Bars

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
850 (BR2_VS008)	1200	2025 N	34082 Nm	1273.62 mm	1.06 Bars
900 (CT_REF_Gav)	1000	0 N	0 Nm	1273.62 mm	0.20 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	0.88 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	0.88 Bars
990 (CT_ASP_Gav)	1000	0 N	0 Nm	1273.62 mm	0.20 Bars
995 (BR1_DN600)	600	25 N	1185 Nm	674.00 mm	0.40 Bars
1030 (BR1_VS007)	600	0 N	385 Nm	670.20 mm	0.27 Bars
1040 (BR2_VS007)	600	0 N	201 Nm	670.20 mm	0.23 Bars
1100 (CT_ASP_Reg)	400	0 N	0 Nm	670.20 mm	0.20 Bars
1110 (VS_005)	600	6031 N	1585 Nm	670.20 mm	0.64 Bars
1132 (BR2_DN600)	600	176 N	8990 Nm	670.20 mm	1.73 Bars
1210 (CT_REF_Reg)	400	0 N	0 Nm	670.20 mm	0.20 Bars
1212 (BR1_CT03)	600	0 N	0 Nm	670.20 mm	0.20 Bars
1215 (BR2_CT03)	600	734 N	0 Nm	670.20 mm	0.22 Bars
1240 (Réchauffer)	600	0 N	1875 Nm	674.00 mm	0.51 Bars
1250 (CT_04)	600	0 N	0 Nm	674.00 mm	0.50 Bars
1315 (CT_05)	600	0 N	0 Nm	674.00 mm	0.50 Bars
1370 (BR1_VS011)	600	19018 N	21140 Nm	670.20 mm	4.62 Bars
1380 (VS_011)	600	18977 N	22790 Nm	670.20 mm	5.29 Bars
1400 (BR2_VS006)	600	2000 N	7848 Nm	670.20 mm	1.88 Bars
1440 (BR3_DN600)	600	1396 N	9346 Nm	674.00 mm	1.59 Bars
1440 (BR3_DN600)	600	1396 N	9346 Nm	674.00 mm	1.59 Bars
1452 (BR4_DN600)	600	2 N	1601 Nm	674.00 mm	0.27 Bars
1452 (BR4_DN600)	600	2 N	1601 Nm	674.00 mm	0.27 Bars
1501 (BR2_VS004)	600	0 N	0 Nm	670.20 mm	0.00 Bars
1530 (BR5_DN600)	600	494 N	6865 Nm	674.00 mm	1.16 Bars
1530 (BR5_DN600)	600	451 N	6835 Nm	674.00 mm	1.15 Bars



Situation Exceptionnelles de Service

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
80 (Bride_N1)	1200	6611 N	0 Nm	1273.62 mm	0.95 Bars
120 (Bride_N2)	1200	5299 N	13467 Nm	1273.62 mm	1.27 Bars
140 (Bride_N3)	600	43 N	418 Nm	670.20 mm	0.97 Bars
170 (Bride_N4)	600	2560 N	489 Nm	670.20 mm	1.06 Bars
200 (Bride_N5)	600	4391 N	1594 Nm	670.20 mm	1.29 Bars
230 (Bride_N6)	600	1772 N	5359 Nm	670.20 mm	1.86 Bars
240 (VS_001)	1200	201 N	0 Nm	1273.62 mm	0.50 Bars
272 (BR1_VS012)	1200	310 N	55589 Nm	1273.62 mm	1.87 Bars
273 (BR2_VS012)	1200	285 N	50777 Nm	1273.62 mm	2.15 Bars
390 (BR1_VR629)	1200	28600 N	77872 Nm	1359.00 mm	2.68 Bars
400 (BR2_VR629)	1200	29649 N	81315 Nm	1359.00 mm	5.85 Bars
415 (BR1_CPO)	1200	29079 N	65523 Nm	1359.00 mm	5.53 Bars
415 (BR1_CPO)	1200	29079 N	65523 Nm	1359.00 mm	5.53 Bars
460 (BR1_VS002)	1200	5299 N	24840 Nm	1273.62 mm	1.55 Bars
500 (BR1_DN900)	900	16258 N	42836 Nm	982.00 mm	3.42 Bars
515 (BR2_DN900)	900	14900 N	248060 Nm	982.00 mm	14.44 Bars
530 (DR_001)	900	22733 N	47765 Nm	987.63 mm	3.72 Bars
535 (BR2_DR001)	900	74623 N	39887 Nm	987.63 mm	3.98 Bars
585 (BR1_DN1200)	1200	35433 N	141196 Nm	987.63 mm	8.83 Bars
630 (BR1_DR002)	900	52749 N	72578 Nm	987.63 mm	5.43 Bars
635 (BR2_DR002)	900	52748 N	64710 Nm	987.63 mm	5.01 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
740 (BR2_VS009)	1200	7956 N	184552 Nm	1273.62 mm	5.11 Bars
750 (BR1_VS009)	1200	7243 N	188716 Nm	1273.62 mm	5.21 Bars
790 (CT_BF)	1200	0 N	0 Nm	1273.62 mm	0.50 Bars
840 (BR1_VS008)	1200	1978 N	41551 Nm	1273.62 mm	1.54 Bars

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
850 (BR2_VS008)	1200	2043 N	39562 Nm	1273.62 mm	1.49 Bars
900 (CT_REF_Gav)	1000	0 N	0 Nm	1273.62 mm	0.50 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	1.18 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	1.18 Bars
990 (CT_ASP_Gav)	1000	0 N	0 Nm	1273.62 mm	0.50 Bars
995 (BR1_DN600)	600	24 N	980 Nm	674.00 mm	0.66 Bars
1030 (BR1_VS007)	600	0 N	385 Nm	670.20 mm	0.57 Bars
1040 (BR2_VS007)	600	0 N	201 Nm	670.20 mm	0.53 Bars
1100 (CT_ASP_Reg)	400	0 N	0 Nm	670.20 mm	0.50 Bars
1110 (VS_005)	600	6031 N	1585 Nm	670.20 mm	0.94 Bars
1132 (BR2_DN600)	600	176 N	8989 Nm	670.20 mm	2.03 Bars
1210 (CT_REF_Reg)	400	0 N	0 Nm	670.20 mm	0.50 Bars
1212 (BR1_CT03)	600	0 N	0 Nm	670.20 mm	0.50 Bars
1215 (BR2_CT03)	600	734 N	0 Nm	670.20 mm	0.52 Bars
1240 (Réchauffer)	600	0 N	1875 Nm	674.00 mm	0.81 Bars
1250 (CT_04)	600	0 N	0 Nm	674.00 mm	0.90 Bars
1315 (CT_05)	600	0 N	0 Nm	674.00 mm	0.90 Bars
1370 (BR1_VS011)	600	23565 N	15865 Nm	670.20 mm	4.25 Bars
1380 (VS_011)	600	23524 N	16376 Nm	670.20 mm	4.34 Bars
1400 (BR2_VS006)	600	1772 N	7659 Nm	670.20 mm	2.25 Bars
1440 (BR3_DN600)	600	3071 N	10209 Nm	674.00 mm	1.78 Bars
1440 (BR3_DN600)	600	3071 N	10209 Nm	674.00 mm	1.78 Bars
1452 (BR4_DN600)	600	4 N	2230 Nm	674.00 mm	0.37 Bars
1452 (BR4_DN600)	600	4 N	2230 Nm	674.00 mm	0.37 Bars
1501 (BR2_VS004)	600	0 N	0 Nm	670.20 mm	0.00 Bars
1530 (BR5_DN600)	600	1806 N	10527 Nm	674.00 mm	1.80 Bars
1530 (BR5_DN600)	600	1849 N	10500 Nm	674.00 mm	1.80 Bars

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
80 (Bride_N1)	1200	6611 N	0 Nm	1273.62 mm	0.95 Bars
120 (Bride_N2)	1200	5376 N	19492 Nm	1273.62 mm	1.42 Bars
140 (Bride_N3)	600	43 N	418 Nm	670.20 mm	0.97 Bars
170 (Bride_N4)	600	2560 N	489 Nm	670.20 mm	1.06 Bars
200 (Bride_N5)	600	4391 N	1594 Nm	670.20 mm	1.29 Bars
230 (Bride_N6)	600	1772 N	5359 Nm	670.20 mm	1.86 Bars
240 (VS_001)	1200	201 N	0 Nm	1273.62 mm	0.50 Bars
272 (BR1_VS012)	1200	312 N	54844 Nm	1273.62 mm	1.85 Bars
273 (BR2_VS012)	1200	283 N	49982 Nm	1273.62 mm	2.13 Bars
390 (BR1_VR629)	1200	28656 N	61193 Nm	1359.00 mm	2.34 Bars
400 (BR2_VR629)	1200	29556 N	62280 Nm	1359.00 mm	5.47 Bars
415 (BR1_CPO)	1200	29056 N	45913 Nm	1359.00 mm	5.13 Bars
415 (BR1_CPO)	1200	29056 N	45913 Nm	1359.00 mm	5.13 Bars
460 (BR1_VS002)	1200	5376 N	30978 Nm	1273.62 mm	1.71 Bars
500 (BR1_DN900)	900	2447 N	60473 Nm	982.00 mm	4.18 Bars
515 (BR2_DN900)	900	537 N	234944 Nm	982.00 mm	13.54 Bars
530 (DR_001)	900	26347 N	45969 Nm	987.63 mm	3.67 Bars
535 (BR2_DR001)	900	71009 N	39006 Nm	987.63 mm	3.89 Bars
585 (BR1_DN1200)	1200	32891 N	106557 Nm	987.63 mm	6.96 Bars
630 (BR1_DR002)	900	49855 N	85648 Nm	987.63 mm	6.08 Bars
635 (BR2_DR002)	900	47501 N	79897 Nm	987.63 mm	5.74 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
670 (BR2_DN1200)	1200	0 N	281 Nm	1282.00 mm	0.91 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
700 (BR1_DN700)	700	0 N	35 Nm	775.00 mm	0.90 Bars
740 (BR2_VS009)	1200	7947 N	184308 Nm	1273.62 mm	5.11 Bars
750 (BR1_VS009)	1200	7234 N	188471 Nm	1273.62 mm	5.20 Bars
790 (CT_BF)	1200	0 N	0 Nm	1273.62 mm	0.50 Bars
840 (BR1_VS008)	1200	1978 N	41518 Nm	1273.62 mm	1.54 Bars

Calcul $P_{Eq}$ des Brides					
Nœud du Modèle	DN	Effort Axial	Moment de Flexion	G	$P_{Eq}$ Maxi
850 (BR2_VS008)	1200	2042 N	39530 Nm	1273.62 mm	1.49 Bars
900 (CT_REF_Gav)	1000	0 N	0 Nm	1273.62 mm	0.50 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	1.18 Bars
930 (BR3_DN1200)	1200	17162 N	22189 Nm	1273.62 mm	1.18 Bars
990 (CT_ASP_Gav)	1000	0 N	0 Nm	1273.62 mm	0.50 Bars
995 (BR1_DN600)	600	24 N	981 Nm	674.00 mm	0.66 Bars
1030 (BR1_VS007)	600	0 N	385 Nm	670.20 mm	0.57 Bars
1040 (BR2_VS007)	600	0 N	201 Nm	670.20 mm	0.53 Bars
1100 (CT_ASP_Reg)	400	0 N	0 Nm	670.20 mm	0.50 Bars
1110 (VS_005)	600	6031 N	1584 Nm	670.20 mm	0.94 Bars
1132 (BR2_DN600)	600	176 N	8989 Nm	670.20 mm	2.03 Bars
1210 (CT_REF_Reg)	400	0 N	0 Nm	670.20 mm	0.50 Bars
1212 (BR1_CT03)	600	0 N	0 Nm	670.20 mm	0.50 Bars
1215 (BR2_CT03)	600	734 N	0 Nm	670.20 mm	0.52 Bars
1240 (Réchauffer)	600	0 N	1875 Nm	674.00 mm	0.81 Bars
1250 (CT_04)	600	0 N	0 Nm	674.00 mm	0.90 Bars
1315 (CT_05)	600	0 N	0 Nm	674.00 mm	0.90 Bars
1370 (BR1_VS011)	600	23462 N	17985 Nm	670.20 mm	4.61 Bars
1380 (VS_011)	600	23422 N	18590 Nm	670.20 mm	4.71 Bars
1400 (BR2_VS006)	600	1772 N	7659 Nm	670.20 mm	2.25 Bars
1440 (BR3_DN600)	600	3071 N	10211 Nm	674.00 mm	1.78 Bars
1440 (BR3_DN600)	600	3071 N	10211 Nm	674.00 mm	1.78 Bars
1452 (BR4_DN600)	600	4 N	2229 Nm	674.00 mm	0.37 Bars
1452 (BR4_DN600)	600	4 N	2229 Nm	674.00 mm	0.37 Bars
1501 (BR2_VS004)	600	0 N	0 Nm	670.20 mm	0.00 Bars
1530 (BR5_DN600)	600	1806 N	10527 Nm	674.00 mm	1.80 Bars
1530 (BR5_DN600)	600	1849 N	10500 Nm	674.00 mm	1.80 Bars



NODE	Axial Force N.	Bending Moment N.m.	G/C mm.	P Equivalent bars	Rating Temperature °C	Allowable Pressure /Stress	Ratio %
20	2670	37868	1359.00	4.79	250.00	16.30	29.37
80 - VS_630	2670	45652	1335.00	5.00	250.00	10.40	48.04
90	2670	48910	1335.00	5.07	250.00	10.40	48.71
330 - VS_636	2092	44997	1335.00	4.98	250.00	10.40	47.87
340	2092	40675	1335.00	4.89	250.00	10.40	46.98
530	655	17375	695.00	6.65	250.00	10.40	63.97
590	2318	12456	1535.00	4.19	250.00	10.40	40.27
620	2271	83718	1535.00	5.19	250.00	10.40	49.91
630	2271	88946	1535.00	1.76	250.00	10.40	16.97
710	65180	194120	1760.00	2.58	250.00	10.40	24.82
830	161232	27232	1760.00	1.42	250.00	10.40	13.63
820	161232	37478	1760.00	1.51	250.00	10.40	14.55
1020	47	1177	495.00	4.50	250.00	10.40	43.24
1030	47	1179	495.00	1.00	250.00	10.40	9.59
1110	128	84910	1535.00	5.20	250.00	10.40	49.97
1120	128	81102	1535.00	5.14	250.00	10.40	49.45
1150	128	74283	1535.00	5.05	250.00	10.40	48.53
1160	128	39027	1535.00	4.55	250.00	10.40	43.75
1240	0	26	1535.00	4.00	250.00	10.40	38.47
1510 - VR_661	39303	0	1535.00	4.21	250.00	10.40	40.50
1520	2833	0	1535.00	0.02	250.00	10.40	0.15
1760	191	190201	1535.00	6.68	250.00	10.40	64.22
1795	0	1	730.00	4.00	250.00	10.40	38.46
1810	0	21	730.00	4.00	250.00	10.40	38.49
1950 - VR_638	40250	175794	1335.00	8.05	250.00	10.40	77.41
1960	40250	172716	1335.00	3.98	250.00	10.40	38.31
2510 - VS_637	3083	0	270.00	4.54	250.00	10.40	43.64
2520	2000	0	270.00	0.35	250.00	10.40	3.36
2610	0	21	729.00	0.00	250.00	10.40	0.03
2710	1028	0	1335.00	4.01	250.00	10.40	38.53
1410	0	21	729.00	4.00	250.00	10.40	38.49
1610	1028	0	1335.00	4.01	250.00	10.40	38.53
530	655	17375	729.00	6.30	250.00	10.40	60.58
3060 - SG1_VR_657	655	11240	729.00	5.49	250.00	10.40	52.82
4100	9330	22	357.25	4.96	250.00	27.54	17.99
4130	0	2	357.25	4.00	250.00	10.47	38.24
4235	0	4	357.25	4.00	250.00	10.47	38.26
4600	9292	0	357.25	4.93	250.00	27.54	17.89
4630	0	2	357.25	4.00	250.00	10.47	38.24
4735	0	2	357.25	4.00	250.00	10.47	38.24



#### **4.4 ANALYSE DU SUPPORTAGE**

Dans les tableaux figurant pages suivantes, les différentes combinaisons en Service analysées sont décrites ci-dessous.

CASE 3 Poids + PS + TMS en Normal  
CASE 4 Poids + PMS + TS en Normal  
CASE 5 Poids + PS Mini + TS Mini en Normal  
CASE 6 Poids + PMS + TExS + 1 Système Sécurité  
CASE 7 Poids + PS en Normal  
CASE 8 Poids + PMS en Normal  
CASE 9 Poids + PS Mini en Normal  
CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel  
CASE 11 Poids + PMS + TExS + 2 Systèmes Sécurité  
CASE 12 Poids + PMS + 2 Systèmes Sécurité  
CASE 13 Thermique @ TMS  
CASE 14 Thermique @ TS  
CASE 15 Thermique @ TS Mini  
CASE 16 Thermique @ TExS en Exceptionnel

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
10 (GC_Jupe)		Rigid ANC								
	3(OPE)	18228	-5201	-1468083	-206108	195874	-64189	0.000	-0.000	-0.000
	4(OPE)	17767	-4059	-1468977	-219412	191917	-68712	0.000	-0.000	-0.000
	5(OPE)	808	162	-1425176	-46735	-43029	-3251	0.000	0.000	-0.000
	6(OPE)	30065	-5560	-1484287	-276073	228682	-106390	0.000	-0.000	-0.000
	7(SUS)	788	-59	-1412577	14924	-57807	-3242	0.000	-0.000	-0.000
	8(SUS)	788	-59	-1412577	14924	-57807	-3242	0.000	-0.000	-0.000
	9(SUS)	788	-59	-1412577	14924	-57807	-3242	0.000	-0.000	-0.000
	10(OCC)	7875	154	-1416065	8240	-51825	-28613	0.000	0.000	-0.000
	11(OPE)	28784	-5637	-1478739	-241245	236464	-101967	0.000	-0.000	-0.000
	12(OCC)	6829	107	-1413395	24220	-49374	-24899	0.000	0.000	-0.000
	13(EXP)	17440	-5142	-55506	-221033	253681	-60947	0.000	-0.000	-0.000
	14(EXP)	16979	-4000	-56400	-234337	249724	-65470	0.000	-0.000	-0.000
	15(EXP)	21	221	-12598	-61659	14777	-9	0.000	0.000	-0.000
	16(EXP)	22190	-5713	-68222	-284313	280507	-77776	0.000	-0.000	-0.000
	MAX	30065/L6	-5713/L16	-1484287/L6	-284313/L16	280507/L16	-106390/L6	0.000/L6	-0.000/L16	-0.000/L6
65 (Piquage_N1)		Rigid ANC								
	3(OPE)	-0	0	-10853	0	-0	0	0.032	0.024	24.702
	4(OPE)	0	-0	-10853	0	0	-0	0.030	0.028	24.702
	5(OPE)	-0	0	-10853	0	-0	0	-0.005	0.006	1.343
	6(OPE)	0	0	-10853	0	0	0	0.040	0.033	24.700
	7(SUS)	0	0	-10853	0	0	0	-0.006	-0.001	-0.185
	8(SUS)	0	0	-10853	0	0	0	-0.006	-0.001	-0.185
	9(SUS)	0	0	-10853	0	0	0	-0.006	-0.001	-0.185
	10(OCC)	0	0	-10853	-0	0	0	-0.004	-0.000	-0.185
	11(OPE)	-0	0	-10853	0	0	0	0.040	0.029	24.701
	12(OCC)	0	-0	-10853	-0	0	0	-0.004	-0.002	-0.185
	13(EXP)	-0	-0	-0	-0	-0	0	0.039	0.026	24.886
	14(EXP)	0	-0	-0	-0	0	-0	0.037	0.029	24.886
	15(EXP)	-0	0	0	-0	-0	0	0.002	0.008	1.528
	16(EXP)	0	0	-0	0	0	0	0.043	0.033	24.885
	MAX	-0/L3	-0/L14	-10853/L3	-0/L12	0/L11	0/L11	0.043/L16	0.033/L16	24.886/L13

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
105 (Piquage_N2)		Rigid Y; Rigid RY; Rigid Z; Flex RZ; Rigid X; Rigid RX								
	3(OPE)	18135	-4941	-39136	-21741	85666	-7816	0.040	11.703	7.359
	4(OPE)	17674	-4200	-40328	-24313	83629	-7587	0.039	11.704	7.357
	5(OPE)	676	170	-7346	16045	-67153	-300	-0.000	0.090	1.266
	6(OPE)	29972	-5299	-55343	-39682	70799	-10955	0.062	11.705	7.333
	7(SUS)	648	-57	-923	34512	-71233	-232	-0.001	-0.001	-0.116
	8(SUS)	648	-57	-923	34512	-71233	-232	-0.001	-0.001	-0.116
	9(SUS)	648	-57	-923	34512	-71233	-232	-0.001	-0.001	-0.116
	10(OCC)	7736	156	-4411	40193	-93800	-2214	0.012	-0.000	-0.119
	11(OPE)	28692	-5376	-49794	-23468	83738	-10758	0.060	11.704	7.346
	12(OCC)	6690	109	-1740	47175	-87138	-1951	0.010	-0.001	-0.113
	13(EXP)	17487	-4884	-38213	-56252	156899	-7584	0.041	11.703	7.476
	14(EXP)	17026	-4142	-39405	-58825	154862	-7356	0.040	11.704	7.473
	15(EXP)	28	228	-6423	-18466	4080	-69	0.001	0.090	1.382
	16(EXP)	22236	-5455	-50932	-79875	164598	-8741	0.050	11.705	7.452
	MAX	29972/L6	-5455/L16	-55343/L6	-79875/L16	164598/L16	-10955/L6	0.062/L6	11.705/L16	7.476/L13
125 (Piquage_N3)		Rigid ANC								
	3(OPE)	-0	0	-2196	-180	671	-0	0.008	-0.001	-0.271
	4(OPE)	-0	0	-2196	-180	671	-0	0.008	-0.001	-0.271
	5(OPE)	-0	0	-2731	312	-1166	-0	0.000	0.000	1.229
	6(OPE)	-0	0	-2196	-180	671	-0	0.013	-0.001	-0.272
	7(SUS)	0	0	-2560	155	-580	0	0.000	-0.000	-0.111
	8(SUS)	0	0	-2560	155	-580	0	0.000	-0.000	-0.111
	9(SUS)	0	0	-2560	155	-580	0	0.000	-0.000	-0.111
	10(OCC)	0	0	-2560	155	-580	0	0.003	0.000	-0.111
	11(OPE)	-0	0	-2196	-180	671	-0	0.013	-0.001	-0.272
	12(OCC)	0	0	-2560	155	-580	0	0.003	-0.000	-0.111
	13(EXP)	-0	0	364	-335	1251	-0	0.008	-0.001	-0.160
	14(EXP)	-0	0	365	-335	1251	-0	0.008	-0.001	-0.160
	15(EXP)	-0	0	-171	157	-586	-0	0.000	0.000	1.340
	16(EXP)	-0	0	364	-335	1251	-0	0.010	-0.001	-0.161
	MAX	-0/L3	0/L3	-2731/L5	-335/L14	1251/L14	-0/L14	0.013/L6	-0.001/L11	1.340/L15

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
134 (Jupe_N3)		Rigid Y w/gap; Rigid Z w/gap								
	3(OPE)	0	0	0	0	0	0	-11.338	-3.039	-2.827
	4(OPE)	0	0	0	0	0	0	-11.338	-3.038	-2.827
	5(OPE)	0	0	0	0	0	0	-0.080	-0.022	1.192
	6(OPE)	0	0	0	0	0	0	-11.333	-3.037	-2.827
	7(SUS)	0	0	0	0	0	0	0.003	0.001	-0.093
	8(SUS)	0	0	0	0	0	0	0.003	0.001	-0.093
	9(SUS)	0	0	0	0	0	0	0.003	0.001	-0.093
	10(OCC)	0	0	0	0	0	0	0.006	0.002	-0.093
	11(OPE)	0	0	0	0	0	0	-11.334	-3.037	-2.827
	12(OCC)	0	0	0	0	0	0	0.005	0.002	-0.093
	13(EXP)	0	0	0	0	0	0	-11.341	-3.040	-2.735
	14(EXP)	0	0	0	0	0	0	-11.341	-3.039	-2.735
	15(EXP)	0	0	0	0	0	0	-0.083	-0.023	1.285
	16(EXP)	0	0	0	0	0	0	-11.339	-3.040	-2.734
								-11.341/L14	-3.040/L13	-2.827/L4
135 (SR_N3)		Prog Design VSH								
	3(OPE)	0	0	-7496	0	0	0	-12.163	-3.260	-2.822
	4(OPE)	0	0	-7496	0	0	0	-12.163	-3.259	-2.822
	5(OPE)	0	0	-6961	0	0	0	-0.086	-0.023	1.194
	6(OPE)	0	0	-7496	0	0	0	-12.159	-3.258	-2.822
	7(SUS)	0	0	-7132	0	0	0	0.003	0.001	-0.088
	8(SUS)	0	0	-7132	0	0	0	0.003	0.001	-0.088
	9(SUS)	0	0	-7132	0	0	0	0.003	0.001	-0.088
	10(OCC)	0	0	-7132	0	0	0	0.005	0.003	-0.088
	11(OPE)	0	0	-7496	0	0	0	-12.159	-3.258	-2.821
	12(OCC)	0	0	-7132	0	0	0	0.005	0.002	-0.088
	13(EXP)	0	0	-364	0	0	0	-12.166	-3.261	-2.735
	14(EXP)	0	0	-365	0	0	0	-12.166	-3.260	-2.735
	15(EXP)	0	0	171	0	0	0	-0.089	-0.024	1.281
	16(EXP)	0	0	-364	0	0	0	-12.164	-3.261	-2.734
	MAX			-7496/L4				-12.166/L14	-3.261/L13	-2.822/L4

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
150 (Piquage_N4)		Rigid ANC								
	3(OPE)	-3093	0	4198	0	-4048	0	-4.214	6.055	23.501
	4(OPE)	-1421	-1630	4198	2133	-1860	0	-4.217	6.057	23.495
	5(OPE)	0	0	4198	0	0	0	-0.036	0.051	1.322
	6(OPE)	-3092	0	4198	0	-4048	0	-4.205	6.064	23.497
	7(SUS)	-0	0	4198	0	0	0	-0.006	-0.001	-0.196
	8(SUS)	-0	0	4198	0	0	0	-0.006	-0.001	-0.196
	9(SUS)	0	0	4198	0	0	0	-0.006	-0.001	-0.196
	10(OCC)	0	-0	4198	0	0	0	-0.002	0.000	-0.197
	11(OPE)	-3092	0	4198	0	-4048	0	-4.205	6.060	23.499
	12(OCC)	0	0	4198	0	0	0	-0.002	-0.002	-0.196
	13(EXP)	-3093	0	0	0	-4048	0	-4.208	6.056	23.697
	14(EXP)	-1421	-1630	0	2133	-1860	0	-4.211	6.059	23.691
	15(EXP)	0	-0	0	0	0	-0	-0.030	0.053	1.518
	16(EXP)	-3092	0	0	0	-4048	0	-4.203	6.064	23.694
	MAX	-3093/L3	-1630/L4	4198/L6	2133/L4	-4048/L3	0/L3	-4.217/L4	6.064/L6	23.697/L13
180 (Piquage_N5)		Rigid ANC								
	3(OPE)	-93	0	-2838	-79	-1692	732	-4.225	-4.937	23.788
	4(OPE)	-93	0	-2838	-79	-1693	732	-4.227	-4.934	23.788
	5(OPE)	-132	0	-4708	-1022	-7554	1042	-0.038	-0.030	1.351
	6(OPE)	-93	0	-2838	-80	-1692	730	-4.219	-4.927	23.788
	7(SUS)	-140	0	-4821	-1089	-7908	1101	-0.007	-0.000	-0.172
	8(SUS)	-140	0	-4821	-1089	-7908	1101	-0.007	-0.000	-0.172
	9(SUS)	-140	0	-4821	-1089	-7908	1101	-0.007	-0.000	-0.172
	10(OCC)	-140	0	-4821	-1089	-7908	1100	-0.005	0.001	-0.172
	11(OPE)	-93	0	-2838	-79	-1692	730	-4.218	-4.932	23.788
	12(OCC)	-140	0	-4821	-1089	-7908	1100	-0.005	-0.001	-0.172
	13(EXP)	47	-0	1982	1010	6216	-369	-4.218	-4.937	23.959
	14(EXP)	47	-0	1982	1010	6215	-369	-4.220	-4.933	23.959
	15(EXP)	7	-0	113	67	353	-59	-0.030	-0.030	1.522
	16(EXP)	47	0	1982	1009	6216	-370	-4.214	-4.929	23.960
	MAX	-140/L7	0/L7	-4821/L10	-1089/L10	-7908/L10	1101/L7	-4.227/L4	-4.937/L3	23.960/L16

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
215 (Piquage_N6)		Rigid RX; Rigid Z; Flex RZ; Rigid X; Flex RX; Rigid X								
	3(OPE)	-3093	-261	-17031	-16168	-11988	924	5.843	10.145	5.656
	4(OPE)	-1421	-1489	-16734	-9112	-1015	570	5.860	10.136	5.661
	5(OPE)	-0	-9	-7248	-4777	1296	151	0.043	0.078	1.184
	6(OPE)	-3092	-261	-17028	-16163	-11985	924	5.851	10.146	5.651
	7(SUS)	-0	-2	-1357	-260	-707	36	-0.001	-0.001	-0.127
	8(SUS)	-0	-2	-1357	-260	-707	36	-0.001	-0.001	-0.127
	9(SUS)	-0	-2	-1357	-260	-707	36	-0.001	-0.001	-0.127
	10(OCC)	-0	-2	-1356	-260	-707	36	0.003	-0.001	-0.127
	11(OPE)	-3092	-261	-17029	-16165	-11986	924	5.851	10.145	5.653
	12(OCC)	-0	-2	-1357	-261	-707	36	0.003	-0.001	-0.126
	13(EXP)	-3093	-259	-15674	-15908	-11281	888	5.844	10.146	5.783
	14(EXP)	-1421	-1487	-15377	-8851	-307	534	5.861	10.136	5.788
	15(EXP)	0	-7	-5891	-4517	2003	115	0.044	0.078	1.311
	16(EXP)	-3092	-259	-15672	-15903	-11278	888	5.848	10.147	5.779
	MAX	-3093/L3	-1489/L4	-17031/L3	-16168/L3	-11988/L3	924/L6	5.861/L14	10.147/L16	5.788/L14
251 (CT_N1)		Rigid Y w/gap; Rigid X w/gap								
	3(OPE)	0	0	0	0	0	0	5.895	1.799	2.590
	4(OPE)	0	0	0	0	0	0	5.896	1.798	2.591
	5(OPE)	0	0	0	0	0	0	0.215	0.135	0.063
	6(OPE)	0	0	0	0	0	0	6.212	2.172	3.470
	7(SUS)	0	0	0	0	0	0	-0.003	0.115	-0.017
	8(SUS)	0	0	0	0	0	0	-0.003	0.115	-0.017
	9(SUS)	0	0	0	0	0	0	-0.003	0.115	-0.017
	10(OCC)	0	0	0	0	0	0	0.004	0.125	-0.003
	11(OPE)	0	0	0	0	0	0	6.210	2.169	3.465
	12(OCC)	0	0	0	0	0	0	0.003	0.123	-0.005
	13(EXP)	0	0	0	0	0	0	5.898	1.684	2.607
	14(EXP)	0	0	0	0	0	0	5.899	1.683	2.608
	15(EXP)	0	0	0	0	0	0	0.218	0.021	0.080
	16(EXP)	0	0	0	0	0	0	6.208	2.047	3.473
								6.212/L6	2.172/L6	3.473/L16



NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
265 (SG_5)		Rigid +Z; Rigid Y								
	3(OPE)	0	1941	0	0	0	0	4.879	0.000	5.840
	4(OPE)	0	2111	0	0	0	0	4.879	0.000	5.840
	5(OPE)	0	-1011	0	0	0	0	0.126	-0.000	0.239
	6(OPE)	0	1250	0	0	0	0	4.743	0.000	7.078
	7(SUS)	0	-1145	0	0	0	0	-0.050	-0.000	0.040
	8(SUS)	0	-1145	0	0	0	0	-0.050	-0.000	0.040
	9(SUS)	0	-1145	0	0	0	0	-0.050	-0.000	0.040
	10(OCC)	0	-2585	0	0	0	0	-0.052	-0.000	0.062
	11(OPE)	0	1383	0	0	0	0	4.743	0.000	7.071
	12(OCC)	0	-2395	0	0	0	0	-0.052	-0.000	0.058
	13(EXP)	0	3086	0	0	0	0	4.929	0.000	5.800
	14(EXP)	0	3256	0	0	0	0	4.929	0.000	5.801
	15(EXP)	0	134	0	0	0	0	0.177	0.000	0.200
	16(EXP)	0	3835	0	0	0	0	4.795	0.000	7.016
	MAX		3835/L16					4.929/L13	0.000/L16	7.078/L6
275 (SR06_1)		Prog Design VSH								
	3(OPE)	0	0	-38468	0	0	0	7.374	3.638	22.331
	4(OPE)	0	0	-38467	0	0	0	7.251	3.619	22.334
	5(OPE)	0	0	-46693	0	0	0	0.321	0.113	1.768
	6(OPE)	0	0	-36691	0	0	0	8.013	3.963	26.776
	7(SUS)	0	0	-47051	0	0	0	0.072	0.016	0.874
	8(SUS)	0	0	-47051	0	0	0	0.072	0.016	0.874
	9(SUS)	0	0	-47051	0	0	0	0.072	0.016	0.874
	10(OCC)	0	0	-47013	0	0	0	1.128	0.172	0.968
	11(OPE)	0	0	-36701	0	0	0	7.909	3.948	26.751
	12(OCC)	0	0	-47019	0	0	0	0.988	0.151	0.953
	13(EXP)	0	0	8582	0	0	0	7.302	3.621	21.457
	14(EXP)	0	0	8583	0	0	0	7.180	3.603	21.460
	15(EXP)	0	0	357	0	0	0	0.250	0.097	0.893
	16(EXP)	0	0	10322	0	0	0	6.885	3.791	25.808
	MAX			-47051/L7				8.013/L6	3.963/L6	26.776/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
281 (SR06_2)		Prog Design VSH								
	3(OPE)	0	0	-25787	0	0	0	14.463	0.998	29.391
	4(OPE)	0	0	-25786	0	0	0	14.341	1.056	29.395
	5(OPE)	0	0	-29404	0	0	0	0.375	0.009	2.256
	6(OPE)	0	0	-25006	0	0	0	16.878	0.272	35.248
	7(SUS)	0	0	-29569	0	0	0	0.072	-0.064	1.020
	8(SUS)	0	0	-29569	0	0	0	0.072	-0.064	1.020
	9(SUS)	0	0	-29569	0	0	0	0.072	-0.064	1.020
	10(OCC)	0	0	-29552	0	0	0	1.128	-0.565	1.141
	11(OPE)	0	0	-25011	0	0	0	16.775	0.322	35.216
	12(OCC)	0	0	-29555	0	0	0	0.988	-0.499	1.122
	13(EXP)	0	0	3781	0	0	0	14.392	1.062	28.371
	14(EXP)	0	0	3782	0	0	0	14.269	1.120	28.375
	15(EXP)	0	0	165	0	0	0	0.303	0.073	1.236
	16(EXP)	0	0	4546	0	0	0	15.750	0.837	34.107
	MAX			-29569/L7				16.878/L6	1.120/L14	35.248/L6
285 (CP01_T)		Rigid X; Rigid Y; Rigid Z								
	3(OPE)	87	257	99148	0	0	0	20.921	17.720	27.212
	4(OPE)	87	253	99143	0	0	0	20.708	17.742	27.217
	5(OPE)	25	-3	12791	0	0	0	0.944	-0.130	2.133
	6(OPE)	82	370	90550	0	0	0	25.088	21.069	32.357
	7(SUS)	15	-17	141689	0	0	0	0.309	-0.737	0.723
	8(SUS)	15	-17	141689	0	0	0	0.309	-0.737	0.723
	9(SUS)	15	-17	15015	0	0	0	0.309	-0.737	0.723
	10(OCC)	25	15	141457	0	0	0	2.194	-0.870	0.867
	11(OPE)	80	368	90598	0	0	0	24.899	21.075	32.319
	12(OCC)	24	11	141492	0	0	0	1.944	-0.853	0.844
	13(EXP)	72	274	-42541	0	0	0	20.612	18.457	26.490
	14(EXP)	71	270	-42546	0	0	0	20.399	18.479	26.495
	15(EXP)	9	14	-2224	0	0	0	0.634	0.608	1.410
	16(EXP)	57	355	-50907	0	0	0	22.895	21.938	31.490
	MAX	87/L3	370/L6	141689/L7				25.088/L6	21.938/L16	32.357/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
286 (CP01_C)		Rigid RZ								
	3(OPE)	0	0	0	0	0	-33267	20.921	17.720	27.212
	4(OPE)	0	0	0	0	0	-32283	20.708	17.742	27.217
	5(OPE)	0	0	0	0	0	-1281	0.944	-0.130	2.133
	6(OPE)	0	0	0	0	0	-46564	25.088	21.069	32.357
	7(SUS)	0	0	0	0	0	-992	0.309	-0.737	0.723
	8(SUS)	0	0	0	0	0	-992	0.309	-0.737	0.723
	9(SUS)	0	0	0	0	0	-992	0.309	-0.737	0.723
	10(OCC)	0	0	0	0	0	-9516	2.194	-0.870	0.867
	11(OPE)	0	0	0	0	0	-45718	24.899	21.075	32.319
	12(OCC)	0	0	0	0	0	-8386	1.944	-0.853	0.844
	13(EXP)	0	0	0	0	0	-32275	20.612	18.457	26.490
	14(EXP)	0	0	0	0	0	-31291	20.399	18.479	26.495
	15(EXP)	0	0	0	0	0	-289	0.634	0.608	1.410
	16(EXP)	0	0	0	0	0	-37048	22.895	21.938	31.490
	MAX						-46564/L6	25.088/L6	21.938/L16	32.357/L6
300 (CP03_T)		Rigid X; Rigid Y; Rigid Z								
	3(OPE)	87	257	80163	0	0	0	21.448	9.127	11.288
	4(OPE)	87	253	80159	0	0	0	21.271	9.429	11.293
	5(OPE)	25	-3	-6193	0	0	0	0.087	-0.264	2.005
	6(OPE)	82	370	71566	0	0	0	27.607	6.266	12.445
	7(SUS)	15	-17	122704	0	0	0	-0.143	-0.352	0.713
	8(SUS)	15	-17	122704	0	0	0	-0.143	-0.352	0.713
	9(SUS)	15	-17	-3969	0	0	0	-0.143	-0.352	0.713
	10(OCC)	25	15	122472	0	0	0	1.307	-2.933	0.857
	11(OPE)	80	368	71614	0	0	0	27.488	6.493	12.407
	12(OCC)	24	11	122508	0	0	0	1.123	-2.604	0.835
	13(EXP)	72	274	-42541	0	0	0	21.591	9.479	10.575
	14(EXP)	71	270	-42546	0	0	0	21.415	9.781	10.580
	15(EXP)	9	14	-2224	0	0	0	0.230	0.088	1.292
	16(EXP)	57	355	-50907	0	0	0	26.301	9.199	11.588
	MAX	87/L3	370/L6	122704/L7				27.607/L6	9.781/L14	12.445/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
301 (CP03_C)		Rigid RZ								
	3(OPE)	0	0	0	0	0	-33267	21.448	9.127	11.288
	4(OPE)	0	0	0	0	0	-32283	21.271	9.429	11.293
	5(OPE)	0	0	0	0	0	-1281	0.087	-0.264	2.005
	6(OPE)	0	0	0	0	0	-46564	27.607	6.266	12.445
	7(SUS)	0	0	0	0	0	-992	-0.143	-0.352	0.713
	8(SUS)	0	0	0	0	0	-992	-0.143	-0.352	0.713
	9(SUS)	0	0	0	0	0	-992	-0.143	-0.352	0.713
	10(OCC)	0	0	0	0	0	-9516	1.307	-2.933	0.857
	11(OPE)	0	0	0	0	0	-45718	27.488	6.493	12.407
	12(OCC)	0	0	0	0	0	-8386	1.123	-2.604	0.835
	13(EXP)	0	0	0	0	0	-32275	21.591	9.479	10.575
	14(EXP)	0	0	0	0	0	-31291	21.415	9.781	10.580
	15(EXP)	0	0	0	0	0	-289	0.230	0.088	1.292
	16(EXP)	0	0	0	0	0	-37048	26.301	9.199	11.588
	MAX						-46564/L6	27.607/L6	9.781/L14	12.445/L6
320 (CP02_T)		Rigid X; Rigid Y; Rigid Z								
	3(OPE)	67881	5197	60679	0	0	0	6.695	27.447	4.655
	4(OPE)	68342	4453	61867	0	0	0	6.416	27.398	4.633
	5(OPE)	-10199	-173	-9846	0	0	0	0.365	0.281	1.277
	6(OPE)	56039	5669	68346	0	0	0	10.097	31.088	3.736
	7(SUS)	85297	40	70254	0	0	0	0.231	0.102	0.084
	8(SUS)	85297	40	70254	0	0	0	0.231	0.102	0.084
	9(SUS)	-10180	40	-12995	0	0	0	0.231	0.102	0.084
	10(OCC)	78219	-141	73449	0	0	0	2.859	0.807	0.126
	11(OPE)	57318	5744	62843	0	0	0	9.752	31.070	3.939
	12(OCC)	79263	-98	70815	0	0	0	2.477	0.738	0.211
	13(EXP)	-17415	5157	-9574	0	0	0	6.464	27.344	4.571
	14(EXP)	-16955	4412	-8386	0	0	0	6.185	27.295	4.549
	15(EXP)	-19	-213	3149	0	0	0	0.134	0.179	1.193
	16(EXP)	-22180	5810	-5103	0	0	0	7.238	30.281	3.610
	MAX	85297/L7	5810/L16	73449/L10				10.097/L6	31.088/L6	4.655/L3

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
321 (CP02_C)		Rigid RY; Rigid RX								
	3(OPE)	0	0	0	19376	-7067	16895	6.695	27.447	4.655
	4(OPE)	0	0	0	20174	-8398	17590	6.416	27.398	4.633
	5(OPE)	0	0	0	1349	9500	1176	0.365	0.281	1.277
	6(OPE)	0	0	0	49522	-39570	43180	10.097	31.088	3.736
	7(SUS)	0	0	0	1339	13654	1168	0.231	0.102	0.084
	8(SUS)	0	0	0	1339	13654	1168	0.231	0.102	0.084
	9(SUS)	0	0	0	1339	13654	1168	0.231	0.102	0.084
	10(OCC)	0	0	0	19597	-1101	17087	2.859	0.807	0.126
	11(OPE)	0	0	0	45154	-32627	39372	9.752	31.070	3.939
	12(OCC)	0	0	0	16687	2384	14551	2.477	0.738	0.211
	13(EXP)	0	0	0	18036	-20721	15727	6.464	27.344	4.571
	14(EXP)	0	0	0	18834	-22052	16422	6.185	27.295	4.549
	15(EXP)	0	0	0	9	-4154	8	0.134	0.179	1.193
	16(EXP)	0	0	0	29925	-38469	26093	7.238	30.281	3.610
	MAX				49522/L6	-39570/L6	43180/L6	10.097/L6	31.088/L6	4.655/L3
340 (CP04_T)		Rigid X; Rigid Y; Rigid Z								
	3(OPE)	67881	5197	51479	0	0	0	1.437	-35.570	0.603
	4(OPE)	68341	4453	52667	0	0	0	1.191	-26.802	0.543
	5(OPE)	-10199	-173	-19047	0	0	0	0.253	2.203	1.332
	6(OPE)	56038	5669	59145	0	0	0	4.129	-40.969	-2.028
	7(SUS)	85296	40	61053	0	0	0	0.023	-0.364	0.325
	8(SUS)	85296	40	61053	0	0	0	0.023	-0.364	0.325
	9(SUS)	-10180	40	-22197	0	0	0	0.023	-0.364	0.325
	10(OCC)	78218	-141	64249	0	0	0	2.871	0.227	0.116
	11(OPE)	57317	5744	53642	0	0	0	3.574	-41.235	-1.584
	12(OCC)	79262	-98	61614	0	0	0	2.392	0.040	0.313
	13(EXP)	-17415	5157	-9574	0	0	0	1.414	-35.206	0.278
	14(EXP)	-16955	4412	-8386	0	0	0	1.168	-26.438	0.218
	15(EXP)	-19	-213	3149	0	0	0	0.230	2.567	1.006
	16(EXP)	-22180	5810	-5103	0	0	0	1.258	-41.197	-2.144
	MAX	85296/L7	5810/L16	64249/L10				4.129/L6	-41.235/L11	-2.144/L16

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
341 (CP04_C)		Rigid RY; Rigid RX								
	3(OPE)	0	0	0	-4406	-11452	-3971	1.437	-35.570	0.603
	4(OPE)	0	0	0	-374	-11673	-337	1.191	-26.802	0.543
	5(OPE)	0	0	0	2065	1668	1861	0.253	2.203	1.332
	6(OPE)	0	0	0	21900	-18581	19738	4.129	-40.969	-2.028
	7(SUS)	0	0	0	1056	1358	952	0.023	-0.364	0.325
	8(SUS)	0	0	0	1056	1358	952	0.023	-0.364	0.325
	9(SUS)	0	0	0	1056	1358	952	0.023	-0.364	0.325
	10(OCC)	0	0	0	19183	-188	17290	2.871	0.227	0.116
	11(OPE)	0	0	0	17471	-20971	15747	3.574	-41.235	-1.584
	12(OCC)	0	0	0	16241	-1702	14638	2.392	0.040	0.313
	13(EXP)	0	0	0	-5462	-12809	-4923	1.414	-35.206	0.278
	14(EXP)	0	0	0	-1431	-13030	-1289	1.168	-26.438	0.218
	15(EXP)	0	0	0	1009	310	909	0.230	2.567	1.006
	16(EXP)	0	0	0	2716	-18393	2448	1.258	-41.197	-2.144
	MAX				21900/L6	-20971/L11	19738/L6	4.129/L6	-41.235/L11	-2.144/L16
355 (SR_8)		Prog Design VSH								
	3(OPE)	0	0	-40414	0	0	0	-1.313	-30.681	-3.103
	4(OPE)	0	0	-40455	0	0	0	-1.475	-21.831	-3.153
	5(OPE)	0	0	-36988	0	0	0	0.162	2.193	1.181
	6(OPE)	0	0	-43281	0	0	0	0.794	-34.789	-6.686
	7(SUS)	0	0	-37499	0	0	0	-0.067	-0.219	0.542
	8(SUS)	0	0	-37499	0	0	0	-0.067	-0.219	0.542
	9(SUS)	0	0	-37499	0	0	0	-0.067	-0.219	0.542
	10(OCC)	0	0	-37891	0	0	0	2.503	0.054	0.051
	11(OPE)	0	0	-42835	0	0	0	0.202	-35.001	-6.129
	12(OCC)	0	0	-37675	0	0	0	2.034	-0.080	0.321
	13(EXP)	0	0	-2916	0	0	0	-1.246	-30.462	-3.645
	14(EXP)	0	0	-2956	0	0	0	-1.408	-21.612	-3.695
	15(EXP)	0	0	511	0	0	0	0.229	2.412	0.639
	16(EXP)	0	0	-5389	0	0	0	-1.709	-34.843	-6.737
	MAX			-43281/L6				2.503/L10	-35.001/L11	-6.737/L16



NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
395 (SP_9)		Rigid +Z								
	3(OPE)	0	0	-89665	0	0	0	-0.000	-9.821	-0.000
	4(OPE)	0	0	-77353	0	0	0	-0.007	-2.052	-0.000
	5(OPE)	0	0	-31510	0	0	0	-0.003	2.345	-0.000
	6(OPE)	0	0	-140349	0	0	0	0.137	-9.820	-0.000
	7(SUS)	0	0	-37187	0	0	0	-0.001	-0.000	-0.000
	8(SUS)	0	0	-37187	0	0	0	-0.001	-0.000	-0.000
	9(SUS)	0	0	-37187	0	0	0	-0.001	-0.000	-0.000
	10(OCC)	0	0	-61272	0	0	0	0.153	-0.000	-0.000
	11(OPE)	0	0	-125553	0	0	0	0.098	-9.820	-0.000
	12(OCC)	0	0	-50288	0	0	0	0.117	-0.000	-0.000
	13(EXP)	0	0	-52478	0	0	0	0.001	-9.821	-0.000
	14(EXP)	0	0	-40167	0	0	0	-0.007	-2.052	-0.000
	15(EXP)	0	0	5677	0	0	0	-0.002	2.345	0.000
	16(EXP)	0	0	-79077	0	0	0	-0.016	-9.820	-0.000
	MAX			-140349/L6				0.153/L10	-9.821/L3	-0.000/L6
430 (PF4_CPO)		Rigid ANC								
	3(OPE)	2234	26510	17482	-24792	866	-163	0.000	0.000	0.000
	4(OPE)	1646	23356	6088	-3063	-1526	-4405	0.000	0.000	0.000
	5(OPE)	-210	-934	-18300	8308	-5613	-1635	-0.000	-0.000	-0.000
	6(OPE)	18517	29079	42313	-23437	12837	80849	0.000	0.000	0.000
	7(SUS)	-21	-114	-12889	1858	349	-405	-0.000	-0.000	-0.000
	8(SUS)	-21	-114	-12889	1858	349	-405	-0.000	-0.000	-0.000
	9(SUS)	-21	-114	-12889	1858	349	-405	-0.000	-0.000	-0.000
	10(OCC)	16406	-1273	-2569	2425	30604	90963	0.000	-0.000	-0.000
	11(OPE)	13915	29056	35379	-23816	8890	57877	0.000	0.000	0.000
	12(OCC)	12143	-1054	-7408	2160	25565	69768	0.000	-0.000	-0.000
	13(EXP)	2255	26624	30372	-26650	517	241	0.000	0.000	0.000
	14(EXP)	1667	23469	18977	-4921	-1875	-4001	0.000	0.000	0.000
	15(EXP)	-189	-821	-5411	6450	-5962	-1230	-0.000	-0.000	-0.000
	16(EXP)	2111	30351	44882	-25862	-17767	-10114	0.000	0.000	0.000
	MAX	18517/L6	30351/L16	44882/L16	-26650/L13	30604/L10	90963/L10	0.000/L6	0.000/L16	0.000/L16

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
435 (SR_07)		Prog Design VSH								
	3(OPE)	0	0	-44042	0	0	0	13.087	13.770	6.890
	4(OPE)	0	0	-44043	0	0	0	12.916	13.932	6.888
	5(OPE)	0	0	-48239	0	0	0	0.276	-0.064	1.643
	6(OPE)	0	0	-44100	0	0	0	17.266	12.757	6.817
	7(SUS)	0	0	-49288	0	0	0	0.170	-0.163	0.331
	8(SUS)	0	0	-49288	0	0	0	0.170	-0.163	0.331
	9(SUS)	0	0	-49288	0	0	0	0.170	-0.163	0.331
	10(OCC)	0	0	-49228	0	0	0	1.668	-1.551	0.407
	11(OPE)	0	0	-44097	0	0	0	17.116	12.893	6.821
	12(OCC)	0	0	-49229	0	0	0	1.469	-1.368	0.405
	13(EXP)	0	0	5247	0	0	0	12.917	13.934	6.559
	14(EXP)	0	0	5245	0	0	0	12.746	14.095	6.557
	15(EXP)	0	0	1050	0	0	0	0.106	0.099	1.312
	16(EXP)	0	0	5128	0	0	0	15.598	14.308	6.410
	MAX			-49288/L7				17.266/L6	14.308/L16	6.890/L3
545 (SR_10)		Prog Design VSH								
	3(OPE)	0	0	-57183	0	0	0	-1.040	-18.528	23.217
	4(OPE)	0	0	-57265	0	0	0	-1.268	-10.281	23.064
	5(OPE)	0	0	-68549	0	0	0	-0.863	2.383	1.902
	6(OPE)	0	0	-56212	0	0	0	2.525	-25.088	25.038
	7(SUS)	0	0	-68884	0	0	0	-0.531	-0.271	1.274
	8(SUS)	0	0	-68884	0	0	0	-0.531	-0.271	1.274
	9(SUS)	0	0	-68884	0	0	0	-0.531	-0.271	1.274
	10(OCC)	0	0	-69602	0	0	0	4.610	1.839	-0.072
	11(OPE)	0	0	-55550	0	0	0	1.073	-23.863	26.280
	12(OCC)	0	0	-69335	0	0	0	3.524	1.477	0.429
	13(EXP)	0	0	11702	0	0	0	-0.509	-18.256	21.944
	14(EXP)	0	0	11620	0	0	0	-0.737	-10.010	21.790
	15(EXP)	0	0	335	0	0	0	-0.332	2.654	0.628
	16(EXP)	0	0	13390	0	0	0	-2.085	-26.927	25.110
	MAX			-69602/L10				4.610/L10	-26.927/L16	26.280/L11

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
595 (SR_11)		Prog Design VSH								
	3(OPE)	0	0	-35716	0	0	0	-17.498	-11.855	12.087
	4(OPE)	0	0	-35743	0	0	0	-17.673	-3.918	11.987
	5(OPE)	0	0	-38513	0	0	0	-3.393	-0.531	1.597
	6(OPE)	0	0	-33346	0	0	0	-32.115	-27.742	20.979
	7(SUS)	0	0	-38792	0	0	0	-0.903	-2.894	0.550
	8(SUS)	0	0	-38792	0	0	0	-0.903	-2.894	0.550
	9(SUS)	0	0	-38792	0	0	0	-0.903	-2.894	0.550
	10(OCC)	0	0	-38695	0	0	0	6.227	-6.611	0.914
	11(OPE)	0	0	-33343	0	0	0	-35.015	-24.002	20.989
	12(OCC)	0	0	-38783	0	0	0	3.962	-6.881	0.583
	13(EXP)	0	0	3076	0	0	0	-16.595	-8.961	11.538
	14(EXP)	0	0	3049	0	0	0	-16.769	-1.024	11.437
	15(EXP)	0	0	279	0	0	0	-2.490	2.363	1.047
	16(EXP)	0	0	5349	0	0	0	-38.342	-21.131	20.065
	MAX			-38792/L7				-38.342/L16	-27.742/L6	20.989/L11
596 (SP_13)		Rigid Z								
	3(OPE)	0	0	-18953	0	0	0	-19.458	-11.563	-0.000
	4(OPE)	0	0	-19532	0	0	0	-19.634	-3.461	-0.000
	5(OPE)	0	0	-35089	0	0	0	-5.458	-1.099	-0.000
	6(OPE)	0	0	17196	0	0	0	-53.262	-33.132	0.000
	7(SUS)	0	0	-35293	0	0	0	-0.898	-3.383	-0.000
	8(SUS)	0	0	-35293	0	0	0	-0.898	-3.383	-0.000
	9(SUS)	0	0	-35293	0	0	0	-0.898	-3.383	-0.000
	10(OCC)	0	0	-4890	0	0	0	6.246	-14.015	-0.000
	11(OPE)	0	0	2169	0	0	0	-56.161	-28.543	0.000
	12(OCC)	0	0	-19634	0	0	0	3.978	-13.789	-0.000
	13(EXP)	0	0	16340	0	0	0	-18.561	-8.180	0.000
	14(EXP)	0	0	15761	0	0	0	-18.736	-0.078	0.000
	15(EXP)	0	0	205	0	0	0	-4.560	2.283	0.000
	16(EXP)	0	0	22085	0	0	0	-59.508	-19.117	0.000
	MAX			-35293/L7				-59.508/L16	-33.132/L6	-0.000/L7

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
745 (SG_04)		Rigid +Z; Rigid Y								
	3(OPE)	0	-23011	-83496	0	0	0	0.354	-0.000	-0.000
	4(OPE)	0	-23183	-83494	0	0	0	0.354	-0.000	-0.000
	5(OPE)	0	4200	-114292	0	0	0	-0.032	0.000	-0.000
	6(OPE)	0	-26962	-77683	0	0	0	0.231	-0.000	-0.000
	7(SUS)	0	4508	-111400	0	0	0	-0.050	0.000	-0.000
	8(SUS)	0	4508	-111400	0	0	0	-0.050	0.000	-0.000
	9(SUS)	0	4508	-111400	0	0	0	-0.050	0.000	-0.000
	10(OCC)	0	5928	-111687	0	0	0	-0.052	0.000	-0.000
	11(OPE)	0	-27069	-77716	0	0	0	0.232	-0.000	-0.000
	12(OCC)	0	5741	-111642	0	0	0	-0.051	0.000	-0.000
	13(EXP)	0	-27520	27903	0	0	0	0.404	-0.000	0.000
	14(EXP)	0	-27691	27906	0	0	0	0.404	-0.000	0.000
	15(EXP)	0	-309	-2892	0	0	0	0.018	-0.000	-0.000
	16(EXP)	0	-32890	34004	0	0	0	0.283	-0.000	0.000
	MAX		-32890/L16	-114292/L5				0.404/L13	-0.000/L16	-0.000/L5
772 (SG_16_1)		Rigid X								
	3(OPE)	-39754	0	0	0	0	0	-0.000	0.237	-1.802
	4(OPE)	-39758	0	0	0	0	0	-0.000	0.238	-1.803
	5(OPE)	-4124	0	0	0	0	0	-0.000	0.041	-0.151
	6(OPE)	-47602	0	0	0	0	0	-0.000	0.277	-1.973
	7(SUS)	-3053	0	0	0	0	0	-0.000	0.041	-0.097
	8(SUS)	-3053	0	0	0	0	0	-0.000	0.041	-0.097
	9(SUS)	-3053	0	0	0	0	0	-0.000	0.041	-0.097
	10(OCC)	-3182	0	0	0	0	0	-0.000	0.037	-0.100
	11(OPE)	-47556	0	0	0	0	0	-0.000	0.277	-1.972
	12(OCC)	-3162	0	0	0	0	0	-0.000	0.038	-0.099
	13(EXP)	-36702	0	0	0	0	0	-0.000	0.196	-1.705
	14(EXP)	-36705	0	0	0	0	0	-0.000	0.196	-1.705
	15(EXP)	-1071	0	0	0	0	0	-0.000	0.000	-0.054
	16(EXP)	-44420	0	0	0	0	0	-0.000	0.240	-1.873
	MAX	-47602/L6						-0.000/L6	0.277/L11	-1.973/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
790 (CT_BF)		Rigid Z w/gap; Rigid X w/gap; Rigid Y w/gap								
	3(OPE)	0	0	0	0	0	0	-1.489	-0.081	-1.592
	4(OPE)	0	0	0	0	0	0	-1.489	-0.080	-1.592
	5(OPE)	0	0	0	0	0	0	-0.095	0.019	-0.189
	6(OPE)	0	0	0	0	0	0	-1.609	-0.111	-1.902
	7(SUS)	0	0	0	0	0	0	-0.049	0.019	-0.149
	8(SUS)	0	0	0	0	0	0	-0.049	0.019	-0.149
	9(SUS)	0	0	0	0	0	0	-0.049	0.019	-0.149
	10(OCC)	0	0	0	0	0	0	-0.050	0.010	-0.153
	11(OPE)	0	0	0	0	0	0	-1.609	-0.110	-1.900
	12(OCC)	0	0	0	0	0	0	-0.050	0.011	-0.153
	13(EXP)	0	0	0	0	0	0	-1.441	-0.100	-1.443
	14(EXP)	0	0	0	0	0	0	-1.441	-0.099	-1.443
	15(EXP)	0	0	0	0	0	0	-0.046	-0.000	-0.040
	16(EXP)	0	0	0	0	0	0	-1.559	-0.121	-1.748
								-1.609/L6	-0.121/L16	-1.902/L6
791 (SP_03)		Rigid +Z								
	3(OPE)	0	0	0	0	0	0	3.240	-0.000	1.151
	4(OPE)	0	0	0	0	0	0	3.240	-0.000	1.151
	5(OPE)	0	0	0	0	0	0	0.120	-0.000	0.018
	6(OPE)	0	0	0	0	0	0	3.240	-0.000	1.151
	7(SUS)	0	0	-7647	0	0	0	-0.000	-0.000	-0.000
	8(SUS)	0	0	-7647	0	0	0	-0.000	-0.000	-0.000
	9(SUS)	0	0	-7647	0	0	0	-0.000	-0.000	-0.000
	10(OCC)	0	0	-7647	0	0	0	-0.000	-0.000	-0.000
	11(OPE)	0	0	0	0	0	0	3.240	-0.000	1.151
	12(OCC)	0	0	-7647	0	0	0	-0.000	-0.000	-0.000
	13(EXP)	0	0	7647	0	0	0	3.240	-0.000	1.151
	14(EXP)	0	0	7647	0	0	0	3.240	-0.000	1.151
	15(EXP)	0	0	7647	0	0	0	0.120	-0.000	0.018
	16(EXP)	0	0	7647	0	0	0	3.240	-0.000	1.151
	MAX			-7647/L7				3.240/L13		1.151/L13

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
800 (SB_02)		Rigid X; Rigid Y; Rigid Z; Rigid RX								
	3(OPE)	-0	0	-97050	0	0	0	-0.000	-0.000	-0.000
	4(OPE)	-0	0	-97050	0	0	0	-0.000	-0.000	-0.000
	5(OPE)	-0	0	-97050	0	0	0	-0.000	-0.000	-0.000
	6(OPE)	-0	0	-97050	0	0	0	-0.000	-0.000	-0.000
	7(SUS)	0	0	-73176	0	0	0	0.000	-0.000	-0.000
	8(SUS)	0	0	-73176	0	0	0	0.000	-0.000	-0.000
	9(SUS)	0	0	-73176	0	0	0	0.000	-0.000	-0.000
	10(OCC)	0	0	-73176	0	0	0	0.000	-0.000	-0.000
	11(OPE)	-0	0	-97050	0	0	0	-0.000	-0.000	-0.000
	12(OCC)	0	0	-73176	0	0	0	0.000	-0.000	-0.000
	13(EXP)	-0	0	-23875	0	0	0	-0.000	-0.000	-0.000
	14(EXP)	-0	0	-23875	0	0	0	-0.000	-0.000	-0.000
	15(EXP)	-0	0	-23875	0	0	0	-0.000	-0.000	-0.000
	16(EXP)	-0	0	-23875	0	0	0	-0.000	-0.000	-0.000
	MAX	-0/L13		-97050/L3				-0.000/L13		-0.000/L3
810 (SG_01)		Rigid Y; Rigid Z								
	3(OPE)	0	0	-104024	0	0	0	-1.523	-0.000	-0.000
	4(OPE)	0	0	-104024	0	0	0	-1.523	-0.000	-0.000
	5(OPE)	0	0	-104024	0	0	0	-0.053	-0.000	-0.000
	6(OPE)	0	0	-104024	0	0	0	-1.523	-0.000	-0.000
	7(SUS)	0	0	-120252	0	0	0	0.000	-0.000	-0.000
	8(SUS)	0	0	-120252	0	0	0	0.000	-0.000	-0.000
	9(SUS)	0	0	-120252	0	0	0	0.000	-0.000	-0.000
	10(OCC)	0	0	-120252	0	0	0	0.000	-0.000	-0.000
	11(OPE)	0	0	-104024	0	0	0	-1.523	-0.000	-0.000
	12(OCC)	0	0	-120252	0	0	0	0.000	-0.000	-0.000
	13(EXP)	0	0	16227	0	0	0	-1.523	-0.000	0.000
	14(EXP)	0	0	16227	0	0	0	-1.523	-0.000	0.000
	15(EXP)	0	0	16227	0	0	0	-0.053	-0.000	0.000
	16(EXP)	0	0	16227	0	0	0	-1.523	-0.000	0.000
	MAX			-120252/L7				-1.523/L3		-0.000/L7



NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
865 (SP_14)		Rigid +Z								
	3(OPE)	0	0	0	0	0	0	1.382	1.506	2.435
	4(OPE)	0	0	0	0	0	0	1.382	1.505	2.436
	5(OPE)	0	0	-1489	0	0	0	0.005	0.045	-0.000
	6(OPE)	0	0	0	0	0	0	1.234	1.511	2.975
	7(SUS)	0	0	-6302	0	0	0	-0.051	-0.006	-0.000
	8(SUS)	0	0	-6302	0	0	0	-0.051	-0.006	-0.000
	9(SUS)	0	0	-6302	0	0	0	-0.051	-0.006	-0.000
	10(OCC)	0	0	-5830	0	0	0	-0.054	0.003	-0.000
	11(OPE)	0	0	0	0	0	0	1.235	1.510	2.972
	12(OCC)	0	0	-5903	0	0	0	-0.053	0.001	-0.000
	13(EXP)	0	0	6302	0	0	0	1.433	1.513	2.435
	14(EXP)	0	0	6302	0	0	0	1.433	1.512	2.436
	15(EXP)	0	0	4813	0	0	0	0.056	0.052	0.000
	16(EXP)	0	0	5830	0	0	0	1.288	1.509	2.975
	MAX			-6302/L9				1.433/L13	1.513/L13	2.975/L6
875 (SG_15)		Rigid GUI; Rigid GUI								
	3(OPE)	6548	7292	0	0	0	0	0.000	0.000	-3.088
	4(OPE)	6548	7292	0	0	0	0	0.000	0.000	-3.087
	5(OPE)	-63	540	0	0	0	0	-0.000	0.000	-0.185
	6(OPE)	7794	8215	0	0	0	0	0.000	0.000	-2.566
	7(SUS)	-311	437	0	0	0	0	-0.000	0.000	0.072
	8(SUS)	-311	437	0	0	0	0	-0.000	0.000	0.072
	9(SUS)	-311	437	0	0	0	0	-0.000	0.000	0.072
	10(OCC)	-288	443	0	0	0	0	-0.000	0.000	0.064
	11(OPE)	7787	8209	0	0	0	0	0.000	0.000	-2.569
	12(OCC)	-292	443	0	0	0	0	-0.000	0.000	0.065
	13(EXP)	6859	6854	0	0	0	0	0.000	0.000	-3.160
	14(EXP)	6860	6854	0	0	0	0	0.000	0.000	-3.159
	15(EXP)	249	102	0	0	0	0	0.000	0.000	-0.258
	16(EXP)	8082	7771	0	0	0	0	0.000	0.000	-2.630
	MAX	8082/L16	8215/L6					0.000/L16	0.000/L6	-3.160/L13

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
876 (SR_15_1)		Prog Design VSH								
	3(OPE)	0	0	-16724	0	0	0	0.762	0.898	-3.129
	4(OPE)	0	0	-16724	0	0	0	0.762	0.899	-3.128
	5(OPE)	0	0	-15938	0	0	0	0.027	0.035	-0.180
	6(OPE)	0	0	-16581	0	0	0	0.762	1.043	-2.593
	7(SUS)	0	0	-15868	0	0	0	-0.000	0.010	0.082
	8(SUS)	0	0	-15868	0	0	0	-0.000	0.010	0.082
	9(SUS)	0	0	-15868	0	0	0	-0.000	0.010	0.082
	10(OCC)	0	0	-15870	0	0	0	-0.000	0.013	0.074
	11(OPE)	0	0	-16582	0	0	0	0.762	1.042	-2.596
	12(OCC)	0	0	-15870	0	0	0	-0.000	0.012	0.075
	13(EXP)	0	0	-856	0	0	0	0.762	0.888	-3.210
	14(EXP)	0	0	-856	0	0	0	0.762	0.888	-3.210
	15(EXP)	0	0	-70	0	0	0	0.027	0.024	-0.261
	16(EXP)	0	0	-711	0	0	0	0.762	1.030	-2.667
	MAX			-16724/L3				0.762/L3	1.043/L6	-3.210/L13
877 (SR_15_2)		Prog Design VSH								
	3(OPE)	0	0	-17779	0	0	0	-0.762	-0.898	-3.043
	4(OPE)	0	0	-17779	0	0	0	-0.762	-0.899	-3.043
	5(OPE)	0	0	-17018	0	0	0	-0.027	-0.035	-0.188
	6(OPE)	0	0	-17644	0	0	0	-0.762	-1.043	-2.537
	7(SUS)	0	0	-16950	0	0	0	-0.000	-0.010	0.066
	8(SUS)	0	0	-16950	0	0	0	-0.000	-0.010	0.066
	9(SUS)	0	0	-16950	0	0	0	-0.000	-0.010	0.066
	10(OCC)	0	0	-16953	0	0	0	-0.000	-0.013	0.057
	11(OPE)	0	0	-17645	0	0	0	-0.762	-1.042	-2.539
	12(OCC)	0	0	-16952	0	0	0	-0.000	-0.012	0.058
	13(EXP)	0	0	-829	0	0	0	-0.762	-0.888	-3.109
	14(EXP)	0	0	-829	0	0	0	-0.762	-0.888	-3.109
	15(EXP)	0	0	-68	0	0	0	-0.027	-0.024	-0.254
	16(EXP)	0	0	-691	0	0	0	-0.762	-1.030	-2.594
	MAX			-17779/L3				-0.762/L3	-1.043/L6	-3.109/L13

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
915 (SG_16_2)		Rigid GUI; Rigid GUI								
	3(OPE)	33119	13522	0	0	0	0	0.000	0.000	-7.065
	4(OPE)	33123	13528	0	0	0	0	0.000	0.000	-7.065
	5(OPE)	4162	-3726	0	0	0	0	0.000	-0.000	-0.363
	6(OPE)	39726	17127	0	0	0	0	0.000	0.000	-7.235
	7(SUS)	3349	-3784	0	0	0	0	0.000	-0.000	-0.126
	8(SUS)	3349	-3784	0	0	0	0	0.000	-0.000	-0.126
	9(SUS)	3349	-3784	0	0	0	0	0.000	-0.000	-0.126
	10(OCC)	3445	-3802	0	0	0	0	0.000	-0.000	-0.129
	11(OPE)	39689	17109	0	0	0	0	0.000	0.000	-7.234
	12(OCC)	3430	-3800	0	0	0	0	0.000	-0.000	-0.128
	13(EXP)	29771	17306	0	0	0	0	0.000	0.000	-6.939
	14(EXP)	29774	17311	0	0	0	0	0.000	0.000	-6.939
	15(EXP)	813	58	0	0	0	0	0.000	0.000	-0.237
	16(EXP)	36281	20929	0	0	0	0	0.000	0.000	-7.106
	MAX	39726/L6	20929/L16					0.000/L6	0.000/L16	-7.235/L6
916 (SR_16_1)		Prog Design CSH								
	3(OPE)	0	0	0	0	0	0	0.895	0.148	-6.694
	4(OPE)	0	0	0	0	0	0	0.895	0.147	-6.694
	5(OPE)	0	0	0	0	0	0	0.044	0.019	-0.364
	6(OPE)	0	0	0	0	0	0	0.922	0.179	-6.896
	7(SUS)	0	0	0	0	0	0	0.014	0.019	-0.142
	8(SUS)	0	0	0	0	0	0	0.014	0.019	-0.142
	9(SUS)	0	0	0	0	0	0	0.014	0.019	-0.142
	10(OCC)	0	0	0	0	0	0	0.014	0.022	-0.145
	11(OPE)	0	0	0	0	0	0	0.921	0.178	-6.895
	12(OCC)	0	0	0	0	0	0	0.014	0.022	-0.144
	13(EXP)	0	0	0	0	0	0	0.881	0.129	-6.552
	14(EXP)	0	0	0	0	0	0	0.881	0.128	-6.552
	15(EXP)	0	0	0	0	0	0	0.030	0.000	-0.222
	16(EXP)	0	0	0	0	0	0	0.907	0.156	-6.751
								0.922/L6	0.179/L6	-6.896/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
917 (SR_16_2)		Prog Design VSH								
	3(OPE)	0	0	-1515	0	0	0	-0.628	0.079	-6.366
	4(OPE)	0	0	-1515	0	0	0	-0.628	0.080	-6.366
	5(OPE)	0	0	-1314	0	0	0	-0.009	0.033	-0.321
	6(OPE)	0	0	-1520	0	0	0	-0.602	0.085	-6.504
	7(SUS)	0	0	-1307	0	0	0	0.014	0.033	-0.107
	8(SUS)	0	0	-1307	0	0	0	0.014	0.033	-0.107
	9(SUS)	0	0	-1307	0	0	0	0.014	0.033	-0.107
	10(OCC)	0	0	-1307	0	0	0	0.014	0.029	-0.109
	11(OPE)	0	0	-1520	0	0	0	-0.602	0.085	-6.503
	12(OCC)	0	0	-1307	0	0	0	0.014	0.029	-0.109
	13(EXP)	0	0	-208	0	0	0	-0.642	0.046	-6.259
	14(EXP)	0	0	-208	0	0	0	-0.642	0.047	-6.259
	15(EXP)	0	0	-7	0	0	0	-0.023	0.000	-0.214
	16(EXP)	0	0	-213	0	0	0	-0.616	0.056	-6.395
	MAX			-1520/L6				-0.642/L13	0.085/L11	-6.504/L6
1005 (SR_17)		Prog Design VSH								
	3(OPE)	0	0	-14336	0	0	0	-0.448	3.415	-9.512
	4(OPE)	0	0	-14336	0	0	0	-0.446	3.416	-9.513
	5(OPE)	0	0	-12275	0	0	0	3.363	-4.917	-1.783
	6(OPE)	0	0	-14383	0	0	0	-0.283	3.615	-9.688
	7(SUS)	0	0	-12201	0	0	0	3.504	-5.200	-1.506
	8(SUS)	0	0	-12201	0	0	0	3.504	-5.200	-1.506
	9(SUS)	0	0	-12201	0	0	0	3.504	-5.200	-1.506
	10(OCC)	0	0	-12202	0	0	0	3.491	-5.209	-1.507
	11(OPE)	0	0	-14382	0	0	0	-0.283	3.615	-9.688
	12(OCC)	0	0	-12202	0	0	0	3.493	-5.208	-1.507
	13(EXP)	0	0	-2134	0	0	0	-3.952	8.615	-8.006
	14(EXP)	0	0	-2134	0	0	0	-3.950	8.616	-8.007
	15(EXP)	0	0	-74	0	0	0	-0.141	0.283	-0.277
	16(EXP)	0	0	-2181	0	0	0	-3.774	8.824	-8.182
	MAX			-14383/L6				-3.952/L13	8.824/L16	-9.688/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1135 (SR_18)		Prog Design VSH								
	3(OPE)	0	0	-17834	0	0	0	-5.834	-4.659	28.111
	4(OPE)	0	0	-17834	0	0	0	-5.836	-4.655	28.111
	5(OPE)	0	0	-19389	0	0	0	0.751	0.070	4.752
	6(OPE)	0	0	-17834	0	0	0	-5.827	-4.645	28.113
	7(SUS)	0	0	-19480	0	0	0	0.885	0.100	3.386
	8(SUS)	0	0	-19480	0	0	0	0.885	0.100	3.386
	9(SUS)	0	0	-19480	0	0	0	0.885	0.100	3.386
	10(OCC)	0	0	-19480	0	0	0	0.886	0.103	3.385
	11(OPE)	0	0	-17834	0	0	0	-5.826	-4.651	28.112
	12(OCC)	0	0	-19480	0	0	0	0.887	0.100	3.385
	13(EXP)	0	0	1647	0	0	0	-6.718	-4.759	24.725
	14(EXP)	0	0	1647	0	0	0	-6.721	-4.754	24.725
	15(EXP)	0	0	91	0	0	0	-0.133	-0.030	1.366
	16(EXP)	0	0	1647	0	0	0	-6.714	-4.748	24.727
	MAX			-19480/L10				-6.721/L14	-4.759/L13	28.113/L6
1165 (SR_19)		Prog Design VSH								
	3(OPE)	0	0	-9027	0	0	0	-5.879	-1.855	21.893
	4(OPE)	0	0	-9027	0	0	0	-5.881	-1.850	21.893
	5(OPE)	0	0	-9247	0	0	0	-4.744	4.913	15.285
	6(OPE)	0	0	-9027	0	0	0	-5.876	-1.843	21.897
	7(SUS)	0	0	-9263	0	0	0	-4.966	5.214	14.814
	8(SUS)	0	0	-9263	0	0	0	-4.966	5.214	14.814
	9(SUS)	0	0	-9263	0	0	0	-4.966	5.214	14.814
	10(OCC)	0	0	-9263	0	0	0	-4.965	5.218	14.814
	11(OPE)	0	0	-9027	0	0	0	-5.875	-1.848	21.897
	12(OCC)	0	0	-9263	0	0	0	-4.965	5.216	14.814
	13(EXP)	0	0	236	0	0	0	-0.914	-7.068	7.079
	14(EXP)	0	0	236	0	0	0	-0.916	-7.064	7.079
	15(EXP)	0	0	16	0	0	0	0.222	-0.300	0.471
	16(EXP)	0	0	236	0	0	0	-0.911	-7.061	7.083
	MAX			-9263/L7				-5.881/L4	-7.068/L13	21.897/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1183 (SR_20_1)		Prog Design VSH								
	3(OPE)	0	0	-4000	0	0	0	-0.726	4.781	21.132
	4(OPE)	0	0	-4000	0	0	0	-0.726	4.786	21.131
	5(OPE)	0	0	-3966	0	0	0	0.695	7.619	22.155
	6(OPE)	0	0	-4000	0	0	0	-0.726	4.792	21.131
	7(SUS)	0	0	-3965	0	0	0	0.765	7.843	22.198
	8(SUS)	0	0	-3965	0	0	0	0.765	7.843	22.198
	9(SUS)	0	0	-3965	0	0	0	0.765	7.843	22.198
	10(OCC)	0	0	-3965	0	0	0	0.765	7.847	22.198
	11(OPE)	0	0	-4000	0	0	0	-0.726	4.787	21.132
	12(OCC)	0	0	-3965	0	0	0	0.765	7.845	22.199
	13(EXP)	0	0	-36	0	0	0	-1.491	-3.061	-1.067
	14(EXP)	0	0	-36	0	0	0	-1.491	-3.057	-1.067
	15(EXP)	0	0	-1	0	0	0	-0.070	-0.224	-0.043
	16(EXP)	0	0	-36	0	0	0	-1.491	-3.055	-1.067
	MAX			-4000/L4				-1.491/L13	7.847/L10	22.199/L12
1184 (SR_20_2)		Prog Design VSH								
	3(OPE)	0	0	-5971	0	0	0	0.188	3.756	21.939
	4(OPE)	0	0	-5971	0	0	0	0.188	3.760	21.938
	5(OPE)	0	0	-6098	0	0	0	0.727	6.098	20.024
	6(OPE)	0	0	-5971	0	0	0	0.188	3.767	21.937
	7(SUS)	0	0	-6106	0	0	0	0.765	6.244	19.903
	8(SUS)	0	0	-6106	0	0	0	0.765	6.244	19.903
	9(SUS)	0	0	-6106	0	0	0	0.765	6.244	19.903
	10(OCC)	0	0	-6106	0	0	0	0.765	6.248	19.903
	11(OPE)	0	0	-5971	0	0	0	0.188	3.763	21.938
	12(OCC)	0	0	-6106	0	0	0	0.765	6.246	19.904
	13(EXP)	0	0	136	0	0	0	-0.577	-2.487	2.035
	14(EXP)	0	0	136	0	0	0	-0.577	-2.483	2.035
	15(EXP)	0	0	8	0	0	0	-0.038	-0.145	0.120
	16(EXP)	0	0	135	0	0	0	-0.577	-2.481	2.034
	MAX			-6106/L10				0.765/L10	6.248/L10	21.939/L3



NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1186 (SG_20)		Rigid X								
	3(OPE)	-93	0	0	0	0	0	-0.000	4.599	21.229
	4(OPE)	-93	0	0	0	0	0	-0.000	4.604	21.229
	5(OPE)	-132	0	0	0	0	0	-0.000	7.502	21.077
	6(OPE)	-93	0	0	0	0	0	-0.000	4.610	21.228
	7(SUS)	-140	0	0	0	0	0	-0.000	7.710	21.050
	8(SUS)	-140	0	0	0	0	0	-0.000	7.710	21.050
	9(SUS)	-140	0	0	0	0	0	-0.000	7.710	21.050
	10(OCC)	-140	0	0	0	0	0	-0.000	7.714	21.049
	11(OPE)	-93	0	0	0	0	0	-0.000	4.605	21.229
	12(OCC)	-140	0	0	0	0	0	-0.000	7.712	21.050
	13(EXP)	47	0	0	0	0	0	0.000	-3.111	0.180
	14(EXP)	47	0	0	0	0	0	0.000	-3.106	0.179
	15(EXP)	7	0	0	0	0	0	0.000	-0.208	0.028
	16(EXP)	47	0	0	0	0	0	0.000	-3.104	0.179
	MAX	-140/L7						-0.000/L7	7.714/L10	21.229/L3
1212 (CT_03)		Rigid Y w/gap; Rigid Z w/gap; Rigid X w/gap								
	3(OPE)	0	0	0	0	0	0	-1.689	1.601	19.293
	4(OPE)	0	0	0	0	0	0	-1.690	1.605	19.293
	5(OPE)	0	0	0	0	0	0	-6.268	7.562	18.063
	6(OPE)	0	0	0	0	0	0	-1.690	1.610	19.294
	7(SUS)	0	0	0	0	0	0	-6.640	7.923	17.913
	8(SUS)	0	0	0	0	0	0	-6.640	7.923	17.913
	9(SUS)	0	0	0	0	0	0	-6.640	7.923	17.913
	10(OCC)	0	0	0	0	0	0	-6.640	7.927	17.914
	11(OPE)	0	0	0	0	0	0	-1.689	1.606	19.294
	12(OCC)	0	0	0	0	0	0	-6.640	7.925	17.914
	13(EXP)	0	0	0	0	0	0	4.950	-6.323	1.380
	14(EXP)	0	0	0	0	0	0	4.949	-6.318	1.379
	15(EXP)	0	0	0	0	0	0	0.372	-0.361	0.150
	16(EXP)	0	0	0	0	0	0	4.950	-6.317	1.380
								-6.640/L10	7.927/L10	19.294/L11

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1225 (SP_24)		Rigid +Z								
	3(OPE)	0	0	0	0	0	0	0.000	1.956	1.177
	4(OPE)	0	0	0	0	0	0	0.000	1.956	1.177
	5(OPE)	0	0	-330	0	0	0	-0.000	0.007	-0.000
	6(OPE)	0	0	0	0	0	0	0.000	1.956	1.177
	7(SUS)	0	0	-3540	0	0	0	-0.000	-0.013	-0.000
	8(SUS)	0	0	-3540	0	0	0	-0.000	-0.013	-0.000
	9(SUS)	0	0	-3540	0	0	0	-0.000	-0.013	-0.000
	10(OCC)	0	0	-3540	0	0	0	-0.000	-0.013	-0.000
	11(OPE)	0	0	0	0	0	0	0.000	1.956	1.177
	12(OCC)	0	0	-3540	0	0	0	-0.000	-0.013	-0.000
	13(EXP)	0	0	3540	0	0	0	0.000	1.968	1.177
	14(EXP)	0	0	3540	0	0	0	0.000	1.968	1.177
	15(EXP)	0	0	3210	0	0	0	-0.000	0.020	0.000
	16(EXP)	0	0	3540	0	0	0	0.000	1.968	1.177
	MAX			-3540/L7				0.000/L13	1.968/L13	1.177/L3
1245 (PG_ATRE)		Rigid Z; Rigid RY; Rigid X								
	3(OPE)	-0	0	-10996	0	0	0	-0.000	1.178	-0.000
	4(OPE)	-0	0	-10996	0	0	0	-0.000	1.178	-0.000
	5(OPE)	-0	0	-10353	0	0	0	-0.000	0.040	-0.000
	6(OPE)	-0	0	-10996	0	0	0	-0.000	1.178	-0.000
	7(SUS)	-0	0	-4108	0	0	0	-0.000	0.002	-0.000
	8(SUS)	-0	0	-4108	0	0	0	-0.000	0.002	-0.000
	9(SUS)	-0	0	-4108	0	0	0	-0.000	0.002	-0.000
	10(OCC)	-0	0	-4108	0	0	0	-0.000	0.002	-0.000
	11(OPE)	-0	0	-10996	0	0	0	-0.000	1.178	-0.000
	12(OCC)	-0	0	-4108	0	0	0	-0.000	0.002	-0.000
	13(EXP)	0	0	-6888	0	0	0	0.000	1.176	-0.000
	14(EXP)	0	0	-6888	0	0	0	0.000	1.176	-0.000
	15(EXP)	-0	0	-6245	0	0	0	-0.000	0.037	-0.000
	16(EXP)	0	0	-6888	0	0	0	0.000	1.176	-0.000
	MAX	-0/L5		-10996/L3		0/L3		-0.000/L5	1.178/L3	-0.000/L3

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1250 (CT_04)		Rigid Y w/gap; Rigid Z w/gap; Rigid X w/gap								
	3(OPE)	0	0	0	0	0	0	-5.870	1.448	5.085
	4(OPE)	0	0	0	0	0	0	-5.865	1.454	5.090
	5(OPE)	0	0	0	0	0	0	-0.081	0.087	-0.232
	6(OPE)	0	0	0	0	0	0	-5.869	1.447	5.087
	7(SUS)	0	0	0	0	0	0	-0.038	0.075	-0.274
	8(SUS)	0	0	0	0	0	0	-0.038	0.075	-0.274
	9(SUS)	0	0	0	0	0	0	-0.038	0.075	-0.274
	10(OCC)	0	0	0	0	0	0	-0.026	0.084	-0.259
	11(OPE)	0	0	0	0	0	0	-5.871	1.445	5.084
	12(OCC)	0	0	0	0	0	0	-0.028	0.083	-0.262
	13(EXP)	0	0	0	0	0	0	-5.832	1.373	5.359
	14(EXP)	0	0	0	0	0	0	-5.827	1.378	5.364
	15(EXP)	0	0	0	0	0	0	-0.042	0.012	0.042
	16(EXP)	0	0	0	0	0	0	-5.843	1.362	5.346
								-5.871/L11	1.454/L4	5.364/L14
1255 (PF_ATRE)		Rigid RY; Rigid X; Rigid Y; Rigid Z								
	3(OPE)	-0	-0	-1410	0	0	0	-0.000	-0.000	-0.000
	4(OPE)	-0	-0	-1410	0	0	0	-0.000	-0.000	-0.000
	5(OPE)	0	-0	-1722	0	0	0	0.000	-0.000	-0.000
	6(OPE)	-0	-0	-1410	0	0	0	-0.000	-0.000	-0.000
	7(SUS)	0	-0	-4757	0	0	0	0.000	-0.000	-0.000
	8(SUS)	0	-0	-4757	0	0	0	0.000	-0.000	-0.000
	9(SUS)	0	-0	-4757	0	0	0	0.000	-0.000	-0.000
	10(OCC)	0	-0	-4757	0	0	0	0.000	-0.000	-0.000
	11(OPE)	-0	-0	-1410	0	0	0	-0.000	-0.000	-0.000
	12(OCC)	0	-0	-4757	0	0	0	0.000	-0.000	-0.000
	13(EXP)	-0	-0	3347	0	0	0	-0.000	-0.000	0.000
	14(EXP)	-0	-0	3347	0	0	0	-0.000	-0.000	0.000
	15(EXP)	0	-0	3035	0	0	0	0.000	-0.000	0.000
	16(EXP)	-0	-0	3347	0	0	0	-0.000	-0.000	0.000
	MAX	-0/L13	-0/L3	-4757/L7		0/L3		-0.000/L13	-0.000/L3	-0.000/L7

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1315 (CT_05)		Rigid Y w/gap; Rigid Z w/gap; Rigid X w/gap								
	3(OPE)	0	0	0	0	0	0	13.748	-2.037	3.257
	4(OPE)	0	0	0	0	0	0	13.747	-2.053	3.245
	5(OPE)	0	0	0	0	0	0	0.114	-0.021	-0.839
	6(OPE)	0	0	0	0	0	0	13.749	-2.032	3.252
	7(SUS)	0	0	0	0	0	0	0.011	-0.001	-0.866
	8(SUS)	0	0	0	0	0	0	0.011	-0.001	-0.866
	9(SUS)	0	0	0	0	0	0	0.011	-0.001	-0.866
	10(OCC)	0	0	0	0	0	0	0.013	-0.021	-0.903
	11(OPE)	0	0	0	0	0	0	13.749	-2.030	3.258
	12(OCC)	0	0	0	0	0	0	0.013	-0.017	-0.896
	13(EXP)	0	0	0	0	0	0	13.737	-2.036	4.124
	14(EXP)	0	0	0	0	0	0	13.737	-2.052	4.111
	15(EXP)	0	0	0	0	0	0	0.103	-0.020	0.027
	16(EXP)	0	0	0	0	0	0	13.736	-2.012	4.155
								13.749/L6	-2.053/L4	4.155/L16
1325 (PF_21)		Rigid ANC								
	3(OPE)	-15742	-21313	-28090	-26865	-63137	43473	-0.000	-0.000	-0.000
	4(OPE)	-14105	-18903	-26814	-26120	-58328	39461	-0.000	-0.000	-0.000
	5(OPE)	555	761	-13514	2367	8022	-1138	0.000	0.000	-0.000
	6(OPE)	-16598	-23410	-29146	-27369	-61676	44777	-0.000	-0.000	-0.000
	7(SUS)	148	154	-13832	2301	7086	-193	0.000	0.000	-0.000
	8(SUS)	148	154	-13832	2301	7086	-193	0.000	0.000	-0.000
	9(SUS)	148	154	-13832	2301	7086	-193	0.000	0.000	-0.000
	10(OCC)	1564	1132	-13753	1435	20282	-5471	0.000	0.000	-0.000
	11(OPE)	-16743	-23312	-29016	-27128	-63654	45442	-0.000	-0.000	-0.000
	12(OCC)	1347	956	-13790	1529	18077	-4627	0.000	0.000	-0.000
	13(EXP)	-15890	-21466	-14258	-29166	-70223	43666	-0.000	-0.000	-0.000
	14(EXP)	-14253	-19057	-12983	-28421	-65413	39654	-0.000	-0.000	-0.000
	15(EXP)	407	607	318	66	936	-945	0.000	0.000	0.000
	16(EXP)	-18161	-24541	-15394	-28805	-81957	50248	-0.000	-0.000	-0.000
	MAX	-18161/L16	-24541/L16	-29146/L6	-29166/L13	-81957/L16	50248/L16	-0.000/L16	-0.000/L16	-0.000/L6

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1335 (SG_22)		Rigid +Z; Rigid X								
	3(OPE)	-4539	0	-13276	0	0	0	-0.000	22.062	-0.000
	4(OPE)	-5128	0	-13552	0	0	0	-0.000	21.766	-0.000
	5(OPE)	-996	0	-10628	0	0	0	-0.000	0.046	-0.000
	6(OPE)	-3629	0	-15324	0	0	0	-0.000	22.306	-0.000
	7(SUS)	-760	0	-10361	0	0	0	-0.000	-0.021	-0.000
	8(SUS)	-760	0	-10361	0	0	0	-0.000	-0.021	-0.000
	9(SUS)	-760	0	-10361	0	0	0	-0.000	-0.021	-0.000
	10(OCC)	2500	0	-6755	0	0	0	0.000	-0.027	-0.000
	11(OPE)	-3754	0	-14902	0	0	0	-0.000	22.273	-0.000
	12(OCC)	1874	0	-7517	0	0	0	0.000	-0.020	-0.000
	13(EXP)	-3780	0	-2914	0	0	0	-0.000	22.084	-0.000
	14(EXP)	-4368	0	-3191	0	0	0	-0.000	21.787	-0.000
	15(EXP)	-237	0	-267	0	0	0	-0.000	0.067	-0.000
	16(EXP)	-6129	0	-8569	0	0	0	-0.000	22.333	-0.000
	MAX	-6129/L16		-15324/L6				-0.000/L16	22.333/L16	-0.000/L6
1350 (SP_23)		Rigid +Z								
	3(OPE)	0	0	0	0	0	0	-2.612	-26.748	16.006
	4(OPE)	0	0	0	0	0	0	-2.874	-18.286	15.659
	5(OPE)	0	0	0	0	0	0	-0.559	2.899	0.270
	6(OPE)	0	0	0	0	0	0	0.983	-34.311	13.773
	7(SUS)	0	0	-1503	0	0	0	-0.315	0.252	-0.000
	8(SUS)	0	0	-1503	0	0	0	-0.315	0.252	-0.000
	9(SUS)	0	0	-1503	0	0	0	-0.315	0.252	-0.000
	10(OCC)	0	0	-17618	0	0	0	5.872	0.374	-0.000
	11(OPE)	0	0	0	0	0	0	-0.558	-33.314	15.425
	12(OCC)	0	0	-11249	0	0	0	4.745	0.330	-0.000
	13(EXP)	0	0	1503	0	0	0	-2.297	-27.000	16.006
	14(EXP)	0	0	1503	0	0	0	-2.558	-18.538	15.659
	15(EXP)	0	0	1503	0	0	0	-0.243	2.647	0.270
	16(EXP)	0	0	17618	0	0	0	-4.889	-34.685	13.773
	MAX			-17618/L10				5.872/L10	-34.685/L16	16.006/L3

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1415 (SP_26)		Rigid +Z								
	3(OPE)	0	0	0	0	0	0	-2.337	35.421	4.156
	4(OPE)	0	0	0	0	0	0	6.420	27.258	2.482
	5(OPE)	0	0	-8370	0	0	0	5.626	14.045	-0.000
	6(OPE)	0	0	0	0	0	0	-2.328	35.418	4.152
	7(SUS)	0	0	-14432	0	0	0	-0.573	0.832	-0.000
	8(SUS)	0	0	-14432	0	0	0	-0.573	0.832	-0.000
	9(SUS)	0	0	-14432	0	0	0	-0.573	0.832	-0.000
	10(OCC)	0	0	-14433	0	0	0	-0.570	0.830	-0.000
	11(OPE)	0	0	0	0	0	0	-2.327	35.418	4.154
	12(OCC)	0	0	-14431	0	0	0	-0.568	0.832	-0.000
	13(EXP)	0	0	14432	0	0	0	-1.763	34.589	4.156
	14(EXP)	0	0	14432	0	0	0	6.993	26.426	2.482
	15(EXP)	0	0	6062	0	0	0	6.200	13.213	0.000
	16(EXP)	0	0	14433	0	0	0	-1.758	34.588	4.152
	MAX			-14433/L10				6.993/L14	35.421/L3	4.156/L3
1445 (SP_31)		Rigid +Z								
	3(OPE)	0	0	-4550	0	0	0	-14.048	20.300	-0.000
	4(OPE)	0	0	-5071	0	0	0	0.104	17.858	-0.000
	5(OPE)	0	0	-7455	0	0	0	2.333	10.996	-0.000
	6(OPE)	0	0	-4556	0	0	0	-14.039	20.298	-0.000
	7(SUS)	0	0	-6146	0	0	0	-0.749	0.781	-0.000
	8(SUS)	0	0	-6146	0	0	0	-0.749	0.781	-0.000
	9(SUS)	0	0	-6146	0	0	0	-0.749	0.781	-0.000
	10(OCC)	0	0	-6146	0	0	0	-0.746	0.780	-0.000
	11(OPE)	0	0	-4554	0	0	0	-14.038	20.297	-0.000
	12(OCC)	0	0	-6147	0	0	0	-0.744	0.781	-0.000
	13(EXP)	0	0	1597	0	0	0	-13.299	19.519	0.000
	14(EXP)	0	0	1075	0	0	0	0.853	17.077	0.000
	15(EXP)	0	0	-1308	0	0	0	3.082	10.216	-0.000
	16(EXP)	0	0	1590	0	0	0	-13.293	19.518	0.000
	MAX			-7455/L5				-14.048/L3	20.300/L3	-0.000/L5

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1451 (SP_27)		Rigid +Z								
	3(OPE)	0	0	-2065	0	0	0	-25.909	9.623	-0.000
	4(OPE)	0	0	-1540	0	0	0	-1.473	11.770	-0.000
	5(OPE)	0	0	0	0	0	0	0.756	7.171	0.095
	6(OPE)	0	0	-2060	0	0	0	-25.899	9.622	-0.000
	7(SUS)	0	0	0	0	0	0	-0.750	0.546	0.023
	8(SUS)	0	0	0	0	0	0	-0.750	0.546	0.023
	9(SUS)	0	0	0	0	0	0	-0.750	0.546	0.023
	10(OCC)	0	0	0	0	0	0	-0.746	0.545	0.023
	11(OPE)	0	0	-2062	0	0	0	-25.898	9.622	-0.000
	12(OCC)	0	0	0	0	0	0	-0.744	0.546	0.023
	13(EXP)	0	0	-2065	0	0	0	-25.159	9.077	-0.023
	14(EXP)	0	0	-1540	0	0	0	-0.723	11.224	-0.023
	15(EXP)	0	0	0	0	0	0	1.506	6.626	0.072
	16(EXP)	0	0	-2060	0	0	0	-25.153	9.076	-0.023
	MAX			-2065/L3				-25.909/L3	11.770/L4	0.095/L5
1455 (SP_28)		Rigid +Z								
	3(OPE)	0	0	-7665	0	0	0	-44.308	-4.519	-0.000
	4(OPE)	0	0	-8032	0	0	0	-3.511	4.157	-0.000
	5(OPE)	0	0	-8343	0	0	0	-1.281	2.220	-0.000
	6(OPE)	0	0	-7667	0	0	0	-44.298	-4.520	-0.000
	7(SUS)	0	0	-9645	0	0	0	-0.749	0.241	-0.000
	8(SUS)	0	0	-9645	0	0	0	-0.749	0.241	-0.000
	9(SUS)	0	0	-9645	0	0	0	-0.749	0.241	-0.000
	10(OCC)	0	0	-9645	0	0	0	-0.746	0.241	-0.000
	11(OPE)	0	0	-7666	0	0	0	-44.298	-4.520	-0.000
	12(OCC)	0	0	-9645	0	0	0	-0.744	0.241	-0.000
	13(EXP)	0	0	1980	0	0	0	-43.559	-4.760	0.000
	14(EXP)	0	0	1613	0	0	0	-2.761	3.916	0.000
	15(EXP)	0	0	1302	0	0	0	-0.531	1.978	0.000
	16(EXP)	0	0	1979	0	0	0	-43.553	-4.761	0.000
	MAX			-9645/L10				-44.308/L3	-4.761/L16	-0.000/L10



NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1475 (SG_29)		Rigid Y; Rigid Z								
	3(OPE)	0	261	-7152	0	0	0	-72.674	0.000	-0.000
	4(OPE)	0	-140	-6974	0	0	0	-11.524	-0.000	-0.000
	5(OPE)	0	9	-6758	0	0	0	-7.339	0.000	-0.000
	6(OPE)	0	261	-7151	0	0	0	-72.663	0.000	-0.000
	7(SUS)	0	2	-6180	0	0	0	-0.992	0.000	-0.000
	8(SUS)	0	2	-6180	0	0	0	-0.992	0.000	-0.000
	9(SUS)	0	2	-6180	0	0	0	-0.992	0.000	-0.000
	10(OCC)	0	2	-6180	0	0	0	-0.988	0.000	-0.000
	11(OPE)	0	261	-7152	0	0	0	-72.663	0.000	-0.000
	12(OCC)	0	2	-6180	0	0	0	-0.987	0.000	-0.000
	13(EXP)	0	259	-972	0	0	0	-71.682	0.000	-0.000
	14(EXP)	0	-143	-794	0	0	0	-10.532	-0.000	-0.000
	15(EXP)	0	7	-578	0	0	0	-6.347	0.000	-0.000
	16(EXP)	0	259	-972	0	0	0	-71.675	0.000	-0.000
	MAX		261/L3	-7152/L3				-72.674/L3	0.000/L3	-0.000/L3
1500 (VS_004)		Rigid GUI w/gap; Rigid GUI w/gap								
	3(OPE)	-3093	0	0	0	0	0	-4.177	6.068	28.139
	4(OPE)	-1421	-1630	0	0	0	0	-4.200	6.090	28.134
	5(OPE)	0	0	0	0	0	0	-0.042	0.060	1.355
	6(OPE)	-3092	0	0	0	0	0	-4.168	6.079	28.136
	7(SUS)	0	0	0	0	0	0	-0.012	0.006	-0.198
	8(SUS)	0	0	0	0	0	0	-0.012	0.006	-0.198
	9(SUS)	0	0	0	0	0	0	-0.012	0.006	-0.198
	10(OCC)	0	0	0	0	0	0	-0.008	0.007	-0.198
	11(OPE)	-3092	0	0	0	0	0	-4.167	6.074	28.138
	12(OCC)	0	0	0	0	0	0	-0.008	0.005	-0.197
	13(EXP)	-3093	0	0	0	0	0	-4.165	6.062	28.337
	14(EXP)	-1421	-1630	0	0	0	0	-4.188	6.085	28.331
	15(EXP)	0	0	0	0	0	0	-0.030	0.054	1.553
	16(EXP)	-3092	0	0	0	0	0	-4.159	6.071	28.334
	MAX	-3093/L3	-1630/L4					-4.200/L4	6.090/L4	28.337/L13

NODE	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.	DX mm.	DY mm.	DZ mm.
1540 (SR_30)		Prog Design VSH								
	3(OPE)	0	0	-9862	0	0	0	-5.026	14.843	3.336
	4(OPE)	0	0	-9973	0	0	0	3.008	17.794	2.918
	5(OPE)	0	0	-10151	0	0	0	4.327	10.775	2.251
	6(OPE)	0	0	-9862	0	0	0	-5.016	14.841	3.335
	7(SUS)	0	0	-10564	0	0	0	-0.645	0.816	0.700
	8(SUS)	0	0	-10564	0	0	0	-0.645	0.816	0.700
	9(SUS)	0	0	-10564	0	0	0	-0.645	0.816	0.700
	10(OCC)	0	0	-10564	0	0	0	-0.642	0.815	0.700
	11(OPE)	0	0	-9862	0	0	0	-5.015	14.841	3.335
	12(OCC)	0	0	-10564	0	0	0	-0.640	0.816	0.700
	13(EXP)	0	0	703	0	0	0	-4.380	14.027	2.636
	14(EXP)	0	0	591	0	0	0	3.654	16.978	2.218
	15(EXP)	0	0	414	0	0	0	4.972	9.959	1.551
	16(EXP)	0	0	702	0	0	0	-4.374	14.026	2.635
	MAX			-10564/L10				-5.026/L3	17.794/L4	3.336/L3

## 5 CONCLUSION

Le but de la présente note était de réaliser le calcul et l'analyse de flexibilité des tuyauteries d'alimentation Amont et Aval du sécheur atmosphérique CHAUMECA installé sur le réseau d'Air Procédé de DGA/EP, en acier inoxydable austénitique. Cette installation est située à l'intérieur du bâtiment 504, sur le centre DGA du CEPr de SACLAY.

Pour la conception de cette installation, sur la base des documents contractuels utilisés et cités aux chapitres §2.2 à 2.4, et pour les diverses situations de Service analysées et détaillées au chapitre §3.2, nous concluons que :

⇒ *L'ensemble des vérifications et analyses réalisées dans cette note de calculs satisfait aux critères d'admissibilité du CODETI 2006 - Division 1, ainsi qu'aux exigences essentielles de sécurité de l'AM 99/1046 (DESP).*

***Dans ces conditions, la conception retenue pour l'installation des tuyauteries d'alimentation Amont et Aval du sécheur atmosphérique CHAUMECA et ses systèmes de supportage, est correcte.***

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- Bride DN 900 - PN 6 - Type 01A - FF 203
- Bride DN 700 - PN 6 - Type 01A - FF 210
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## • Réductions

Repère : **Réduction 600 x 400 - Epr 6 mm**  
Matériaux : Norme : **NF EN 10217-7**  
No de courbes suivant CODAP 2010

Référence :  
Nuance : **X2CrNi18-9**  
**C4-11**

Revision :

## • Réduction 600 x 400 - Epr 6 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne  
Type de contrainte : f1  
Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

### FICHE MATIERE : NF EN 10217-7 X2CrNi18-9 C4-11

M3 Acier inoxydable austénitique  
Contrainte à l'ambiante : 143.333 MPa

Tubes  
Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	170.000 MPa	180.000 MPa	170.000 MPa
Limite élastique Rtp1.0%	205.000 MPa	215.000 MPa	205.000 MPa
Résistance à la traction Rtm		470.000 MPa	
A%	40.0000	40.0000	40.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	136.667 MPa Rtp1/1.500000	204.250 MPa Min(Rtp1/1.052630, Rtm/2.000000)	194.750 MPa Rpt1/1.052630
coefficients de sécurité	Rtp1,0 : 1.500000	Rtp1,0 : 1.052630	Rtp1 : 1.052630

Repère : **Réduction 600 x 400 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPES CONIQUES svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.3 / C4.2.4 / C4.2.7

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques de l'enveloppe conique :**

	<b>Grande base</b>	<b>Petite base</b>
Diamètre extérieur	(De,1) = 608.649 mm	(De,2) = 406.400 mm
Diamètre intérieur	(Di,1) = 600.500 mm	(Di,2) = 398.251 mm
Rayon raccordement extérieur	(rte,1) = 0.000 mm	(rte,2) = 0.000 mm
Rayon raccordement intérieur	(rti,1) = 0.000 mm	(rti,2) = 0.000 mm
Demi angle au sommet	(α) = 30.926 deg	
Hauteur réelle du cone	(Lc) = 508.000 mm	
Coefficient de soudure	(z) Sans	

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Contrainte cone (Ambiante 143.333 MPa)	136.667 MPa	204.250 MPa	194.750 MPa
Module d'élasticité			

**· Caractéristiques du raccordement Grande Base :**

Enveloppe participant à l'inertie de la jonction

Longueur cylindrique adjacente (L) = 66.000 mm

Hauteur conique adjacente (H) = 508.000 mm

**· Caractéristiques du raccordement Petite Base :**

Enveloppe participant à l'inertie de la jonction

Longueur cylindrique adjacente (L) = 66.000 mm

Hauteur conique adjacente (H) = 508.000 mm

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficient z	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.010 MPa
Température	40.000 °C	20.000 °C	40.000 °C

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

**2 . RESULTATS****· Calcul du cone en pression intérieure svt C2.3**

Côté Grande Base	NORMALE	EPREUVE	EXCEPTIONNELLE
Epaisseur.minimale (e) C2.3.4a3	0.052 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.052 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.091 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$
Ep.mini assemblage (e0) C2.3.4b	0.052 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.052 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.091 mm $P*De/(2*f+P)*(1/\cos(\alpha))$
Long.mini assemblage (l) C2.3.4b	1.207 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	1.207 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	1.596 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$

Côté Petite Base	NORMALE	EPREUVE	EXCEPTIONNELLE
Epaisseur minimale (e) C2.3.4a3	0.035 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.035 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.061 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$
Ep.mini assemblage (e0) C2.3.4b	0.035 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.035 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.061 mm $P*De/(2*f+P)*(1/\cos(\alpha))$
Long.mini assemblage (l) C2.3.4b	0.806 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	0.806 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	1.064 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$

P.int maxi admissible	1.842 MPa	2.753 MPa	2.625 MPa
Contrainte mini en P.int	1.484 MPa	2.226 MPa	3.709 MPa

#### · Calcul du cone en pression extérieure svt C4.2.4

Plus grande hauteur non soutenue	(H)	= 508.000 mm	
Diamètre extérieur de calcul	(De)	= 608.649 mm	
Diamètre équivalent C4.2.4.4	(Deq)	= 709.518 mm	De/cos(alpha)
Longueur équivalente C4.2.4.4	(Leq)	= 253.987 mm	H(1-(H*tan(alpha)/De,1))
Epaisseur de calcul	(e)	= 4.750 mm	
Rapport	(Deq/e)	= 149.372215	
Rapport	(Leq/Deq)	= 0.357971	
Coefficient A	(A)	= 0.00222269	Svt C4.9.2.1

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient B C4-11	70.9898		70.9898
Pression ext. Maxi Pa(1)			
Pression ext. Maxi Pa(2)			
P.ext. Maxi Pa pour <b>4.750</b> mm Svt C4.2.1.5.1d	0.634 MPa $4/3*(B/(De/e))*K$		0.855 MPa $4/3*(B/(De/e))*K$
Epaisseur mini P.ext	0.432 mm		0.320 mm

#### · Vérification de la jonction Grande Base en pression intérieure svt C2.3.6

Coefficient C2.3.5.2.5	(λ)	= 0.0200	$0.02+0.006*(((r1t/Di1)/0.12)^{2.5})$
------------------------	-----	----------	---------------------------------------

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte fmin	136.667 MPa MIN(f;f1,cyl;ft)	204.250 MPa MIN(f;f1,cyl;ft)	194.750 MPa MIN(f;f1,cyl;ft)
Coefficient ρ C2.3.5.2.4	0.0000 $\lambda* r1t/\sqrt{(Dm1*ej)*\alpha/(1+1/\sqrt{\cos(\alpha)})}$	0.0000 $\lambda* r1t/\sqrt{(Dm1*ej)*\alpha/(1+1/\sqrt{\cos(\alpha)})}$	0.0000 $\lambda* r1t/\sqrt{(Dm1*ej)*\alpha/(1+1/\sqrt{\cos(\alpha)})}$
Coefficient γ C2.3.6(a)	1.0000 1	1.0000 1	1.0000 1
Coefficient β C2.3.5.2.2	5.7511 $MAX(1,0.9*(1/3*\sqrt{(Dm1/ ej)*\tan(\alpha)/(1+1/\sqrt{\cos(\alpha)})})-(0.1-0.0005/(P*fmin1))*\alpha/60)$	5.7417 $MAX(1,0.9*(1/3*\sqrt{(Dm1/ ej)*\tan(\alpha)/(1+1/\sqrt{\cos(\alpha)})})-(0.1-0.0005/(P*fmin1))*\alpha/60)$	4.4665 $MAX(1,0.9*(1/3*\sqrt{(Dm1/ ej)*\tan(\alpha)/(1+1/\sqrt{\cos(\alpha)})})-(0.1-0.0005/(P*fmin1))*\alpha/60)$
Epaisseur ej C2.3.5.2.1	0.2547 $(P*Dm1*\beta)/(2*fmin1*\gamma)$	0.2552 $(P*Dm1*\beta)/(2*fmin1*\gamma)$	0.3470 $(P*Dm1*\beta)/(2*fmin1*\gamma)$
Diamètre Dk	597.418 mm	597.413 mm	596.422 mm



C2.3.3.1	$Di1-2*Ik*\sin(\alpha)$	$Di1-2*Ik*\sin(\alpha)$	$Di1-2*Ik*\sin(\alpha)$
Longueur lk	2.998 mm	3.004 mm	3.968 mm
C2.3.3.8	$0.5\sqrt{(Dm1*e1\text{cone})/\cos(\alpha)}$	$0.5\sqrt{(Dm1*e1\text{cone})/\cos(\alpha)}$	$0.5\sqrt{(Dm1*e1\text{cone})/\cos(\alpha)}$
$PDk/(2fz-P)/(1/\cos(\alpha))$	0.051 mm	0.051 mm	0.089 mm
C2.3.3.1	$(P*Dk)/(2*f*z-P)*1/\cos(\alpha)$	$(P*Dk)/(2*f*z-P)*1/\cos(\alpha)$	$(P*Dk)/(2*f*z-P)*1/\cos(\alpha)$
Epaisseur (e1,cyl)	0.2547	0.2552	0.3470
C2.3.5.1a	$MAX(ej,(P*Di1)/(2*f1\text{cyl}*z-P))$	$MAX(ej,(P*Di1)/(2*f1\text{cyl}*z-P))$	$MAX(ej,(P*Di1)/(2*f1\text{cyl}*z-P))$
Epaisseur (e1,cone)	0.2547	0.2552	0.3470
C2.3.5.1b	$MAX(ej,(P*Dk)/(2*f*z-P)*1/\cos(\alpha))$	$MAX(ej,(P*Dk)/(2*f*z-P)*1/\cos(\alpha))$	$MAX(ej,(P*Dk)/(2*f*z-P)*1/\cos(\alpha))$
Epaisseur (et)			
Longueur (l1,cyl)	17.384 mm	17.398 mm	20.288 mm
C2.3.3.4	$1.4*\sqrt{(Dm,1*e1,cyl)}$	$1.4*\sqrt{(Dm,1*e1,cyl)}$	$1.4*\sqrt{(Dm,1*e1,cyl)}$
Longueur (l1,cone)	18.769 mm	18.785 mm	21.904 mm
C2.3.3.2	$1.4*\sqrt{(Dm,1*e1,cone)/\cos(\alpha)}$	$1.4*\sqrt{(Dm,1*e1,cone)/\cos(\alpha)}$	$1.4*\sqrt{(Dm,1*e1,cone)/\cos(\alpha)}$

### · Vérification de la jonction Petite Base en pression intérieure svt C2.3.7

Coefficient C2.3.3	(s)	= 1.289709	$e2,cone/e2,cyl$
Coefficient C2.3.7.2.4	(ks0)	= 0.9765	$(1-1.733619*s+1.881818*s^2-0.035335*s^3)/(1.475324-2.648932*s+2.286472*s^2)$
Surface partie cylindrique C2.3.7	(Scyl)	= 155.038 mm <sup>2</sup>	
Surface anneau renfort	(Sr)	= 0.000 mm <sup>2</sup>	
Epaisseur maxi de l'anneau renfort		=	
Epaisseur	(e2,cone)	= 4.750 mm	
Epaisseur	(e2,cyl)	= 3.683 mm	
Longueur C2.3.3	(l2,cyl)	= 38.512 mm	$\sqrt{Dm2*e2,cyl}$

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte (fmin,2)	136.667 MPa MIN(f;f2,cyl)	204.250 MPa MIN(f;f2,cyl)	194.750 MPa MIN(f;f2,cyl)
Coefficient (ks)	0.9766	0.9766	0.9766
C2.3.7.2.3	$MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)$	$MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)$	$MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)$
Coefficient (k)	0.6685	0.6687	0.6957
C2.3.7.2.2	$MIN((a1+a3*(P/fmin2)^{0.5}+a5*(P/fmin2)+a7*(P/fmin2)^{1.5})/(1+a2*(P/fmin2)^{0.5}+a4*(P/fmin2)+a6*(P/fmin2^{1.5}),1.0)$	$MIN((a1+a3*(P/fmin2)^{0.5}+a5*(P/fmin2)+a7*(P/fmin2)^{1.5})/(1+a2*(P/fmin2)^{0.5}+a4*(P/fmin2)+a6*(P/fmin2^{1.5}),1.0)$	$MIN((a1+a3*(P/fmin2)^{0.5}+a5*(P/fmin2)+a7*(P/fmin2)^{1.5})/(1+a2*(P/fmin2)^{0.5}+a4*(P/fmin2)+a6*(P/fmin2^{1.5}),1.0)$
Longueur (l2,cone)	47.222 mm $\sqrt{Dm2*e2\text{cone}/\cos(\alpha)}$	47.222 mm $\sqrt{Dm2*e2\text{cone}/\cos(\alpha)}$	47.222 mm $\sqrt{Dm2*e2\text{cone}/\cos(\alpha)}$
C2.3.3			
Largeur maxi du renfort			
Surface partie conique (S)	246.256 mm <sup>2</sup>	246.256 mm <sup>2</sup>	246.256 mm <sup>2</sup>
Surface interne (G)	33460.809 mm <sup>2</sup>	33460.809 mm <sup>2</sup>	33460.809 mm <sup>2</sup>
Relation C2.3.7.2.1 (1)	35802.660 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2\text{cyl}*z\text{cyl}-0.5*P)+Sr*(fr-0.5*P))$	53520.374 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2\text{cyl}*z\text{cyl}-0.5*P)+Sr*(fr-0.5*P))$	53093.306 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2\text{cyl}*z\text{cyl}-0.5*P)+Sr*(fr-0.5*P))$
Relation C2.3.7 (2)	669.216 N P*G	1003.824 N P*G	1673.040 N P*G
(2) - (1)	35133.444	52516.550	51420.266
Contrainte ( $\sigma\theta_j$ )	1.668 MPa P*G/(S+SCyl+Sr)	2.501 MPa P*G/(S+SCyl+Sr)	4.169 MPa P*G/(S+SCyl+Sr)
C2.3.7.3-1			

### · Vérification de la jonction Grande Base en pression extérieure svt C4.2.7.4

	NORMALE	EPREUVE	EXCEPTIONNELLE
Longueur (l1,cyl)	10.442 mm		9.645 mm
C4.2.7.4.1a1	$\sqrt{Dm,1*ev}$		$\sqrt{Dm,1*ev}$

Longueur (l1,cone) C4.2.7.4.1a2	11.274 mm $\sqrt{(Dm,1*ev)/\cos(\alpha)}$		10.414 mm $\sqrt{(Dm,1*ev)/\cos(\alpha)}$
Contrainte fmin	136.667 MPa MIN(f;f1,cyl;ft)		194.750 MPa MIN(f;f1,cyl;ft)

Epaisseur équivalente C4.2.7.3	(eq)	= 4.750 mm	
Longueur	(hj)	= 329.094 mm	
Surface raidisseur	(Ar)	=	
Longueur C4.2.7.3	(x1)	= 29.606 mm	x1
Longueur C4.2.7.3	(x2)	= 31.965 mm	x2
Coefficient C2.3.5.2.5	(λ)	= 0.0200	0.02+0.006*((r1t/Di1)/0.12)^2.5
Diamètre	(Dm,1)	= 605.250 mm	

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient ρ C2.3.5.2.4	0.0000 $\lambda \cdot r1t / \sqrt{(Dm1*ej)*\alpha / (1 + \sqrt{\cos(\alpha)})}$		0.0000 $\lambda \cdot r1t / \sqrt{(Dm1*ej)*\alpha / (1 + \sqrt{\cos(\alpha)})}$
Coefficient γ C2.3.6(a)	1.0000 1		1.0000 1
Coefficient β C2.3.5.2.2	8.1326 $\text{MAX}(1, 0.9 * (1/3 * \sqrt{(Dm1/ ej)}) * \tan(\alpha) / (1 + 1/ \sqrt{\cos(\alpha)})) - (0.1 - 0.0005 / (P * fmin1)) * \alpha / 60$		9.8938 $\text{MAX}(1, 0.9 * (1/3 * \sqrt{(Dm1/ ej)}) * \tan(\alpha) / (1 + 1/ \sqrt{\cos(\alpha)})) - (0.1 - 0.0005 / (P * fmin1)) * \alpha / 60$
Epaisseur ej C2.3.5.2.1	0.1802 $(P * Dm1 * \beta) / (2 * fmin1 * \gamma)$		0.1537 $(P * Dm1 * \beta) / (2 * fmin1 * \gamma)$

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient (K)	1.0000		1.3500
Coefficient (Q1) C4.2.7.4.3a2	1.1115 $P * ((L+H)/2 - (H^2 / (3 * De1) + De1/4) * \tan(\alpha))$		1.1115 $P * ((L+H)/2 - (H^2 / (3 * De1) + De1/4) * \tan(\alpha))$
Coefficient (B) C4.2.7.4.3a1	0.3253 $(3/4) * (Q1 * De,1) / (hj * eq + Ar) * 1/K$		0.2410 $(3/4) * (Q1 * De,1) / (hj * eq + Ar) * 1/K$
Coefficient (A cone) C4.9.2	0.00000337		0.00000250
Coefficient (A enveloppe) C4.9.2	0.00000337		0.00000250
Coefficient (A raidisseur)			
Coefficient (A) C4.9.2	0.00000337 $\max(A \text{ cone}, A \text{ anneau}, A \text{ enveloppe})$		0.00000250 $\max(A \text{ cone}, A \text{ anneau}, A \text{ enveloppe})$
Inertie requise (In) (1) C4.2.7.4.3c	163.322 mm4 $(De,1^2 * (hj * eq + Ar) * A) / 12$		120.979 mm4 $(De,1^2 * (hj * eq + Ar) * A) / 12$
Inertie installée (I) (2) (2) - (1)	9227.800 mm4 9064.479 mm4 I installée - In requise	9227.800 mm4	9227.800 mm4 9106.821 mm4 I installée - In requise

### · Vérification de la jonction Petite Base en pression extérieure svt C4.2.7.5

Coefficient Graphique C4.2.7.3.4	(k)	= 0.9057	
Coefficient C4.2.7.3	(δ)	= 8.5282	$Dm2 / \sqrt{(Dm2 * e2, \text{cone}) / \cos(\alpha)}$
Surface partie cylindrique C4.2.7.5.1	(Scyl)	= 155.038 mm2	
Surface raidisseur	(Ar)	=	
Surface anneau renfort	(Sr)	= 0.000 mm2	
Longueur C4.2.7.3	(l2,cyl)	= 38.512 mm	

	NORMALE	EPREUVE	EXCEPTIONNELLE
Longueur (l2,cone) C4.2.7.3	42.767 mm $k * \sqrt{(Dm2 * e2 \text{ cone} / \cos(\alpha))}$		42.767 mm $k * \sqrt{(Dm2 * e2 \text{ cone} / \cos(\alpha))}$

Surface partie conique (S)	225.096 mm <sup>2</sup>		225.096 mm <sup>2</sup>
Surface interne (G)	32290.540 mm <sup>2</sup>		32290.540 mm <sup>2</sup>
Relation C4.2.7.5.1 (1)	51949.871 N $S*(f-0.5*P)+Scyl*(f2cyl-0.5*P)+Ar*(fa-0.5*P)+Sr*(fr-0.5*P)$		74029.193 N $S*(f-0.5*P)+Scyl*(f2cyl-0.5*P)+Ar*(fa-0.5*P)+Sr*(fr-0.5*P)$
Relation C4.2.7.5.1 (2)	322.905 N P*G		322.905 N P*G
(2) - (1)	51626.965		73706.288

Epaisseur équivalente C4.2.7.3 (eeq) = 4.643 mm  
 Longueur (hj) = 329.094 mm  
 Longueur C4.2.7.3 (x1) = 21.278 mm x1  
 Longueur C4.2.7.3 (x2) = 26.091 mm x2

Coefficient (K)	1.0000		1.3500
Coefficient (Q2) C4.2.7.5.2a2	6.1135 $P*(L/2+H/(2*cos(alpha)^2)+((H^2)/(3*De2*cos(alpha)^2)+De2/4)*tan(alpha))$		6.1135 $P*(L/2+H/(2*cos(alpha)^2)+((H^2)/(3*De2*cos(alpha)^2)+De2/4)*tan(alpha))$
Coefficient (B) C4.2.7.5.2a1	1.2195 $(3/4)*(Q2*De,2)/(hj*eeq+Ar)*1/K$		0.9033 $(3/4)*(Q2*De,2)/(hj*eeq+Ar)*1/K$
Coefficient (A cone) C4.9.2	0.00001263		0.00000936
Coefficient (A enveloppe) C4.9.2	0.00001263		0.00000936
Coefficient (A raidisseur)			
Coefficient (A) C4.9.2	0.00001263 max(A cone,A anneau,A enveloppe))		0.00000936 max(A cone,A anneau,A enveloppe))
Inertie requise (In) (1) C4.2.7.5.2c	265.633 mm <sup>4</sup> $De,2^2*(hj*eeq+Ar)*A/12$		196.765 mm <sup>4</sup> $De,2^2*(hj*eeq+Ar)*A/12$
Inertie installée (I) (2)	4150.536 mm <sup>4</sup>	4150.536 mm <sup>4</sup>	4150.536 mm <sup>4</sup>
(2) - (1)	3884.903 mm <sup>4</sup> I installée - In requise		3953.770 mm <sup>4</sup> I installée - In requise

### · Fabrication enveloppe conique

Tolérance de fabrication (Tol.Fab.) = 0.750 mm (12.5000 % de ép.commande)  
 Epaisseur nominale de commande (en) = **6.000**  
 Epaisseur nominale de fabrication (ef) = 5.250 mm en-tol.fab.  
 Epaisseur admise (ea) = 4.750 mm

Repère : **Réduction 1200 x 900 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## ● Réduction 1200 x 900 - Epr 10 mm

### SITUATIONS D'ETUDES : Exceptionnelle - PS 0,9 Bar @ 250 °C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			1.0000 Svt C2.1.3
Pressions intérieures			0.090 MPa
Pressions extérieures			
Températures			250.000 °C

**FICHE MATIERE : NF EN 10028-7 X2CrNi18-9 (H) C4-11**

M3 Acier inoxydable austénitique

Toles

Contrainte à l'ambiante : 160.000 MPa

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%			108.000 MPa
Limite élastique Rtp1.0%			137.000 MPa
Résistance à la traction Rtm			350.000 MPa
A%			45.0000
SigmaR 100000h			
Module d'élasticité			179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>			17.400 10-6/°C
Contraintes			130.150 MPa
coefficients de sécurité			Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Réduction 1200 x 900 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPES CONIQUES svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.3 / C4.2.4 / C4.2.7

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques de l'enveloppe conique :**

	Grande base	Petite base
Diamètre extérieur	(De,1) = 1199.879 mm	(De,2) = 920.000 mm
Diamètre intérieur	(Di,1) = 1182.000 mm	(Di,2) = 902.121 mm
Rayon raccordement extérieur	(rte,1) = 0.000 mm	(rte,2) = 0.000 mm
Rayon raccordement intérieur	(rti,1) = 0.000 mm	(rti,2) = 0.000 mm
Demi angle au sommet	(α) = 6.652 deg	
Hauteur réelle du cone	(Lc) = 1200.000 mm	
Coefficient de soudure	(z) Sans	

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte cone (Ambiante 160.000 MPa)			130.150 MPa
Module d'élasticité			

**Caractéristiques du raccordement Grande Base :**

Enveloppe participant à l'inertie de la jonction

Longueur cylindrique adjacente (L) = 239.000 mm

Hauteur conique adjacente (H) = 1200.000 mm

**Caractéristiques du raccordement Petite Base :**

Enveloppe participant à l'inertie de la jonction

Longueur cylindrique adjacente (L) = 965.000 mm

Hauteur conique adjacente (H) = 1200.000 mm

**Situations d'études : Exceptionnelle - PS 0,9 Bar @ 250 °C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient z			1.0000 Svt C2.1.3
Pression intérieure			0.090 MPa
Pression extérieure			0.000 MPa
Température			250.000 °C

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

**2. RESULTATS**
**Calcul du cone en pression intérieure svt C2.3**

Côté Grande Base	NORMALE	EPREUVE	EXCEPTIONNELLE
Epaisseur.minimale (e)			0.418 mm $P \cdot De / (2 \cdot f \cdot z + P) \cdot (1 / \cos(\alpha))$
Ep.mini assemblage (e0)			0.418 mm $P \cdot De / (2 \cdot f + P) \cdot (1 / \cos(\alpha))$
Long.mini assemblage (l)			4.461 mm $0.2 \cdot \sqrt{(Di + e0) \cdot e0 / \cos(\alpha)}$

Côté Petite Base	NORMALE	EPREUVE	EXCEPTIONNELLE
Epaisseur minimale (e)			0.320 mm $P \cdot De / (2 \cdot f \cdot z + P) \cdot (1 / \cos(\alpha))$
Ep.mini assemblage (e0)			0.320 mm $P \cdot De / (2 \cdot f + P) \cdot (1 / \cos(\alpha))$
Long.mini assemblage (l)			3.410 mm $0.2 \cdot \sqrt{(Di + e0) \cdot e0 / \cos(\alpha)}$

P.int maxi admissible			1.954 MPa
Contrainte mini en P.int			5.995 MPa

### · Vérification de la jonction Grande Base en pression intérieure svt C2.3.6

Coefficient C2.3.5.2.5  $(\lambda) = 0.0200$   $0.02 + 0.006 \cdot (((r1t/Di1)/0.12)^{2.5})$ 

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte fmin			130.150 MPa $\text{MIN}(f; f1, \text{cyl}; ft)$
Coefficient $\rho$ C2.3.5.2.4			0.0000 $\lambda \cdot r1t / \sqrt{(Dm1 \cdot ej) \cdot \alpha / (1 + \sqrt{\cos(\alpha)})}$
Coefficient $\gamma$ C2.3.6(a)			1.0000 1
Coefficient $\beta$ C2.3.5.2.2			1.0007 $\text{MAX}(1, 0.9 \cdot (1/3 \cdot \sqrt{(Dm1/ej)} \cdot \tan(\alpha) / (1 + \sqrt{\cos(\alpha)})) - (0.1 - 0.0005 / (P \cdot f_{\min 1})) \cdot \alpha / 60)$
Epaisseur ej C2.3.5.2.1			0.4123 $(P \cdot Dm1 \cdot \beta) / (2 \cdot f_{\min 1} \cdot \gamma)$
Diamètre Dk C2.3.3.1			1179.430 mm $Di1 - 2 \cdot lk \cdot \sin(\alpha)$
Longueur lk C2.3.3.8			11.096 mm $0.5 \cdot \sqrt{(Dm1 \cdot e1 \cdot \text{cone}) / \cos(\alpha)}$
$P Dk / (2 f z - P) (1 / \cos(\alpha))$ C2.3.3.1			0.411 mm $(P \cdot Dk) / (2 \cdot f \cdot z - P) \cdot 1 / \cos(\alpha)$
Epaisseur (e1,cyl) C2.3.5.1a			0.4123 $\text{MAX}(ej, (P \cdot Di1) / (2 \cdot f1 \cdot \text{cyl} \cdot z - P))$
Epaisseur (e1,cone) C2.3.5.1b			0.4123 $\text{MAX}(ej, (P \cdot Dk) / (2 \cdot f \cdot z - P) \cdot 1 / \cos(\alpha))$
Epaisseur (et)			
Longueur (l1,cyl)			31.025 mm $1.4 \cdot \sqrt{(Dm, l \cdot e1, \text{cyl})}$
Longueur (l1,cone)			31.130 mm $1.4 \cdot \sqrt{(Dm, l \cdot e1, \text{cone}) / \cos(\alpha)}$

### · Vérification de la jonction Petite Base en pression intérieure svt C2.3.7

Coefficient C2.3.3  $(s) = 1.000000$   $e2, \text{cone} / e2, \text{cyl}$

Coefficient C2.3.7.2.4 (ks0) = 1.0000  $(1-1.733619*s+1.881818*s^2-0.035335*s^3)/(1.475324-2.648932*s+2.286472*s^2)$   
Surface partie cylindrique C2.3.7 (Scyl) = 1164.581 mm<sup>2</sup>  
Surface anneau renfort (Sr) = 0.000 mm<sup>2</sup>  
Epaisseur maxi de l'anneau renfort =  
Epaisseur (e2,cone) = 9.000 mm  
Epaisseur (e2,cyl) = 9.000 mm  
Longueur C2.3.3 (l2,cyl) = 90.548 mm  $\sqrt{Dm^2*e2,cyl}$

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte (fmin,2)			130.150 MPa MIN(f;f2,cyl)
Coefficient (ks) C2.3.7.2.3			1.0000 MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)
Coefficient (k) C2.3.7.2.2			0.8919 MIN( (a1+a3*(P/fmin2)^0.5+a5*(P/fmin2)+a7*(P/fmin2)^1.5)/(1+a2*(P/fmin2)^0.5+a4*(P/fmin2)+a6*(P/fmin2^1.5),1.0)
Longueur (l2,cone)			90.855 mm $\sqrt{Dm^2*e2cone/\cos(\alpha)}$
Largeur maxi du renfort			
Surface partie conique (S)			1167.338 mm <sup>2</sup>
Surface interne (G)			130332.981 mm <sup>2</sup>
(1)			270597.810 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2cyl*zcyl-0.5*P)+Sr*(fr-0.5*P))$
(2)			11729.968 N P*G
(2) - (1)			258867.842
Contrainte (σθj) C2.3.7.3-1			5.030 MPa P*G/(S+SCyl+Sr)

### · Fabrication enveloppe conique

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (en) = **10.000**  
Epaisseur nominale de fabrication (ef) = 9.500 mm en-tol.fab.  
Epaisseur admise (ea) = 9.000 mm



Repère : **Réduction 1200 x 1000 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Réduction 1200 x 1000 - Epr 10 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (H)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	186.750 MPa	200.000 MPa	186.750 MPa
Limite élastique Rtp1.0%	225.250 MPa	240.000 MPa	225.250 MPa
Résistance à la traction Rtm	492.500 MPa	520.000 MPa	492.500 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	150.167 MPa	228.000 MPa	213.988 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Réduction 1200 x 1000 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPES CONIQUES svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.3 / C4.2.4 / C4.2.7

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques de l'enveloppe conique :**

	Grande base	Petite base
Diamètre extérieur	(De,1) = 1219.951 mm	(De,2) = 1020.000 mm
Diamètre intérieur	(Di,1) = 1202.000 mm	(Di,2) = 1002.049 mm
Rayon raccordement extérieur	(rte,1) = 0.000 mm	(rte,2) = 0.000 mm
Rayon raccordement intérieur	(rti,1) = 0.000 mm	(rti,2) = 0.000 mm
Demi angle au sommet	( $\alpha$ ) = 4.235 deg	
Hauteur réelle du cone	(Lc) = 1350.000 mm	
Coefficient de soudure	(z) Sans	

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte cone (Ambiante 160.000 MPa)	150.167 MPa	228.000 MPa	213.988 MPa
Module d'élasticité			

**Caractéristiques du raccordement Grande Base :**

Anneau raidisseur à la jonction (Placé sur la partie conique) : anneau Raidisseur 30 x 5 mm

Enveloppe participant à l'inertie de la jonction

Longueur cylindrique adjacente (L) = 2000.000 mm

Hauteur conique adjacente (H) = 1350.000 mm

**Caractéristiques du raccordement Petite Base :**

Enveloppe participant à l'inertie de la jonction

Longueur cylindrique adjacente (L) = 150.000 mm

Hauteur conique adjacente (H) = 1350.000 mm

**Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient z	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.010 MPa
Température	40.000 °C	20.000 °C	40.000 °C

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

**2. RESULTATS**
**Calcul du cone en pression intérieure svt C2.3**

Côté Grande Base	NORMALE	EPREUVE	EXCEPTIONNELLE
Epaisseur.minimale (e) C2.3.4a3	0.081 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.080 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.143 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$
Ep.mini assemblage (e0) C2.3.4b	0.081 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.080 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.143 mm $P*De/(2*f+P)*(1/\cos(\alpha))$
Long.mini assemblage (l) C2.3.4b	1.976 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	1.964 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	2.626 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$

Côté Petite Base	NORMALE	EPREUVE	EXCEPTIONNELLE
Epaisseur minimale (e) C2.3.4a3	0.068 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.067 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$	0.119 mm $P*De/(2*f*z+P)*(1/\cos(\alpha))$
Ep.mini assemblage (e0) C2.3.4b	0.068 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.067 mm $P*De/(2*f+P)*(1/\cos(\alpha))$	0.119 mm $P*De/(2*f+P)*(1/\cos(\alpha))$
Long.mini assemblage (l) C2.3.4b	1.653 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	1.641 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$	2.187 mm $0.2*\sqrt{(Di+e0)*e0/\cos(\alpha)}$

P.int maxi admissible	2.226 MPa	3.380 MPa	3.172 MPa
Contrainte mini en P.int	1.349 MPa	2.024 MPa	3.373 MPa

#### · Calcul du cone en pression extérieure svt C4.2.4

Plus grande hauteur non soutenue	(H)	= 1350.000 mm	
Diamètre extérieur de calcul	(De)	= 1219.951 mm	
Diamètre équivalent C4.2.4.4	(Deq)	= 1223.292 mm	De/cos(alpha)
Longueur équivalente C4.2.4.4	(Leq)	= 1239.367 mm	H(1-(H*tan(alpha)/De,1))
Epaisseur de calcul	(e)	= 9.000 mm	
Rapport	(Deq/e)	= 135.921283	
Rapport	(Leq/Deq)	= 1.013141	
Coefficient A	(A)	= 0.00084324	Svt C4.9.2.1

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient B C4-11	57.5751		57.5751
Pression ext. Maxi Pa(1)			
Pression ext. Maxi Pa(2)			
P.ext. Maxi Pa pour <b>9.000</b> mm Svt C4.2.1.5.1d	0.565 MPa $4/3*(B/(De/e))*K$		0.762 MPa $4/3*(B/(De/e))*K$
Epaisseur mini P.ext	1.535 mm		1.350 mm

#### · Vérification de la jonction Grande Base en pression intérieure svt C2.3.6

Coefficient C2.3.5.2.5	(λ)	= 0.0200	$0.02+0.006*(((r1t/Di1)/0.12)^{2.5})$
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	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte fmin	150.167 MPa MIN(f;f1,cyl;ft)	228.000 MPa MIN(f;f1,cyl;ft)	213.988 MPa MIN(f;f1,cyl;ft)
Coefficient ρ C2.3.5.2.4	0.0000 $\lambda*De/(2*f+P)*(1/\cos(\alpha))$	0.0000 $\lambda*De/(2*f+P)*(1/\cos(\alpha))$	0.0000 $\lambda*De/(2*f+P)*(1/\cos(\alpha))$
Coefficient γ C2.3.6(a)	1.0000 1	1.0000 1	1.0000 1
Coefficient β C2.3.5.2.2	1.3867 $\frac{MAX(1,0.9*(1/3*\sqrt{Dm1/ej})*\tan(\alpha)/(1+1/\sqrt{\cos(\alpha)}))-(0.1-0.0005/(P*fmin1))*\alpha/60}{1}$	1.3948 $\frac{MAX(1,0.9*(1/3*\sqrt{Dm1/ej})*\tan(\alpha)/(1+1/\sqrt{\cos(\alpha)}))-(0.1-0.0005/(P*fmin1))*\alpha/60}{1}$	1.1062 $\frac{MAX(1,0.9*(1/3*\sqrt{Dm1/ej})*\tan(\alpha)/(1+1/\sqrt{\cos(\alpha)}))-(0.1-0.0005/(P*fmin1))*\alpha/60}{1}$
Epaisseur ej C2.3.5.2.1	0.1119 $(P*Dm1*\beta)/(2*fmin1*\gamma)$	0.1110 $(P*Dm1*\beta)/(2*fmin1*\gamma)$	0.1564 $(P*Dm1*\beta)/(2*fmin1*\gamma)$
Diamètre Dk	1201.271 mm	1201.275 mm	1201.035 mm

C2.3.3.1	$Di1-2*Ik*\sin(\alpha)$	$Di1-2*Ik*\sin(\alpha)$	$Di1-2*Ik*\sin(\alpha)$
Longueur lk	4.935 mm	4.905 mm	6.536 mm
C2.3.3.8	$0.5\sqrt{(Dm1*e1\text{cone})/\cos(\alpha)}$	$0.5\sqrt{(Dm1*e1\text{cone})/\cos(\alpha)}$	$0.5\sqrt{(Dm1*e1\text{cone})/\cos(\alpha)}$
$PDk/(2fz-P)/(1/\cos(\alpha))$	0.080 mm	0.079 mm	0.141 mm
C2.3.3.1	$(P*Dk)/(2*f*z-P)*1/\cos(\alpha)$	$(P*Dk)/(2*f*z-P)*1/\cos(\alpha)$	$(P*Dk)/(2*f*z-P)*1/\cos(\alpha)$
Epaisseur (e1,cyl)	0.1119	0.1110	0.1564
C2.3.5.1a	$MAX(ej,(P*Di1)/(2*f1\text{cyl}*z-P))$	$MAX(ej,(P*Di1)/(2*f1\text{cyl}*z-P))$	$MAX(ej,(P*Di1)/(2*f1\text{cyl}*z-P))$
Epaisseur (e1,cone)	0.1119	0.1110	0.1564
C2.3.5.1b	$MAX(ej,(P*Dk)/(2*f*z-P)*1/\cos(\alpha))$	$MAX(ej,(P*Dk)/(2*f*z-P)*1/\cos(\alpha))$	$MAX(ej,(P*Dk)/(2*f*z-P)*1/\cos(\alpha))$
Epaisseur (et)			
Longueur (l1,cyl)	16.301 mm	16.228 mm	19.270 mm
C2.3.3.4	$1.4*\sqrt{(Dm,1*e1,cyl)}$	$1.4*\sqrt{(Dm,1*e1,cyl)}$	$1.4*\sqrt{(Dm,1*e1,cyl)}$
Longueur (l1,cone)	16.323 mm	16.250 mm	19.297 mm
C2.3.3.2	$1.4*\sqrt{(Dm,1*e1,cone)/\cos(\alpha)}$	$1.4*\sqrt{(Dm,1*e1,cone)/\cos(\alpha)}$	$1.4*\sqrt{(Dm,1*e1,cone)/\cos(\alpha)}$

### · Vérification de la jonction Petite Base en pression intérieure svt C2.3.7

Coefficient C2.3.3	(s)	= 1.000000	$e2,cone/e2,cyl$
Coefficient C2.3.7.2.4	(ks0)	= 1.0000	$(1-1.733619*s+1.881818*s^2-0.035335*s^3)/(1.475324-2.648932*s+2.286472*s^2)$
Surface partie cylindrique C2.3.7	(Scyl)	= 1351.498 mm <sup>2</sup>	
Surface anneau renfort	(Sr)	= 0.000 mm <sup>2</sup>	
Epaisseur maxi de l'anneau renfort		=	
Epaisseur	(e2,cone)	= 9.000 mm	
Epaisseur	(e2,cyl)	= 9.000 mm	
Longueur C2.3.3	(l2,cyl)	= 89.235 mm	$l2,cyl,r$

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte (fmin,2)	150.167 MPa MIN(f;f2,cyl)	228.000 MPa MIN(f;f2,cyl)	213.988 MPa MIN(f;f2,cyl)
Coefficient (ks)	1.0000 $MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)$	1.0000 $MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)$	1.0000 $MAX(1,ks0+s*(1-ks0)*(P/fmin2)/0.1)$
C2.3.7.2.3			
Coefficient (k)	0.7791 MIN( $(a1+a3*(P/fmin2)^{0.5}+a5*(P/fmin2)+a7*(P/fmin2)^{1.5})/(1+a2*(P/fmin2)^{0.5}+a4*(P/fmin2)+a6*(P/fmin2)^{1.5}),1.0)$	0.7783 MIN( $(a1+a3*(P/fmin2)^{0.5}+a5*(P/fmin2)+a7*(P/fmin2)^{1.5})/(1+a2*(P/fmin2)^{0.5}+a4*(P/fmin2)+a6*(P/fmin2)^{1.5}),1.0)$	0.8159 MIN( $(a1+a3*(P/fmin2)^{0.5}+a5*(P/fmin2)+a7*(P/fmin2)^{1.5})/(1+a2*(P/fmin2)^{0.5}+a4*(P/fmin2)+a6*(P/fmin2)^{1.5}),1.0)$
C2.3.7.2.2			
Longueur (l2,cone)	95.519 mm $\sqrt{(Dm2*e2\text{cone})/\cos(\alpha)}$	95.519 mm $\sqrt{(Dm2*e2\text{cone})/\cos(\alpha)}$	95.519 mm $\sqrt{(Dm2*e2\text{cone})/\cos(\alpha)}$
C2.3.3			
Largeur maxi du renfort			
Surface partie conique (S)	1408.054 mm <sup>2</sup>	1408.054 mm <sup>2</sup>	1408.054 mm <sup>2</sup>
Surface interne (G)	164198.964 mm <sup>2</sup>	164198.964 mm <sup>2</sup>	164198.964 mm <sup>2</sup>
Relation C2.3.7.2.1 (1)	322814.235 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2\text{cyl}*z\text{cyl}-0.5*P)+Sr*(fr-0.5*P))$	489662.544 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2\text{cyl}*z\text{cyl}-0.5*P)+Sr*(fr-0.5*P))$	481736.680 N $k*ks*(S*(f*z-0.5*P)+Scyl*(f2\text{cyl}*z\text{cyl}-0.5*P)+Sr*(fr-0.5*P))$
Relation C2.3.7 (2)	3283.979 N P*G	4925.969 N P*G	8209.948 N P*G
(2) - (1)	319530.256	484736.575	473526.732
Contrainte ( $\sigma\theta_j$ )	1.190 MPa P*G/(S+SCyl+Sr)	1.785 MPa P*G/(S+SCyl+Sr)	2.975 MPa P*G/(S+SCyl+Sr)
C2.3.7.3-1			

### · Vérification de la jonction Grande Base en pression extérieure svt C4.2.7.4

	NORMALE	EPREUVE	EXCEPTIONNELLE
Longueur (l1,cyl)	9.566 mm		8.713 mm
C4.2.7.4.1a1	$\sqrt{(Dm,1*ev)}$		$\sqrt{(Dm,1*ev)}$

Longueur (l1,cone) C4.2.7.4.1a2	9.579 mm $\sqrt{(Dm,1*ev)/\cos(\alpha)}$		8.725 mm $\sqrt{(Dm,1*ev)/\cos(\alpha)}$
Contrainte fmin	150.167 MPa MIN(f;f1,cyl;ft)		213.988 MPa MIN(f;f1,cyl;ft)

Epaisseur équivalente C4.2.7.3	(eq)	= 9.000 mm	
Longueur	(hj)	= 1676.848 mm	
Surface raidisseur	(Ar)	= 135.000 mm <sup>2</sup>	
Longueur C4.2.7.3	(x1)	= 57.632 mm	x1
Longueur C4.2.7.3	(x2)	= 57.711 mm	x2
Coefficient C2.3.5.2.5	(λ)	= 0.0200	0.02+0.006*((r1t/Di1)/0.12)^2.5
Diamètre	(Dm,1)	= 1211.000 mm	

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient ρ C2.3.5.2.4	0.0000 $\lambda \cdot r1t / \sqrt{(Dm1*ej)*\alpha / (1 + \sqrt{\cos(\alpha)})}$		0.0000 $\lambda \cdot r1t / \sqrt{(Dm1*ej)*\alpha / (1 + \sqrt{\cos(\alpha)})}$
Coefficient γ C2.3.6(a)	1.0000 1		1.0000 1
Coefficient β C2.3.5.2.2	1.8760 $\text{MAX}(1, 0.9 * (1/3 * \sqrt{(Dm1/ej)} * \tan(\alpha) / (1 + \sqrt{\cos(\alpha)})) - (0.1 - 0.0005 / (P * fmin1)) * \alpha / 60)$		2.2163 $\text{MAX}(1, 0.9 * (1/3 * \sqrt{(Dm1/ej)} * \tan(\alpha) / (1 + \sqrt{\cos(\alpha)})) - (0.1 - 0.0005 / (P * fmin1)) * \alpha / 60)$
Epaisseur ej C2.3.5.2.1	0.0756 $(P * Dm1 * \beta) / (2 * fmin1 * \gamma)$		0.0627 $(P * Dm1 * \beta) / (2 * fmin1 * \gamma)$

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient (K)	1.0000		1.3500
Coefficient (Q1) C4.2.7.4.3a2	16.1554 $P * ((L+H)/2 - (H^2 / (3 * De1) + De1/4) * \tan(\alpha))$		16.1554 $P * ((L+H)/2 - (H^2 / (3 * De1) + De1/4) * \tan(\alpha))$
Coefficient (B) C4.2.7.4.3a1	0.9708 $(3/4) * (Q1 * De,1) / (hj * eq + Ar) * 1/K$		0.7191 $(3/4) * (Q1 * De,1) / (hj * eq + Ar) * 1/K$
Coefficient (A cone) C4.9.2	0.00001005		0.00000745
Coefficient (A enveloppe) C4.9.2	0.00001005		0.00000745
Coefficient (A raidisseur) C4.9.2	0.00001005		0.00000745
Coefficient (A) C4.9.2	0.00001005 max(A cone, A anneau, A enveloppe))		0.00000745 max(A cone, A anneau, A enveloppe))
Inertie requise (In) (1) C4.2.7.4.3c	18989.961 mm <sup>4</sup> $(De,1^2 * (hj * eq + Ar) * A) / 12$		14066.638 mm <sup>4</sup> $(De,1^2 * (hj * eq + Ar) * A) / 12$
Inertie installée (I) (2) (2) - (1)	73581.062 mm <sup>4</sup> 54591.101 mm <sup>4</sup> I installée - In requise	73581.062 mm <sup>4</sup>	73581.062 mm <sup>4</sup> 59514.424 mm <sup>4</sup> I installée - In requise

### · Vérification de la jonction Petite Base en pression extérieure svt C4.2.7.5

Coefficient Graphique C4.2.7.3.4	(k)	= 0.8628	
Coefficient C4.2.7.3	(δ)	= 10.5843	$Dm2 / \sqrt{(Dm2 * e2, cone) / \cos(\alpha)}$
Surface partie cylindrique C4.2.7.5.1	(Scyl)	= 1406.880 mm <sup>2</sup>	
Surface raidisseur	(Ar)	=	
Surface anneau renfort	(Sr)	= 0.000 mm <sup>2</sup>	
Longueur C4.2.7.3	(l2,cyl)	= 95.389 mm	

	NORMALE	EPREUVE	EXCEPTIONNELLE
Longueur (l2,cone) C4.2.7.3	82.417 mm $k * \sqrt{(Dm2 * e2 cone) / \cos(\alpha)}$		82.417 mm $k * \sqrt{(Dm2 * e2 cone) / \cos(\alpha)}$

Surface partie conique (S)	1290.131 mm <sup>2</sup>		1290.131 mm <sup>2</sup>
Surface interne (G)	160553.926 mm <sup>2</sup>		160553.926 mm <sup>2</sup>
Relation C4.2.7.5.1 (1)	404988.550 N $S*(f-0.5*P)+Scyl*(f2cyl-0.5*P)+Ar*(fa-0.5*P)+Sr*(fr-0.5*P)$		577114.483 N $S*(f-0.5*P)+Scyl*(f2cyl-0.5*P)+Ar*(fa-0.5*P)+Sr*(fr-0.5*P)$
Relation C4.2.7.5.1 (2)	1605.539 N P*G		1605.539 N P*G
(2) - (1)	403383.011		575508.943

Epaisseur équivalente C4.2.7.3 (eeq) = 9.000 mm  
 Longueur (hj) = 751.848 mm  
 Longueur C4.2.7.3 (x1) = 52.697 mm x1  
 Longueur C4.2.7.3 (x2) = 52.769 mm x2

Coefficient (K)	1.0000		1.3500
Coefficient (Q2) C4.2.7.5.2a2	8.1693 $P*(L/2+H/(2*cos(alpha)^2)+((H^2)/(3*De2*cos(alpha)^2)+De2/4)*tan(alpha))$		8.1693 $P*(L/2+H/(2*cos(alpha)^2)+((H^2)/(3*De2*cos(alpha)^2)+De2/4)*tan(alpha))$
Coefficient (B) C4.2.7.5.2a1	0.9236 $(3/4)*(Q2*De,2)/(hj*eeq+Ar)*1/K$		0.6841 $(3/4)*(Q2*De,2)/(hj*eeq+Ar)*1/K$
Coefficient (A cone) C4.9.2	0.00000957		0.00000709
Coefficient (A enveloppe) C4.9.2	0.00000957		0.00000709
Coefficient (A raidisseur)			
Coefficient (A) C4.9.2	0.00000957 max(A cone,A anneau,A enveloppe))		0.00000709 max(A cone,A anneau,A enveloppe))
Inertie requise (In) (1) C4.2.7.5.2c	5611.975 mm <sup>4</sup> $De,2^2*(hj*eeq+Ar)*A/12$		4157.018 mm <sup>4</sup> $De,2^2*(hj*eeq+Ar)*A/12$
Inertie installée (I) (2)	7903.061 mm <sup>4</sup>	7903.061 mm <sup>4</sup>	7903.061 mm <sup>4</sup>
(2) - (1)	2291.087 mm <sup>4</sup> I installée - In requise		3746.043 mm <sup>4</sup> I installée - In requise

### · Fabrication enveloppe conique

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
 Epaisseur nominale de commande (en) = **10.000**  
 Epaisseur nominale de fabrication (ef) = 9.500 mm en-tol.fab.  
 Epaisseur admise (ea) = 9.000 mm

Repère : **anneau Raidisseur 30 x 5 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Anneau raidisseur 30 x 5 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (H)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	186.750 MPa	200.000 MPa	186.750 MPa
Limite élastique Rtp1.0%	225.250 MPa	240.000 MPa	225.250 MPa
Résistance à la traction Rtm	492.500 MPa	520.000 MPa	492.500 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	150.167 MPa	228.000 MPa	213.988 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630



Repère : **anneau Raidisseur 30 x 5 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ANNEAU RAIDISSEUR Profil rectangulaire svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C4.2.5/C4.2.6

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**· Caractéristiques du support : Réduction 1200 x 1000 - Epr 10 mm**

Enveloppe : Participante

Matériau : **NF**, Norme : **NF EN 10028-7**, Nuance : **X2CrNi18-9 (H)**

No de courbe suivant CODAP 2010 = **C4-11**

Diamètre extérieur de l'enveloppe (De) = 1212.545 mm

Epaisseur de l'enveloppe (eeq) = 9.000 mm

**· Caractéristiques de l'anneau**

Position anneau : Extérieur enveloppe

Elévation centre anneau - bord gauche du support (x) : 50.000 mm

Largeur anneau corrodé (b) = 4.500 mm

Hauteur anneau corrodé (h) = 30.000 mm

Epaisseur pour le calcul des contraintes = 4.500 mm

Demi-angle au sommet (alpha) = 4.235 deg

Section anneau (Ar) = 135.000 mm<sup>2</sup> b\*h

Longueur enveloppe avant (L1) = 50.000 mm

Longueur enveloppe après (L2) = 1300.000 mm

(L) = 676.848 mm (H1+H2)/(2\*cos(alpha))

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression extérieure	0.010 MPa	0.000 MPa	0.010 MPa
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte	150.167 MPa	228.000 MPa	213.988 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**

Longueur participante avant x1 = 25.068 mm min(0.55\*sqrt(De/cos(alpha)\*eeq), (H1/(2\*cos(alpha))))

Longueur participante après x2 = 57.534 mm min(0.55\*sqrt(De/cos(alpha)\*eeq), (H2/(2\*cos(alpha))))

Coefficient Q	7.1324		7.1324
Coefficient B	$\frac{Pe*((H1+H2)/(2*cos(alpha)^2) + ((H1^2-H2^2)/(3*De)) * tan(alpha)/cos(alpha)^2)}{(3/4)*((Q*De)/(h*eeq+Ar))*(1/K)}$		$\frac{Pe*((H1+H2)/(2*cos(alpha)^2) + ((H1^2-H2^2)/(3*De)) * tan(alpha)/cos(alpha)^2)}{(3/4)*((Q*De)/(h*eeq+Ar))*(1/K)}$
Coefficient A Anneau	0.00001079 2*B/EC4.9		0.00000799 2*B/EC4.9
Coefficient A Support	0.00001079 2*B/EC4.9		0.00000799 2*B/EC4.9
Coefficient A Max(A Anneau, A Support)	0.00001079		0.00000799

Moment inertie requis	8231.701 mm <sup>4</sup>		6095.578 mm <sup>4</sup>
Moment inertie anneau	(I) =	10125.000 mm <sup>4</sup>	
Moment inertie anneau+enveloppe	(I') =	59208.657 mm <sup>4</sup>	
Moment inertie requis minimum	(In) =	<b><u>8231.701 mm<sup>4</sup></u></b>	
Position du CdG de l'anneau	(X) =	2.250 mm	(Y) = 15.000 mm
Position du CdG de l'anneau + enveloppe	(X) =	41.166 mm	(Y) = 7.365 mm

- Renforts d'ouvertures**

Repère : **Piquage DN 150 - Sch 40S**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

- Piquage DN 150 - Sch 40S / Collecteur DN 1200 x 10 mm**

**SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10217-7**
**X2CrNi18-9**
**C4-11**

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 143.333 MPa

Tubes

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	180.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	215.000 MPa	137.000 MPa
Résistance à la traction Rtm		470.000 MPa	
A%	40.0000	40.0000	40.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	204.250 MPa	130.150 MPa
coefficients de sécurité	Rtp1/1.500000 Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000 ) Rtp1,0 : 1.052630	Rpt1/1.052630 Rtp1 : 1.052630

Repère : **Piquage DN 150 - Sch 40S**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 168.300 mm Intérieur (Di) = 156.858 mm  
Longueur enveloppe (Lréelle) = 200.000 mm Moyen (Dm) = 162.579 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 143.333 MPa)	98.000 MPa	204.250 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.077 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.082 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.058 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement	0.072 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.077 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.054 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5
sur la longueur mini (l)	0.673 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.694 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.584 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 209.500 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 29.417934 L/De = 1.244801  
Coefficient A (A) = 0.00680259 Svt C4.9.2.1

Coefficient B C4-11	53.7028		49.7724
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>5.721</b> mm Svt C4.2.1.5.1d	2.434 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		3.045 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.237 mm		0.534 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.889 mm (12.5000 % de ép.commande)  
Epaisseur nominale de commande (etn) = **7.110** mm  
Epaisseur nominale de fabrication (etf) = 6.221 mm en-tol.fab.  
Epaisseur admise (et) = 5.721 mm (5\*ea) = 28.605 mm

P.int maxi admissible	6.897 MPa	14.375 MPa	9.160 MPa
Contrainte mini en P.int	1.279 MPa	2.842 MPa	1.279 MPa

Repère : **Piquage DN 150 - Sch 40S**

Référence :

Matériaux : Norme : **NF EN 10217-7**Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 10 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 580.000 mm

Angle de placement

(β) = 180.000 deg

Orientation de la tubulure : Quelconque

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 200.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	156.858 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1211.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	5.721 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	1.0000	C5.1.3
Coefficient kt	(kt)	=	2.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	18.000 mm	kt*e C5.1.2.3b

**Verification en tubulures voisines C5.2.4 : 'Piquage DN 150 - Sch 40S' avec 'Tubulure #N3 à #N6 - DN 600 - Epr 6 mm'**

Longueur d'enveloppe participante	(L)	=	104.398 mm
Longueur extérieure de tubulure participante	(l)	=	30.498 mm
Longueur intérieure de tubulure participante	(l')	=	0.000 mm

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 14.616 mm    0.14\*sqrt(Dm\*e)

Section de l'enveloppe	(S)	=	991.073 mm <sup>2</sup>
Section de la tubulure	(St)	=	174.478 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	113317.514 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	3097.771 mm <sup>2</sup>
Section interne globale	(G)	=	116415.285 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	114171.575 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	261485.287 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	151644.048 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	10477.376 N	23283.057 N	10477.376 N



Repère : **Piquage DN 200 - Sch 40S**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage DN 200 - Sch 40S / Collecteur DN 1200 x 10 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10217-7

### X2CrNi18-9

### C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 143.333 MPa

Tubes

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	180.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	215.000 MPa	137.000 MPa
Résistance à la traction Rtm		470.000 MPa	
A%	40.0000	40.0000	40.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	204.250 MPa	130.150 MPa
coefficients de sécurité	Rtp1/1.500000 Rtp1,0 : 1.500000	Min(Rtp1/1.052630, Rtm/2.000000) Rtp1,0 : 1.052630	Rpt1/1.052630 Rtp1 : 1.052630

Repère : **Piquage DN 200 - Sch 40S**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 219.100 mm Intérieur (Di) = 213.520 mm  
Longueur enveloppe (Lréelle) = 500.000 mm Moyen (Dm) = 216.310 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 143.333 MPa)	98.000 MPa	204.250 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.101 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.107 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.076 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement	0.098 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.105 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.074 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5
sur la longueur mini (l)	0.916 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.945 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.794 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 523.500 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 78.530466 L/De = 2.389320  
Coefficient A (A) = 0.00076806 Svt C4.9.2.1

Coefficient B C4-11	36.9007		34.2145
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>2.790</b> mm Svt C4.2.1.5.1d	0.627 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.784 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.407 mm		0.913 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.470 mm (12.5000 % de ép.commande)  
Epaisseur nominale de commande (etn) = **3.760** mm  
Epaisseur nominale de fabrication (etf) = 3.290 mm en-tol.fab.  
Epaisseur admise (et) = 2.790 mm (5\*ea) = 13.950 mm

P.int maxi admissible	2.528 MPa	5.269 MPa	3.357 MPa
Contrainte mini en P.int	3.489 MPa	7.753 MPa	3.489 MPa

Repère : **Piquage DN 200 - Sch 40S**

Référence :

Matériaux : Norme : **NF EN 10217-7**Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 10 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 580.000 mm

Angle de placement

(β) = 0.000 deg

Orientation de la tubulure : Quelconque

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 500.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	213.520 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1211.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	2.790 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	1.0000	C5.1.3
Coefficient kt	(kt)	=	2.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	18.000 mm	kt*e C5.1.2.3b

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 14.616 mm 0.14\*sqrt(Dm\*e)

Section de l'enveloppe	(S)	=	964.694 mm2
Section de la tubulure	(St)	=	68.540 mm2
Section interne de l'enveloppe	(Ge)	=	128582.914 mm2
Section interne de la tubulure	(Gt)	=	3583.542 mm2
Section interne globale	(G)	=	132166.456 mm2

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	101210.492 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	233846.330 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	134428.983 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	11894.981 N	26433.291 N	11894.981 N

Repère : **Té Egal DN 600 - Sch 10S**

Référence :

Matériaux : Norme : **SA-403 Smls. & wld. fittings**Nuance : **304L S30403 [86-6]**

No de courbes suivant CODAP 2010

**HA-3**

Revision :

- Té Egal DN 600 - Sch 10S**

**SITUATIONS D'ETUDES : Service - PS Normale 0,5 Bar @ 200°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.050 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.011 MPa		0.013 MPa
Températures	200.000 °C	20.000 °C	200.000 °C

**FICHE MATIERE : SA-403 Smls. & wld. fittings****304L S30403 [86-6]****HA-****3**

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.878 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	121.596 MPa	172.369 MPa	121.596 MPa
Limite élastique Rtp1.0%			
Résistance à la traction Rtm	406.101 MPa	482.633 MPa	406.101 MPa
A%	35.0000	35.0000	35.0000
SigmaR 100000h			
Module d'élasticité	182352.533 MPa	195194.626 MPa	182352.533 MPa
Coeff. de dilatation x 10 <sup>6</sup>			
Contraintes	135.367 MPa Rtm/3.000000	241.316 MPa Rtm/2.000000	203.051 MPa Rtm/2.000000
coefficients de sécurité	Rtm : 3.000000	Rtm : 2.000000	Rtm : 2.000000

Repère : **Té Egal DN 600 - Sch 10S**

Référence :

Matériaux : Norme : **SA-403 Smls. & wld. fittings**

Nuance : **304L S30403 [86-6]**

No de courbes suivant CODAP 2010

**HA-3**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 610.000 mm Intérieur (Di) = 599.888 mm  
Longueur enveloppe (Lréelle) = 127.000 mm Moyen (Dm) = 604.944 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,5 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.050 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.011 MPa	0.000 MPa	0.013 MPa
Température	200.000 °C	20.000 °C	200.000 °C
Contrainte (ft) (Ambiante 160.878 MPa)	135.367 MPa	241.316 MPa	203.051 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.113 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.253 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.135 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.111 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.631 mm $0.2 \cdot \sqrt{((D_i + e_0) \cdot e_0)}$ C2.1.5(b)	0.249 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.443 mm $0.2 \cdot \sqrt{((D_i + e_0) \cdot e_0)}$ C2.1.5(b)	0.133 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.786 mm $0.2 \cdot \sqrt{((D_i + e_0) \cdot e_0)}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 127.000 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 120.648734 L/De = 0.208197  
Coefficient A (A) = 0.00593376 Svt C4.9.2.1

Coefficient B C4-11	52.4869		52.4869
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>5.056</b> mm Svt C4.2.1.5.1d	0.580 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.783 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.257 mm		0.227 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.794 mm (12.5000 % de ép.commande)  
Epaisseur nominale de commande (etn) = **6.350** mm  
Epaisseur nominale de fabrication (etf) = 5.556 mm en-tol.fab.  
Epaisseur admise (et) = 5.056 mm (5\*ea) = 25.280 mm



P.int maxi admissible	2.263 MPa	4.034 MPa	3.394 MPa
Contrainte mini en P.int	2.991 MPa	11.965 MPa	5.384 MPa

Repère : **Té Egal DN 600 - Sch 10S**

Référence :

Matériaux : Norme : **SA-403 Smls. & wld. fittings**Nuance : **304L S30403 [86-6]**

No de courbes suivant CODAP 2010

**HA-3**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Té Egal DN 600 - Sch 10S**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 299.944 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 432.000 mm

Angle de placement

(β) = 90.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Plaine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 127.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,5 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	599.888 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	604.944 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	5.056 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.8574	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	5.056 mm	kt*e C5.1.2.3b

**Vérification de la position de l'ouverture selon C5.1.2.2(a) (Discontinuité)**

Longueur d'enveloppe participante	(L)	=	47.416 mm
Longueur extérieure de tubulure participante	(l)	=	55.305 mm
Longueur intérieure de tubulure participante	(l')	=	0.000 mm

### · Vérification de l'ouverture en isolé svt C5.1

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 7.743 mm  $0.14 \cdot \sqrt{Dm \cdot e}$

Section de l'enveloppe	(S)	=	265.297 mm <sup>2</sup>
Section de la tubulure	(St)	=	279.620 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	105704.954 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	18104.795 mm <sup>2</sup>
Section interne globale	(G)	=	123809.749 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	73750.094 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	131442.587 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	110621.327 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	6190.487 N	24761.950 N	11142.877 N

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage Incliné DN 600 x 6 mm / Collecteur DN 600 x 6 mm

### SITUATIONS D'ETUDES : Echappement - PS Normale 0,5 Bar @ 220°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.050 MPa	0.100 MPa	0.090 MPa
Pressions extérieures			
Températures	220.000 °C	20.000 °C	220.000 °C

### FICHE MATIERE : NF EN 10217-7

### X2CrNi18-9

### C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 143.333 MPa

Tubes

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	114.000 MPa	180.000 MPa	114.000 MPa
Limite élastique Rtp1.0%	143.000 MPa	215.000 MPa	143.000 MPa
Résistance à la traction Rtm		470.000 MPa	
A%	40.0000	40.0000	40.0000
SigmaR 100000h			
Module d'élasticité	181400.000 MPa	195000.000 MPa	181400.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.340 10-6/°C	16.400 10-6/°C	17.340 10-6/°C
Contraintes	95.333 MPa	204.250 MPa	135.850 MPa
coefficients de sécurité	Rtp1/1.500000 Rtp1,0 : 1.500000	Min(Rtp1/1.052630, Rtm/2.000000) Rtp1,0 : 1.052630	Rpt1/1.052630 Rtp1 : 1.052630

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1 . DONNEES DE CALCUL**
**· Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 610.000 mm Intérieur (Di) = 600.500 mm  
Longueur enveloppe (Lréelle) = 1000.000 mm Moyen (Dm) = 605.250 mm  
Coefficient de soudure (z) = Sans

**· Situations d'études : Echappement - PS Normale 0,5 Bar @ 220°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.050 MPa	0.100 MPa	0.090 MPa
Pression extérieure	0.000 MPa	0.000 MPa	0.000 MPa
Température	220.000 °C	20.000 °C	220.000 °C
Contrainte (ft) (Ambiante 143.333 MPa)	95.333 MPa	204.250 MPa	135.850 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2 . RESULTATS**
**· Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.160 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.149 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.202 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement	0.158 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.147 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.199 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5
sur la longueur mini (l)	1.945 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	1.880 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	2.187 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**· Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.750 mm (12.5000 % de ép.commande)  
Epaisseur nominale de commande (etn) = **6.000** mm  
Epaisseur nominale de fabrication (etf) = 5.250 mm en-tol.fab.  
Epaisseur admise (et) = 4.750 mm (5\*ea) = 23.750 mm

P.int maxi admissible	1.496 MPa	3.206 MPa	2.132 MPa
Contrainte mini en P.int	3.186 MPa	6.371 MPa	5.734 MPa

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 600 - Epr 6 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 300.250 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement (X) = 1000.000 mm

Angle de placement ( $\beta$ ) = 180.000 deg

Orientation de la tubulure : Quelconque

Angle d'inclinaison dans le plan du corps ( $\beta_1$ ) = -35.820 degAngle d'inclinaison dans le plan perpendiculaire ( $\beta_2$ ) = 0.000 deg**La tubulure n'est pas autorenforsée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 1000.000 mm Lreelle

**· Situations d'études : Echappement - PS Normale 0,5 Bar @ 220°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	740.572 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	605.250 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	4.750 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.7956	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	4.750 mm	kt*e C5.1.2.3b

**Vérification de la position de l'ouverture selon C5.1.2.2(a) (Discontinuité)**

Longueur d'enveloppe participante	(L)	=	42.658 mm
Longueur extérieure de tubulure participante	(l)	=	53.618 mm
Longueur intérieure de tubulure participante	(l')	=	0.000 mm

### · Vérification de l'ouverture en isolé svt C5.1

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 7.507 mm  $0.14 \cdot \sqrt{D_m \cdot e}$

Section de l'enveloppe	(S)	=	230.451 mm <sup>2</sup>
Section de la tubulure	(St)	=	254.688 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	126260.009 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	50905.537 mm <sup>2</sup>
Section interne globale	(G)	=	177165.546 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	46852.223 N $S^*(f-0.5 \cdot P) + St^*(ft-0.5 \cdot P) + Sr^*(fr-0.5 \cdot P)$	99065.345 N $S^*(f-0.5 \cdot P) + St^*(ft-0.5 \cdot P) + Sr^*(f-0.5 \cdot P)$	63118.985 N $S^*(f-0.5 \cdot P) + St^*(f-0.5 \cdot P) + Sr^*(f-0.5 \cdot P)$
P.G	8858.277 N	17716.555 N	15944.899 N

Repère : **Piquage VS 011 - DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage DN 600 x 6 mm / Collecteur DN 900 x 10 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (H)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	520.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630



Repère : **Piquage VS 011 - DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 610.000 mm Intérieur (Di) = 600.000 mm  
Longueur enveloppe (Lréelle) = 500.000 mm Moyen (Dm) = 605.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.280 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.267 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.211 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.276 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.573 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.263 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.514 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.208 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.232 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 500.000 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 122.000000 L/De = 0.819672  
Coefficient A (A) = 0.00123650 Svt C4.9.2.1

Coefficient B C4-11	40.0712		37.1317
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>5.000</b> mm Svt C4.2.1.5.1d	0.438 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.548 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.731 mm		1.622 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **6.000** mm  
Epaisseur nominale de fabrication (etf) = 5.500 mm en-tol.fab.  
Epaisseur admise (et) = 5.000 mm (5\*ea) = 25.000 mm

P.int maxi admissible	1.620 MPa	3.769 MPa	2.151 MPa
Contrainte mini en P.int	5.445 MPa	12.100 MPa	5.445 MPa

Repère : **Piquage VS 011 - DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

- Anneau renfort**

**FICHE MATIERE : NF EN 10028-7****X2CrNi18-9 (H)****C4-11**M3 Acier inoxydable austénitique  
Contrainte à l'ambiante : 160.000 MPaToles  
Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	520.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage VS 011 - DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP**
**1 . DONNEES DE CALCUL**
**· Caractéristiques du support : Tuyauterie DN 900 - Epr 10 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 451.000 mm

**· Caractéristiques de la tubulure :**
**Placement et Orientation**

Position de placement

(X) = 440.000 mm

Angle de placement

( $\beta$ ) = 180.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

( $\beta_1$ ) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

( $\beta_2$ ) = 0.000 deg

**La tubulure n'est pas autorenforcée**
**La tubulure n'est pas extrudée**
**Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 500.000 mm Lreelle

**· Caractéristiques de l'anneau renfort :**

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (H)

Epaisseur de l'anneau renfort (er) = 10.000 mm

Largeur de l'anneau renfort (lr) = 85.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte (fr) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**
**2 . RESULTATS**

Diamètre d'ouverture	(d)	= 600.000 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	= 911.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	= 5.000 mm	C5.1.3h
Distance x0	(x0)	= 0.000 mm	C5.1.3h
Coefficient k0	(k0)	= 0.9453	C5.1.3
Coefficient kt	(kt)	= 1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	= 9.000 mm	kt*e C5.1.2.3b

**Vérification de la position de l'ouverture selon C5.1.2.2(a) (Discontinuité)**

Longueur d'enveloppe participante	(L)	= 85.594 mm
Longueur extérieure de tubulure participante	(l)	= 55.000 mm
Longueur intérieure de tubulure participante	(l')	= 0.000 mm



**625-6379 - NT-0001**

**Rév. A**

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**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 12.677 mm    0.14\*sqrt(Dm\*e)

Section de l'enveloppe	(S)	=	815.346 mm2
Section de la tubulure	(St)	=	275.000 mm2
Section du renfort	(Sr)	=	850.000 mm2
Section interne de l'enveloppe	(Ge)	=	176157.905 mm2
Section interne de la tubulure	(Gt)	=	19200.000 mm2
Section interne globale	(G)	=	195357.905 mm2

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	190066.613 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	442204.902 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	252448.744 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	17582.211 N	39071.581 N	17582.211 N

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage DN 600 x 6 mm / Collecteur DN 1200 x 10 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

### FICHE MATIERE : NF EN 10217-7

### X2CrNi18-9

### C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 143.333 MPa

Tubes

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	170.000 MPa	180.000 MPa	170.000 MPa
Limite élastique Rtp1.0%	205.000 MPa	215.000 MPa	205.000 MPa
Résistance à la traction Rtm		470.000 MPa	
A%	40.0000	40.0000	40.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	136.667 MPa Rtp1/1.500000	204.250 MPa Min(Rtp1/1.052630, Rtm/2.000000)	194.750 MPa Rpt1/1.052630
coefficients de sécurité	Rtp1,0 : 1.500000	Rtp1,0 : 1.052630	Rtp1 : 1.052630

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 610.000 mm Intérieur (Di) = 600.500 mm  
Longueur enveloppe (Lréelle) = 500.000 mm Moyen (Dm) = 605.250 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.010 MPa
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (ft) (Ambiante 143.333 MPa)	136.667 MPa	204.250 MPa	194.750 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.045 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.045 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.078 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.044 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.027 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.044 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.029 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.077 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.361 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 529.000 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 128.421053 L/De = 0.867213  
Coefficient A (A) = 0.00107438 Svt C4.9.2.1

Coefficient B C4-11	60.7211		60.7211
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>4.750</b> mm Svt C4.2.1.5.1d	0.630 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.851 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.714 mm		0.634 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.750 mm (12.5000 % de ép.commande)  
Epaisseur nominale de commande (etn) = **6.000** mm  
Epaisseur nominale de fabrication (etf) = 5.250 mm en-tol.fab.  
Epaisseur admise (et) = 4.750 mm (5\*ea) = 23.750 mm



P.int maxi admissible	2.145 MPa	3.206 MPa	3.057 MPa
Contrainte mini en P.int	1.274 MPa	1.911 MPa	3.186 MPa

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**

Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Anneau renfort

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (H)**

C4-11

M3 Acier inoxydable austénitique  
Contrainte à l'ambiante : 160.000 MPa

Toles  
Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	186.750 MPa	200.000 MPa	186.750 MPa
Limite élastique Rtp1.0%	225.250 MPa	240.000 MPa	225.250 MPa
Résistance à la traction Rtm	492.500 MPa	520.000 MPa	492.500 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Contraintes	150.167 MPa	228.000 MPa	213.988 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage DN 600 - Epr 6 mm**

Référence :

Matériaux : Norme : **NF EN 10217-7**Nuance : **X2CrNi18-9**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 10 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 1900.000 mm

Angle de placement

(β) = 0.000 deg

Orientation de la tubulure : Quelconque

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 500.000 mm Lreelle

**· Caractéristiques de l'anneau renfort :**

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (H)

Epaisseur de l'anneau renfort (er) = 9.500 mm

Largeur de l'anneau renfort (lr) = 100.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte (fr) (Ambiante 160.000 MPa)	150.167 MPa	228.000 MPa	213.988 MPa

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	600.500 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1211.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	4.750 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.9635	C5.1.3
Coefficient kt	(kt)	=	1.2603	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	11.343 mm	kt*e C5.1.2.3b

**Verification en tubulures voisines C5.2.4 : 'Piquage DN 600 - Epr 6 mm' avec 'Piquage DN 150 - Sch 40S'**

Longueur d'enveloppe participante (L) = 100.588 mm

Longueur extérieure de tubulure participante (l) = 53.618 mm

Longueur intérieure de tubulure participante (l') = 0.000 mm



**625-6379 - NT-0001**

**Rév. A**

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**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 14.616 mm 0.14\*sqrt(Dm\*e)

Section de l'enveloppe	(S)	=	948.039 mm <sup>2</sup>
Section de la tubulure	(St)	=	254.688 mm <sup>2</sup>
Section du renfort	(Sr)	=	950.000 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	243758.217 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	18801.188 mm <sup>2</sup>
Section interne globale	(G)	=	262559.405 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	319808.752 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	484740.645 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	455704.257 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	5251.188 N	7876.782 N	13127.970 N

Repère : **Trou d'Homme DN 700 - Epr 8 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Trou d'Homme DN 700 - Epr 8 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (H)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	520.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Trou d'Homme DN 700 - Epr 8 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 716.000 mm Intérieur (Di) = 702.000 mm  
Longueur enveloppe (Lréelle) = 500.000 mm Moyen (Dm) = 709.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.329 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.314 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.247 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.322 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.010 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.308 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.942 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.243 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.612 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 587.500 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 102.285714 L/De = 0.820531  
Coefficient A (A) = 0.00161109 Svt C4.9.2.1

Coefficient B C4-11	41.9499		38.8592
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour 7.000 mm Svt C4.2.1.5.1d	0.547 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.684 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.859 mm		1.905 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **8.000** mm  
Epaisseur nominale de fabrication (etf) = 7.500 mm en-tol.fab.  
Epaisseur admise (et) = 7.000 mm (5\*ea) = 35.000 mm

P.int maxi admissible	1.935 MPa	4.502 MPa	2.570 MPa
Contrainte mini en P.int	4.558 MPa	10.129 MPa	4.558 MPa



Repère : **Trou d'Homme DN 700 - Epr 8 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 15 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 3920.000 mm

Angle de placement

(β) = -90.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 500.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture

(d) = 702.000 mm

Diamètre d'ouverture maxi selon C5.1.2.1

(dmaxi) = 1216.000 mm MIN(Dm;16\*SQRT(Dm\*e))

Epaisseur admise moyenne sur la longueur l

(etm) = 7.000 mm C5.1.3h

Distance x0

(x0) = 0.000 mm C5.1.3h

Coefficient k0

(k0) = 0.9712 C5.1.3

Coefficient kt

(kt) = 1.0567 C5.1.2.3

Epaisseur admise maxi de tubulure

(etmaxi) = 14.794 mm kt\*e C5.1.2.3b

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 18.267 mm  $0.14 \cdot \sqrt{Dm \cdot e}$

Section de l'enveloppe	(S)	=	1872.137 mm <sup>2</sup>
Section de la tubulure	(St)	=	493.140 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	291319.157 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	29641.446 mm <sup>2</sup>
Section interne globale	(G)	=	320960.603 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	231690.681 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	539046.564 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	307734.328 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$
P.G	28886.454 N	64192.121 N	28886.454 N

Repère : **Piquage DN 900 - Epr 20 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Té Egal DN 900 - Epr 20 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (P)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage DN 900 - Epr 20 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 940.000 mm Intérieur (Di) = 902.000 mm  
Longueur enveloppe (Lréelle) = 880.000 mm Moyen (Dm) = 921.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.431 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.412 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.325 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.414 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.867 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.396 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.780 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.312 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.356 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 899.500 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 49.473684 L/De = 0.956915  
Coefficient A (A) = 0.00411513 Svt C4.9.2.1

Coefficient B C4-11	49.2914		45.6539
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>19.000</b> mm Svt C4.2.1.5.1d	1.328 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		1.661 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	1.200 mm		2.653 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **20.000** mm  
Epaisseur nominale de fabrication (etf) = 19.500 mm en-tol.fab.  
Epaisseur admise (et) = 19.000 mm (5\*ea) = 95.000 mm

P.int maxi admissible	4.043 MPa	9.407 MPa	5.370 MPa
Contrainte mini en P.int	2.181 MPa	4.847 MPa	2.181 MPa

Repère : **Piquage DN 900 - Epr 20 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 900 - Epr 20 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 451.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 773.000 mm

Angle de placement

(β) = 90.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Plaine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 880.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	902.000 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	921.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	19.000 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.9413	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	19.000 mm	kt*e C5.1.2.3b

**Vérification de la position de l'ouverture selon C5.1.2.2(a) (Discontinuité)**

Longueur d'enveloppe participante	(L)	=	124.516 mm
Longueur extérieure de tubulure participante	(l)	=	132.284 mm
Longueur intérieure de tubulure participante	(l')	=	0.000 mm

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 18.520 mm  $0.14 \cdot \sqrt{D_m \cdot e}$

Section de l'enveloppe	(S)	=	2726.800 mm <sup>2</sup>
Section de la tubulure	(St)	=	2513.392 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	268126.611 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	68228.987 mm <sup>2</sup>
Section interne globale	(G)	=	336355.599 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	513302.961 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	1194239.648 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	681775.118 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	30272.004 N	67271.120 N	30272.004 N

Repère : **Piquage DN 900 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage DN 900 x 10 mm / Collecteur DN 1200 x 10 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (H)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	520.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630



Repère : **Piquage DN 900 - Epr 10 mm**  
Matériaux : Norme : **NF EN 10028-7**  
No de courbes suivant CODAP 2010

Référence :  
Nuance : **X2CrNi18-9 (H)**  
**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 920.000 mm Intérieur (Di) = 902.000 mm  
Longueur enveloppe (Lréelle) = 1051.000 mm Moyen (Dm) = 911.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.422 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.403 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.318 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.414 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.867 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.396 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.780 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.312 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 3.356 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 1051.000 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 102.222222 L/De = 1.142391  
Coefficient A (A) = 0.00113342 Svt C4.9.2.1

Coefficient B C4-11	39.4718		36.5804
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>9.000</b> mm Svt C4.2.1.5.1d	0.515 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.644 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	1.252 mm		2.803 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **10.000** mm  
Epaisseur nominale de fabrication (etf) = 9.500 mm en-tol.fab.  
Epaisseur admise (et) = 9.000 mm (5\*ea) = 45.000 mm

P.int maxi admissible	1.936 MPa	4.505 MPa	2.572 MPa
Contrainte mini en P.int	4.555 MPa	10.122 MPa	4.555 MPa

Repère : **Piquage DN 900 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Anneau renfort

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (P)**

C4-11

M3 Acier inoxydable austénitique  
Contrainte à l'ambiante : 160.000 MPa

Toles  
Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage DN 900 - Epr 10 mm**  
Matériaux : Norme : **NF EN 10028-7**  
No de courbes suivant CODAP 2010Référence :  
Nuance : **X2CrNi18-9 (H)**  
**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 10 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 678.000 mm

Angle de placement

(β) = 0.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 1051.000 mm Lreelle

**· Caractéristiques de l'anneau renfort :**

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P)

Epaisseur de l'anneau renfort (er) = 9.500 mm

Largeur de l'anneau renfort (lr) = 90.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Contrainte (fr) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	902.000 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1211.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	9.000 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.9033	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	9.000 mm	kt*e C5.1.2.3b

**Vérification de la position de l'ouverture selon C5.1.2.2(a) (Discontinuité)**

Longueur d'enveloppe participante	(L)	=	94.306 mm
Longueur extérieure de tubulure participante	(l)	=	90.548 mm
Longueur intérieure de tubulure participante	(l')	=	0.000 mm



**625-6379 - NT-0001**

**Rév. A**

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**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 14.616 mm 0.14\*sqrt(Dm\*e)

Section de l'enveloppe	(S)	=	929.758 mm2
Section de la tubulure	(St)	=	814.935 mm2
Section du renfort	(Sr)	=	855.000 mm2
Section interne de l'enveloppe	(Ge)	=	333138.186 mm2
Section interne de la tubulure	(Gt)	=	44896.297 mm2
Section interne globale	(G)	=	378034.482 mm2

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	254652.943 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	592470.070 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	338233.078 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	34023.103 N	75606.896 N	34023.103 N

Repère : **Piquage DR 01 / 02 - DN 900 - Epr 10 mm** Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage DN 900 x 10 mm / Collecteur DN 1200 x 15 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (H)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	520.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage DR 01 / 02 - DN 900 - Epr 10** Référence :  
mm

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**

### 1 . DONNEES DE CALCUL

#### · Caractéristiques :

Diamètre de l'enveloppe Extérieur (De)	= 920.000 mm	Intérieur (Di) = 902.000 mm
Longueur enveloppe (Lréelle)	= 415.000 mm	Moyen (Dm) = 911.000 mm
Coefficient de soudure (z)	= Sans	

#### · Situations d'études : Service - PS Normale 0,9 Bar @ 200°C

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft)	98.000 MPa	228.000 MPa	130.150 MPa
(Ambiante 160.000 MPa)			
Module d'élasticité			
Corrosion	Interne = 0.500 mm	Externe = 0.000 mm	

### 2 . RESULTATS

#### · Calcul en pression intérieure svt C2.1

Epaisseur mini en pression intérieure (e)	0.422 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.403 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.318 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement	0.414 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.396 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5	0.312 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5
sur la longueur mini (l)	3.867 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	3.780 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	3.356 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

#### · Calcul en pression extérieure svt C4.2.1

Longueur non soutenue (L)	= 524.000 mm	Svt Figures C4.2.1.4a,b,c,d
Rapports De/ea	= 102.222222	L/De = 0.569565
Coefficient A (A)	= 0.00239404	Svt C4.9.2.1

Coefficient B C4-11	44.9155		41.5960
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>9.000</b> mm Svt C4.2.1.5.1d	0.586 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.732 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	0.950 mm		2.109 mm

#### · Fabrication

Tolérance de fabrication (Tol.Fab.)	= 0.500 mm	
Epaisseur nominale de commande (etn)	= <b>10.000</b> mm	
Epaisseur nominale de fabrication (etf)	= 9.500 mm	en-tol.fab.



Epaisseur admise (et) = 9.000 mm (5\*ea) = 45.000 mm

P.int maxi admissible	1.936 MPa	4.505 MPa	2.572 MPa
Contrainte mini en P.int	4.555 MPa	10.122 MPa	4.555 MPa

Repère : **Piquage DR 01 / 02 - DN 900 - Epr 10** Référence :Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 15 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 2000.000 mm

Angle de placement

(β) = 180.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 415.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	902.000 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1216.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	9.000 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.9393	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	14.000 mm	kt*e C5.1.2.3b

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 18.267 mm  $0.14 \cdot \sqrt{Dm \cdot e}$

Section de l'enveloppe	(S)	=	1841.803 mm <sup>2</sup>
Section de la tubulure	(St)	=	814.935 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	350116.991 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	47151.297 mm <sup>2</sup>
Section interne globale	(G)	=	397268.287 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	260240.811 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	605470.684 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)	345654.951 N S*(f-0.5*P)+St*(ft- 0.5*P)+Sr*(fr-0.5*P)
P.G	35754.146 N	79453.657 N	35754.146 N

Repère : **Piquage N1 - DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

- Piquage Droit DN 1200 x 10 mm / Collecteur DN 1200 x 15 mm**

**SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

**FICHE MATIERE : NF EN 10028-7****X2CrNi18-9 (H)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	186.750 MPa	200.000 MPa	186.750 MPa
Limite élastique Rtp1.0%	225.250 MPa	240.000 MPa	225.250 MPa
Résistance à la traction Rtm	492.500 MPa	520.000 MPa	492.500 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	150.167 MPa	228.000 MPa	213.988 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage N1 - DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 1220.000 mm Intérieur (Di) = 1202.000 mm  
Longueur enveloppe (Lréelle) = 2034.000 mm Moyen (Dm) = 1211.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.010 MPa
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	150.167 MPa	228.000 MPa	213.988 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.081 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.080 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.143 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.080 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.962 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.079 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.950 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.140 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.599 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 2101.500 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 135.555556 L/De = 1.722541  
Coefficient A (A) = 0.00048310 Svt C4.9.2.1

Coefficient B C4-11	47.0709		47.0709
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>9.000</b> mm Svt C4.2.1.5.1d	0.463 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.625 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	1.882 mm		1.663 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **10.000** mm  
Epaisseur nominale de fabrication (etf) = 9.500 mm en-tol.fab.  
Epaisseur admise (et) = 9.000 mm (5\*ea) = 45.000 mm

P.int maxi admissible	2.232 MPa	3.389 MPa	3.181 MPa
Contrainte mini en P.int	1.346 MPa	2.018 MPa	3.364 MPa

Repère : **Piquage N1 - DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 15 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 596.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 1500.000 mm

Angle de placement

(β) = 0.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 2034.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	1202.000 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1206.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	9.000 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.8906	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	14.000 mm	kt*e C5.1.2.3b

**Verification en tubulures voisines C5.2.4 : 'Piquage N1 - DN 1200 - Epr 10 mm' avec 'Piquage VS-08 - DN 1200 - Epr 10 mm'**

Longueur d'enveloppe participante	(L)	=	115.725 mm
Longueur extérieure de tubulure participante	(l)	=	104.398 mm
Longueur intérieure de tubulure participante	(l')	=	0.000 mm

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 18.191 mm  $0.14 \cdot \sqrt{Dm \cdot e}$

Section de l'enveloppe	(S)	=	1746.150 mm <sup>2</sup>
Section de la tubulure	(St)	=	939.584 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	432532.091 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	71157.364 mm <sup>2</sup>
Section interne globale	(G)	=	503689.454 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	403281.800 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	612307.126 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	574647.760 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$
P.G	10073.789 N	15110.684 N	25184.473 N



Repère : **Piquage VS-08 - DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage Incliné DN 1200 x 10 mm / Collecteur DN 1200 x 15 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (H)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	186.750 MPa	200.000 MPa	186.750 MPa
Limite élastique Rtp1.0%	225.250 MPa	240.000 MPa	225.250 MPa
Résistance à la traction Rtm	492.500 MPa	520.000 MPa	492.500 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	150.167 MPa	228.000 MPa	213.988 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Piquage VS-08 - DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 1220.000 mm Intérieur (Di) = 1202.000 mm  
Longueur enveloppe (Lréelle) = 1751.000 mm Moyen (Dm) = 1211.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.010 MPa
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	150.167 MPa	228.000 MPa	213.988 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.081 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.080 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.143 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.080 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.962 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.079 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 1.950 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.140 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 2.599 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 1055.700 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 135.555556 L/De = 0.865328  
Coefficient A (A) = 0.00100078 Svt C4.9.2.1

Coefficient B C4-11	59.7821		59.7821
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>9.000</b> mm Svt C4.2.1.5.1d	0.588 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.794 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	1.427 mm		1.267 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **10.000** mm  
Epaisseur nominale de fabrication (etf) = 9.500 mm en-tol.fab.  
Epaisseur admise (et) = 9.000 mm (5\*ea) = 45.000 mm

P.int maxi admissible	2.232 MPa	3.389 MPa	3.181 MPa
Contrainte mini en P.int	1.346 MPa	2.018 MPa	3.364 MPa

Repère : **Piquage VS-08 - DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**TUBULURE pénétrante svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 15 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 596.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement (X) = 3010.000 mm

Angle de placement ( $\beta$ ) = -90.000 deg

Orientation de la tubulure : Quelconque

Angle d'inclinaison dans le plan du corps ( $\beta_1$ ) = -35.820 degAngle d'inclinaison dans le plan perpendiculaire ( $\beta_2$ ) = 0.000 deg**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 940.700 mm Lreelle-e-l't

Longueur du dépassement intérieur (l't) = 796.300 mm

Epaisseur du dépassement intérieur (e't) = 0.001 mm

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	1482.378 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1206.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	9.000 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.8457	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	14.000 mm	kt*e C5.1.2.3b

**Verification en tubulures voisines C5.2.4 : 'Piquage VS-08 - DN 1200 - Epr 10 mm' avec 'Piquage N1 - DN 1200 - Epr 10 mm'**

Longueur d'enveloppe participante	(L)	=	109.884 mm
Longueur extérieure de tubulure participante	(l)	=	104.398 mm
Longueur intérieure de tubulure participante	(l')	=	0.548 mm

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 18.191 mm  $0.14 \cdot \sqrt{Dm \cdot e}$

Section de l'enveloppe	(S)	=	1538.373 mm <sup>2</sup>
Section de la tubulure	(St)	=	1094.976 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	516865.590 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	205421.035 mm <sup>2</sup>
Section interne globale	(G)	=	722286.625 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	395415.739 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	600364.001 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	563439.186 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$
P.G	14445.732 N	21668.599 N	36114.331 N

Repère : **Réserve DN 1200 - Epr 10 mm**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (H)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Piquage DN 1200 x 10 mm / Collecteur DN 1200 x 15 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (H)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	520.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

Repère : **Réserve DN 1200 - Epr 10 mm**  
Matériaux : Norme : **NF EN 10028-7**  
No de courbes suivant CODAP 2010

Référence :  
Nuance : **X2CrNi18-9 (H)**  
**C4-11**

Revision :

**ENVELOPPE CYLINDRIQUE (TUBULURE) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C2.1 / C4.2.1

**CALCUL CONFORME AU CODAP**
**1. DONNEES DE CALCUL**
**Caractéristiques :**

Diamètre de l'enveloppe Extérieur (De) = 1200.000 mm Intérieur (Di) = 1182.000 mm  
Longueur enveloppe (Lréelle) = 1100.000 mm Moyen (Dm) = 1191.000 mm  
Coefficient de soudure (z) = Sans

**Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficient de soudure	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3	1.0000 Svt C2.1.3
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Pression extérieure	0.010 MPa	0.000 MPa	0.095 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (ft) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa
Module d'élasticité			

Corrosion Interne = 0.500 mm Externe = 0.000 mm

**2. RESULTATS**
**Calcul en pression intérieure svt C2.1**

Epaisseur mini en pression intérieure (e)	0.551 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.526 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3	0.415 mm $P_i \cdot D_e / (2 \cdot f \cdot z + P_i)$ C2.1.4.3
Epaisseur mini (e0) au raccordement sur la longueur mini (l)	0.543 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 5.068 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.519 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 4.953 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)	0.409 mm $(P_i \cdot D_i) / (2 \cdot f \cdot P)$ C2.1.5 4.397 mm $0.2 \cdot \sqrt{(D_i + e_0) \cdot e_0}$ C2.1.5(b)

**Calcul en pression extérieure svt C4.2.1**

Longueur non soutenue (L) = 1197.500 mm Svt Figures C4.2.1.4a,b,c,d  
Rapports De/ea = 133.333333 L/De = 0.997917  
Coefficient A (A) = 0.00088061 Svt C4.9.2.1

Coefficient B C4-11	37.7845		35.0280
Pression ext. maxi Pa(1)			
Pression ext. maxi Pa(2)			
P.ext. Maxi Pa pour <b>9.000</b> mm Svt C4.2.1.5.1d	0.378 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$		0.473 MPa $4/3 \cdot (B / (D_e / e)) \cdot K$
Epaisseur mini P.ext	1.554 mm		3.446 mm

**Fabrication**

Tolérance de fabrication (Tol.Fab.) = 0.500 mm  
Epaisseur nominale de commande (etn) = **10.000** mm  
Epaisseur nominale de fabrication (etf) = 9.500 mm en-tol.fab.  
Epaisseur admise (et) = 9.000 mm (5\*ea) = 45.000 mm

P.int maxi admissible	1.481 MPa	3.446 MPa	1.967 MPa
Contrainte mini en P.int	5.955 MPa	13.233 MPa	5.955 MPa



Repère : **Réserve DN 1200 - Epr 10 mm**  
Matériaux : Norme : **NF EN 10028-7**  
No de courbes suivant CODAP 2010Référence :  
Nuance : **X2CrNi18-9 (H)**  
**C4-11**

Revision :

**TUBULURE posée svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C5.1 / C5.2

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du support : Tuyauterie DN 1200 - Epr 15 mm**

Type : Enveloppe cylindrique

Rayon intérieur du support au droit de l'ouverture (Ri) = 601.000 mm

**· Caractéristiques de la tubulure :****Placement et Orientation**

Position de placement

(X) = 3920.000 mm

Angle de placement

(β) = 90.000 deg

Orientation de la tubulure : Radiale

Angle d'inclinaison dans le plan du corps

(β1) = 0.000 deg

Angle d'inclinaison dans le plan perpendiculaire

(β2) = 0.000 deg

**La tubulure n'est pas autorenforcée****La tubulure n'est pas extrudée****Autre Dimensionnel**

Pleine tôle

Longueur de tubulure disponible selon C5.1.3 (lt) = 1100.000 mm Lreelle

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C****2 . RESULTATS**

Diamètre d'ouverture	(d)	=	1182.000 mm	
Diamètre d'ouverture maxi selon C5.1.2.1	(dmaxi)	=	1216.000 mm	MIN(Dm;16*SQRT(Dm*e))
Epaisseur admise moyenne sur la longueur l	(etm)	=	9.000 mm	C5.1.3h
Distance x0	(x0)	=	0.000 mm	C5.1.3h
Coefficient k0	(k0)	=	0.8946	C5.1.3
Coefficient kt	(kt)	=	1.0000	C5.1.2.3
Epaisseur admise maxi de tubulure	(etmaxi)	=	14.000 mm	kt*e C5.1.2.3b

**· Vérification de l'ouverture en isolé svt C5.1**

Diamètre d'ouverture mini conditionnant la vérification (dmini) = 18.267 mm  $0.14 \cdot \sqrt{D_m \cdot e}$

Section de l'enveloppe	(S)	=	1760.137 mm <sup>2</sup>
Section de la tubulure	(St)	=	931.793 mm <sup>2</sup>
Section interne de l'enveloppe	(Ge)	=	430751.157 mm <sup>2</sup>
Section interne de la tubulure	(Gt)	=	69461.769 mm <sup>2</sup>
Section interne globale	(G)	=	500212.926 mm <sup>2</sup>

	NORMALE	EPREUVE	EXCEPTIONNELLE
S(f-0.5P) + St(ft-0.5P) + Sr(fr-0.5P)	263688.024 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	613490.895 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$	350233.580 N $S \cdot (f-0.5 \cdot P) + St \cdot (ft-0.5 \cdot P) + Sr \cdot (fr-0.5 \cdot P)$
P.G	45019.163 N	100042.585 N	45019.163 N

- Brides avec Joints FF - "Full-Face"**

Repère : **Plate DN 1200 - PN 25 - Type 01A - FF** Référence :Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

- Bride DN 1200 - PN 25 - Type 01A - FF**

**SITUATIONS D'ETUDES : Service CPO - PS Maxi 7,8 Bar @ 50°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.780 MPa	1.200 MPa	
Pressions extérieures	0.095 MPa		
Températures	50.000 °C	20.000 °C	

**FICHE MATIERE : NF EN 10028-7 X2CrNi18-9 (P) C4-11**

M3 Acier inoxydable austénitique

Toles

Contrainte à l'ambiante : 160.000 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	180.125 MPa	200.000 MPa	
Limite élastique Rtp1.0%	217.875 MPa	240.000 MPa	
Résistance à la traction Rtm	466.250 MPa	500.000 MPa	
A%	45.0000	45.0000	
SigmaR 100000h			
Module d'élasticité	193125.000 MPa	195000.000 MPa	
Coeff. de dilatation x 10 <sup>6</sup>	16.550 10-6/°C	16.400 10-6/°C	
Contraintes	145.250 MPa	228.000 MPa	
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	

**Boulonnerie****FICHE MATIERE : SA-193 Bolting B8M S31600 1 [356-5]**

M3 Acier inoxydable austénitique

Bolting

Contrainte à l'ambiante : 129.277 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	139.633 MPa	206.843 MPa	
Résistance à la traction Rtm	495.168 MPa	517.107 MPa	

A%			
SigmaR 100000h			
Module d'élasticité	179194.734 MPa	195194.626 MPa	
Contraintes	123.792 MPa	172.369 MPa	
coefficients de sécurité	min (Rtp1/2.000000,Rtm/4.000000) Rtm : 4.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	

Repère : **Plate DN 1200 - PN 25 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1 . DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 1200 - PN 25 - Type 01A - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 1530.000 mm

Largeur réelle (LJ) = 155.000 mm Epaisseur réelle (eJ) = 1.500 mm

Diam.ext.portée de joint (Go) = 1530.000 mm Diam.int.portée de joint (Gi) = 1220.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie DN 1200 - PN 25**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M S31600 1 [356-5]

Sollicitation : Service CPO - PS 4 Bar @ 250°C

32 Boulons **D Normalisé : 52 mm** (Φ 52.000 mm) Section (ab) : 1757.000 mm<sup>2</sup> Pas : 5.000 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 56.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	250.000 °C	20.000 °C	
Contrainte (fb) (Ambiante 129.277 MPa)	123.792 MPa	172.369 MPa	

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service CPO - PS Maxi 7,8 Bar @ 50°C

Diamètre intérieur (B) = 1220.000 mm Diamètre extérieur (A) = 1530.000 mm

Diamètre cercle perçage (C) = 1420.000 mm

Epaisseur admise (ep) = 49.500 mm

**· Situations d'études : Service CPO - PS Maxi 7,8 Bar @ 50°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.780 MPa	1.200 MPa	
Température	50.000 °C	20.000 °C	
Contrainte (f) (Ambiante 160.000 MPa)	145.250 MPa	228.000 MPa	
Corrosion	Interne (ci) = 0.500 mm      Externe (ce) = 0.000 mm		

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 110.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 41.952 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 1359.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 3181584.574 N	PI*b'*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP) C6.4.6b1	3731615.663 N PI/4.0*G^2*P+HG+HR	5740947.174 N PI/4.0*G^2*P+HG+HR	

Section boulon nécessaire C6.4.6c	30144.239 mm2 MAX(WA/fbA,WP/fb)	33306.147 mm2 MAX(WA/fbA,WP/fb)	
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Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>33306.147 mm2</b> MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>56224.000 mm2</b> n*ab
Nombre mini de boulons	(nmin)		= 18.9563 Abmin/ab
Distance	(hT)	C6.5.5e4	= 65.250 mm (2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 100.000 mm (C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 30.500 mm (C-G)/2
Distance	(hL)		=
Distance	(hR)	C6.4.6b4	= 41.500 mm (Go-C+dh)/4

Effort (HT) C6.5.5e2	219609.249 N PI/4*(G^2-B^2)*P	337860.383 N PI/4*(G^2-B^2)*P	
Effort (HD) C6.5.5e1	911809.569 N PI/4*B^2*P	1402783.952 N PI/4*B^2*P	
Effort (HG) C6.4.6b2	33301.510 N 2*PI*b''*G*m*P	51233.093 N 2*PI*b''*G*m*P	

Effort (HR) C6.4.6b3	2566895.335 N 1/hR*(M1*k2+M2*k1)/(k1+k2)	3949069.747 N 1/hR*(M1*k2+M2*k1)/(k1+k2)	
Module élasticité bride (E)	193125.000 MPa	195000.000 MPa	
Module élasticité adj. (E)	193125.000 MPa	195000.000 MPa	
Rigidité (k1) C6.5.5g	2776908123.988 N/mm PI/6*E*e^3*ln(K)	2803868397.036 N/mm PI/6*E*e^3*ln(K)	
Rigidité (k2) C6.5.5g	2776908123.988 N/mm PI/6*E*e^3*ln(K)	2803868397.036 N/mm PI/6*E*e^3*ln(K)	
Moment (M1) C6.5.5d	106526156.414 mmN HD*hD+HT*hT+HG*hG	163886394.483 mmN HD*hD+HT*hT+HG*hG	
Moment (M2) C6.5.5d	106526156.414 mmN HD*hD+HT*hT+HG*hG	163886394.483 mmN HD*hD+HT*hT+HG*hG	
Moment (Mr) C6.5.5c1	106526156.414 mmN M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	163886394.483 mmN M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	
Moment (MTheta) C6.5.5c2	0.000 mmN (M2-M1)*k1/(k1+k2)	0.000 mmN (M2-M1)*k1/(k1+k2)	

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>49.500 mm</b>	ep
Coefficient	(kF)	C6.5.3.3	= 1.0733	2/3*(1+B/2000)

Coefficient	(K)	C6.5.3.2	= 1.254098	A/B
Coefficient	(CF)	C6.5.3.1	= 1.0000	MAX[1,sqrt((PI*C/n)/(2* db+(6*e)/(m+0.5)))]
(βY)	C6.5.3.4	= 8.7056	$1/(K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*\ln(K))/(K^2-1))$	



• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot Mr) / ((\pi \cdot C - n \cdot d_h) \cdot e^2) \cdot CF$		97.732 MPa <i>(f)145.250</i>	150.358 MPa <i>(f)228.000</i>	
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot CF$		0.000 MPa <i>(f/kF)135.326</i>	0.000 MPa <i>(f/kF)212.422</i>	

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		1449618.954 mmN	2230183.007 mmN	
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	41.000 mm	41.000 mm	
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>50.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	50.000 mm	en-tol.fab.
Epaisseur admise	(e) =	49.500 mm	ef-ci-ce

Repère : **Bride DN 1200 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • **Bride DN 1200 - PN 6 - Type 01A - FF**

### **SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### **FICHE MATIERE : NF EN 10028-7**

### **X2CrNi18-9 (P)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## **Boulonnerie**

### **FICHE MATIERE : SA-193 Bolting**

### **B8M2 S31600 <= 2 [356-14]**

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 131.000 MPa

Bolting

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	438.837 MPa	517.107 MPa	427.516 MPa
Résistance à la traction Rtm	610.627 MPa	655.002 MPa	608.807 MPa
A%			
SigmaR 100000h			
Module d'élasticité	182352.533 MPa	195194.626 MPa	179194.734 MPa

Contraintes	122.125 MPa	218.334 MPa	202.936 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 1200 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1 . DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 1200 - PN 6 - Type 01A - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 1375.000 mm

Largeur réelle (LJ) = 76.000 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 1375.000 mm Diam.int.portée de joint (Gi) = 1223.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 1200 - PN 6 - Type 01A - FF**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14]

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

32 Boulons **D Normalisé : 30 mm** (Φ 30.000 mm) Section (ab) : 561.000 mm<sup>2</sup> Pas : 3.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 33.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 131.000 MPa)	122.125 MPa	218.334 MPa	202.936 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 1223.000 mm Diamètre extérieur (A) = 1375.000 mm

Diamètre cercle perçage (C) = 1320.000 mm

Epaisseur admise (ep) = 21.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 55.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 29.665 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 1282.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 2091289.040 N	PI*b'*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP)	372035.439 N	826745.419 N	372035.439 N
C6.4.6b1	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR

Section boulon nécessaire	15964.038 mm2	15964.038 mm2	15964.038 mm2
C6.4.6c	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)

Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>15964.038 mm2</b> MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>17952.000 mm2</b> n*ab
Nombre mini de boulons	(nmin)		= 28.4564 Abmin/ab
Distance	(hT)	C6.5.5e4	= 33.750 mm (2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 48.500 mm (C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 19.000 mm (C-G)/2
Distance	(hL)		=
Distance	(hR)	C6.4.6b4	= 22.000 mm (Go-C+dh)/4

Effort (HT)	10447.013 N	23215.584 N	10447.013 N
C6.5.5e2	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)	105726.853 N	234948.562 N	105726.853 N
C6.5.5e1	PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)	3624.770 N	8055.044 N	3624.770 N
C6.4.6b2	2*PI*b''*G*m*P	2*PI*b''*G*m*P	2*PI*b''*G*m*P

Effort (HR)	252236.803 N	560526.230 N	252236.803 N
C6.4.6b3	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)
Module élasticité bride (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Module élasticité adj. (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Rigidité (k1)	111556735.638 N/mm	118871931.418 N/mm	109118337.045 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Rigidité (k2)	111556735.638 N/mm	118871931.418 N/mm	109118337.045 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Moment (M1)	5549209.673 mmN	12331577.051 mmN	5549209.673 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (M2)	5549209.673 mmN	12331577.051 mmN	5549209.673 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (Mr)	5549209.673 mmN	12331577.051 mmN	5549209.673 mmN
C6.5.5c1	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)
Moment (MTheta)	0.000 mmN	0.000 mmN	0.000 mmN
C6.5.5c2	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	<b>= 21.500 mm</b>	ep
Coefficient	(kF)	C6.5.3.3	= 1.0743	2/3*(1+B/2000)
Coefficient	(K)	C6.5.3.2	= 1.124285	A/B

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Coefficient	(CF)	C6.5.3.1	= 1.0776	$\text{MAX}[1, \sqrt{(\text{PI} \cdot \text{C} / \text{n}) / (2 \cdot \text{db} + (6 \cdot \text{e}) / (\text{m} + 0.5))}]$
( $\beta$ Y)	C6.5.3.4	= 16.5826	$1 / ((\text{K} - 1) \cdot (3 / \text{PI} \cdot (1 - \text{v}) + 6 / \text{PI} \cdot (1 + \text{v}) \cdot (\text{K}^2 \cdot \ln(\text{K})) / (\text{K}^2 - 1)))$	

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• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot M_r) / ((\pi \cdot C - n \cdot d_h) \cdot e^2) \cdot C_F$		25.112 MPa <i>(f)98.000</i>	55.804 MPa <i>(f)228.000</i>	25.112 MPa <i>(f)130.150</i>
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot C_F$		0.000 MPa <i>(f/kF)91.219</i>	0.000 MPa <i>(f/kF)212.225</i>	0.000 MPa <i>(f/kF)121.145</i>

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		472482.142 mmN	472482.142 mmN	472482.142 mmN
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	12.000 mm	12.000 mm	11.000 mm
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>22.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	22.000 mm	en-tol.fab.
Epaisseur admise	(e) =	21.500 mm	ef-ci-ce



Repère : **Bride DN 1000 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

- Bride DN 1000 - PN 6 - Type 01A - FF**

**SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

**FICHE MATIERE : NF EN 10028-7 X2CrNi18-9 (P) C4-11**

M3 Acier inoxydable austénitique

Toles

Contrainte à l'ambiante : 160.000 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	186.750 MPa	200.000 MPa	186.750 MPa
Limite élastique Rtp1.0%	225.250 MPa	240.000 MPa	225.250 MPa
Résistance à la traction Rtm	477.500 MPa	500.000 MPa	477.500 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	193750.000 MPa	195000.000 MPa	193750.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	16.500 10-6/°C	16.400 10-6/°C	16.500 10-6/°C
Contraintes	150.167 MPa	228.000 MPa	213.988 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

**Boulonnerie****FICHE MATIERE : SA-193 Bolting B8M2 S31600 <= 2 [356-14]**

M3 Acier inoxydable austénitique

Bolting

Contrainte à l'ambiante : 163.750 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	515.866 MPa	517.107 MPa	515.866 MPa
Résistance à la traction Rtm	655.002 MPa	655.002 MPa	655.002 MPa
A%			
SigmaR 100000h			
Module d'élasticité	193679.028 MPa	195194.626 MPa	193679.028 MPa

Contraintes	163.750 MPa	218.334 MPa	218.334 MPa
coefficients de sécurité	min (Rtp1/2.000000,Rtm/4.000000) Rtm : 4.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 1000 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1 . DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 1000 - PN 6 - Type 01A - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 1175.000 mm

Largeur réelle (LJ) = 75.000 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 1175.000 mm Diam.int.portée de joint (Gi) = 1025.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 1000 - PN 6 - Type 01A - FF**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14]

Sollicitation : Service - PS Normale 0,2 Bar @ 40°C

28 Boulons **D Normalisé : 27 mm** (Φ 27.000 mm) Section (ab) : 459.000 mm<sup>2</sup> Pas : 3.000 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 30.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (fb) (Ambiante 163.750 MPa)	163.750 MPa	218.334 MPa	218.334 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,2 Bar @ 40°C

Diamètre intérieur (B) = 1025.000 mm Diamètre extérieur (A) = 1175.000 mm

Diamètre cercle perçage (C) = 1120.000 mm

Epaisseur admise (ep) = 11.500 mm

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	150.167 MPa	228.000 MPa	213.988 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 55.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 29.665 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 1085.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 1774427.064 N	PI*b''*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP) C6.4.6b1	59665.844 N PI/4.0*G^2*P+HG+HR	89498.766 N PI/4.0*G^2*P+HG+HR	149164.609 N PI/4.0*G^2*P+HG+HR

Section boulon nécessaire C6.4.6c	10836.196 mm2 MAX(WA/fbA,WP/fb)	10836.196 mm2 MAX(WA/fbA,WP/fb)	10836.196 mm2 MAX(WA/fbA,WP/fb)
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Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>10836.196 mm2</b> MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>12852.000 mm2</b> n*ab
Nombre mini de boulons	(nmin)		= 23.6083 Abmin/ab
Distance	(hT)	C6.5.5e4	= 32.500 mm (2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 47.500 mm (C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 17.500 mm (C-G)/2
Distance	(hL)		=
Distance	(hR)	C6.4.6b4	= 21.250 mm (Go-C+dh)/4

Effort (HT) C6.5.5e2	1988.628 N PI/4*(G^2-B^2)*P	2982.942 N PI/4*(G^2-B^2)*P	4971.570 N PI/4*(G^2-B^2)*P
Effort (HD) C6.5.5e1	16503.179 N PI/4*B^2*P	24754.768 N PI/4*B^2*P	41257.947 N PI/4*B^2*P
Effort (HG) C6.4.6b2	681.726 N 2*PI*b''*G*m*P	1022.588 N 2*PI*b''*G*m*P	1704.314 N 2*PI*b''*G*m*P

Effort (HR) C6.4.6b3	40492.311 N 1/hR*(M1*k2+M2*k1)/(k1+k2)	60738.467 N 1/hR*(M1*k2+M2*k1)/(k1+k2)	101230.778 N 1/hR*(M1*k2+M2*k1)/(k1+k2)
Module élasticité bride (E)	193750.000 MPa	195000.000 MPa	193750.000 MPa
Module élasticité adj. (E)	0.000 MPa	0.000 MPa	0.000 MPa
Rigidité (k1) C6.5.5g	21072048.878 N/mm PI/6*E*e^3*ln(K)	21207997.581 N/mm PI/6*E*e^3*ln(K)	21072048.878 N/mm PI/6*E*e^3*ln(K)
Rigidité (k2)	21072048.878 N/mm	21207997.581 N/mm	21072048.878 N/mm
Moment (M1) C6.5.5d	860461.611 mmN HD*hD+HT*hT+HG*hG	1290692.417 mmN HD*hD+HT*hT+HG*hG	2151154.028 mmN HD*hD+HT*hT+HG*hG
Moment (M2)	860461.611 mmN	1290692.417 mmN	2151154.028 mmN
Moment (Mr) C6.5.5e1	860461.611 mmN M1+(M2- M1)*k1/(k1+k2)*ln(C/B)/ln(K)	1290692.417 mmN M1+(M2- M1)*k1/(k1+k2)*ln(C/B)/ln(K)	2151154.028 mmN M1+(M2- M1)*k1/(k1+k2)*ln(C/B)/ln(K)
Moment (MTheta) C6.5.5e2	0.000 mmN (M2-M1)*k1/(k1+k2)	0.000 mmN (M2-M1)*k1/(k1+k2)	0.000 mmN (M2-M1)*k1/(k1+k2)

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>11.500 mm</b>	ep
Coefficient	(kF)	C6.5.3.3	= 1.0083	2/3*(1+B/2000)
Coefficient	(K)	C6.5.3.2	= 1.146341	A/B

Coefficient	(CF)	C6.5.3.1	= 1.2410	$\text{MAX}[1, \sqrt{(\text{PI} \cdot \text{C} / \text{n}) / (2 \cdot \text{db} + (6 \cdot \text{e}) / (\text{m} + 0.5))}]$
( $\beta$ Y)	C6.5.3.4	= 14.2619	$1 / ((\text{K} - 1) \cdot (3 / \text{PI} \cdot (1 - \text{v}) + 6 / \text{PI} \cdot (1 + \text{v}) \cdot (\text{K}^2 \cdot \ln(\text{K})) / (\text{K}^2 - 1)))$	

• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot Mr) / ((\pi \cdot C - n \cdot dh) \cdot e^2) \cdot CF$		18.086 MPa <i>(f)150.167</i>	27.129 MPa <i>(f)228.000</i>	45.215 MPa <i>(f)213.988</i>
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot CF$		0.000 MPa <i>(f/kF)148.926</i>	0.000 MPa <i>(f/kF)226.116</i>	0.000 MPa <i>(f/kF)212.220</i>

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		411452.552 mmN	411452.552 mmN	411452.552 mmN
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	5.000 mm	5.000 mm	6.000 mm
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>12.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	12.000 mm	en-tol.fab.
Epaisseur admise	(e) =	11.500 mm	ef-ci-ce

Repère : **Bride DN 900 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

- Bride DN 900 - PN 6 - Type 01A - FF**

**SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10028-7****X2CrNi18-9 (P)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

**Boulonnerie****FICHE MATIERE : SA-193 Bolting****B8M2 S31600 <= 2 [356-14]**

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 131.000 MPa

Bolting

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	438.837 MPa	517.107 MPa	427.516 MPa
Résistance à la traction Rtm	610.627 MPa	655.002 MPa	608.807 MPa
A%			
SigmaR 100000h			
Module d'élasticité	182352.533 MPa	195194.626 MPa	179194.734 MPa



Contraintes	122.125 MPa	218.334 MPa	202.936 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 900 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

**CALCUL CONFORME AU CODAP****1 . DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 900 - PN 6 - Type 01A - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 1075.000 mm

Largeur réelle (LJ) = 75.000 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 1075.000 mm Diam.int.portée de joint (Gi) = 925.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 900 - PN 6 - Type 01A - FF**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14]

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

24 Boulons **D Normalisé : 30 mm** (Φ 30.000 mm) Section (ab) : 561.000 mm<sup>2</sup> Pas : 3.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 33.000 mm

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 131.000 MPa)	122.125 MPa	218.334 MPa	202.936 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 925.000 mm Diamètre extérieur (A) = 1075.000 mm

Diamètre cercle perçage (C) = 1020.000 mm

Epaisseur admise (ep) = 19.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 55.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 29.665 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 982.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 1615996.076 N	PI*b'*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP)	215534.082 N	478964.626 N	215534.082 N
C6.4.6b1	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR

Section boulon nécessaire	12335.848 mm2	12335.848 mm2	12335.848 mm2
C6.4.6c	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)

Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>12335.848 mm2</b>	MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>13464.000 mm2</b>	n*ab
Nombre mini de boulons	(nmin)		= 21.9890	Abmin/ab
Distance	(hT)	C6.5.5e4	= 33.250 mm	(2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 47.500 mm	(C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 19.000 mm	(C-G)/2
Distance	(hL)		=	
Distance	(hR)	C6.4.6b4	= 22.000 mm	(Go-C+dh)/4

Effort (HT)	7683.480 N	17074.399 N	7683.480 N
C6.5.5e2	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)	60480.567 N	134401.261 N	60480.567 N
C6.5.5e1	PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)	2776.540 N	6170.088 N	2776.540 N
C6.4.6b2	2*PI*b''*G*m*P	2*PI*b''*G*m*P	2*PI*b''*G*m*P

Effort (HR)	144593.495 N	321318.878 N	144593.495 N
C6.4.6b3	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)
Module élasticité bride (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Module élasticité adj. (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Rigidité (k1)	106772914.887 N/mm	113774417.503 N/mm	104439080.682 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Rigidité (k2)	106772914.887 N/mm	113774417.503 N/mm	104439080.682 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Moment (M1)	3181056.895 mmN	7069015.322 mmN	3181056.895 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (M2)	3181056.895 mmN	7069015.322 mmN	3181056.895 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (Mr)	3181056.895 mmN	7069015.322 mmN	3181056.895 mmN
C6.5.5c1	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)
Moment (MTheta)	0.000 mmN	0.000 mmN	0.000 mmN
C6.5.5c2	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">= 19.500 mm</div>	ep
Coefficient	(kF)	C6.5.3	= 1.0000	
Coefficient	(K)	C6.5.3.2	= 1.162162	A/B

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Coefficient	(CF)	C6.5.3.1	= 1.1181	$\text{MAX}[1, \sqrt{(\text{PI} \cdot \text{C} / \text{n}) / (2 \cdot \text{db} + (6 \cdot \text{e}) / (\text{m} + 0.5))}]$
(βY)	C6.5.3.4	= 12.9855	$1 / ((\text{K} - 1) \cdot (3 / \text{PI} \cdot (1 - \text{v}) + 6 / \text{PI} \cdot (1 + \text{v}) \cdot (\text{K}^2 \cdot \ln(\text{K})) / (\text{K}^2 - 1)))$	

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• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot M_r) / ((\pi \cdot C - n \cdot d_h) \cdot e^2) \cdot C F$		23.264 MPa <i>(f/kF)98.000</i>	51.698 MPa <i>(f)228.000</i>	23.264 MPa <i>(f)130.150</i>
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot C F$		0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		486799.783 mmN	486799.783 mmN	486799.783 mmN
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	11.000 mm	10.000 mm	9.000 mm
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>20.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	20.000 mm	en-tol.fab.
Epaisseur admise	(e) =	19.500 mm	ef-ci-ce

Repère : **Bride DN 700 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Bride DN 700 - PN 6 - Type 01A - FF

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7 X2CrNi18-9 (P) C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.20000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## Boulonnerie

### FICHE MATIERE : SA-193 Bolting B8M2 S31600 <= 2 [356-14]

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 131.000 MPa

Bolting

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	438.837 MPa	517.107 MPa	427.516 MPa
Résistance à la traction Rtm	610.627 MPa	655.002 MPa	608.807 MPa
A%			
SigmaR 100000h			
Module d'élasticité	182352.533 MPa	195194.626 MPa	179194.734 MPa

Contraintes	122.125 MPa	218.334 MPa	202.936 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000



Repère : **Bride DN 700 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1 . DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 600 - PN 6 - Type 01A - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 860.000 mm

Largeur réelle (LJ) = 70.000 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 860.000 mm Diam.int.portée de joint (Gi) = 720.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 600 - PN 6 - Type 01A - FF**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14]

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

24 Boulons **D Normalisé : 27 mm** (Φ 27.000 mm) Section (ab) : 459.000 mm<sup>2</sup> Pas : 3.000 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 30.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 131.000 MPa)	122.125 MPa	218.334 MPa	202.936 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 720.000 mm Diamètre extérieur (A) = 860.000 mm

Diamètre cercle perçage (C) = 810.000 mm

Epaisseur admise (ep) = 17.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 50.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 28.284 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 775.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 1223569.961 N	PI*b'*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP)	138093.724 N	306874.943 N	138093.724 N
C6.4.6b1	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR

Section boulon nécessaire	9340.229 mm2	9340.229 mm2	9340.229 mm2
C6.4.6c	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)

Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>9340.229 mm2</b> MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>11016.000 mm2</b> n*ab
Nombre mini de boulons	(nmin)		= 20.3491 Abmin/ab
Distance	(hT)	C6.5.5e4	= 31.250 mm (2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 45.000 mm (C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 17.500 mm (C-G)/2
Distance	(hL)		=
Distance	(hR)	C6.4.6b4	= 20.000 mm (Go-C+dh)/4

Effort (HT)	5812.143 N	12915.873 N	5812.143 N
C6.5.5e2	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)	36643.537 N	81430.082 N	36643.537 N
C6.5.5e1	PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)	2191.261 N	4869.469 N	2191.261 N
C6.4.6b2	2*PI*b''*G*m*P	2*PI*b''*G*m*P	2*PI*b''*G*m*P

Effort (HR)	93446.784 N	207659.520 N	93446.784 N
C6.4.6b3	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)
Module élasticité bride (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Module élasticité adj. (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Rigidité (k1)	91244202.797 N/mm	97227429.210 N/mm	89249793.993 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Rigidité (k2)	91244202.797 N/mm	97227429.210 N/mm	89249793.993 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Moment (M1)	1868935.679 mmN	4153190.397 mmN	1868935.679 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (M2)	1868935.679 mmN	4153190.397 mmN	1868935.679 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (Mr)	1868935.679 mmN	4153190.397 mmN	1868935.679 mmN
C6.5.5c1	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)
Moment (MTheta)	0.000 mmN	0.000 mmN	0.000 mmN
C6.5.5c2	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	<b>= 17.500 mm</b>	ep
Coefficient	(kF)	C6.5.3	= 1.0000	
Coefficient	(K)	C6.5.3.2	= 1.194444	A/B

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Coefficient	(CF)	C6.5.3.1	= 1.0509	$\text{MAX}[1, \sqrt{(\text{PI} \cdot \text{C} / \text{n}) / (2 \cdot \text{db} + (6 \cdot \text{e}) / (\text{m} + 0.5))}]$
(βY)	C6.5.3.4	= 11.0236	$1 / ((\text{K} - 1) \cdot (3 / \text{PI} \cdot (1 - \text{v}) + 6 / \text{PI} \cdot (1 + \text{v}) \cdot (\text{K}^2 \cdot \ln(\text{K})) / (\text{K}^2 - 1)))$	

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• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot M_r) / ((\pi \cdot C - n \cdot d_h) \cdot e^2) \cdot C_F$		21.089 MPa <i>(f)98.000</i>	46.865 MPa <i>(f)228.000</i>	21.089 MPa <i>(f)130.150</i>
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot C_F$		0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		331007.020 mmN	331007.020 mmN	331007.020 mmN
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	9.000 mm	9.000 mm	8.000 mm
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>18.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	18.000 mm	en-tol.fab.
Epaisseur admise	(e) =	17.500 mm	ef-ci-ce

Repère : **Bride DN 600 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Bride DN 600 - PN 6 - Type 01A - FF

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7 X2CrNi18-9 (P) C4-11

M3 Acier inoxydable austénitique

Toles

Contrainte à l'ambiante : 160.000 MPa

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## Boulonnerie

### FICHE MATIERE : SA-193 Bolting B8M2 S31600 <= 2 [356-14]

M3 Acier inoxydable austénitique

Bolting

Contrainte à l'ambiante : 131.000 MPa

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	438.837 MPa	517.107 MPa	427.516 MPa
Résistance à la traction Rtm	610.627 MPa	655.002 MPa	608.807 MPa
A%			
SigmaR 100000h			
Module d'élasticité	182352.533 MPa	195194.626 MPa	179194.734 MPa

Contraintes	122.125 MPa	218.334 MPa	202.936 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 600 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1 . DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 600 - PN 6 - Type 01A - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 755.000 mm

Largeur réelle (LJ) = 69.250 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 755.000 mm Diam.int.portée de joint (Gi) = 616.500 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 600 - PN 6 - Type 01A - FF**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14]

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

24 Boulons **D Normalisé : 24 mm** (Φ 24.000 mm) Section (ab) : 353.000 mm<sup>2</sup> Pas : 3.000 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 26.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 131.000 MPa)	122.125 MPa	218.334 MPa	202.936 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 616.500 mm Diamètre extérieur (A) = 755.000 mm

Diamètre cercle perçage (C) = 705.000 mm

Epaisseur admise (ep) = 14.500 mm



**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 50.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 28.284 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 674.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 1064959.040 N	PI*b'*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP)	106387.383 N	236416.406 N	106387.383 N
C6.4.6b1	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR

Section boulon nécessaire	8129.458 mm2	8129.458 mm2	8129.458 mm2
C6.4.6c	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)

Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>8129.458 mm2</b>	MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>8472.000 mm2</b>	n*ab
Nombre mini de boulons	(nmin)		= 23.0296	Abmin/ab
Distance	(hT)	C6.5.5e4	= 29.875 mm	(2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 44.250 mm	(C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 15.500 mm	(C-G)/2
Distance	(hL)		=	
Distance	(hR)	C6.4.6b4	= 19.000 mm	(Go-C+dh)/4

Effort (HT)	5245.154 N	11655.898 N	5245.154 N
C6.5.5e2	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)	26865.724 N	59701.609 N	26865.724 N
C6.5.5e1	PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)	1905.690 N	4234.867 N	1905.690 N
C6.4.6b2	2*PI*b''*G*m*P	2*PI*b''*G*m*P	2*PI*b''*G*m*P

Effort (HR)	72370.814 N	160824.032 N	72370.814 N
C6.4.6b3	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)
Module élasticité bride (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Module élasticité adj. (E)	183000.000 MPa	195000.000 MPa	179000.000 MPa
Rigidité (k1)	59199839.376 N/mm	63081796.057 N/mm	57905853.816 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Rigidité (k2)	59199839.376 N/mm	63081796.057 N/mm	57905853.816 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Moment (M1)	1375045.470 mmN	3055656.600 mmN	1375045.470 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (M2)	1375045.470 mmN	3055656.600 mmN	1375045.470 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (Mr)	1375045.470 mmN	3055656.600 mmN	1375045.470 mmN
C6.5.5c1	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)
Moment (MTheta)	0.000 mmN	0.000 mmN	0.000 mmN
C6.5.5c2	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	<b>= 14.500 mm</b>	ep
Coefficient	(kF)	C6.5.3	= 1.0000	
Coefficient	(K)	C6.5.3.2	= 1.224655	A/B

Coefficient	(CF)	C6.5.3.1	= 1.0557	$\text{MAX}[1, \sqrt{(\text{PI} \cdot \text{C} / \text{n}) / (2 \cdot \text{db} + (6 \cdot \text{e}) / (\text{m} + 0.5))}]$
( $\beta$ Y)	C6.5.3.4	= 9.6966	$1 / ((\text{K} - 1) \cdot (3 / \text{PI} \cdot (1 - \text{v}) + 6 / \text{PI} \cdot (1 + \text{v}) \cdot (\text{K}^2 \cdot \ln(\text{K})) / (\text{K}^2 - 1)))$	

• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot M_r) / ((\pi \cdot C - n \cdot d_h) \cdot e^2) \cdot C_F$		26.041 MPa <i>(f)98.000</i>	57.869 MPa <i>(f)228.000</i>	26.041 MPa <i>(f)130.150</i>
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot C_F$		0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		257481.130 mmN	257481.130 mmN	257481.130 mmN
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	8.000 mm	8.000 mm	7.000 mm
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>15.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	15.000 mm	en-tol.fab.
Epaisseur admise	(e) =	14.500 mm	ef-ci-ce

Repère : **Bride DN 400 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **SA-193 Bolting**

Nuance : **B8M2 S31600 <= 2 [356-14]**

No de courbes suivant CODAP 2010

Revision :

## • **Bride DN 400 - PN 6 - Type 01A - FF**

### **SITUATIONS D'ETUDES : Service - PS Normale 0,2 Bar @ 40°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.020 MPa	0.030 MPa	0.050 MPa
Pressions extérieures	0.010 MPa		0.010 MPa
Températures	40.000 °C	20.000 °C	40.000 °C

### **FICHE MATIERE : SA-193 Bolting B8M2 S31600 <= 2 [356-14]**

M3 Acier inoxydable austénitique

Bolting

Contrainte à l'ambiante : 163.750 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	515.866 MPa	517.107 MPa	515.866 MPa
Limite élastique Rtp1.0%			
Résistance à la traction Rtm	655.002 MPa	655.002 MPa	655.002 MPa
A%			
SigmaR 100000h			
Module d'élasticité	193679.028 MPa	195194.626 MPa	193679.028 MPa
Coeff. de dilatation x 10 <sup>6</sup>			
Contraintes	163.750 MPa	218.334 MPa	218.334 MPa
coefficients de sécurité	min (Rtp1/2.000000,Rtm/4.000000) Rtm : 4.000000	Min(Rtp1/1.500000,Rtm/3.000000) ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000) ) Rtm : 3.000000

## **Boulonnerie**

### **FICHE MATIERE : SA-193 Bolting B8M2 S31600 <= 2 [356-14]**

M3 Acier inoxydable austénitique

Bolting

Contrainte à l'ambiante : 163.750 MPa

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	515.866 MPa	517.107 MPa	515.866 MPa
Résistance à la traction Rtm	655.002 MPa	655.002 MPa	655.002 MPa
A%			
SigmaR 100000h			
Module d'élasticité	193679.028 MPa	195194.626 MPa	193679.028 MPa

Contraintes	163.750 MPa	218.334 MPa	218.334 MPa
coefficients de sécurité	min (Rtp1/2.000000,Rtm/4.000000) Rtm : 4.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 400 - PN 6 - Type 01A - FF**

Référence :

Matériaux : Norme : **SA-193 Bolting**Nuance : **B8M2 S31600 <= 2 [356-14]**

No de courbes suivant CODAP 2010

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 400 - PN 6 - FF**Type : **Plat de part et d'autre du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 540.000 mm

Largeur réelle (LJ) = 64.500 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 540.000 mm Diam.int.portée de joint (Gi) = 411.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 400 - PN 6 - Type 01A - FF**Type : **NFE (CODAP C6.A4)**

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14]

Sollicitation : Service - PS Normale 0,2 Bar @ 40°C

16 Boulons **D Normalisé : 24 mm** (Φ 24.000 mm) Section (ab) : 353.000 mm<sup>2</sup> Pas : 3.000 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 26.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (fb) (Ambiante 163.750 MPa)	163.750 MPa	218.334 MPa	218.334 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : AST, Norme : SA-193 Bolting, Nuance : B8M2 S31600 &lt;= 2 [356-14] (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,2 Bar @ 40°C

Diamètre intérieur (B) = 411.000 mm Diamètre extérieur (A) = 540.000 mm

Diamètre cercle perçage (C) = 495.000 mm

Epaisseur admise (ep) = 9.500 mm

**· Situations d'études : Service - PS Normale 0,2 Bar @ 40°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.020 MPa	0.030 MPa	0.050 MPa
Température	40.000 °C	20.000 °C	40.000 °C
Contrainte (f) (Ambiante 163.750 MPa)	163.750 MPa	218.334 MPa	218.334 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm



## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de base	(b'0)	C6.4.5b2	= 45.000 mm	MIN(Go-C,C-Gi)
Largeur efficace du joint	(b')	C6.4.5b1	= 26.833 mm	4*sqrt(b'0)
Largeur efficace du joint	(b'')	C6.4.5(c)	= 2.500 mm	2.5mm
Diamètre de réaction de joint	(G)	C6.4.5d	= 464.000 mm	C-dh-2*b''
Effort boulonnerie	(WA)	C6.4.6a	= 709365.792 N	PI*b'*C*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP)	11386.359 N	17079.539 N	28465.899 N
C6.4.6b1	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR	PI/4.0*G^2*P+HG+HR

Section boulon nécessaire	4332.005 mm2	4332.005 mm2	4332.005 mm2
C6.4.6c	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)

Section boulon nécessaire	(Ab,min)	C6.4.6c	= <b>4332.005 mm2</b>	MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.4.3.1	= <b>5648.000 mm2</b>	n*ab
Nombre mini de boulons	(nmin)		= 12.2720	Abmin/ab
Distance	(hT)	C6.5.5e4	= 28.750 mm	(2*C-B-G)/4
Distance	(hD)	C6.5.5e3	= 42.000 mm	(C-B-(g1=0))/2
Distance	(hG)	C6.5.5e5	= 15.500 mm	(C-G)/2
Distance	(hL)		=	
Distance	(hR)	C6.4.6b4	= 17.750 mm	(Go-C+dh)/4

Effort (HT)	728.457 N	1092.685 N	1821.142 N
C6.5.5e2	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)	2653.405 N	3980.107 N	6633.512 N
C6.5.5e1	PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)	291.540 N	437.310 N	728.849 N
C6.4.6b2	2*PI*b''*G*m*P	2*PI*b''*G*m*P	2*PI*b''*G*m*P

Effort (HR)	7712.958 N	11569.437 N	19282.395 N
C6.4.6b3	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)	1/hR*(M1*k2+M2*k1)/(k1+k2)
Module élasticité bride (E)	193679.028 MPa	195194.626 MPa	193679.028 MPa
Module élasticité adj. (E)	193679.028 MPa	195194.626 MPa	193679.028 MPa
Rigidité (k1)	23734297.483 N/mm	23920025.665 N/mm	23734297.483 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Rigidité (k2)	84393611.506 N/mm	85054017.488 N/mm	84393611.506 N/mm
C6.5.5g	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)	PI/6*E*e^3*ln(K)
Moment (M1)	136905.004 mmN	205357.506 mmN	342262.510 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (M2)	136905.004 mmN	205357.506 mmN	342262.510 mmN
C6.5.5d	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG
Moment (Mr)	136905.004 mmN	205357.506 mmN	342262.510 mmN
C6.5.5c1	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)	M1+(M2-M1)*k1/(k1+k2)*ln(C/B)/ln(K)
Moment (MTheta)	0.000 mmN	0.000 mmN	0.000 mmN
C6.5.5c2	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)	(M2-M1)*k1/(k1+k2)

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	<b>= 9.500 mm</b>	ep
Coefficient	(kF)	C6.5.3	= 1.0000	
Coefficient	(K)	C6.5.3.2	= 1.313869	A/B

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Coefficient	(CF)	C6.5.3.1	= 1.1717	$\text{MAX}[1, \sqrt{(\text{PI} \cdot \text{C} / \text{n}) / (2 \cdot \text{db} + (6 \cdot \text{e}) / (\text{m} + 0.5))}]$
( $\beta$ Y)	C6.5.3.4	= 7.2623	$1 / ((\text{K} - 1) \cdot (3 / \text{PI} \cdot (1 - \text{v}) + 6 / \text{PI} \cdot (1 + \text{v}) \cdot (\text{K}^2 \cdot \ln(\text{K})) / (\text{K}^2 - 1)))$	

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• **Contraintes :**

si (\*) contrainte calculée > valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_r$ C6.5.5a <i>Admissible</i> $(6 \cdot Mr) / ((\pi \cdot C - n \cdot dh) \cdot e^2) \cdot CF$		9.362 MPa <i>(f)163.750</i>	14.043 MPa <i>(f)218.334</i>	23.405 MPa <i>(f)218.334</i>
$\sigma_\theta$ C6.5.5b <i>Admissible</i> $Beta Y / e^2 \cdot  M_\theta  / B \cdot CF$		0.000 MPa <i>(f/kF)163.750</i>	0.000 MPa <i>(f/kF)218.334</i>	0.000 MPa <i>(f/kF)218.334</i>

• **Couples de serrage à appliquer à la boulonnerie**

Couple de serrage (Mini)		257261.029 mmN	257261.029 mmN	257261.029 mmN
formule AUXITEC(R) $MAX(WA, WP) / n \cdot (pas / (2 \cdot \pi) + f \cdot (1.15 \cdot db - 0.32475 \cdot pas))$				
Couple de serrage (Maxi)				
formule				

• **Valeurs minimales**

Epaisseur minimale du plateau en P.int.	3.000 mm	3.000 mm	4.000 mm
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• **Fabrication**

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>10.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	10.000 mm	en-tol.fab.
Epaisseur admise	(e) =	9.500 mm	ef-ci-ce

## • Brides avec Joints IBC - "Intérieur Cercle Boulonnerie"

Repère : **Bride DN 1200 - Class 150# - Type 01A - Référence :**
**Epr 60 mm**

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • **Bride DN 1200 - Class 150# - Type 01A - Epr 60 mm**

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : **NF EN 10028-7** **X2CrNi18-9 (P)** C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## Boulonnerie

### FICHE MATIERE : **NF EN 10269** **X5CrNi18-10 (+AT)** Non défini

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 100.000 MPa

Boulonnerie

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	127.000 MPa		127.000 MPa
Résistance à la traction Rtm	400.000 MPa		400.000 MPa

A%	45.0000		45.0000
SigmaR 100000h			
Module d'élasticité	186000.000 MPa		186000.000 MPa
Contraintes	80.000 MPa		133.333 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000		Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 1200 - Class 150# - Type 01A** - Référence :**Epr 60 mm**Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 1200 - Class 150# - Type 01A - IBC**Type : **Plat à l'intérieur du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 1295.000 mm

Largeur réelle (LJ) = 36.000 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 1295.000 mm Diam.int.portée de joint (Gi) = 1223.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 1200 - Class 150#**Type : **NFE (CODAP C6.A4)**

Matière : NF, Norme : NF EN 10269, Nuance : X5CrNi18-10 (+AT)

Sollicitation : PeQ - DN 600 @ 200°C

44 Boulons **D Normalisé : 30 mm** (Φ 30.000 mm) Section (ab) : 561.000 mm<sup>2</sup> Pas : 3.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 33.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	200.000 °C
Contrainte (fb) (Ambiante 100.000 MPa)	80.000 MPa	0.000 MPa	133.333 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 1223.000 mm Diamètre extérieur (A) = 1392.000 mm

Diamètre cercle perçage (C) = 1335.000 mm

Epaisseur admise (ep) = 57.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de contact possible	(w)	Tableau C6.1.5	= 36.000 mm	LJ
Largeur de base	(b0)	Tableau C6.1.5	= 18.000 mm	w/2
Largeur efficace du joint	(b)	Tableau C6.1.5	= 10.691 mm	2.52*sqrt(b0)
Diamètre de réaction de joint	(G)	Tableau C6.1.5	= 1273.617 mm	Go-2*b
Effort boulonnerie	(WA)	C6.1.6a	= 727234.487 N	PI*b*G*y
		<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Effort boulonnerie (WP)		130059.787 N	289021.749 N	130059.787 N
C6.1.6b1		PI/4*G^2*P+HG	PI/4*G^2*P+HG	PI/4*G^2*P+HG
Section boulon nécessaire		7272.345 mm2	7272.345 mm2	7272.345 mm2
C6.1.6c		MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)
Section boulon nécessaire	(Ab,min)	C6.1.6c	= <b>7272.345 mm2</b>	MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.1.3.1	= <b>24684.000 mm2</b>	n*ab
Nombre mini de boulons	(nmin)		= 12.9632	Abmin/ab
Distance	(hT)	C6.2.5.2c4	= 43.346 mm	(2*C-B-G)/4
Distance	(hD)	C6.2.5.2c3-1	= 56.000 mm	(C-B)/2
Distance	(hG)	C6.2.5.2c5	= 30.691 mm	(C-G)/2
Distance	(hL)		=	
Force traction n boulons	(W'A)		= <b>1298600.000 N</b>	Impose
Moment en assise	(MA)	C6.2.5.2a	= 39855922.855 mmN	W'A*hG
Effort (HT)		8932.675 N	19850.388 N	8932.675 N
C6.2.5.2c2		PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)		105726.853 N	234948.562 N	105726.853 N
C6.2.5.2c1		PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)		15400.260 N	34222.799 N	15400.260 N
C6.1.6b2		2*PI*b*G*m*P	2*PI*b*G*m*P	2*PI*b*G*m*P
Moment (MP)		6780553.406 mmN	15067896.458 mmN	6780553.406 mmN
C6.2.5.2b		HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>57.500 mm</b>	ep
Coefficient	(kF)	C6.2.3.5	= 1.0743	2/3*(1+B/2000)
Coefficient	(K)	C6.2.3.4	= 1.138185	A/B
Coefficient	(CF)	C6.2.3.1	= 1.0000	MAX[1,sqrt((PI*C/n)/(2*db+(6*e)/(m+0.5))))]
(βY)	C6.2.3.8	= 15.0340	$1/(K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*ln(K))/(K^2-1))$	
(βT)	C6.2.3.6	= 1.8632	$3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((K-1)*(1+(1+v)/(1-v)*K^2))$	
(βU)	C6.2.3.7	= 16.5208	$3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((1+v)*(K^2-1)*(K-1))$	
(βVL)		=		
(βFL)		=		
(λL)		=		
(B1)	C6.2.6.2(a)	= 1223.000 mm	B	



### Contraintes :

si (\*) contrainte calculée &gt; valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_H$ C6.2.6.2(a) <i>Admissible</i>	0.000 MPa <i>((1.5*f)/kF)223.394</i>	0.000 MPa <i>((1.5*f)/kF)136.829</i>	0.000 MPa <i>((1.5*f)/kF)318.337</i>	0.000 MPa <i>((1.5*f)/kF)181.717</i>
$\sigma_r$ C6.2.6.2(b) <i>Admissible</i>	0.000 MPa <i>(f/kF)148.930</i>	0.000 MPa <i>(f/kF)91.219</i>	0.000 MPa <i>(f/kF)212.225</i>	0.000 MPa <i>(f/kF)121.145</i>
$( \sigma_H + \sigma_r )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa
$\sigma_\theta$ C6.2.6.2c2 <i>Admissible</i>	148.185 MPa <i>(f/kF)148.930</i>	25.210 MPa <i>(f/kF)91.219</i>	56.023 MPa <i>(f/kF)212.225</i>	25.210 MPa <i>(f/kF)121.145</i>
Beta Y/(e^2)*M/B*CF				
$( \sigma_H + \sigma_\theta )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa

### Couples de serrage à appliquer à la boulonnerie

Couple de serrage (Mini)		119493.176 mmN	119493.176 mmN	119493.176 mmN
formule AUXITEC(R) MAX(WA,WP)/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				
Couple de serrage (Maxi)	213375.247 mmN			
formule AUXITEC(R) W'A/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				

### Valeurs minimales

Epaisseur minimale du plateau en P.int.	58.000 mm	58.000 mm	58.000 mm
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### Fabrication

Tolérance de fabrication	(tol.Fab.) =	2.000 mm	
Epaisseur nominale de commande	(en) =	<b>60.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	58.000 mm	en-tol.fab.
Epaisseur admise	(e) =	57.500 mm	ef-ci-ce

Repère : **DN 900 - PN 10 - Type 01A - Epr 50 mm** Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Bride DN 900 - PN 10 - Type 01A - Epr 50 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (P)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## Boulonnerie

### FICHE MATIERE : NF EN 10269

### X5CrNi18-10 (+AT)

Non défini

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 100.000 MPa

Boulonnerie

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	127.000 MPa	190.000 MPa	118.000 MPa
Résistance à la traction Rtm	400.000 MPa	500.000 MPa	390.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	186000.000 MPa	200000.000 MPa	182500.000 MPa

Contraintes	80.000 MPa	166.667 MPa	130.000 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **DN 900 - PN 10 - Type 01A - Epr 50 mm** Référence :Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 900 - PN 10 - Type 01A - IBC**Type : **Plat à l'intérieur du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 1011.000 mm

Largeur réelle (LJ) = 43.000 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 1011.000 mm Diam.int.portée de joint (Gi) = 925.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie DN 900 - PN 10 - Type 01A**Type : **NFE (CODAP C6.A4)**

Matière : NF, Norme : NF EN 10269, Nuance : X5CrNi18-10 (+AT)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

28 Boulons **D Normalisé : 30 mm** (Φ 30.000 mm) Section (ab) : 561.000 mm<sup>2</sup> Pas : 3.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 33.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 100.000 MPa)	80.000 MPa	166.667 MPa	130.000 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face surélevée

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 925.000 mm Diamètre extérieur (A) = 1115.000 mm

Diamètre cercle perçage (C) = 1050.000 mm

Epaisseur admise (ep) = 49.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de contact possible	(w)	Tableau C6.1.5	= 43.000 mm	(Go-Gi)/2
Largeur de base	(b0)	Tableau C6.1.5	= 21.500 mm	w/2
Largeur efficace du joint	(b)	Tableau C6.1.5	= 11.685 mm	2.52*sqrt(b0)
Diamètre de réaction de joint	(G)	Tableau C6.1.5	= 987.630 mm	Go-2*b
Effort boulonnerie	(WA)	C6.1.6a	= 616329.634 N	PI*b*G*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP) C6.1.6b1	81999.637 N PI/4*G^2*P+HG	182221.415 N PI/4*G^2*P+HG	81999.637 N PI/4*G^2*P+HG

Section boulon nécessaire C6.1.6c	6163.296 mm2 MAX(WA/fbA,WP/fb)	6163.296 mm2 MAX(WA/fbA,WP/fb)	6163.296 mm2 MAX(WA/fbA,WP/fb)
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Section boulon nécessaire	(Ab,min)	C6.1.6c	= <b>6163.296 mm2</b> MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.1.3.1	= <b>15708.000 mm2</b> n*ab
Nombre mini de boulons	(nmin)		= 10.9863 Abmin/ab
Distance	(hT)	C6.2.5.2c4	= 46.842 mm (2*C-B-G)/4
Distance	(hD)	C6.2.5.2c3-1	= 62.500 mm (C-B)/2
Distance	(hG)	C6.2.5.2c5	= 31.185 mm (C-G)/2
Distance	(hL)		=
Force traction n boulons	(W'A)		= <b>985550.000 N</b> <b>Impose</b>
Moment en assise	(MA)	C6.2.5.2a	= 30734139.532 mmN W'A*hG

Effort (HT) C6.2.5.2c2	8467.383 N PI/4*(G^2-B^2)*P	18816.407 N PI/4*(G^2-B^2)*P	8467.383 N PI/4*(G^2-B^2)*P
Effort (HD) C6.2.5.2c1	60480.567 N PI/4*B^2*P	134401.261 N PI/4*B^2*P	60480.567 N PI/4*B^2*P
Effort (HG) C6.1.6b2	13051.686 N 2*PI*b*G*m*P	29003.747 N 2*PI*b*G*m*P	13051.686 N 2*PI*b*G*m*P

Moment (MP) C6.2.5.2b	4583681.533 mmN HD*hD+HT*hT+HG*hG	10185958.962 mmN HD*hD+HT*hT+HG*hG	4583681.533 mmN HD*hD+HT*hT+HG*hG
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### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>49.500 mm</b>	ep
Coefficient	(kF)	C6.2.3	= 1.0000	
Coefficient	(K)	C6.2.3.4	= 1.205405	A/B
Coefficient	(CF)	C6.2.3.1	= 1.0000	MAX[1,sqrt((PI*C/n)/(2*db+(6*e)/(m+0.5)))]
(βY)	C6.2.3.8	= 10.4972	$1/((K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*ln(K)))/(K^2-1))$	
(βT)	C6.2.3.6	= 1.8368	$3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((K-1)*(1+(1+v)/(1-v)*K^2))$	
(βU)	C6.2.3.7	= 11.5354	$3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((1+v)*(K^2-1)*(K-1))$	
(βVL)		=		
(βFL)		=		
(λL)		=		
(B1)	C6.2.6.2(a)	= 925.000 mm	B	

### Contraintes :

si (\*) contrainte calculée &gt; valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_H$ C6.2.6.2(a) <i>Admissible</i>	0.000 MPa <i>((1.5*f)/kF)240.000</i>	0.000 MPa <i>((1.5*f)/kF)147.000</i>	0.000 MPa <i>((1.5*f)/kF)342.000</i>	0.000 MPa <i>((1.5*f)/kF)195.225</i>
$\sigma_r$ C6.2.6.2(b) <i>Admissible</i>	0.000 MPa <i>(f/kF)160.000</i>	0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>
$( \sigma_H + \sigma_r )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa
$\sigma_\theta$ C6.2.6.2c2 <i>Admissible</i>	142.345 MPa <i>(f/kF)160.000</i>	21.229 MPa <i>(f/kF)98.000</i>	47.176 MPa <i>(f/kF)228.000</i>	21.229 MPa <i>(f/kF)130.150</i>
Beta Y/(e^2)*M/B*CF				
$( \sigma_H + \sigma_\theta )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa

### Couples de serrage à appliquer à la boulonnerie

Couple de serrage (Mini)		159138.894 mmN	159138.894 mmN	159138.894 mmN
formule AUXITEC(R) MAX(WA,WP)/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				
Couple de serrage (Maxi)	254473.139 mmN			
formule AUXITEC(R) W'A/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				

### Valeurs minimales

Epaisseur minimale du plateau en P.int.	47.000 mm	47.000 mm	47.000 mm
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### Fabrication

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<u>50.000</u> mm	
Epaisseur nominale de fabrication	(ef) =	50.000 mm	en-tol.fab.
Epaisseur admise	(e) =	49.500 mm	ef-ci-ce

Repère : **DN 700 - PN 6 - Type 01B - Epr 40 mm** Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • Bride DN 700 - PN 6 - Type 01B - Epr 40 mm

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

### FICHE MATIERE : NF EN 10028-7

### X2CrNi18-9 (P)

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.20000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## Boulonnerie

### FICHE MATIERE : NF EN 10269

### X5CrNi18-10 (+AT)

Non défini

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 100.000 MPa

Boulonnerie

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	127.000 MPa	190.000 MPa	118.000 MPa
Résistance à la traction Rtm	400.000 MPa	500.000 MPa	390.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	186000.000 MPa	200000.000 MPa	182500.000 MPa



Contraintes	80.000 MPa	166.667 MPa	130.000 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **DN 700 - PN 6 - Type 01B - Epr 40 mm** Référence :Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 700 - PN 6 - Type 01B - IBC**Type : **Plat à l'intérieur du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 3.0000 Pression d'assise **imposée** (y) = 15.000 MPa

Diamètre extérieur réel (Dr) = 775.000 mm

Largeur réelle (LJ) = 27.500 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 775.000 mm Diam.int.portée de joint (Gi) = 720.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie DN 700 - PN 6**Type : **NFE (CODAP C6.A4)**

Matière : NF, Norme : NF EN 10269, Nuance : X5CrNi18-10 (+AT)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

24 Boulons **D Normalisé : 24 mm** (Φ 24.000 mm) Section (ab) : 353.000 mm<sup>2</sup> Pas : 3.000 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 26.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 100.000 MPa)	80.000 MPa	166.667 MPa	130.000 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face surélevée

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 720.000 mm Diamètre extérieur (A) = 860.000 mm

Diamètre cercle perçage (C) = 810.000 mm

Epaisseur admise (ep) = 38.000 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de contact possible	(w)	Tableau C6.1.5	= 27.500 mm	(Go-Gi)/2
Largeur de base	(b0)	Tableau C6.1.5	= 13.750 mm	w/2
Largeur efficace du joint	(b)	Tableau C6.1.5	= 9.344 mm	2.52*sqrt(b0)
Diamètre de réaction de joint	(G)	Tableau C6.1.5	= 756.311 mm	Go-2*b
Effort boulonnerie	(WA)	C6.1.6a	= 333037.810 N	PI*b*G*y

	NORMALE	EPREUVE	EXCEPTIONNELLE
Effort boulonnerie (WP) C6.1.6b1	52422.125 N PI/4*G^2*P+HG	116493.612 N PI/4*G^2*P+HG	52422.125 N PI/4*G^2*P+HG

Section boulon nécessaire C6.1.6c	3330.378 mm2 MAX(WA/fbA,WP/fb)	3330.378 mm2 MAX(WA/fbA,WP/fb)	3330.378 mm2 MAX(WA/fbA,WP/fb)
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Section boulon nécessaire	(Ab,min)	C6.1.6c	= 3330.378 mm2	MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.1.3.1	= 8472.000 mm2	n*ab
Nombre mini de boulons	(nmin)		= 9.4345	Abmin/ab
Distance	(hT)	C6.2.5.2c4	= 35.922 mm	(2*C-B-G)/4
Distance	(hD)	C6.2.5.2c3-1	= 45.000 mm	(C-B)/2
Distance	(hG)	C6.2.5.2c5	= 26.844 mm	(C-G)/2
Distance	(hL)		=	
Force traction n boulons	(W'A)		= 555100.000 N	Impose
Moment en assise	(MA)	C6.2.5.2a	= 14901332.043 mmN	W'A*hG

Effort (HT) C6.2.5.2c2	3789.227 N PI/4*(G^2-B^2)*P	8420.505 N PI/4*(G^2-B^2)*P	3789.227 N PI/4*(G^2-B^2)*P
Effort (HD) C6.2.5.2c1	36643.537 N PI/4*B^2*P	81430.082 N PI/4*B^2*P	36643.537 N PI/4*B^2*P
Effort (HG) C6.1.6b2	11989.361 N 2*PI*b*G*m*P	26643.025 N 2*PI*b*G*m*P	11989.361 N 2*PI*b*G*m*P

Moment (MP) C6.2.5.2b	2106923.880 mmN HD*hD+HT*hT+HG*hG	4682053.067 mmN HD*hD+HT*hT+HG*hG	2106923.880 mmN HD*hD+HT*hT+HG*hG
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### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= 38.000 mm	ep
Coefficient	(kF)	C6.2.3	= 1.0000	
Coefficient	(K)	C6.2.3.4	= 1.194444	A/B
Coefficient	(CF)	C6.2.3.1	= 1.0000	MAX[1,sqrt((PI*C/n)/(2*db+(6*e)/(m+0.5)))]
(βY)	C6.2.3.8	= 11.0236	$1/((K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*ln(K)))/(K^2-1))$	
(βT)	C6.2.3.6	= 1.8412	$3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((K-1)*(1+(1+v)/(1-v)*K^2))$	
(βU)	C6.2.3.7	= 12.1138	$3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((1+v)*(K^2-1)*(K-1))$	
(βVL)		=		
(βFL)		=		
(λL)		=		
(B1)	C6.2.6.2(a)	= 720.000 mm	B	

### Contraintes :

si (\*) contrainte calculée &gt; valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_H$ C6.2.6.2(a) <i>Admissible</i>	0.000 MPa <i>((1.5*f)/kF)240.000</i>	0.000 MPa <i>((1.5*f)/kF)147.000</i>	0.000 MPa <i>((1.5*f)/kF)342.000</i>	0.000 MPa <i>((1.5*f)/kF)195.225</i>
$\sigma_r$ C6.2.6.2(b) <i>Admissible</i>	0.000 MPa <i>(f/kF)160.000</i>	0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>
$( \sigma_H + \sigma_r )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa
$\sigma_\theta$ C6.2.6.2c2 <i>Admissible</i>	157.996 MPa <i>(f/kF)160.000</i>	22.339 MPa <i>(f/kF)98.000</i>	49.643 MPa <i>(f/kF)228.000</i>	22.339 MPa <i>(f/kF)130.150</i>
Beta Y/(e^2)*M/B*CF				
$( \sigma_H + \sigma_\theta )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa

### Couples de serrage à appliquer à la boulonnerie

Couple de serrage (Mini)		80520.422 mmN	80520.422 mmN	80520.422 mmN
formule AUXITEC(R) $MAX(WA, WP)/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))$				
Couple de serrage (Maxi)	134209.645 mmN			
formule AUXITEC(R) $W'A/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))$				

### Valeurs minimales

Epaisseur minimale du plateau en P.int.	38.000 mm	38.000 mm	38.000 mm
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### Fabrication

Tolérance de fabrication	(tol.Fab.) =	1.500 mm	
Epaisseur nominale de commande	(en) =	<b>40.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	38.500 mm	en-tol.fab.
Epaisseur admise	(e) =	38.000 mm	ef-ci-ce

Repère : **Bride DN 600 - Class 150# - Type 01A** - Référence :

**Epr 45 mm**

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • **Bride DN 600 - Class 150# - Type 01A - Epr 45 mm**

### **SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (P)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## **Boulonnerie**

**FICHE MATIERE : NF EN 10269**
**X5CrNi18-10 (+AT)**

Non défini

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 100.000 MPa

Boulonnerie

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	127.000 MPa	190.000 MPa	118.000 MPa
Résistance à la traction Rtm	400.000 MPa	500.000 MPa	390.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			

Module d'élasticité	186000.000 MPa	200000.000 MPa	182500.000 MPa
Contraintes	80.000 MPa	166.667 MPa	130.000 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 600 - Class 150# - Type 01A** - Référence :**Epr 45 mm**Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 600 - Class 150# - Type 01A - IBC**Type : **Plat à l'intérieur du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 692.200 mm

Largeur réelle (LJ) = 38.100 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 692.200 mm Diam.int.portée de joint (Gi) = 616.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 600 - Class 150#**Type : **NFE (CODAP C6.A4)**

Matière : NF, Norme : NF EN 10269, Nuance : X5CrNi18-10 (+AT)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

20 Boulons **D Normalisé : 33 mm** (Φ 33.000 mm) Section (ab) : 694.000 mm<sup>2</sup> Pas : 3.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 36.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 100.000 MPa)	80.000 MPa	166.667 MPa	130.000 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 616.000 mm Diamètre extérieur (A) = 813.000 mm

Diamètre cercle perçage (C) = 749.300 mm

Epaisseur admise (ep) = 44.500 mm



**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de contact possible	(w)	Tableau C6.1.5	= 38.100 mm	LJ
Largeur de base	(b0)	Tableau C6.1.5	= 19.050 mm	w/2
Largeur efficace du joint	(b)	Tableau C6.1.5	= 10.999 mm	2.52*sqrt(b0)
Diamètre de réaction de joint	(G)	Tableau C6.1.5	= 670.202 mm	Go-2*b
Effort boulonnerie	(WA)	C6.1.6a	= 393688.487 N	PI*b*G*y
		<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Effort boulonnerie (WP)		40086.965 N	89082.144 N	40086.965 N
C6.1.6b1		PI/4*G^2*P+HG	PI/4*G^2*P+HG	PI/4*G^2*P+HG
Section boulon nécessaire		3936.885 mm2	3936.885 mm2	3936.885 mm2
C6.1.6c		MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)
Section boulon nécessaire	(Ab,min)	C6.1.6c	= <b>3936.885 mm2</b> MAX(WA/fbA,(WP/fb)max)	
Section boulon installée	(Ab)	C6.1.3.1	= <b>13880.000 mm2</b> n*ab	
Nombre mini de boulons	(nmin)		= 5.6727	Abmin/ab
Distance	(hT)	C6.2.5.2c4	= 53.099 mm	(2*C-B-G)/4
Distance	(hD)	C6.2.5.2c3-1	= 66.650 mm	(C-B)/2
Distance	(hG)	C6.2.5.2c5	= 39.549 mm	(C-G)/2
Distance	(hL)		=	
Force traction n boulons	(W'A)		= <b>686930.000 N</b>	<b>Impose</b>
Moment en assise	(MA)	C6.2.5.2a	= 27167304.605 mmN	W'A*hG
Effort (HT)		4927.868 N	10950.818 N	4927.868 N
C6.2.5.2c2		PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)		26822.164 N	59604.809 N	26822.164 N
C6.2.5.2c1		PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)		8336.933 N	18526.517 N	8336.933 N
C6.1.6b2		2*PI*b*G*m*P	2*PI*b*G*m*P	2*PI*b*G*m*P
Moment (MP)		2379080.501 mmN	5286845.559 mmN	2379080.501 mmN
C6.2.5.2b		HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>44.500 mm</b>	ep
Coefficient	(kF)	C6.2.3	= 1.0000	
Coefficient	(K)	C6.2.3.4	= 1.319805	A/B
Coefficient	(CF)	C6.2.3.1	= 1.0000	MAX[1,sqrt((PI*C/n)/(2*db+(6*e)/(m+0.5))))]
(βY)	C6.2.3.8	= 7.1482	1/(K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*ln(K))/(K^2-1))	
(βT)	C6.2.3.6	= 1.7889	3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((K-1)*(1+(1+v)/(1-v)*K^2))	
(βU)	C6.2.3.7	= 7.8552	3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((1+v)*(K^2-1)*(K-1))	
(βVL)		=		
(βFL)		=		
(λL)		=		
(B1)	C6.2.6.2(a)	= 616.000 mm	B	

### Contraintes :

si (\*) contrainte calculée &gt; valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_H$ C6.2.6.2(a) <i>Admissible</i>	0.000 MPa <i>((1.5*f)/kF)240.000</i>	0.000 MPa <i>((1.5*f)/kF)147.000</i>	0.000 MPa <i>((1.5*f)/kF)342.000</i>	0.000 MPa <i>((1.5*f)/kF)195.225</i>
$\sigma_r$ C6.2.6.2(b) <i>Admissible</i>	0.000 MPa <i>(f/kF)160.000</i>	0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>
$( \sigma_H + \sigma_r )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa
$\sigma_\theta$ C6.2.6.2c2 <i>Admissible</i>	159.200 MPa <i>(f/kF)160.000</i>	13.941 MPa <i>(f/kF)98.000</i>	30.981 MPa <i>(f/kF)228.000</i>	13.941 MPa <i>(f/kF)130.150</i>
Beta Y/(e^2)*M/B*CF				
$( \sigma_H + \sigma_\theta )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa

### Couples de serrage à appliquer à la boulonnerie

Couple de serrage (Mini)		155895.076 mmN	155895.076 mmN	155895.076 mmN
formule AUXITEC(R) $MAX(WA, WP)/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))$				
Couple de serrage (Maxi)	272014.570 mmN			
formule AUXITEC(R) $W'A/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))$				

### Valeurs minimales

Epaisseur minimale du plateau en P.int.	45.000 mm	45.000 mm	45.000 mm
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### Fabrication

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>45.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	45.000 mm	en-tol.fab.
Epaisseur admise	(e) =	44.500 mm	ef-ci-ce

Repère : **Bride DN 600 - Class 150# - Type 01A -** Référence :

**Epr 60 mm**

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • **Bride DN 600 - Class 150# - Type 01A - Epr 60 mm**

### **SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C**

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (P)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## **Boulonnerie**

**FICHE MATIERE : NF EN 10269**
**X5CrNi18-10 (+AT)**

Non défini

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 100.000 MPa

Boulonnerie

Coef poisson 0.3000

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Limite élastique Rtp0.2%	127.000 MPa	190.000 MPa	118.000 MPa
Résistance à la traction Rtm	400.000 MPa	500.000 MPa	390.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			

Module d'élasticité	186000.000 MPa	200000.000 MPa	182500.000 MPa
Contraintes	80.000 MPa	166.667 MPa	130.000 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 600 - Class 150# - Type 01A** - Référence :**Epr 60 mm**Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint Bride DN 600 - Class 150# - Type 01A - IBC**Type : **Plat à l'intérieur du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 692.200 mm

Largeur réelle (LJ) = 38.100 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 692.200 mm Diam.int.portée de joint (Gi) = 616.000 mm

**· Caractéristiques de la boulonnerie : Boulonnerie Bride DN 600 - Class150#**Type : **NFE (CODAP C6.A4)**

Matière : NF, Norme : NF EN 10269, Nuance : X5CrNi18-10 (+AT)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

20 Boulons **D Normalisé : 33 mm** ( $\Phi$  33.000 mm) Section (ab) : 694.000 mm<sup>2</sup> Pas : 3.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 36.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 100.000 MPa)	80.000 MPa	166.667 MPa	130.000 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 616.000 mm Diamètre extérieur (A) = 813.000 mm

Diamètre cercle perçage (C) = 749.300 mm

Epaisseur admise (ep) = 59.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion

Interne (ci) = 0.500 mm

Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de contact possible	(w)	Tableau C6.1.5	= 38.100 mm	LJ
Largeur de base	(b0)	Tableau C6.1.5	= 19.050 mm	w/2
Largeur efficace du joint	(b)	Tableau C6.1.5	= 10.999 mm	2.52*sqrt(b0)
Diamètre de réaction de joint	(G)	Tableau C6.1.5	= 670.202 mm	Go-2*b
Effort boulonnerie	(WA)	C6.1.6a	= 393688.487 N	PI*b*G*y
		<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Effort boulonnerie (WP)		40086.965 N	89082.144 N	40086.965 N
C6.1.6b1		PI/4*G^2*P+HG	PI/4*G^2*P+HG	PI/4*G^2*P+HG
Section boulon nécessaire		3936.885 mm2	3936.885 mm2	3936.885 mm2
C6.1.6c		MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)
Section boulon nécessaire	(Ab,min)	C6.1.6c	= <b>3936.885 mm2</b> MAX(WA/fbA,(WP/fb)max)	
Section boulon installée	(Ab)	C6.1.3.1	= <b>13880.000 mm2</b> n*ab	
Nombre mini de boulons	(nmin)		= 5.6727	Abmin/ab
Distance	(hT)	C6.2.5.2c4	= 53.099 mm	(2*C-B-G)/4
Distance	(hD)	C6.2.5.2c3-1	= 66.650 mm	(C-B)/2
Distance	(hG)	C6.2.5.2c5	= 39.549 mm	(C-G)/2
Distance	(hL)		=	
Force traction n boulons	(W'A)	C6.1.6e	= 890844.250 N	(Ab+Abmin)/2*fbA
Moment en assise	(MA)	C6.2.5.2a	= 35231882.572 mmN	W'A*hG
Effort (HT)		4927.868 N	10950.818 N	4927.868 N
C6.2.5.2c2		PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)		26822.164 N	59604.809 N	26822.164 N
C6.2.5.2c1		PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)		8336.933 N	18526.517 N	8336.933 N
C6.1.6b2		2*PI*b*G*m*P	2*PI*b*G*m*P	2*PI*b*G*m*P
Moment (MP)		2379080.501 mmN	5286845.559 mmN	2379080.501 mmN
C6.2.5.2b		HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>59.500 mm</b>	ep
Coefficient	(kF)	C6.2.3	= 1.0000	
Coefficient	(K)	C6.2.3.4	= 1.319805	A/B
Coefficient	(CF)	C6.2.3.1	= 1.0000	MAX[1,sqrt((PI*C/n)/(2*db+(6*e)/(m+0.5)))]
(βY)	C6.2.3.8	= 7.1482	1/(K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*ln(K))/(K^2-1))	
(βT)	C6.2.3.6	= 1.7889	3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((K-1)*(1+(1+v)/(1-v)*K^2))	
(βU)	C6.2.3.7	= 7.8552	3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K)))-1)/((1+v)*(K^2-1)*(K-1))	
(βVL)		=		
(βFL)		=		
(λL)		=		
(B1)	C6.2.6.2(a)	= 616.000 mm	B	



### Contraintes :

si (\*) contrainte calculée &gt; valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_H$ C6.2.6.2(a) <i>Admissible</i>	0.000 MPa <i>((1.5*f)/kF)240.000</i>	0.000 MPa <i>((1.5*f)/kF)147.000</i>	0.000 MPa <i>((1.5*f)/kF)342.000</i>	0.000 MPa <i>((1.5*f)/kF)195.225</i>
$\sigma_r$ C6.2.6.2(b) <i>Admissible</i>	0.000 MPa <i>(f/kF)160.000</i>	0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>
$( \sigma_H + \sigma_r )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa
$\sigma_\theta$ C6.2.6.2c2 <i>Admissible</i>	115.483 MPa <i>(f/kF)160.000</i>	7.798 MPa <i>(f/kF)98.000</i>	17.329 MPa <i>(f/kF)228.000</i>	7.798 MPa <i>(f/kF)130.150</i>
Beta Y/(e^2)*M/B*CF				
$( \sigma_H + \sigma_\theta )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa

### Couples de serrage à appliquer à la boulonnerie

Couple de serrage (Mini)		155895.076 mmN	155895.076 mmN	155895.076 mmN
formule AUXITEC(R) MAX(WA,WP)/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				
Couple de serrage (Maxi)	352761.731 mmN			
formule AUXITEC(R) W'A/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				

### Valeurs minimales

Epaisseur minimale du plateau en P.int.	51.000 mm	51.000 mm	51.000 mm
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### Fabrication

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>60.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	60.000 mm	en-tol.fab.
Epaisseur admise	(e) =	59.500 mm	ef-ci-ce

Repère : **Bride DN 200 - Class 150# - Type 01A - IBC** Référence :

Matériaux : Norme : **NF EN 10028-7**

Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

## • **Bride DN 200 - Class 150# - Type 01A - IBC**

### SITUATIONS D'ETUDES : Service - PS Normale 0,9 Bar @ 200°C

Codes de calcul : pression CODAP 2010 - E2010/A03-11 Div.2, contrainte Tous matériaux et inox avec f mini

Réglementation française : Européenne

Type de contrainte : f1

Catégorie de construction : Catégorie B2

	NORMALE	EPREUVE	EXCEPTIONNELLE
Coefficients de soudure			
Pressions intérieures	0.090 MPa	0.200 MPa	0.090 MPa
Pressions extérieures	0.010 MPa		0.095 MPa
Températures	200.000 °C	20.000 °C	250.000 °C

**FICHE MATIERE : NF EN 10028-7**
**X2CrNi18-9 (P)**

C4-11

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 160.000 MPa

Toles

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	118.000 MPa	200.000 MPa	108.000 MPa
Limite élastique Rtp1.0%	147.000 MPa	240.000 MPa	137.000 MPa
Résistance à la traction Rtm	360.000 MPa	500.000 MPa	350.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			
Module d'élasticité	183000.000 MPa	195000.000 MPa	179000.000 MPa
Coeff. de dilatation x 10 <sup>6</sup>	17.300 10-6/°C	16.400 10-6/°C	17.400 10-6/°C
Contraintes	98.000 MPa	228.000 MPa	130.150 MPa
coefficients de sécurité	Min(Rtp1/1.500000,Min(Rtp1/1.200000,Rtm/3.000000)) Rtp1,0 : 1.500000	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630	Min(Rtp1/1.052630,Rtm/2.000000) Rtp1,0 : 1.052630

## Boulonnerie

**FICHE MATIERE : NF EN 10269**
**X5CrNi18-10 (+AT)**

Non défini

M3 Acier inoxydable austénitique

Contrainte à l'ambiante : 100.000 MPa

Boulonnerie

Coef poisson 0.3000

	NORMALE	EPREUVE	EXCEPTIONNELLE
Limite élastique Rtp0.2%	127.000 MPa	190.000 MPa	118.000 MPa
Résistance à la traction Rtm	400.000 MPa	500.000 MPa	390.000 MPa
A%	45.0000	45.0000	45.0000
SigmaR 100000h			

Module d'élasticité	186000.000 MPa	200000.000 MPa	182500.000 MPa
Contraintes	80.000 MPa	166.667 MPa	130.000 MPa
coefficients de sécurité	min (Rtp1/2.500000,Rtm/5.000000) Rtm : 5.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000	Min(Rtp1/1.500000,Rtm/3.000000 ) Rtm : 3.000000

Repère : **Bride DN 200 - Class 150# - Type 01A - Référence :**  
**IBC**Matériaux : Norme : **NF EN 10028-7**Nuance : **X2CrNi18-9 (P)**

No de courbes suivant CODAP 2010

**C4-11**

Revision :

**Bride (Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle)) svt CODAP 2010 / Edition E2010/A03-11 Div.2**

C6

CALCUL CONFORME AU CODAP

**1. DONNEES DE CALCUL****· Caractéristiques du joint : Joint DN 200 - Class 150# - Type 01A - IBC**Type : **Plat à l'intérieur du cercle de perçage**

Nature : Non métal.en amiante-élast.avec/sans armat.métal.,avec/sans jacquet.PTFE ou similaire

Composition : Epaisseur 2mm

Coeff. De serrage **imposé** (m) = 2.0000 Pression d'assise **imposée** (y) = 17.000 MPa

Diamètre extérieur réel (Dr) = 269.700 mm

Largeur réelle (LJ) = 24.100 mm Epaisseur réelle (eJ) = 2.000 mm

Diam.ext.portée de joint (Go) = 269.700 mm Diam.int.portée de joint (Gi) = 221.500 mm

**· Caractéristiques de la boulonnerie : Boulonnerie DN 200 - Class 150#**Type : **NFE (CODAP C6.A4)**

Matière : NF, Norme : NF EN 10269, Nuance : X5CrNi18-10 (+AT)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

8 Boulons **D Normalisé : 20 mm** (Φ 20.000 mm) Section (ab) : 245.000 mm<sup>2</sup> Pas : 2.500 mm

Coefficient de frottement (f) : 0.2000

Diamètre du trou de passage du boulon (dh) : 22.000 mm

	NORMALE	EPREUVE	EXCEPTIONNELLE
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (fb) (Ambiante 100.000 MPa)	80.000 MPa	166.667 MPa	130.000 MPa

**· Caractéristiques de la bride**Type : **Endroit emmanchée-soudée sans collerette (soud.pénétr.partielle) (calcul en Indépendante)**

Type de face : Face plate

Matière : NF, Norme : NF EN 10028-7, Nuance : X2CrNi18-9 (P) (Acier v=0.3000)

Sollicitation : Service - PS Normale 0,9 Bar @ 200°C

Diamètre intérieur (B) = 221.500 mm Diamètre extérieur (A) = 343.000 mm

Diamètre cercle perçage (C) = 298.400 mm

Epaisseur admise (ep) = 23.500 mm

**· Situations d'études : Service - PS Normale 0,9 Bar @ 200°C**

	NORMALE	EPREUVE	EXCEPTIONNELLE
Pression intérieure	0.090 MPa	0.200 MPa	0.090 MPa
Température	200.000 °C	20.000 °C	250.000 °C
Contrainte (f) (Ambiante 160.000 MPa)	98.000 MPa	228.000 MPa	130.150 MPa

Corrosion Interne (ci) = 0.500 mm Externe (ce) = 0.000 mm

## 2 . RESULTATS

### · Efforts et sections de boulonnerie

Largeur de contact possible	(w)	Tableau C6.1.5	= 24.100 mm	LJ
Largeur de base	(b0)	Tableau C6.1.5	= 12.050 mm	w/2
Largeur efficace du joint	(b)	Tableau C6.1.5	= 8.748 mm	2.52*sqrt(b0)
Diamètre de réaction de joint	(G)	Tableau C6.1.5	= 252.205 mm	Go-2*b
Effort boulonnerie	(WA)	C6.1.6a	= 117827.279 N	PI*b*G*y
		<b>NORMALE</b>	<b>EPREUVE</b>	<b>EXCEPTIONNELLE</b>
Effort boulonnerie (WP)		6991.291 N	15536.202 N	6991.291 N
C6.1.6b1		PI/4*G^2*P+HG	PI/4*G^2*P+HG	PI/4*G^2*P+HG
Section boulon nécessaire		1178.273 mm2	1178.273 mm2	1178.273 mm2
C6.1.6c		MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)	MAX(WA/fbA,WP/fb)
Section boulon nécessaire	(Ab,min)	C6.1.6c	= <b>1178.273 mm2</b>	MAX(WA/fbA,(WP/fb)max)
Section boulon installée	(Ab)	C6.1.3.1	= <b>1960.000 mm2</b>	n*ab
Nombre mini de boulons	(nmin)		= 4.8093	Abmin/ab
Distance	(hT)	C6.2.5.2c4	= 30.774 mm	(2*C-B-G)/4
Distance	(hD)	C6.2.5.2c3-1	= 38.450 mm	(C-B)/2
Distance	(hG)	C6.2.5.2c5	= 23.098 mm	(C-G)/2
Distance	(hL)		=	
Force traction n boulons	(W'A)	C6.1.6e	= 156913.650 N	(Ab+Abmin)/2*fbA
Moment en assise	(MA)	C6.2.5.2a	= 3624344.994 mmN	W'A*hG
Effort (HT)		1028.119 N	2284.709 N	1028.119 N
C6.2.5.2c2		PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P	PI/4*(G^2-B^2)*P
Effort (HD)		3468.006 N	7706.680 N	3468.006 N
C6.2.5.2c1		PI/4*B^2*P	PI/4*B^2*P	PI/4*B^2*P
Effort (HG)		2495.166 N	5544.813 N	2495.166 N
C6.1.6b2		2*PI*b*G*m*P	2*PI*b*G*m*P	2*PI*b*G*m*P
Moment (MP)		222616.615 mmN	494703.588 mmN	222616.615 mmN
C6.2.5.2b		HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG	HD*hD+HT*hT+HG*hG

### · Divers coefficients et dimensions

Ep.vérification bride	(e)	Tableau C6.2.4.2(3.1)	= <b>23.500 mm</b>	ep
Coefficient	(kF)	C6.2.3	= 1.0000	
Coefficient	(K)	C6.2.3.4	= 1.548533	A/B
Coefficient	(CF)	C6.2.3.1	= 1.1025	MAX[1,sqrt((PI*C/n)/(2*db+(6*e)/(m+0.5)))]
(βY)	C6.2.3.8	= 4.6139	1/(K-1)*(3/PI*(1-v)+6/PI*(1+v)*(K^2*ln(K))/(K^2-1))	
(βT)	C6.2.3.6	= 1.6897	3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K))-1)/((K-1)*(1+(1+v)/(1-v)*K^2))	
(βU)	C6.2.3.7	= 5.0702	3/PI*((K^2*(1+2*(1+v)/(1-v)*ln(K))-1)/((1+v)*(K^2-1)*(K-1))	
(βVL)		=		
(βFL)		=		
(λL)		=		
(B1)	C6.2.6.2(a)	= 221.500 mm	B	

### Contraintes :

si (\*) contrainte calculée &gt; valeur admissible

	ASSISE	NORMALE	EPREUVE	EXCEPTIONNELLE
$\sigma_H$ C6.2.6.2(a) <i>Admissible</i>	0.000 MPa <i>((1.5*f)/kF)240.000</i>	0.000 MPa <i>((1.5*f)/kF)147.000</i>	0.000 MPa <i>((1.5*f)/kF)342.000</i>	0.000 MPa <i>((1.5*f)/kF)195.225</i>
$\sigma_r$ C6.2.6.2(b) <i>Admissible</i>	0.000 MPa <i>(f/kF)160.000</i>	0.000 MPa <i>(f/kF)98.000</i>	0.000 MPa <i>(f/kF)228.000</i>	0.000 MPa <i>(f/kF)130.150</i>
$( \sigma_H + \sigma_r )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa
$\sigma_\theta$ C6.2.6.2c2 <i>Admissible</i>	150.723 MPa <i>(f/kF)160.000</i>	9.258 MPa <i>(f/kF)98.000</i>	20.573 MPa <i>(f/kF)228.000</i>	9.258 MPa <i>(f/kF)130.150</i>
Beta Y/(e^2)*M/B*CF				
$( \sigma_H + \sigma_\theta )/2$ <i>Admissible</i>	0.000 MPa	0.000 MPa	0.000 MPa	0.000 MPa

### Couples de serrage à appliquer à la boulonnerie

Couple de serrage (Mini)		71219.408 mmN	71219.408 mmN	71219.408 mmN
formule AUXITEC(R) MAX(WA,WP)/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				
Couple de serrage (Maxi)	94844.737 mmN			
formule AUXITEC(R) W'A/n*(pas/(2*PI)+f*(1.15*db-0.32475*pas))				

### Valeurs minimales

Epaisseur minimale du plateau en P.int.	23.000 mm	23.000 mm	23.000 mm
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### Fabrication

Tolérance de fabrication	(tol.Fab.) =	0.000 mm	
Epaisseur nominale de commande	(en) =	<b>24.000</b> mm	
Epaisseur nominale de fabrication	(ef) =	24.000 mm	en-tol.fab.
Epaisseur admise	(e) =	23.500 mm	ef-ci-ce

## ANNEXE 2

### Résultats d'Analyses des Contraintes de Flexibilité

#### CONTRAINTES PRIMAIRES

CAS 7 : POIDS + PS EN NORMAL	268
CAS 8 : POIDS + PMS EN NORMAL	302
CAS 9 : POIDS + PS MINI EN NORMAL	336
CAS 10 : POIDS + PMS + 1 SYSTEME SECURITE EN EXCEPTIONNEL	370
CAS 12 : POIDS + PMS + 2 SYSTEMES SECURITE	404

#### CONTRAINTES SECONDAIRES

CAS 13 : THERMIQUE @ TMS	438
CAS 14 : THERMIQUE @ TS	474
CAS 15 : THERMIQUE @ TS MINI	510
CAS 16 : THERMIQUE @ TEXTS EN EXCEPTIONNEL	546

#### CONTRAINTES PRIMAIRES + SECONDAIRES

CAS 3 : POIDS + PS + TMS EN NORMAL	582
CAS 4 : POIDS + PMS + TS EN NORMAL	618
CAS 5 : POIDS + PS MINI + TS MINI EN NORMAL	654
CAS 6 : POIDS + PMS + TEXTS + 1 SYSTEME SECURITE	690
CAS 11 : POIDS + PMS + TEXTS + 2 SYSTEMES SECURITE	725



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.21	0.14	0.01	0.00	7.34	1.000	1.000	0.14	CODETI	
20	-6.91	0.14	-0.01	0.00	7.05	1.000	1.000	0.14	CODETI	
20	-0.18	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
25	-1.24	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
20	-7.22	0.14	0.01	-3.81	7.37	1.000	1.000	2.05	CODETI	
30	-6.89	0.14	-0.01	-3.81	7.05	1.000	1.000	2.05	CODETI	
30	-6.83	0.18	0.01	-3.81	7.03	1.000	1.000	2.09	CODETI	
40	-6.47	0.19	-0.01	-3.81	6.67	1.000	1.000	2.09	CODETI	
40	-6.46	0.06	0.00	-3.81	6.53	1.000	1.000	1.96	CODETI	
45 (Weld_CW2)	-4.79	0.06	-0.00	-3.81	4.86	1.000	1.000	1.96	CODETI	
45 (Weld_CW2)	-4.79	0.06	0.00	-3.81	4.86	1.000	1.000	1.96	CODETI	
50	-3.57	0.05	-0.00	-3.81	3.83	1.000	1.000	1.96	CODETI	
50	-2.34	0.03	0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.55	0.03	-0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.53	0.03	0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
56	-1.47	0.03	-0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
56	-1.49	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
60	-1.28	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
65	-0.65	0.00	-0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Piquage_N1)										
70	-0.58	0.00	0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.35	2.90	3.27	-0.70	7.30	1.000	1.000	7.50	CODETI	
110	-0.35	2.95	-3.27	-0.70	7.32	1.000	1.000	7.52	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.05	0.36	0.00	-0.56	0.87	1.000	1.000	0.64	CODETI	
129	-0.16	1.01	0.00	-0.56	1.41	7.124	5.937	1.04	CODETI	
129	-0.16	1.01	-0.00	-0.56	1.40	7.124	5.937	1.04	CODETI	
130	-0.28	1.90	0.00	-0.56	2.18	7.124	5.937	1.71	CODETI	
130	-0.28	0.27	-0.00	-0.56	0.58	1.000	1.000	0.55	CODETI	
134 (Jupe_N3)	-0.28	0.10	0.00	-0.56	0.58	1.000	1.000	0.38	CODETI	
134 (Jupe_N3)	-0.28	0.10	-0.00	-0.56	0.58	1.000	1.000	0.38	CODETI	
135 (SR_N3)	-0.28	0.38	0.00	-0.56	0.67	1.000	1.000	0.66	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.66	0.53	0.00	-0.56	1.19	1.000	1.000	0.81	CODETI	
160	-0.54	0.08	-0.00	-0.56	0.64	1.000	1.000	0.36	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	0.16	4.81	0.33	-0.56	5.46	1.000	1.000	5.13	CODETI	
190	0.26	4.72	-0.33	-0.56	5.58	1.000	1.000	5.04	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.33	4.00	-0.61	-0.56	4.50	1.000	1.000	4.46	CODETI	
220	-0.33	1.33	0.61	-0.56	1.97	1.000	1.000	2.08	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	-0.32	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
250	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
251 (CT_N1)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
260	-0.13	0.00	-0.00	-0.63	0.65	10.614	10.614	0.31	CODETI	
260	-0.20	20.13	-0.75	-0.41	20.38	10.614	10.614	19.45	CODETI	
262	-0.20	1.47	0.75	-0.41	2.25	1.000	1.000	2.30	CODETI	
262	-0.31	2.25	-1.15	-0.63	3.44	1.000	1.000	3.53	CODETI	
265 (SG_5)	-0.31	1.89	1.15	-0.63	3.19	1.000	1.000	3.29	CODETI	
265 (SG_5)	-0.31	1.89	-1.15	-0.63	3.18	1.000	1.000	3.29	CODETI	
267	-0.31	3.91	1.10	-0.63	4.77	8.376	8.376	14.41	CODETI	
267	-0.31	3.91	-1.10	-0.63	4.76	8.376	8.376	14.41	CODETI	
268	-0.31	4.54	0.96	-0.63	5.22	8.376	8.376	12.87	CODETI	
268	-0.31	4.54	-0.96	-0.63	5.21	8.376	8.376	12.87	CODETI	
269	-0.31	2.97	0.84	-0.63	3.70	8.376	8.376	11.13	CODETI	
269	-0.31	2.97	-0.84	-0.63	3.69	8.376	8.376	11.13	CODETI	
270	-0.31	1.55	0.81	-0.63	2.48	8.376	8.376	10.55	CODETI	
270	-0.31	0.19	-0.81	-0.63	1.69	1.000	1.000	1.94	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
271	-0.31	5.23	0.81	-0.63	5.78	1.000	1.000	5.79	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.81	5.06	-0.00	5.69	7.90	1.000	1.000	7.88	CODETI	
277	3.08	24.04	0.01	5.69	26.84	8.141	8.141	20.86	CODETI	
277	3.08	24.04	-0.01	5.69	27.12	8.141	8.141	20.86	CODETI	
278	3.50	9.21	0.03	5.69	12.65	8.141	8.141	9.74	CODETI	
278	3.50	9.21	-0.03	5.69	12.71	8.141	8.141	9.74	CODETI	
279	3.69	1.04	0.04	5.69	5.83	8.141	8.141	3.75	CODETI	
279	3.69	1.04	-0.04	5.69	5.82	8.141	8.141	3.75	CODETI	
280	3.70	0.07	0.04	5.69	5.83	8.141	8.141	3.34	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
280	3.70	0.01	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
284	3.66	0.01	0.04	5.69	5.83	1.000	1.000	2.91	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	3.49	0.01	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
290	3.31	0.00	0.04	5.69	5.83	1.000	1.000	2.91	CODETI	
290	3.31	0.00	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
299	3.13	0.00	0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	2.97	0.00	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
306	2.92	0.20	0.04	5.69	5.82	9.368	9.368	3.41	CODETI	
306	2.92	0.20	-0.04	5.69	5.82	9.368	9.368	3.41	CODETI	
307	2.86	0.85	0.03	5.69	5.82	9.368	9.368	3.59	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
307	2.86	0.85	-0.03	5.69	5.82	9.368	9.368	3.59	CODETI	
308	2.82	1.29	0.01	5.69	5.82	9.368	9.368	3.80	CODETI	
308	2.82	1.29	-0.01	5.69	5.82	9.368	9.368	3.80	CODETI	
305	2.82	1.26	0.00	5.69	5.82	9.368	9.368	3.77	CODETI	
305	2.82	0.13	-0.00	5.69	5.82	1.000	1.000	2.96	CODETI	
435 (SR_07)	2.82	0.15	0.00	5.69	5.82	1.000	1.000	2.97	CODETI	
435 (SR_07)	2.84	0.15	-0.00	5.69	5.82	1.000	1.000	2.97	CODETI	
440	2.83	81.62	0.00	5.69	84.43	10.614	10.614	64.04	CODETI	
440	1.84	1.94	-0.37	3.73	4.21	10.614	10.614	7.99	CODETI	
445	1.84	0.06	0.37	3.73	3.93	1.000	1.000	2.59	CODETI	
445	2.82	0.86	-0.57	5.69	5.97	9.368	9.368	10.92	CODETI	
311	2.83	4.00	0.54	5.69	7.08	9.368	9.368	11.01	CODETI	
311	2.83	4.00	-0.54	5.69	7.07	9.368	9.368	11.01	CODETI	
312	2.82	9.30	0.35	5.69	12.14	9.368	9.368	11.36	CODETI	
312	2.82	9.30	-0.35	5.69	12.14	9.368	9.368	11.36	CODETI	
313	2.79	11.53	0.05	5.69	14.38	9.368	9.368	11.50	CODETI	
313	2.79	11.53	-0.05	5.69	14.32	9.368	9.368	11.50	CODETI	
310	2.78	11.29	-0.10	5.69	14.16	9.368	9.368	11.41	CODETI	
310	2.78	1.20	0.10	5.69	5.83	1.000	1.000	4.04	CODETI	
315	2.76	1.19	-0.10	5.69	5.83	1.000	1.000	4.03	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.71	1.16	0.10	5.69	5.83	1.000	1.000	4.00	CODETI	
330	2.65	0.76	-0.10	5.69	5.83	1.000	1.000	3.61	CODETI	
330	2.65	0.76	0.10	5.69	5.83	1.000	1.000	3.61	CODETI	
335	2.60	0.18	-0.10	5.69	5.83	1.000	1.000	3.10	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	2.54	0.09	0.10	5.69	5.83	1.000	1.000	3.05	CODETI	
337	2.52	3.02	-0.13	5.69	6.20	9.368	9.368	5.76	CODETI	
337	2.52	3.02	0.13	5.69	6.23	9.368	9.368	5.76	CODETI	
338	2.58	7.37	-0.27	5.69	10.45	9.368	9.368	9.54	CODETI	
338	2.58	7.37	0.27	5.69	10.43	9.368	9.368	9.54	CODETI	
339	2.72	12.22	-0.50	5.69	15.18	9.368	9.368	14.37	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
339	2.72	12.22	0.50	5.69	15.07	9.368	9.368	14.37	CODETI	
350	2.82	14.73	-0.63	5.69	17.60	9.368	9.368	16.99	CODETI	
350	1.84	1.03	0.41	3.73	4.01	1.000	1.000	3.16	CODETI	
355 (SR_8)	1.84	1.56	-0.41	3.73	4.11	1.000	1.000	3.60	CODETI	
355 (SR_8)	1.84	1.56	0.41	3.73	4.11	1.000	1.000	3.60	CODETI	
360 (Té_TH_700)	1.84	0.81	-0.41	3.73	3.99	1.000	1.000	3.00	CODETI	
360 (Té_TH_700)	1.84	0.81	0.08	3.73	3.87	1.000	1.000	2.67	CODETI	
365	1.84	19.30	-0.08	3.73	21.15	10.614	10.614	16.38	CODETI	
365	1.85	11.78	0.01	3.73	13.63	10.614	10.614	10.68	CODETI	
366	1.84	0.60	-0.01	3.73	3.86	1.000	1.000	2.44	CODETI	
366	2.83	7.51	0.01	5.69	10.34	8.141	8.141	8.46	CODETI	
368	2.76	5.26	-0.01	5.69	8.15	8.141	8.141	6.77	CODETI	
368	2.76	5.26	0.01	5.69	8.15	8.141	8.141	6.77	CODETI	
369	2.66	1.47	-0.00	5.69	5.82	8.141	8.141	3.93	CODETI	
369	2.66	1.47	0.00	5.69	5.82	8.141	8.141	3.93	CODETI	
370	2.63	0.26	0.00	5.69	5.82	8.141	8.141	3.02	CODETI	
370	2.63	0.03	-0.00	5.69	5.82	1.000	1.000	2.85	CODETI	
378	2.74	5.39	-0.00	5.69	8.30	8.141	8.141	6.86	CODETI	
378	2.74	5.39	0.00	5.69	8.30	8.141	8.141	6.86	CODETI	
379	2.80	6.92	-0.01	5.69	9.76	8.141	8.141	8.01	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
379	2.80	6.92	0.01	5.69	9.74	8.141	8.141	8.01	CODETI	
380	2.82	7.50	-0.01	5.69	10.32	8.141	8.141	8.45	CODETI	
380	2.82	0.92	0.01	5.69	5.82	1.000	1.000	3.74	CODETI	
385	2.82	0.94	-0.01	5.69	5.82	1.000	1.000	3.77	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	12.54	1.02	0.01	25.28	25.89	1.000	1.000	13.56	CODETI	
410	12.55	0.91	-0.01	25.28	25.89	1.000	1.000	13.45	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	12.54	0.85	0.01	25.28	25.89	1.000	1.000	13.40	CODETI	
430 (PF4_CPO)	12.54	0.17	-0.01	25.28	25.89	1.000	1.000	12.72	CODETI	
440	1.83	1.92	2.13	3.73	5.92	10.614	10.614	35.84	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
450	1.84	1.62	-2.13	3.73	5.77	1.000	1.000	6.40	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	3.28	13.27	-0.20	4.27	16.55	10.614	10.614	12.54	CODETI	
500	3.38	1.97	0.30	4.27	5.48	1.000	1.000	4.17	CODETI	
500	3.38	1.97	-0.30	4.27	5.43	1.000	1.000	4.17	CODETI	
503	3.44	13.25	0.36	4.27	16.52	7.049	7.049	12.75	CODETI	
503	3.44	13.25	-0.36	4.27	16.71	7.049	7.049	12.75	CODETI	
504	3.27	7.21	0.43	4.27	10.45	7.049	7.049	9.20	CODETI	
504	3.27	7.21	-0.43	4.27	10.52	7.049	7.049	9.20	CODETI	
505	3.11	2.23	0.45	4.27	5.55	7.049	7.049	7.16	CODETI	
505	3.11	0.32	-0.45	4.27	4.47	1.000	1.000	3.07	CODETI	
508	3.37	33.63	0.42	4.27	36.40	7.049	7.049	27.72	CODETI	
508	3.37	33.63	-0.42	4.27	37.00	7.049	7.049	27.72	CODETI	
509	3.62	40.21	0.31	4.27	43.09	7.049	7.049	32.44	CODETI	
509	3.62	40.21	-0.31	4.27	43.84	7.049	7.049	32.44	CODETI	
510	3.67	41.14	0.23	4.27	44.05	7.049	7.049	33.06	CODETI	
510	3.67	5.84	-0.23	4.27	9.52	1.000	1.000	7.97	CODETI	
514 (Té_VS_011)	3.72	34.08	0.23	4.27	37.18	5.836	5.836	27.75	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
514 (Té_VS_011)	4.08	20.30	0.00	4.27	24.38	5.836	5.836	17.34	CODETI	
515	4.16	3.48	-0.00	4.27	7.66	1.000	1.000	5.59	CODETI	
515	2.01	1.68	0.00	2.08	3.70	1.000	1.000	2.69	CODETI	
520	2.07	12.19	-0.00	2.08	13.85	7.279	7.279	10.16	CODETI	
520	1.13	31.55	-0.28	2.08	32.68	7.279	7.279	24.87	CODETI	
525	1.13	1.99	0.28	2.08	3.21	1.000	1.000	3.09	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.24	2.69	-0.58	0.00	3.15	1.000	1.000	2.93	CODETI	
547	0.65	4.73	0.61	0.00	5.53	6.943	6.943	7.31	CODETI	
547	0.65	4.73	-0.61	0.00	5.53	6.943	6.943	7.31	CODETI	
548	1.36	15.17	0.56	0.00	16.57	6.943	6.943	12.78	CODETI	
548	-0.45	15.17	-0.56	0.00	15.66	6.943	6.943	12.78	CODETI	
549	-0.72	9.00	0.36	0.00	9.75	6.943	6.943	7.73	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
549	-0.72	9.00	-0.36	0.00	9.75	6.943	6.943	7.73	CODETI	
550	-0.78	8.52	0.23	0.00	9.31	6.943	6.943	6.82	CODETI	
550	-0.78	1.23	-0.23	0.00	2.06	1.000	1.000	1.31	CODETI	
557	-0.67	9.88	0.09	0.00	10.55	6.943	6.943	7.47	CODETI	
557	-0.67	9.88	-0.09	0.00	10.55	6.943	6.943	7.47	CODETI	
558	-0.57	8.43	-0.19	0.00	9.01	6.943	6.943	6.62	CODETI	
558	-0.57	8.43	0.19	0.00	9.01	6.943	6.943	6.62	CODETI	
559	-0.35	4.63	-0.41	0.00	5.05	6.943	6.943	5.53	CODETI	
559	-0.35	4.63	0.41	0.00	5.05	6.943	6.943	5.53	CODETI	
560	-0.21	5.44	-0.49	0.00	5.73	6.943	6.943	6.49	CODETI	
560	-0.21	0.78	0.49	0.00	1.39	1.000	1.000	1.25	CODETI	
570	-0.22	2.72	-0.49	0.00	3.09	1.000	1.000	2.89	CODETI	
570	-0.22	6.80	0.49	0.00	7.08	2.500	2.500	5.41	CODETI	
580	-0.16	6.60	-0.27	0.00	6.79	2.500	2.500	5.06	CODETI	
580	-0.16	2.64	0.27	0.00	2.86	1.000	1.000	2.70	CODETI	
585	-0.16	2.83	-0.27	0.00	3.04	1.000	1.000	2.88	CODETI	
585	-0.16	2.83	0.27	0.00	3.04	1.000	1.000	2.88	CODETI	
590	-0.16	22.75	-0.27	0.00	22.92	7.057	7.057	17.31	CODETI	
590	-0.01	27.57	0.92	0.00	27.64	7.057	7.057	22.86	CODETI	
595 (SR_11)	-0.01	1.02	-0.92	0.00	2.11	1.000	1.000	2.11	CODETI	
595 (SR_11)	0.00	1.02	0.92	0.00	2.11	1.000	1.000	2.11	CODETI	
596 (SP_13)	-0.00	4.58	-0.92	0.00	4.94	1.000	1.000	4.93	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

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596 (SP_13)	0.01	4.58	0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
598	0.00	32.38	-0.66	0.00	32.41	8.236	8.236	25.62	CODETI	
598	0.00	32.38	0.66	0.00	32.41	8.236	8.236	25.62	CODETI	
599	0.00	30.10	-0.16	0.00	30.11	8.236	8.236	22.66	CODETI	
599	0.00	30.10	0.16	0.00	30.11	8.236	8.236	22.66	CODETI	
600	0.00	28.27	0.07	0.00	28.28	8.236	8.236	21.22	CODETI	
600	0.00	3.43	-0.07	0.00	3.44	1.000	1.000	3.44	CODETI	
608	0.00	2.69	0.05	0.00	2.69	8.236	8.236	2.10	CODETI	
608	0.00	2.69	-0.05	0.00	2.69	8.236	8.236	2.10	CODETI	
609	0.00	1.75	0.01	0.00	1.75	8.236	8.236	1.32	CODETI	
609	0.00	1.75	-0.01	0.00	1.75	8.236	8.236	1.32	CODETI	
610	0.00	1.32	0.00	0.00	1.32	8.236	8.236	0.99	CODETI	
610	0.00	0.16	-0.00	0.00	0.16	1.000	1.000	0.16	CODETI	
615	0.00	0.04	0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
615	0.00	0.04	-0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
620	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	1.13	27.29	0.51	2.08	28.44	7.279	7.279	22.22	CODETI	
625	1.13	2.32	-0.51	2.08	3.61	1.000	1.000	3.55	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

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635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.23	3.88	1.05	0.00	4.61	1.000	1.000	4.41	CODETI	
642	0.51	11.31	-1.05	0.00	12.00	6.943	6.943	13.82	CODETI	
642	0.51	11.31	1.05	0.00	12.00	6.943	6.943	13.82	CODETI	
643	0.98	9.50	-0.82	0.00	10.60	6.943	6.943	11.16	CODETI	
643	0.98	9.50	0.82	0.00	10.60	6.943	6.943	11.16	CODETI	
644	1.21	15.75	-0.37	0.00	16.98	6.943	6.943	12.44	CODETI	
644	1.21	15.75	0.37	0.00	16.98	6.943	6.943	12.44	CODETI	
645	1.22	16.40	-0.11	0.00	17.62	6.943	6.943	12.35	CODETI	
645	1.22	2.36	0.11	0.00	3.59	1.000	1.000	2.37	CODETI	
590	1.43	18.14	-0.11	0.00	19.56	7.057	7.057	13.65	CODETI	
360 (Té_TH_700)	2.82	1.36	-0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	-0.00	4.21	4.34	1.000	1.000	3.39	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

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690	2.08	0.05	0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	-0.21	20.13	-0.75	-0.41	20.39	10.614	10.614	19.45	CODETI	
720 (Té_VS_008)	-0.21	14.01	0.75	-0.41	14.29	10.614	10.614	16.11	CODETI	
720 (Té_VS_008)	-0.20	27.34	0.10	-0.41	27.55	10.614	10.614	20.78	CODETI	
725	-0.21	0.85	-0.10	-0.41	1.08	1.000	1.000	1.08	CODETI	
725	-0.31	1.30	0.16	-0.63	1.65	1.000	1.000	1.66	CODETI	
730	-0.32	6.09	-0.16	-0.63	6.41	1.000	1.000	6.41	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	-0.19	3.80	0.10	-0.41	3.99	1.000	1.000	4.01	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
770 (Té_Gavage)	-0.19	4.27	-0.10	-0.41	4.50	10.614	10.614	3.80	CODETI	
770 (Té_Gavage)	-0.20	3.17	-0.00	-0.41	3.37	10.614	10.614	2.58	CODETI	
780	-0.20	0.00	0.00	-0.41	0.43	1.000	1.000	0.21	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	-0.00	-0.63	0.65	2.000	2.000	0.31	CODETI	
800 (SB_02)	-0.67	0.88	0.00	-1.18	1.55	2.000	2.000	1.25	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	-0.59	0.46	0.00	-1.18	1.19	1.000	1.000	1.05	CODETI	
820	-0.59	0.00	0.00	-1.18	1.19	1.000	1.000	0.59	CODETI	
720 (Té_VS_008)	-0.32	34.57	0.02	-0.63	34.88	10.614	10.614	26.24	CODETI	
830	-0.32	0.33	-0.02	-0.63	0.67	1.000	1.000	0.64	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.32	0.09	0.02	-0.63	0.65	1.000	1.000	0.41	CODETI	
865 (SP_14)	-0.32	0.15	-0.02	-0.63	0.65	1.000	1.000	0.47	CODETI	
865 (SP_14)	-0.32	0.15	0.02	-0.63	0.65	1.000	1.000	0.47	CODETI	
867	-0.35	1.79	-0.02	-0.63	2.12	8.376	8.376	1.67	CODETI	
867	-0.35	1.79	0.02	-0.63	2.13	8.376	8.376	1.67	CODETI	
868	-0.42	0.34	-0.01	-0.63	0.77	8.376	8.376	0.61	CODETI	
868	-0.42	0.34	0.01	-0.63	0.77	8.376	8.376	0.61	CODETI	
869	-0.51	1.07	-0.00	-0.63	1.57	8.376	8.376	1.12	CODETI	
869	-0.51	1.07	0.00	-0.63	1.58	8.376	8.376	1.12	CODETI	
870	-0.54	1.19	0.00	-0.63	1.73	8.376	8.376	1.21	CODETI	
870	-0.54	0.14	-0.00	-0.63	0.69	1.000	1.000	0.46	CODETI	
872	-0.79	0.06	0.00	-0.63	0.85	1.000	1.000	0.37	CODETI	
872	-0.79	0.06	-0.00	-0.63	0.85	1.000	1.000	0.37	CODETI	
875 (SG_15)	-1.07	0.10	0.00	-0.63	1.18	1.000	1.000	0.41	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.16	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
880	-0.18	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
880	-0.18	0.00	-0.00	-0.63	0.65	2.500	2.500	0.31	CODETI	
890	-0.24	0.00	0.00	-0.52	0.53	2.500	2.500	0.26	CODETI	
890	-0.24	0.00	-0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	-0.25	0.00	0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	1.10	11.88	-0.00	-0.63	13.43	10.614	10.614	9.22	CODETI	
772 (SG_16_1)	0.99	1.06	0.00	-0.63	2.68	1.000	1.000	1.37	CODETI	
772 (SG_16_1)	0.99	1.06	-0.00	-0.63	2.67	1.000	1.000	1.37	CODETI	
775	0.81	8.63	0.00	-0.63	10.07	7.057	7.057	6.79	CODETI	
775	0.65	9.16	0.00	-0.63	10.31	7.057	7.057	7.18	CODETI	
910 (Té_VS_007)	0.26	1.76	-0.00	-0.63	2.65	1.000	1.000	2.07	CODETI	
910 (Té_VS_007)	0.30	1.75	0.00	-0.63	2.66	1.000	1.000	2.06	CODETI	
915 (SG_16_2)	0.24	2.05	-0.00	-0.63	2.91	1.000	1.000	2.36	CODETI	
915 (SG_16_2)	0.24	2.05	0.00	-0.63	2.89	1.000	1.000	2.36	CODETI	
920	0.21	2.05	-0.00	-0.63	2.88	1.000	1.000	2.36	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.11	2.05	0.00	-0.63	2.76	1.000	1.000	2.36	CODETI	
957	0.04	16.89	-0.00	-0.63	17.56	8.472	8.472	12.98	CODETI	
957	0.04	16.89	0.00	-0.63	17.31	8.472	8.472	12.98	CODETI	
958	-0.09	13.96	-0.00	-0.63	14.50	8.472	8.472	10.79	CODETI	
958	-0.09	13.96	0.00	-0.63	14.29	8.472	8.472	10.79	CODETI	
959	-0.25	9.73	-0.00	-0.63	10.11	8.472	8.472	7.61	CODETI	
959	-0.25	9.73	0.00	-0.63	9.98	8.472	8.472	7.61	CODETI	
960	-0.31	7.66	-0.00	-0.63	7.97	8.472	8.472	6.06	CODETI	
960	-0.31	0.90	0.00	-0.63	1.22	1.000	1.000	1.22	CODETI	
965	-0.31	0.32	-0.00	-0.63	0.65	1.000	1.000	0.64	CODETI	
965	-0.31	0.81	0.00	-0.63	1.12	2.500	2.500	0.92	CODETI	
970	-0.26	0.02	-0.00	-0.53	0.54	2.500	2.500	0.27	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
970	-0.26	0.01	0.00	-0.53	0.54	1.000	1.000	0.27	CODETI	
980	-0.26	0.00	-0.00	-0.53	0.54	1.000	1.000	0.26	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.25	39.49	0.00	-0.51	39.73	7.057	7.057	29.87	CODETI	
995	-0.25	6.35	-0.00	-0.51	6.61	1.000	1.000	6.60	CODETI	
995	-0.25	6.35	0.00	-0.51	6.60	1.000	1.000	6.60	CODETI	
998	-0.25	1.00	-0.00	-0.51	1.26	1.000	1.000	1.26	CODETI	
998	-0.25	5.51	0.00	-0.51	5.76	5.493	4.577	4.38	CODETI	
999	-0.25	4.48	-0.00	-0.51	4.73	5.493	4.577	3.62	CODETI	
999	-0.25	4.48	0.00	-0.51	4.74	5.493	4.577	3.62	CODETI	
1000	-0.32	4.69	0.00	-0.51	4.93	5.493	4.577	3.77	CODETI	
1000	-0.32	0.85	-0.00	-0.51	1.18	1.000	1.000	1.11	CODETI	
1002	-0.62	0.85	0.00	-0.51	1.47	1.000	1.000	1.11	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.62	0.85	-0.00	-0.51	1.48	1.000	1.000	1.11	CODETI	
1008	-0.93	0.85	0.00	-0.51	1.77	1.000	1.000	1.11	CODETI	
1008	-0.93	4.69	-0.00	-0.51	5.61	5.493	4.577	3.77	CODETI	
1009	-0.81	10.71	-0.00	-0.51	11.32	5.493	4.577	8.28	CODETI	
1009	0.02	10.71	0.00	-0.51	11.04	5.493	4.577	8.28	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1010	-0.25	2.78	-0.00	-0.51	3.03	5.493	4.577	2.34	CODETI	
1010	-0.25	0.51	0.00	-0.51	0.76	1.000	1.000	0.76	CODETI	
1020	-0.25	0.31	-0.00	-0.51	0.56	1.000	1.000	0.56	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.25	0.10	0.00	-0.51	0.53	1.000	1.000	0.35	CODETI	
1060	-0.25	0.07	-0.00	-0.51	0.53	1.000	1.000	0.33	CODETI	
1060	-0.25	0.15	0.00	-0.51	0.53	2.000	2.000	0.36	CODETI	
1070	-0.23	0.00	-0.00	-0.46	0.48	2.000	2.000	0.23	CODETI	
1070	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1100 (CT_ASP_Reg)	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.47	4.71	0.33	-0.51	5.62	1.000	1.000	5.01	CODETI	
1120	0.47	4.70	-0.33	-0.51	5.72	1.000	1.000	5.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

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1120	0.47	4.70	0.33	-0.51	5.62	1.000	1.000	5.00	CODETI	
1128	0.48	4.70	-0.33	-0.51	5.72	1.000	1.000	5.00	CODETI	
1128	0.48	25.75	0.33	-0.51	26.25	5.493	4.577	19.81	CODETI	
1129	0.30	17.53	-0.47	-0.51	18.36	5.493	4.577	13.95	CODETI	
1129	0.30	17.53	0.47	-0.51	18.02	5.493	4.577	13.95	CODETI	
1130	-0.27	4.14	-0.32	-0.51	4.42	5.493	4.577	4.63	CODETI	
1130	-0.27	0.84	0.32	-0.51	1.29	1.000	1.000	1.31	CODETI	
1132	-0.28	3.45	-0.32	-0.51	3.74	1.000	1.000	3.76	CODETI	
1132	-0.28	3.45	0.32	-0.51	3.78	1.000	1.000	3.76	CODETI	
1135 (SR_18)	-0.28	9.26	-0.32	-0.51	9.51	1.000	1.000	9.53	CODETI	
1135 (SR_18)	-0.26	9.26	0.32	-0.51	9.54	1.000	1.000	9.53	CODETI	
1138	-0.26	2.21	-0.32	-0.51	2.54	1.000	1.000	2.56	CODETI	
1138	-0.26	11.96	0.32	-0.51	12.24	5.493	4.577	9.74	CODETI	
1139	0.09	4.38	0.00	-0.51	4.97	5.493	4.577	4.16	CODETI	
1139	0.09	4.38	-0.00	-0.51	4.89	5.493	4.577	4.16	CODETI	
1140	0.16	6.51	0.33	-0.51	7.21	5.493	4.577	6.04	CODETI	
1140	0.16	1.24	-0.33	-0.51	1.97	1.000	1.000	1.66	CODETI	
1148	-0.13	1.45	0.33	-0.51	1.94	1.000	1.000	1.85	CODETI	
1148	-0.13	7.70	-0.33	-0.51	7.95	5.493	4.577	6.81	CODETI	
1149	-0.23	9.14	0.00	-0.51	9.42	5.493	4.577	7.43	CODETI	
1149	-0.23	9.14	-0.00	-0.51	9.37	5.493	4.577	7.43	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1150	-0.27	8.92	-0.32	-0.51	9.18	5.493	4.577	7.62	CODETI	
1150	-0.27	1.67	0.32	-0.51	2.04	1.000	1.000	2.04	CODETI	
1158	-0.27	0.85	-0.32	-0.51	1.26	1.000	1.000	1.32	CODETI	
1158	-0.27	4.37	0.32	-0.51	4.69	5.493	4.577	4.65	CODETI	
1159	-0.26	3.57	-0.23	-0.51	3.84	5.493	4.577	3.54	CODETI	
1159	-0.26	3.57	0.23	-0.51	3.86	5.493	4.577	3.54	CODETI	
1160	-0.25	5.66	-0.45	-0.51	5.98	5.493	4.577	6.36	CODETI	
1160	-0.25	1.17	0.45	-0.51	1.69	1.000	1.000	1.74	CODETI	
1165 (SR_19)	-0.25	1.23	-0.45	-0.51	1.74	1.000	1.000	1.78	CODETI	
1165 (SR_19)	-0.25	1.24	0.45	-0.51	1.74	1.000	1.000	1.78	CODETI	
1170 (Té_ATRE)	-0.25	30.44	-0.45	-0.51	30.71	4.398	4.398	23.28	CODETI	
1170 (Té_ATRE)	-0.26	30.44	0.45	-0.51	30.71	4.398	4.398	23.28	CODETI	
1175	-0.26	4.13	-0.45	-0.51	4.47	1.000	1.000	4.48	CODETI	
1175	-0.26	4.13	0.45	-0.51	4.47	1.000	1.000	4.48	CODETI	
1178	-0.26	2.90	-0.45	-0.51	3.27	1.000	1.000	3.29	CODETI	
1178	-0.26	15.91	0.45	-0.51	16.20	5.493	4.577	12.75	CODETI	
1179	-0.61	5.87	-0.30	-0.51	6.39	5.493	4.577	5.51	CODETI	
1179	-0.61	5.87	0.30	-0.51	6.51	5.493	4.577	5.51	CODETI	
1180	-0.83	3.77	0.00	-0.51	4.53	5.493	4.577	3.65	CODETI	
1180	-0.83	0.82	-0.00	-0.51	1.65	1.000	1.000	1.08	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1185	-0.85	0.81	0.00	-0.51	1.65	1.000	1.000	1.06	CODETI	
1185	0.06	0.03	-0.00	-0.51	0.61	1.000	1.000	0.29	CODETI	
1186 (SG_20)	0.02	0.00	0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	0.02	0.00	-0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	-0.00	-0.51	0.53	2.500	2.500	0.25	CODETI	
1195	-0.22	0.00	0.00	-0.46	0.48	2.500	2.500	0.23	CODETI	
1195	-0.22	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1210 (CT_REF_Reg)	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.05	0.00	0.00	-0.51	0.57	4.398	4.398	0.25	CODETI	
1211	-0.25	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1211	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1212 (CT_03)	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	-0.00	-0.51	0.53	7.242	6.035	0.25	CODETI	
1219	-0.40	1.63	0.00	-0.51	2.01	7.242	6.035	1.48	CODETI	
1219	-0.40	1.63	-0.00	-0.51	2.03	7.242	6.035	1.48	CODETI	
1220	-0.25	6.47	0.00	-0.51	6.73	7.242	6.035	5.11	CODETI	
1220	-0.25	0.89	-0.00	-0.51	1.15	1.000	1.000	1.15	CODETI	
1230	-0.25	1.07	0.00	-0.51	1.32	1.000	1.000	1.32	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	-0.28	0.00	0.00	-0.56	0.58	1.000	1.000	0.28	CODETI	
1268	-0.28	0.04	-0.00	-0.56	0.58	1.000	1.000	0.31	CODETI	
1268	-0.28	0.19	0.00	-0.56	0.58	5.380	4.483	0.42	CODETI	
1269	-0.29	0.59	-0.00	-0.56	0.88	5.380	4.483	0.72	CODETI	
1269	-0.29	0.59	0.00	-0.56	0.88	5.380	4.483	0.72	CODETI	
1270	-0.32	1.11	-0.00	-0.56	1.41	5.380	4.483	1.11	CODETI	
1270	-0.32	0.21	0.00	-0.56	0.58	1.000	1.000	0.48	CODETI	
1279	-0.33	3.03	0.17	-0.56	3.32	5.380	4.483	3.32	CODETI	
1279	-0.33	3.03	-0.17	-0.56	3.37	5.380	4.483	3.32	CODETI	
1280	-0.28	5.28	0.51	-0.56	5.66	5.380	4.483	6.43	CODETI	
1280	-0.28	1.13	-0.51	-0.56	1.74	1.000	1.000	1.80	CODETI	
1285	-0.28	10.72	0.51	-0.56	11.05	4.398	4.398	9.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1285	-0.28	30.51	0.17	-0.56	30.80	4.398	4.398	23.19	CODETI	
1286	-0.28	3.00	-0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1286	-0.28	3.00	0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1291	-0.28	1.46	-0.17	-0.56	1.77	1.000	1.000	1.78	CODETI	
1291	-0.28	6.55	0.17	-0.56	6.84	5.380	4.483	6.34	CODETI	
1292	-0.28	5.91	-0.08	-0.56	6.19	5.380	4.483	5.64	CODETI	
1292	-0.28	5.91	0.08	-0.56	6.20	5.380	4.483	5.64	CODETI	
1290	-0.28	5.22	-0.00	-0.56	5.49	5.380	4.483	4.97	CODETI	
1290	-0.28	1.16	0.00	-0.56	1.44	1.000	1.000	1.44	CODETI	
1300	-0.28	0.41	-0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1300	-0.28	0.41	0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1310	-0.28	0.01	-0.00	-0.56	0.58	1.000	1.000	0.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.27	6.01	2.25	-0.56	7.73	4.398	4.398	15.79	CODETI	
1320	-0.27	4.21	-2.25	-0.56	6.36	1.000	1.000	6.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-0.27	2.79	0.18	-0.56	3.08	1.000	1.000	3.09	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1328	-0.27	0.47	-0.18	-0.56	0.86	1.000	1.000	0.87	CODETI	
1328	-0.27	2.35	0.18	-0.56	2.64	5.380	4.483	2.67	CODETI	
1329	-0.09	4.01	-0.00	-0.56	4.48	5.380	4.483	3.52	CODETI	
1329	-0.77	3.44	-0.13	-0.56	4.21	5.380	4.483	3.13	CODETI	
1330	-0.90	3.60	0.13	-0.56	4.45	5.380	4.483	3.24	CODETI	
1330	-0.90	0.69	-0.13	-0.56	1.61	1.000	1.000	1.01	CODETI	
1338	-0.66	1.54	0.13	-0.56	2.19	1.000	1.000	1.84	CODETI	
1338	-0.66	8.00	-0.13	-0.56	8.66	5.380	4.483	6.59	CODETI	
1339	-0.54	5.93	0.36	-0.56	6.40	5.380	4.483	5.68	CODETI	
1339	-0.54	5.93	-0.36	-0.56	6.52	5.380	4.483	5.68	CODETI	
1340	-0.35	0.93	0.40	-0.56	1.45	5.380	4.483	3.63	CODETI	
1340	-0.35	0.21	-0.40	-0.56	0.98	1.000	1.000	1.11	CODETI	
1343	-0.35	1.66	0.40	-0.56	2.09	1.000	1.000	2.13	CODETI	
1343	-0.35	1.66	-0.40	-0.56	2.16	1.000	1.000	2.13	CODETI	
1348	-0.35	1.62	0.40	-0.56	2.05	1.000	1.000	2.09	CODETI	
1348	-0.35	7.28	-0.40	-0.56	7.66	5.380	4.483	7.58	CODETI	
1349	-0.32	6.25	-0.23	-0.56	6.51	5.380	4.483	6.21	CODETI	
1349	-0.32	6.25	0.23	-0.56	6.59	5.380	4.483	6.21	CODETI	
1345	-0.27	2.04	-0.54	-0.56	2.56	5.380	4.483	4.87	CODETI	
1345	-0.27	0.38	0.54	-0.56	1.25	1.000	1.000	1.42	CODETI	
1350 (SP_23)	-0.27	1.94	-0.54	-0.56	2.47	1.000	1.000	2.49	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
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1350 (SP_23)	-0.27	1.94	0.54	-0.56	2.45	1.000	1.000	2.49	CODETI	
1355	-0.27	2.80	-0.54	-0.56	3.27	1.000	1.000	3.28	CODETI	
1355	-0.27	2.80	0.54	-0.56	3.25	1.000	1.000	3.28	CODETI	
1360	-0.27	3.15	-0.54	-0.56	3.60	1.000	1.000	3.61	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	2.29	4.12	0.54	4.60	6.54	1.000	1.000	6.53	CODETI	
514 (Té_VS_011)	2.30	33.45	-0.33	4.60	35.72	5.836	5.836	27.53	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.06	18.80	-0.61	0.00	18.89	7.388	7.388	15.63	CODETI	
1417	-0.24	24.36	0.60	0.00	24.63	7.388	7.388	19.44	CODETI	
1417	-0.24	24.36	-0.60	0.00	24.63	7.388	7.388	19.44	CODETI	
1418	-0.52	33.73	0.46	0.00	34.25	7.388	7.388	25.80	CODETI	
1418	-0.52	33.73	-0.46	0.00	34.25	7.388	7.388	25.80	CODETI	
1419	-0.63	38.55	0.19	0.00	39.18	7.388	7.388	28.99	CODETI	
1419	-0.63	38.55	-0.19	0.00	39.18	7.388	7.388	28.99	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
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1410	-0.62	38.86	0.03	0.00	39.49	7.388	7.388	29.15	CODETI	
1410	-0.62	5.26	-0.03	0.00	5.88	1.000	1.000	5.26	CODETI	
1415 (SP_26)	0.02	3.12	0.03	0.00	3.13	1.000	1.000	3.12	CODETI	
1415 (SP_26)	0.02	3.12	-0.03	0.00	3.13	1.000	1.000	3.12	CODETI	
1422	0.06	2.99	0.03	0.00	3.05	1.000	1.000	2.99	CODETI	
1422	0.06	14.70	-0.03	0.00	14.76	5.640	4.700	12.66	CODETI	
1421	0.09	10.36	-0.87	0.00	10.60	5.640	4.700	11.41	CODETI	
1421	0.09	10.36	0.87	0.00	10.60	5.640	4.700	11.41	CODETI	
1420	0.00	2.93	-1.16	0.00	3.73	5.640	4.700	10.07	CODETI	
1420	0.00	0.54	1.16	0.00	2.38	1.000	1.000	2.38	CODETI	
1425	0.00	0.83	-1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1425	0.00	0.83	1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1428	0.01	33.92	-0.88	0.00	33.97	7.391	7.391	27.26	CODETI	
1428	0.01	33.92	0.88	0.00	33.97	7.391	7.391	27.26	CODETI	
1429	0.02	39.55	-0.25	0.00	39.57	7.391	7.391	29.79	CODETI	
1429	0.02	39.55	0.25	0.00	39.57	7.391	7.391	29.79	CODETI	
1430	0.03	41.47	0.10	0.00	41.49	7.391	7.391	31.12	CODETI	
1430	0.03	5.61	-0.10	0.00	5.64	1.000	1.000	5.61	CODETI	
1440	0.02	11.71	0.10	0.00	11.73	1.000	1.000	11.71	CODETI	
1440	0.02	11.71	-0.10	0.00	11.73	1.000	1.000	11.71	CODETI	
1445 (SP_31)	0.02	17.49	0.10	0.00	17.51	1.000	1.000	17.49	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
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1445 (SP_31)	0.03	17.49	-0.10	0.00	17.52	1.000	1.000	17.49	CODETI	
1450	0.03	82.97	0.10	0.00	83.01	5.231	5.231	62.24	CODETI	
1450	0.01	80.24	0.69	0.00	80.26	5.231	5.231	60.43	CODETI	
1451 (SP_27)	0.00	6.50	-0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1451 (SP_27)	0.00	6.50	0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1452	0.00	4.65	-0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1452	0.00	4.65	0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1455 (SP_28)	-0.00	4.53	-0.69	0.00	4.74	1.000	1.000	4.73	CODETI	
1455 (SP_28)	0.00	4.53	0.69	0.00	4.74	1.000	1.000	4.73	CODETI	
1458	0.00	0.58	-0.69	0.00	1.50	1.000	1.000	1.50	CODETI	
1458	0.00	2.73	0.69	0.00	3.07	5.640	4.700	6.35	CODETI	
1459	0.01	6.48	-0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1459	0.01	6.48	0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1460	0.01	10.24	0.24	0.00	10.26	5.640	4.700	9.43	CODETI	
1460	0.01	2.18	-0.24	0.00	2.23	1.000	1.000	2.23	CODETI	
1468	0.00	1.39	0.24	0.00	1.47	1.000	1.000	1.47	CODETI	
1468	0.00	6.54	-0.24	0.00	6.56	5.640	4.700	6.21	CODETI	
1469	0.00	1.87	-0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1469	0.00	1.87	0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1470	0.00	5.50	0.00	0.00	5.50	5.640	4.700	4.95	CODETI	
1470	0.00	1.17	-0.00	0.00	1.17	1.000	1.000	1.17	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	3.20	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.02	-0.00	0.00	0.05	1.000	1.000	0.02	CODETI	
1518	0.04	0.04	0.00	0.00	0.08	1.000	1.000	0.04	CODETI	
1518	0.04	0.28	-0.00	0.00	0.32	7.391	6.159	0.25	CODETI	
1519	0.07	0.93	-0.02	0.00	1.01	7.391	6.159	0.87	CODETI	
1519	0.07	0.93	0.02	0.00	1.01	7.391	6.159	0.87	CODETI	
1520	0.08	1.36	-0.07	0.00	1.44	7.391	6.159	1.43	CODETI	
1520	0.08	0.22	0.07	0.00	0.33	1.000	1.000	0.26	CODETI	
1523	0.18	2.03	-0.07	0.00	2.21	1.000	1.000	2.04	CODETI	
1523	0.18	11.14	0.07	0.00	11.32	5.640	4.700	8.62	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 7 Poids + PS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1524	0.11	13.60	-0.20	0.00	13.72	5.640	4.700	10.54	CODETI	
1524	0.11	13.60	0.20	0.00	13.72	5.640	4.700	10.54	CODETI	
1525	0.03	16.55	-0.32	0.00	16.59	5.640	4.700	12.86	CODETI	
1525	0.03	2.97	0.32	0.00	3.07	1.000	1.000	3.04	CODETI	
1530	0.03	3.19	-0.32	0.00	3.28	1.000	1.000	3.26	CODETI	
1530	0.02	3.19	0.33	0.00	3.28	1.000	1.000	3.26	CODETI	
1540 (SR_30)	0.02	4.68	-0.33	0.00	4.74	1.000	1.000	4.72	CODETI	
1540 (SR_30)	0.03	4.68	0.33	0.00	4.75	1.000	1.000	4.72	CODETI	
1450	0.03	12.55	-0.33	0.00	12.60	5.231	5.231	9.76	CODETI	

STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 8 Poids + PMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.21	0.14	0.01	0.00	7.34	1.000	1.000	0.14	CODETI	
20	-6.91	0.14	-0.01	0.00	7.05	1.000	1.000	0.14	CODETI	
20	6.73	0.00	0.00	11.35	11.43	1.000	1.000	5.67	CODETI	
25	5.67	0.00	-0.00	11.35	11.43	1.000	1.000	5.67	CODETI	
20	3.34	0.14	0.01	17.33	17.40	1.000	1.000	8.79	CODETI	
30	3.66	0.14	-0.01	17.33	17.40	1.000	1.000	8.80	CODETI	
30	3.72	0.18	0.01	17.33	17.40	1.000	1.000	8.84	CODETI	
40	4.08	0.19	-0.01	17.33	17.40	1.000	1.000	8.84	CODETI	
40	4.09	0.06	0.00	17.33	17.40	1.000	1.000	8.71	CODETI	
45 (Weld_CW2)	5.77	0.06	-0.00	17.33	17.40	1.000	1.000	8.71	CODETI	
45 (Weld_CW2)	5.77	0.06	0.00	17.33	17.40	1.000	1.000	8.71	CODETI	
50	6.98	0.05	-0.00	17.33	17.40	1.000	1.000	8.71	CODETI	
50	4.57	0.03	0.00	11.35	11.43	1.000	1.000	5.70	CODETI	
55	5.36	0.03	-0.00	11.35	11.43	1.000	1.000	5.70	CODETI	
55	5.38	0.03	0.00	11.35	11.43	1.000	1.000	5.69	CODETI	
56	5.44	0.03	-0.00	11.35	11.43	1.000	1.000	5.69	CODETI	
56	5.42	0.00	-0.00	11.35	11.43	1.000	1.000	5.66	CODETI	
60	5.63	0.00	0.00	11.35	11.43	1.000	1.000	5.66	CODETI	
65	1.27	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Piquage_N1)										
70	1.34	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	1.57	2.90	3.27	3.16	7.92	1.000	1.000	8.72	CODETI	
110	1.57	2.95	-3.27	3.16	7.95	1.000	1.000	8.74	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	1.50	0.36	0.00	2.56	2.63	1.000	1.000	1.63	CODETI	
129	1.39	1.01	0.00	2.56	2.63	7.124	5.937	2.03	CODETI	
129	1.39	1.01	-0.00	2.56	2.63	7.124	5.937	2.03	CODETI	
130	1.27	1.90	0.00	2.56	3.18	7.124	5.937	2.69	CODETI	
130	1.27	0.27	-0.00	2.56	2.63	1.000	1.000	1.53	CODETI	
134 (Jupe_N3)	1.26	0.10	0.00	2.56	2.63	1.000	1.000	1.37	CODETI	
134 (Jupe_N3)	1.26	0.10	-0.00	2.56	2.63	1.000	1.000	1.37	CODETI	
135 (SR_N3)	1.26	0.38	0.00	2.56	2.63	1.000	1.000	1.65	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	0.89	0.53	0.00	2.56	2.63	1.000	1.000	1.80	CODETI	
160	1.00	0.08	-0.00	2.56	2.63	1.000	1.000	1.35	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	1.70	4.81	0.33	2.56	6.54	1.000	1.000	6.12	CODETI	
190	1.81	4.72	-0.33	2.56	6.51	1.000	1.000	6.03	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	1.21	4.00	-0.61	2.56	5.42	1.000	1.000	5.44	CODETI	
220	1.21	1.33	0.61	2.56	3.20	1.000	1.000	3.07	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

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220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.62	0.00	-0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
250	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
251 (CT_N1)	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
260	0.81	0.00	-0.00	1.26	1.29	10.614	10.614	0.63	CODETI	
260	0.41	20.13	-0.75	0.83	20.59	10.614	10.614	19.65	CODETI	
262	0.41	1.47	0.75	0.83	2.40	1.000	1.000	2.51	CODETI	
262	0.63	2.25	-1.15	1.26	3.69	1.000	1.000	3.85	CODETI	
265 (SG_5)	0.63	1.89	1.15	1.26	3.41	1.000	1.000	3.61	CODETI	
265 (SG_5)	0.63	1.89	-1.15	1.26	3.41	1.000	1.000	3.61	CODETI	
267	0.63	3.91	1.10	1.26	5.04	8.376	8.376	14.73	CODETI	
267	0.63	3.91	-1.10	1.26	5.05	8.376	8.376	14.73	CODETI	
268	0.63	4.54	0.96	1.26	5.50	8.376	8.376	13.19	CODETI	
268	0.63	4.54	-0.96	1.26	5.52	8.376	8.376	13.19	CODETI	
269	0.63	2.97	0.84	1.26	3.97	8.376	8.376	11.45	CODETI	
269	0.63	2.97	-0.84	1.26	3.98	8.376	8.376	11.45	CODETI	
270	0.63	1.55	0.81	1.26	2.71	8.376	8.376	10.86	CODETI	
270	0.63	0.19	-0.81	1.26	1.89	1.000	1.000	2.26	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

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271	0.64	5.23	0.81	1.26	6.07	1.000	1.000	6.10	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.81	5.06	-0.00	5.69	7.90	1.000	1.000	7.88	CODETI	
277	3.08	24.04	0.01	5.69	26.84	8.141	8.141	20.86	CODETI	
277	3.08	24.04	-0.01	5.69	27.12	8.141	8.141	20.86	CODETI	
278	3.50	9.21	0.03	5.69	12.65	8.141	8.141	9.74	CODETI	
278	3.50	9.21	-0.03	5.69	12.71	8.141	8.141	9.74	CODETI	
279	3.69	1.04	0.04	5.69	5.83	8.141	8.141	3.75	CODETI	
279	3.69	1.04	-0.04	5.69	5.82	8.141	8.141	3.75	CODETI	
280	3.70	0.07	0.04	5.69	5.83	8.141	8.141	3.34	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
280	3.70	0.01	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
284	3.66	0.01	0.04	5.69	5.83	1.000	1.000	2.91	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	3.49	0.01	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
290	3.31	0.00	0.04	5.69	5.83	1.000	1.000	2.91	CODETI	
290	3.31	0.00	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
299	3.13	0.00	0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	2.97	0.00	-0.04	5.69	5.82	1.000	1.000	2.91	CODETI	
306	2.92	0.20	0.04	5.69	5.82	9.368	9.368	3.41	CODETI	
306	2.92	0.20	-0.04	5.69	5.82	9.368	9.368	3.41	CODETI	
307	2.86	0.85	0.03	5.69	5.82	9.368	9.368	3.59	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**  
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
307	2.86	0.85	-0.03	5.69	5.82	9.368	9.368	3.59	CODETI	
308	2.82	1.29	0.01	5.69	5.82	9.368	9.368	3.80	CODETI	
308	2.82	1.29	-0.01	5.69	5.82	9.368	9.368	3.80	CODETI	
305	2.82	1.26	0.00	5.69	5.82	9.368	9.368	3.77	CODETI	
305	2.82	0.13	-0.00	5.69	5.82	1.000	1.000	2.96	CODETI	
435 (SR_07)	2.82	0.15	0.00	5.69	5.82	1.000	1.000	2.97	CODETI	
435 (SR_07)	2.84	0.15	-0.00	5.69	5.82	1.000	1.000	2.97	CODETI	
440	2.83	81.62	0.00	5.69	84.43	10.614	10.614	64.04	CODETI	
440	1.84	1.94	-0.37	3.73	4.21	10.614	10.614	7.99	CODETI	
445	1.84	0.06	0.37	3.73	3.93	1.000	1.000	2.59	CODETI	
445	2.82	0.86	-0.57	5.69	5.97	9.368	9.368	10.92	CODETI	
311	2.83	4.00	0.54	5.69	7.08	9.368	9.368	11.01	CODETI	
311	2.83	4.00	-0.54	5.69	7.07	9.368	9.368	11.01	CODETI	
312	2.82	9.30	0.35	5.69	12.14	9.368	9.368	11.36	CODETI	
312	2.82	9.30	-0.35	5.69	12.14	9.368	9.368	11.36	CODETI	
313	2.79	11.53	0.05	5.69	14.38	9.368	9.368	11.50	CODETI	
313	2.79	11.53	-0.05	5.69	14.32	9.368	9.368	11.50	CODETI	
310	2.78	11.29	-0.10	5.69	14.16	9.368	9.368	11.41	CODETI	
310	2.78	1.20	0.10	5.69	5.83	1.000	1.000	4.04	CODETI	
315	2.76	1.19	-0.10	5.69	5.83	1.000	1.000	4.03	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.71	1.16	0.10	5.69	5.83	1.000	1.000	4.00	CODETI	
330	2.65	0.76	-0.10	5.69	5.83	1.000	1.000	3.61	CODETI	
330	2.65	0.76	0.10	5.69	5.83	1.000	1.000	3.61	CODETI	
335	2.60	0.18	-0.10	5.69	5.83	1.000	1.000	3.10	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	2.54	0.09	0.10	5.69	5.83	1.000	1.000	3.05	CODETI	
337	2.52	3.02	-0.13	5.69	6.20	9.368	9.368	5.76	CODETI	
337	2.52	3.02	0.13	5.69	6.23	9.368	9.368	5.76	CODETI	
338	2.58	7.37	-0.27	5.69	10.45	9.368	9.368	9.54	CODETI	
338	2.58	7.37	0.27	5.69	10.43	9.368	9.368	9.54	CODETI	
339	2.72	12.22	-0.50	5.69	15.18	9.368	9.368	14.37	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**  
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
339	2.72	12.22	0.50	5.69	15.07	9.368	9.368	14.37	CODETI	
350	2.82	14.73	-0.63	5.69	17.60	9.368	9.368	16.99	CODETI	
350	1.84	1.03	0.41	3.73	4.01	1.000	1.000	3.16	CODETI	
355 (SR_8)	1.84	1.56	-0.41	3.73	4.11	1.000	1.000	3.60	CODETI	
355 (SR_8)	1.84	1.56	0.41	3.73	4.11	1.000	1.000	3.60	CODETI	
360 (Té_TH_700)	1.84	0.81	-0.41	3.73	3.99	1.000	1.000	3.00	CODETI	
360 (Té_TH_700)	1.84	0.81	0.08	3.73	3.87	1.000	1.000	2.67	CODETI	
365	1.84	19.30	-0.08	3.73	21.15	10.614	10.614	16.38	CODETI	
365	1.85	11.78	0.01	3.73	13.63	10.614	10.614	10.68	CODETI	
366	1.84	0.60	-0.01	3.73	3.86	1.000	1.000	2.44	CODETI	
366	2.83	7.51	0.01	5.69	10.34	8.141	8.141	8.46	CODETI	
368	2.76	5.26	-0.01	5.69	8.15	8.141	8.141	6.77	CODETI	
368	2.76	5.26	0.01	5.69	8.15	8.141	8.141	6.77	CODETI	
369	2.66	1.47	-0.00	5.69	5.82	8.141	8.141	3.93	CODETI	
369	2.66	1.47	0.00	5.69	5.82	8.141	8.141	3.93	CODETI	
370	2.63	0.26	0.00	5.69	5.82	8.141	8.141	3.02	CODETI	
370	2.63	0.03	-0.00	5.69	5.82	1.000	1.000	2.85	CODETI	
378	2.74	5.39	-0.00	5.69	8.30	8.141	8.141	6.86	CODETI	
378	2.74	5.39	0.00	5.69	8.30	8.141	8.141	6.86	CODETI	
379	2.80	6.92	-0.01	5.69	9.76	8.141	8.141	8.01	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
379	2.80	6.92	0.01	5.69	9.74	8.141	8.141	8.01	CODETI	
380	2.82	7.50	-0.01	5.69	10.32	8.141	8.141	8.45	CODETI	
380	2.82	0.92	0.01	5.69	5.82	1.000	1.000	3.74	CODETI	
385	2.82	0.94	-0.01	5.69	5.82	1.000	1.000	3.77	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	24.46	1.02	0.01	49.30	50.48	1.000	1.000	25.48	CODETI	
410	24.46	0.91	-0.01	49.30	50.48	1.000	1.000	25.37	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	24.46	0.85	0.01	49.30	50.48	1.000	1.000	25.31	CODETI	
430 (PF4_CPO)	24.46	0.17	-0.01	49.30	50.48	1.000	1.000	24.63	CODETI	
440	1.83	1.92	2.13	3.73	5.92	10.614	10.614	35.84	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
450	1.84	1.62	-2.13	3.73	5.77	1.000	1.000	6.40	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	3.28	13.27	-0.20	4.27	16.55	10.614	10.614	12.54	CODETI	
500	3.38	1.97	0.30	4.27	5.48	1.000	1.000	4.17	CODETI	
500	3.38	1.97	-0.30	4.27	5.43	1.000	1.000	4.17	CODETI	
503	3.44	13.25	0.36	4.27	16.52	7.049	7.049	12.75	CODETI	
503	3.44	13.25	-0.36	4.27	16.71	7.049	7.049	12.75	CODETI	
504	3.27	7.21	0.43	4.27	10.45	7.049	7.049	9.20	CODETI	
504	3.27	7.21	-0.43	4.27	10.52	7.049	7.049	9.20	CODETI	
505	3.11	2.23	0.45	4.27	5.55	7.049	7.049	7.16	CODETI	
505	3.11	0.32	-0.45	4.27	4.47	1.000	1.000	3.07	CODETI	
508	3.37	33.63	0.42	4.27	36.40	7.049	7.049	27.72	CODETI	
508	3.37	33.63	-0.42	4.27	37.00	7.049	7.049	27.72	CODETI	
509	3.62	40.21	0.31	4.27	43.09	7.049	7.049	32.44	CODETI	
509	3.62	40.21	-0.31	4.27	43.84	7.049	7.049	32.44	CODETI	
510	3.67	41.14	0.23	4.27	44.05	7.049	7.049	33.06	CODETI	
510	3.67	5.84	-0.23	4.27	9.52	1.000	1.000	7.97	CODETI	
514 (Té_VS_011)	3.72	34.08	0.23	4.27	37.18	5.836	5.836	27.75	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
514 (Té_VS_011)	4.08	20.30	0.00	4.27	24.38	5.836	5.836	17.34	CODETI	
515	4.16	3.48	-0.00	4.27	7.66	1.000	1.000	5.59	CODETI	
515	2.01	1.68	0.00	2.08	3.70	1.000	1.000	2.69	CODETI	
520	2.07	12.19	-0.00	2.08	13.85	7.279	7.279	10.16	CODETI	
520	1.13	31.55	-0.28	2.08	32.68	7.279	7.279	24.87	CODETI	
525	1.13	1.99	0.28	2.08	3.21	1.000	1.000	3.09	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.24	2.69	-0.58	0.00	3.15	1.000	1.000	2.93	CODETI	
547	0.65	4.73	0.61	0.00	5.53	6.943	6.943	7.31	CODETI	
547	0.65	4.73	-0.61	0.00	5.53	6.943	6.943	7.31	CODETI	
548	1.36	15.17	0.56	0.00	16.57	6.943	6.943	12.78	CODETI	
548	-0.45	15.17	-0.56	0.00	15.66	6.943	6.943	12.78	CODETI	
549	-0.72	9.00	0.36	0.00	9.75	6.943	6.943	7.73	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
549	-0.72	9.00	-0.36	0.00	9.75	6.943	6.943	7.73	CODETI	
550	-0.78	8.52	0.23	0.00	9.31	6.943	6.943	6.82	CODETI	
550	-0.78	1.23	-0.23	0.00	2.06	1.000	1.000	1.31	CODETI	
557	-0.67	9.88	0.09	0.00	10.55	6.943	6.943	7.47	CODETI	
557	-0.67	9.88	-0.09	0.00	10.55	6.943	6.943	7.47	CODETI	
558	-0.57	8.43	-0.19	0.00	9.01	6.943	6.943	6.62	CODETI	
558	-0.57	8.43	0.19	0.00	9.01	6.943	6.943	6.62	CODETI	
559	-0.35	4.63	-0.41	0.00	5.05	6.943	6.943	5.53	CODETI	
559	-0.35	4.63	0.41	0.00	5.05	6.943	6.943	5.53	CODETI	
560	-0.21	5.44	-0.49	0.00	5.73	6.943	6.943	6.49	CODETI	
560	-0.21	0.78	0.49	0.00	1.39	1.000	1.000	1.25	CODETI	
570	-0.22	2.72	-0.49	0.00	3.09	1.000	1.000	2.89	CODETI	
570	-0.22	6.80	0.49	0.00	7.08	2.500	2.500	5.41	CODETI	
580	-0.16	6.60	-0.27	0.00	6.79	2.500	2.500	5.06	CODETI	
580	-0.16	2.64	0.27	0.00	2.86	1.000	1.000	2.70	CODETI	
585	-0.16	2.83	-0.27	0.00	3.04	1.000	1.000	2.88	CODETI	
585	-0.16	2.83	0.27	0.00	3.04	1.000	1.000	2.88	CODETI	
590	-0.16	22.75	-0.27	0.00	22.92	7.057	7.057	17.31	CODETI	
590	-0.01	27.57	0.92	0.00	27.64	7.057	7.057	22.86	CODETI	
595 (SR_11)	-0.01	1.02	-0.92	0.00	2.11	1.000	1.000	2.11	CODETI	
595 (SR_11)	0.00	1.02	0.92	0.00	2.11	1.000	1.000	2.11	CODETI	
596 (SP_13)	-0.00	4.58	-0.92	0.00	4.94	1.000	1.000	4.93	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
596 (SP_13)	0.01	4.58	0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
598	0.00	32.38	-0.66	0.00	32.41	8.236	8.236	25.62	CODETI	
598	0.00	32.38	0.66	0.00	32.41	8.236	8.236	25.62	CODETI	
599	0.00	30.10	-0.16	0.00	30.11	8.236	8.236	22.66	CODETI	
599	0.00	30.10	0.16	0.00	30.11	8.236	8.236	22.66	CODETI	
600	0.00	28.27	0.07	0.00	28.28	8.236	8.236	21.22	CODETI	
600	0.00	3.43	-0.07	0.00	3.44	1.000	1.000	3.44	CODETI	
608	0.00	2.69	0.05	0.00	2.69	8.236	8.236	2.10	CODETI	
608	0.00	2.69	-0.05	0.00	2.69	8.236	8.236	2.10	CODETI	
609	0.00	1.75	0.01	0.00	1.75	8.236	8.236	1.32	CODETI	
609	0.00	1.75	-0.01	0.00	1.75	8.236	8.236	1.32	CODETI	
610	0.00	1.32	0.00	0.00	1.32	8.236	8.236	0.99	CODETI	
610	0.00	0.16	-0.00	0.00	0.16	1.000	1.000	0.16	CODETI	
615	0.00	0.04	0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
615	0.00	0.04	-0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
620	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	1.13	27.29	0.51	2.08	28.44	7.279	7.279	22.22	CODETI	
625	1.13	2.32	-0.51	2.08	3.61	1.000	1.000	3.55	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.23	3.88	1.05	0.00	4.61	1.000	1.000	4.41	CODETI	
642	0.51	11.31	-1.05	0.00	12.00	6.943	6.943	13.82	CODETI	
642	0.51	11.31	1.05	0.00	12.00	6.943	6.943	13.82	CODETI	
643	0.98	9.50	-0.82	0.00	10.60	6.943	6.943	11.16	CODETI	
643	0.98	9.50	0.82	0.00	10.60	6.943	6.943	11.16	CODETI	
644	1.21	15.75	-0.37	0.00	16.98	6.943	6.943	12.44	CODETI	
644	1.21	15.75	0.37	0.00	16.98	6.943	6.943	12.44	CODETI	
645	1.22	16.40	-0.11	0.00	17.62	6.943	6.943	12.35	CODETI	
645	1.22	2.36	0.11	0.00	3.59	1.000	1.000	2.37	CODETI	
590	1.43	18.14	-0.11	0.00	19.56	7.057	7.057	13.65	CODETI	
360 (Té_TH_700)	2.82	1.36	-0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	-0.00	4.21	4.34	1.000	1.000	3.39	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	2.08	0.05	0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	0.41	20.13	-0.75	0.83	20.59	10.614	10.614	19.65	CODETI	
720 (Té_VS_008)	0.41	14.01	0.75	0.83	14.49	10.614	10.614	16.31	CODETI	
720 (Té_VS_008)	0.41	27.34	0.10	0.83	27.75	10.614	10.614	20.98	CODETI	
725	0.41	0.85	-0.10	0.83	1.28	1.000	1.000	1.28	CODETI	
725	0.63	1.30	0.16	1.26	1.97	1.000	1.000	1.97	CODETI	
730	0.63	6.09	-0.16	1.26	6.73	1.000	1.000	6.72	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.43	3.80	0.10	0.83	4.23	1.000	1.000	4.22	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
770 (Té_Gavage)	0.43	4.27	-0.10	0.83	4.67	10.614	10.614	4.00	CODETI	
770 (Té_Gavage)	0.41	3.17	-0.00	0.83	3.58	10.614	10.614	2.78	CODETI	
780	0.41	0.00	0.00	0.83	0.86	1.000	1.000	0.41	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
795	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
795	0.63	0.00	-0.00	1.26	1.29	2.000	2.000	0.63	CODETI	
800 (SB_02)	1.09	0.88	0.00	2.36	2.39	2.000	2.000	1.84	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	1.17	0.46	0.00	2.36	2.39	1.000	1.000	1.63	CODETI	
820	1.17	0.00	0.00	2.36	2.39	1.000	1.000	1.17	CODETI	
720 (Té_VS_008)	0.62	34.57	0.02	1.26	35.19	10.614	10.614	26.55	CODETI	
830	0.62	0.33	-0.02	1.26	1.30	1.000	1.000	0.96	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.62	0.09	0.02	1.26	1.30	1.000	1.000	0.72	CODETI	
865 (SP_14)	0.62	0.15	-0.02	1.26	1.30	1.000	1.000	0.78	CODETI	
865 (SP_14)	0.62	0.15	0.02	1.26	1.30	1.000	1.000	0.78	CODETI	
867	0.60	1.79	-0.02	1.26	2.45	8.376	8.376	1.99	CODETI	
867	0.60	1.79	0.02	1.26	2.44	8.376	8.376	1.99	CODETI	
868	0.52	0.34	-0.01	1.26	1.29	8.376	8.376	0.92	CODETI	
868	0.52	0.34	0.01	1.26	1.29	8.376	8.376	0.92	CODETI	
869	0.43	1.07	-0.00	1.26	1.90	8.376	8.376	1.43	CODETI	
869	0.43	1.07	0.00	1.26	1.90	8.376	8.376	1.43	CODETI	
870	0.40	1.19	0.00	1.26	2.05	8.376	8.376	1.52	CODETI	
870	0.40	0.14	-0.00	1.26	1.29	1.000	1.000	0.77	CODETI	
872	0.15	0.06	0.00	1.26	1.29	1.000	1.000	0.68	CODETI	
872	0.15	0.06	-0.00	1.26	1.29	1.000	1.000	0.68	CODETI	
875 (SG_15)	-0.13	0.10	0.00	1.26	1.51	1.000	1.000	0.73	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.78	0.00	-0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
880	0.76	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
880	0.76	0.00	-0.00	1.26	1.29	2.500	2.500	0.63	CODETI	
890	0.53	0.00	0.00	1.03	1.06	2.500	2.500	0.51	CODETI	
890	0.53	0.00	-0.00	1.03	1.06	1.000	1.000	0.51	CODETI	
895	0.52	0.00	0.00	1.03	1.06	1.000	1.000	0.51	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	2.05	11.88	-0.00	1.26	13.92	10.614	10.614	9.53	CODETI	
772 (SG_16_1)	1.93	1.06	0.00	1.26	2.99	1.000	1.000	1.68	CODETI	
772 (SG_16_1)	1.93	1.06	-0.00	1.26	2.99	1.000	1.000	1.68	CODETI	
775	1.75	8.63	0.00	1.26	10.27	7.057	7.057	7.10	CODETI	
775	1.59	9.16	0.00	1.26	10.75	7.057	7.057	7.50	CODETI	
910 (Té_VS_007)	1.20	1.76	-0.00	1.26	2.96	1.000	1.000	2.39	CODETI	
910 (Té_VS_007)	1.24	1.75	0.00	1.26	2.99	1.000	1.000	2.37	CODETI	
915 (SG_16_2)	1.18	2.05	-0.00	1.26	3.21	1.000	1.000	2.67	CODETI	
915 (SG_16_2)	1.18	2.05	0.00	1.26	3.22	1.000	1.000	2.67	CODETI	
920	1.15	2.05	-0.00	1.26	3.18	1.000	1.000	2.67	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	1.05	2.05	0.00	1.26	3.10	1.000	1.000	2.67	CODETI	
957	0.98	16.89	-0.00	1.26	17.63	8.472	8.472	13.30	CODETI	
957	0.98	16.89	0.00	1.26	17.88	8.472	8.472	13.30	CODETI	
958	0.85	13.96	-0.00	1.26	14.61	8.472	8.472	11.10	CODETI	
958	0.85	13.96	0.00	1.26	14.81	8.472	8.472	11.10	CODETI	
959	0.69	9.73	-0.00	1.26	10.29	8.472	8.472	7.93	CODETI	
959	0.69	9.73	0.00	1.26	10.42	8.472	8.472	7.93	CODETI	
960	0.63	7.66	-0.00	1.26	8.29	8.472	8.472	6.37	CODETI	
960	0.63	0.90	0.00	1.26	1.54	1.000	1.000	1.53	CODETI	
965	0.63	0.32	-0.00	1.26	1.29	1.000	1.000	0.95	CODETI	
965	0.63	0.81	0.00	1.26	1.44	2.500	2.500	1.23	CODETI	
970	0.52	0.02	-0.00	1.05	1.08	2.500	2.500	0.53	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
970	0.52	0.01	0.00	1.05	1.08	1.000	1.000	0.53	CODETI	
980	0.52	0.00	-0.00	1.05	1.08	1.000	1.000	0.52	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	0.51	39.49	0.00	1.02	40.00	7.057	7.057	30.12	CODETI	
995	0.51	6.35	-0.00	1.02	6.85	1.000	1.000	6.86	CODETI	
995	0.51	6.35	0.00	1.02	6.86	1.000	1.000	6.86	CODETI	
998	0.51	1.00	-0.00	1.02	1.51	1.000	1.000	1.51	CODETI	
998	0.51	5.51	0.00	1.02	6.02	5.493	4.577	4.64	CODETI	
999	0.50	4.48	-0.00	1.02	4.99	5.493	4.577	3.87	CODETI	
999	0.50	4.48	0.00	1.02	4.99	5.493	4.577	3.87	CODETI	
1000	0.44	4.69	0.00	1.02	5.26	5.493	4.577	4.02	CODETI	
1000	0.44	0.85	-0.00	1.02	1.43	1.000	1.000	1.36	CODETI	
1002	0.14	0.85	0.00	1.02	1.73	1.000	1.000	1.36	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	0.14	0.85	-0.00	1.02	1.73	1.000	1.000	1.36	CODETI	
1008	-0.17	0.85	0.00	1.02	2.04	1.000	1.000	1.36	CODETI	
1008	-0.17	4.69	-0.00	1.02	5.80	5.493	4.577	4.02	CODETI	
1009	-0.05	10.71	-0.00	1.02	11.77	5.493	4.577	8.54	CODETI	
1009	0.77	10.71	0.00	1.02	11.48	5.493	4.577	8.54	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1010	0.51	2.78	-0.00	1.02	3.29	5.493	4.577	2.59	CODETI	
1010	0.51	0.51	0.00	1.02	1.05	1.000	1.000	1.01	CODETI	
1020	0.51	0.31	-0.00	1.02	1.05	1.000	1.000	0.81	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.51	0.10	0.00	1.02	1.05	1.000	1.000	0.61	CODETI	
1060	0.51	0.07	-0.00	1.02	1.05	1.000	1.000	0.58	CODETI	
1060	0.51	0.15	0.00	1.02	1.05	2.000	2.000	0.62	CODETI	
1070	0.46	0.00	-0.00	0.93	0.96	2.000	2.000	0.46	CODETI	
1070	0.46	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1090	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1090	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1100 (CT_ASP_Reg)	0.46	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	1.23	4.71	0.33	1.02	5.97	1.000	1.000	5.26	CODETI	
1120	1.23	4.70	-0.33	1.02	5.89	1.000	1.000	5.26	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1120	1.23	4.70	0.33	1.02	5.97	1.000	1.000	5.26	CODETI	
1128	1.24	4.70	-0.33	1.02	5.89	1.000	1.000	5.25	CODETI	
1128	1.24	25.75	0.33	1.02	26.99	5.493	4.577	20.07	CODETI	
1129	1.06	17.53	-0.47	1.02	18.29	5.493	4.577	14.20	CODETI	
1129	1.06	17.53	0.47	1.02	18.61	5.493	4.577	14.20	CODETI	
1130	0.49	4.14	-0.32	1.02	4.72	5.493	4.577	4.88	CODETI	
1130	0.49	0.84	0.32	1.02	1.57	1.000	1.000	1.57	CODETI	
1132	0.48	3.45	-0.32	1.02	4.03	1.000	1.000	4.02	CODETI	
1132	0.48	3.45	0.32	1.02	3.99	1.000	1.000	4.02	CODETI	
1135 (SR_18)	0.48	9.26	-0.32	1.02	9.81	1.000	1.000	9.79	CODETI	
1135 (SR_18)	0.50	9.26	0.32	1.02	9.78	1.000	1.000	9.79	CODETI	
1138	0.50	2.21	-0.32	1.02	2.80	1.000	1.000	2.81	CODETI	
1138	0.50	11.96	0.32	1.02	12.48	5.493	4.577	9.99	CODETI	
1139	0.84	4.38	0.00	1.02	5.16	5.493	4.577	4.42	CODETI	
1139	0.84	4.38	-0.00	1.02	5.22	5.493	4.577	4.42	CODETI	
1140	0.92	6.51	0.33	1.02	7.34	5.493	4.577	6.30	CODETI	
1140	0.92	1.24	-0.33	1.02	2.26	1.000	1.000	1.91	CODETI	
1148	0.63	1.45	0.33	1.02	2.16	1.000	1.000	2.10	CODETI	
1148	0.63	7.70	-0.33	1.02	8.35	5.493	4.577	7.07	CODETI	
1149	0.53	9.14	0.00	1.02	9.62	5.493	4.577	7.68	CODETI	
1149	0.53	9.14	-0.00	1.02	9.67	5.493	4.577	7.68	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**  
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1150	0.49	8.92	-0.32	1.02	9.46	5.493	4.577	7.87	CODETI	
1150	0.49	1.67	0.32	1.02	2.26	1.000	1.000	2.29	CODETI	
1158	0.49	0.85	-0.32	1.02	1.55	1.000	1.000	1.57	CODETI	
1158	0.49	4.37	0.32	1.02	4.91	5.493	4.577	4.90	CODETI	
1159	0.50	3.57	-0.23	1.02	4.11	5.493	4.577	3.79	CODETI	
1159	0.50	3.57	0.23	1.02	4.09	5.493	4.577	3.79	CODETI	
1160	0.51	5.66	-0.45	1.02	6.23	5.493	4.577	6.62	CODETI	
1160	0.51	1.17	0.45	1.02	1.91	1.000	1.000	1.99	CODETI	
1165 (SR_19)	0.51	1.23	-0.45	1.02	1.96	1.000	1.000	2.04	CODETI	
1165 (SR_19)	0.51	1.24	0.45	1.02	1.97	1.000	1.000	2.04	CODETI	
1170 (Tê_ATRE)	0.51	30.44	-0.45	1.02	30.96	4.398	4.398	23.53	CODETI	
1170 (Tê_ATRE)	0.50	30.44	0.45	1.02	30.96	4.398	4.398	23.53	CODETI	
1175	0.50	4.13	-0.45	1.02	4.72	1.000	1.000	4.73	CODETI	
1175	0.50	4.13	0.45	1.02	4.72	1.000	1.000	4.73	CODETI	
1178	0.50	2.90	-0.45	1.02	3.53	1.000	1.000	3.54	CODETI	
1178	0.50	15.91	0.45	1.02	16.44	5.493	4.577	13.01	CODETI	
1179	0.15	5.87	-0.30	1.02	6.76	5.493	4.577	5.77	CODETI	
1179	0.15	5.87	0.30	1.02	6.66	5.493	4.577	5.77	CODETI	
1180	-0.07	3.77	0.00	1.02	4.85	5.493	4.577	3.90	CODETI	
1180	-0.07	0.82	-0.00	1.02	1.91	1.000	1.000	1.33	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**  
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1185	-0.09	0.81	0.00	1.02	1.91	1.000	1.000	1.31	CODETI	
1185	0.82	0.03	-0.00	1.02	1.05	1.000	1.000	0.54	CODETI	
1186 (SG_20)	0.78	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	0.78	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1190	0.59	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1190	0.59	0.00	-0.00	1.02	1.05	2.500	2.500	0.51	CODETI	
1195	0.47	0.00	0.00	0.93	0.96	2.500	2.500	0.46	CODETI	
1195	0.47	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1200	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1200	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1210 (CT_REF_Reg)	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.81	0.00	0.00	1.02	1.05	4.398	4.398	0.51	CODETI	
1211	0.51	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1211	0.51	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1212 (CT_03)	0.51	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.44	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1216	0.44	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1216	0.44	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1218	0.35	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1218	0.35	0.00	-0.00	1.02	1.05	7.242	6.035	0.51	CODETI	
1219	0.36	1.63	0.00	1.02	2.28	7.242	6.035	1.73	CODETI	
1219	0.36	1.63	-0.00	1.02	2.27	7.242	6.035	1.73	CODETI	
1220	0.51	6.47	0.00	1.02	6.98	7.242	6.035	5.36	CODETI	
1220	0.51	0.89	-0.00	1.02	1.40	1.000	1.000	1.40	CODETI	
1230	0.51	1.07	0.00	1.02	1.58	1.000	1.000	1.58	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**  
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1268	1.27	0.04	-0.00	2.56	2.63	1.000	1.000	1.30	CODETI	
1268	1.27	0.19	0.00	2.56	2.63	5.380	4.483	1.41	CODETI	
1269	1.25	0.59	-0.00	2.56	2.63	5.380	4.483	1.71	CODETI	
1269	1.25	0.59	0.00	2.56	2.63	5.380	4.483	1.71	CODETI	
1270	1.23	1.11	-0.00	2.56	2.63	5.380	4.483	2.10	CODETI	
1270	1.23	0.21	0.00	2.56	2.63	1.000	1.000	1.47	CODETI	
1279	1.22	3.03	0.17	2.56	4.35	5.380	4.483	4.31	CODETI	
1279	1.22	3.03	-0.17	2.56	4.35	5.380	4.483	4.31	CODETI	
1280	1.27	5.28	0.51	2.56	6.63	5.380	4.483	7.42	CODETI	
1280	1.27	1.13	-0.51	2.56	3.04	1.000	1.000	2.79	CODETI	
1285	1.27	10.72	0.51	2.56	12.03	4.398	4.398	9.98	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1285	1.26	30.51	0.17	2.56	31.77	4.398	4.398	24.18	CODETI	
1286	1.26	3.00	-0.17	2.56	4.29	1.000	1.000	4.29	CODETI	
1286	1.26	3.00	0.17	2.56	4.28	1.000	1.000	4.29	CODETI	
1291	1.26	1.46	-0.17	2.56	2.87	1.000	1.000	2.77	CODETI	
1291	1.26	6.55	0.17	2.56	7.82	5.380	4.483	7.33	CODETI	
1292	1.26	5.91	-0.08	2.56	7.18	5.380	4.483	6.63	CODETI	
1292	1.26	5.91	0.08	2.56	7.18	5.380	4.483	6.63	CODETI	
1290	1.26	5.22	-0.00	2.56	6.49	5.380	4.483	5.96	CODETI	
1290	1.26	1.16	0.00	2.56	2.63	1.000	1.000	2.43	CODETI	
1300	1.26	0.41	-0.00	2.56	2.63	1.000	1.000	1.68	CODETI	
1300	1.26	0.41	0.00	2.56	2.63	1.000	1.000	1.68	CODETI	
1310	1.27	0.01	-0.00	2.56	2.63	1.000	1.000	1.28	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	1.27	6.01	2.25	2.56	8.56	4.398	4.398	16.78	CODETI	
1320	1.27	4.21	-2.25	2.56	7.08	1.000	1.000	7.43	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	1.27	2.79	0.18	2.56	4.08	1.000	1.000	4.08	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1328	1.28	0.47	-0.18	2.56	2.67	1.000	1.000	1.86	CODETI	
1328	1.28	2.35	0.18	2.56	3.65	5.380	4.483	3.66	CODETI	
1329	1.46	4.01	-0.00	2.56	5.44	5.380	4.483	4.51	CODETI	
1329	0.78	3.44	-0.13	2.56	5.18	5.380	4.483	4.12	CODETI	
1330	0.64	3.60	0.13	2.56	5.49	5.380	4.483	4.23	CODETI	
1330	0.64	0.69	-0.13	2.56	2.75	1.000	1.000	2.00	CODETI	
1338	0.89	1.54	0.13	2.56	3.22	1.000	1.000	2.83	CODETI	
1338	0.89	8.00	-0.13	2.56	9.54	5.380	4.483	7.58	CODETI	
1339	1.00	5.93	0.36	2.56	7.50	5.380	4.483	6.67	CODETI	
1339	1.00	5.93	-0.36	2.56	7.43	5.380	4.483	6.67	CODETI	
1340	1.20	0.93	0.40	2.56	2.85	5.380	4.483	4.62	CODETI	
1340	1.20	0.21	-0.40	2.56	2.76	1.000	1.000	2.10	CODETI	
1343	1.20	1.66	0.40	2.56	3.17	1.000	1.000	3.11	CODETI	
1343	1.20	1.66	-0.40	2.56	3.26	1.000	1.000	3.11	CODETI	
1348	1.20	1.62	0.40	2.56	3.14	1.000	1.000	3.08	CODETI	
1348	1.20	7.28	-0.40	2.56	8.55	5.380	4.483	8.57	CODETI	
1349	1.23	6.25	-0.23	2.56	7.57	5.380	4.483	7.20	CODETI	
1349	1.23	6.25	0.23	2.56	7.50	5.380	4.483	7.20	CODETI	
1345	1.28	2.04	-0.54	2.56	3.61	5.380	4.483	5.86	CODETI	
1345	1.28	0.38	0.54	2.56	2.87	1.000	1.000	2.40	CODETI	
1350 (SP_23)	1.28	1.94	-0.54	2.56	3.53	1.000	1.000	3.48	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1350 (SP_23)	1.28	1.94	0.54	2.56	3.52	1.000	1.000	3.48	CODETI	
1355	1.28	2.80	-0.54	2.56	4.25	1.000	1.000	4.27	CODETI	
1355	1.28	2.80	0.54	2.56	4.23	1.000	1.000	4.27	CODETI	
1360	1.28	3.15	-0.54	2.56	4.56	1.000	1.000	4.59	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	2.29	4.12	0.54	4.60	6.54	1.000	1.000	6.53	CODETI	
514 (Té_VS_011)	2.30	33.45	-0.33	4.60	35.72	5.836	5.836	27.53	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.06	18.80	-0.61	0.00	18.89	7.388	7.388	15.63	CODETI	
1417	-0.24	24.36	0.60	0.00	24.63	7.388	7.388	19.44	CODETI	
1417	-0.24	24.36	-0.60	0.00	24.63	7.388	7.388	19.44	CODETI	
1418	-0.52	33.73	0.46	0.00	34.25	7.388	7.388	25.80	CODETI	
1418	-0.52	33.73	-0.46	0.00	34.25	7.388	7.388	25.80	CODETI	
1419	-0.63	38.55	0.19	0.00	39.18	7.388	7.388	28.99	CODETI	
1419	-0.63	38.55	-0.19	0.00	39.18	7.388	7.388	28.99	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-0.62	38.86	0.03	0.00	39.49	7.388	7.388	29.15	CODETI	
1410	-0.62	5.26	-0.03	0.00	5.88	1.000	1.000	5.26	CODETI	
1415 (SP_26)	0.02	3.12	0.03	0.00	3.13	1.000	1.000	3.12	CODETI	
1415 (SP_26)	0.02	3.12	-0.03	0.00	3.13	1.000	1.000	3.12	CODETI	
1422	0.06	2.99	0.03	0.00	3.05	1.000	1.000	2.99	CODETI	
1422	0.06	14.70	-0.03	0.00	14.76	5.640	4.700	12.66	CODETI	
1421	0.09	10.36	-0.87	0.00	10.60	5.640	4.700	11.41	CODETI	
1421	0.09	10.36	0.87	0.00	10.60	5.640	4.700	11.41	CODETI	
1420	0.00	2.93	-1.16	0.00	3.73	5.640	4.700	10.07	CODETI	
1420	0.00	0.54	1.16	0.00	2.38	1.000	1.000	2.38	CODETI	
1425	0.00	0.83	-1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1425	0.00	0.83	1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1428	0.01	33.92	-0.88	0.00	33.97	7.391	7.391	27.26	CODETI	
1428	0.01	33.92	0.88	0.00	33.97	7.391	7.391	27.26	CODETI	
1429	0.02	39.55	-0.25	0.00	39.57	7.391	7.391	29.79	CODETI	
1429	0.02	39.55	0.25	0.00	39.57	7.391	7.391	29.79	CODETI	
1430	0.03	41.47	0.10	0.00	41.49	7.391	7.391	31.12	CODETI	
1430	0.03	5.61	-0.10	0.00	5.64	1.000	1.000	5.61	CODETI	
1440	0.02	11.71	0.10	0.00	11.73	1.000	1.000	11.71	CODETI	
1440	0.02	11.71	-0.10	0.00	11.73	1.000	1.000	11.71	CODETI	
1445 (SP_31)	0.02	17.49	0.10	0.00	17.51	1.000	1.000	17.49	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.03	17.49	-0.10	0.00	17.52	1.000	1.000	17.49	CODETI	
1450	0.03	82.97	0.10	0.00	83.01	5.231	5.231	62.24	CODETI	
1450	0.01	80.24	0.69	0.00	80.26	5.231	5.231	60.43	CODETI	
1451 (SP_27)	0.00	6.50	-0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1451 (SP_27)	0.00	6.50	0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1452	0.00	4.65	-0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1452	0.00	4.65	0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1455 (SP_28)	-0.00	4.53	-0.69	0.00	4.74	1.000	1.000	4.73	CODETI	
1455 (SP_28)	0.00	4.53	0.69	0.00	4.74	1.000	1.000	4.73	CODETI	
1458	0.00	0.58	-0.69	0.00	1.50	1.000	1.000	1.50	CODETI	
1458	0.00	2.73	0.69	0.00	3.07	5.640	4.700	6.35	CODETI	
1459	0.01	6.48	-0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1459	0.01	6.48	0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1460	0.01	10.24	0.24	0.00	10.26	5.640	4.700	9.43	CODETI	
1460	0.01	2.18	-0.24	0.00	2.23	1.000	1.000	2.23	CODETI	
1468	0.00	1.39	0.24	0.00	1.47	1.000	1.000	1.47	CODETI	
1468	0.00	6.54	-0.24	0.00	6.56	5.640	4.700	6.21	CODETI	
1469	0.00	1.87	-0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1469	0.00	1.87	0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1470	0.00	5.50	0.00	0.00	5.50	5.640	4.700	4.95	CODETI	
1470	0.00	1.17	-0.00	0.00	1.17	1.000	1.000	1.17	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	3.20	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.02	-0.00	0.00	0.05	1.000	1.000	0.02	CODETI	
1518	0.04	0.04	0.00	0.00	0.08	1.000	1.000	0.04	CODETI	
1518	0.04	0.28	-0.00	0.00	0.32	7.391	6.159	0.25	CODETI	
1519	0.07	0.93	-0.02	0.00	1.01	7.391	6.159	0.87	CODETI	
1519	0.07	0.93	0.02	0.00	1.01	7.391	6.159	0.87	CODETI	
1520	0.08	1.36	-0.07	0.00	1.44	7.391	6.159	1.43	CODETI	
1520	0.08	0.22	0.07	0.00	0.33	1.000	1.000	0.26	CODETI	
1523	0.18	2.03	-0.07	0.00	2.21	1.000	1.000	2.04	CODETI	
1523	0.18	11.14	0.07	0.00	11.32	5.640	4.700	8.62	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 8 Poids + PMS en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1524	0.11	13.60	-0.20	0.00	13.72	5.640	4.700	10.54	CODETI	
1524	0.11	13.60	0.20	0.00	13.72	5.640	4.700	10.54	CODETI	
1525	0.03	16.55	-0.32	0.00	16.59	5.640	4.700	12.86	CODETI	
1525	0.03	2.97	0.32	0.00	3.07	1.000	1.000	3.04	CODETI	
1530	0.03	3.19	-0.32	0.00	3.28	1.000	1.000	3.26	CODETI	
1530	0.02	3.19	0.33	0.00	3.28	1.000	1.000	3.26	CODETI	
1540 (SR_30)	0.02	4.68	-0.33	0.00	4.74	1.000	1.000	4.72	CODETI	
1540 (SR_30)	0.03	4.68	0.33	0.00	4.75	1.000	1.000	4.72	CODETI	
1450	0.03	12.55	-0.33	0.00	12.60	5.231	5.231	9.76	CODETI	

STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 9 Poids + PS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.15	0.18	0.01	0.00	7.33	1.000	1.000	0.18	CODETI	
20	-6.86	0.19	-0.01	0.00	7.05	1.000	1.000	0.19	CODETI	
20	-0.18	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
25	-1.24	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
20	-7.16	0.19	0.01	-3.81	7.36	1.000	1.000	2.09	CODETI	
30	-6.84	0.19	-0.01	-3.81	7.04	1.000	1.000	2.09	CODETI	
30	-6.83	0.20	0.01	-3.81	7.04	1.000	1.000	2.10	CODETI	
40	-6.47	0.20	-0.01	-3.81	6.68	1.000	1.000	2.10	CODETI	
40	-6.46	0.05	0.00	-3.81	6.52	1.000	1.000	1.95	CODETI	
45 (Weld_CW2)	-4.79	0.05	-0.00	-3.81	4.85	1.000	1.000	1.95	CODETI	
45 (Weld_CW2)	-4.79	0.05	0.00	-3.81	4.85	1.000	1.000	1.95	CODETI	
50	-3.57	0.05	-0.00	-3.81	3.83	1.000	1.000	1.95	CODETI	
50	-2.34	0.03	0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.55	0.03	-0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.53	0.03	0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
56	-1.47	0.03	-0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
56	-1.49	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
60	-1.28	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
65	-0.65	0.00	-0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Piquage_N1)										
70	-0.58	0.00	0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.35	2.99	3.35	-0.70	7.49	1.000	1.000	7.69	CODETI	
110	-0.35	3.01	-3.35	-0.70	7.50	1.000	1.000	7.69	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.05	0.36	0.00	-0.56	0.88	1.000	1.000	0.64	CODETI	
129	-0.16	1.01	0.00	-0.56	1.41	7.124	5.937	1.04	CODETI	
129	-0.16	1.01	-0.00	-0.56	1.41	7.124	5.937	1.04	CODETI	
130	-0.28	1.90	0.00	-0.56	2.18	7.124	5.937	1.70	CODETI	
130	-0.28	0.27	-0.00	-0.56	0.58	1.000	1.000	0.55	CODETI	
134 (Jupe_N3)	-0.28	0.10	0.00	-0.56	0.58	1.000	1.000	0.38	CODETI	
134 (Jupe_N3)	-0.28	0.10	-0.00	-0.56	0.58	1.000	1.000	0.38	CODETI	
135 (SR_N3)	-0.28	0.38	0.00	-0.56	0.67	1.000	1.000	0.66	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.66	0.00	0.00	-0.56	0.67	1.000	1.000	0.28	CODETI	
160	-0.54	0.00	-0.00	-0.56	0.58	1.000	1.000	0.28	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	0.16	4.81	0.33	-0.56	5.46	1.000	1.000	5.13	CODETI	
190	0.26	4.72	-0.33	-0.56	5.58	1.000	1.000	5.04	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.28	0.07	0.22	-0.56	0.71	1.000	1.000	0.73	CODETI	
220	-0.28	0.60	-0.22	-0.56	0.99	1.000	1.000	1.02	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	-0.32	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
250	-0.31	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
251 (CT_N1)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
260	-0.13	0.00	-0.00	-0.63	0.65	10.614	10.614	0.31	CODETI	
260	-0.20	18.86	-0.67	-0.41	19.11	10.614	10.614	17.93	CODETI	
262	-0.20	1.38	0.67	-0.41	2.08	1.000	1.000	2.13	CODETI	
262	-0.31	2.12	-1.03	-0.63	3.19	1.000	1.000	3.27	CODETI	
265 (SG_5)	-0.31	1.78	1.03	-0.63	2.94	1.000	1.000	3.03	CODETI	
265 (SG_5)	-0.31	1.78	-1.03	-0.63	2.93	1.000	1.000	3.03	CODETI	
267	-0.31	3.11	0.99	-0.63	3.96	8.376	8.376	12.93	CODETI	
267	-0.31	3.11	-0.99	-0.63	3.95	8.376	8.376	12.93	CODETI	
268	-0.31	3.16	0.89	-0.63	3.91	8.376	8.376	11.71	CODETI	
268	-0.31	3.16	-0.89	-0.63	3.90	8.376	8.376	11.71	CODETI	
269	-0.31	1.50	0.82	-0.63	2.44	8.376	8.376	10.63	CODETI	
269	-0.31	1.50	-0.82	-0.63	2.43	8.376	8.376	10.63	CODETI	
270	-0.31	0.83	0.81	-0.63	1.98	8.376	8.376	10.48	CODETI	
270	-0.31	0.10	-0.81	-0.63	1.67	1.000	1.000	1.93	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
271	-0.31	5.31	0.81	-0.63	5.86	1.000	1.000	5.86	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	-0.32	5.12	-0.00	-0.63	5.44	1.000	1.000	5.43	CODETI	
277	-0.05	24.35	0.01	-0.63	24.92	8.141	8.141	18.58	CODETI	
277	-0.05	24.35	-0.01	-0.63	24.55	8.141	8.141	18.58	CODETI	
278	0.37	9.33	0.03	-0.63	10.33	8.141	8.141	7.32	CODETI	
278	0.37	9.33	-0.03	-0.63	10.19	8.141	8.141	7.32	CODETI	
279	0.57	1.05	0.04	-0.63	2.25	8.141	8.141	1.25	CODETI	
279	0.57	1.05	-0.04	-0.63	2.24	8.141	8.141	1.25	CODETI	
280	0.57	0.07	0.04	-0.63	1.28	8.141	8.141	0.84	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
280	0.57	0.01	-0.04	-0.63	1.22	1.000	1.000	0.40	CODETI	
284	0.53	0.01	0.04	-0.63	1.18	1.000	1.000	0.40	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.37	0.01	-0.04	-0.63	1.02	1.000	1.000	0.40	CODETI	
290	0.19	0.00	0.04	-0.63	0.83	1.000	1.000	0.40	CODETI	
290	0.19	0.00	-0.04	-0.63	0.84	1.000	1.000	0.40	CODETI	
299	0.01	0.00	0.04	-0.63	0.66	1.000	1.000	0.40	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	-0.16	0.00	-0.04	-0.63	0.66	1.000	1.000	0.40	CODETI	
306	-0.20	0.21	0.04	-0.63	0.65	9.368	9.368	0.92	CODETI	
306	-0.20	0.21	-0.04	-0.63	0.68	9.368	9.368	0.92	CODETI	
307	-0.27	0.95	0.03	-0.63	1.31	9.368	9.368	1.15	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
307	-0.27	0.95	-0.03	-0.63	1.31	9.368	9.368	1.15	CODETI	
308	-0.31	1.54	0.01	-0.63	1.86	9.368	9.368	1.48	CODETI	
308	-0.31	1.54	-0.01	-0.63	1.85	9.368	9.368	1.48	CODETI	
305	-0.31	1.59	0.00	-0.63	1.91	9.368	9.368	1.51	CODETI	
305	-0.31	0.17	-0.00	-0.63	0.65	1.000	1.000	0.48	CODETI	
435 (SR_07)	-0.31	0.09	0.00	-0.63	0.65	1.000	1.000	0.40	CODETI	
435 (SR_07)	-0.30	0.09	-0.00	-0.63	0.65	1.000	1.000	0.40	CODETI	
440	-0.30	83.45	0.00	-0.63	83.77	10.614	10.614	62.90	CODETI	
440	-0.20	1.97	-0.38	-0.41	2.30	10.614	10.614	6.39	CODETI	
445	-0.20	0.06	0.38	-0.41	0.80	1.000	1.000	0.96	CODETI	
445	-0.31	0.84	-0.58	-0.63	1.63	9.368	9.368	8.46	CODETI	
311	-0.31	3.98	0.55	-0.63	4.44	9.368	9.368	8.55	CODETI	
311	-0.31	3.98	-0.55	-0.63	4.42	9.368	9.368	8.55	CODETI	
312	-0.31	9.32	0.35	-0.63	9.66	9.368	9.368	8.90	CODETI	
312	-0.31	9.32	-0.35	-0.63	9.66	9.368	9.368	8.90	CODETI	
313	-0.34	11.59	0.05	-0.63	11.87	9.368	9.368	9.04	CODETI	
313	-0.34	11.59	-0.05	-0.63	11.93	9.368	9.368	9.04	CODETI	
310	-0.36	11.35	-0.10	-0.63	11.62	9.368	9.368	8.95	CODETI	
310	-0.36	1.21	0.10	-0.63	1.58	1.000	1.000	1.54	CODETI	
315	-0.37	1.19	-0.10	-0.63	1.57	1.000	1.000	1.52	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	-0.43	1.17	0.10	-0.63	1.61	1.000	1.000	1.50	CODETI	
330	-0.48	0.77	-0.10	-0.63	1.27	1.000	1.000	1.11	CODETI	
330	-0.48	0.77	0.10	-0.63	1.27	1.000	1.000	1.11	CODETI	
335	-0.54	0.19	-0.10	-0.63	0.80	1.000	1.000	0.59	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	-0.60	0.10	0.10	-0.63	0.73	1.000	1.000	0.54	CODETI	
337	-0.62	2.96	-0.13	-0.63	3.55	9.368	9.368	3.19	CODETI	
337	-0.62	2.96	0.13	-0.63	3.59	9.368	9.368	3.19	CODETI	
338	-0.56	7.35	-0.27	-0.63	7.81	9.368	9.368	6.98	CODETI	
338	-0.56	7.35	0.27	-0.63	7.92	9.368	9.368	6.98	CODETI	
339	-0.41	12.23	-0.50	-0.63	12.48	9.368	9.368	11.83	CODETI	

STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 9 Poids + PS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
339	-0.41	12.23	0.50	-0.63	12.68	9.368	9.368	11.83	CODETI	
350	-0.32	14.75	-0.63	-0.63	15.11	9.368	9.368	14.46	CODETI	
350	-0.21	1.03	0.41	-0.41	1.48	1.000	1.000	1.52	CODETI	
355 (SR_8)	-0.21	1.56	-0.41	-0.41	1.94	1.000	1.000	1.96	CODETI	
355 (SR_8)	-0.20	1.56	0.41	-0.41	1.94	1.000	1.000	1.96	CODETI	
360 (Té_TH_700)	-0.20	0.81	-0.41	-0.41	1.31	1.000	1.000	1.36	CODETI	
360 (Té_TH_700)	-0.21	0.81	0.08	-0.41	1.03	1.000	1.000	1.04	CODETI	
365	-0.21	19.30	-0.08	-0.41	19.50	10.614	10.614	14.74	CODETI	
365	-0.20	11.79	0.01	-0.41	11.99	10.614	10.614	9.05	CODETI	
366	-0.20	0.60	-0.01	-0.41	0.81	1.000	1.000	0.81	CODETI	
366	-0.31	7.51	0.01	-0.63	7.82	8.141	8.141	5.95	CODETI	
368	-0.37	5.26	-0.01	-0.63	5.56	8.141	8.141	4.26	CODETI	
368	-0.37	5.26	0.01	-0.63	5.63	8.141	8.141	4.26	CODETI	
369	-0.47	1.46	-0.00	-0.63	1.93	8.141	8.141	1.41	CODETI	
369	-0.47	1.46	0.00	-0.63	1.94	8.141	8.141	1.41	CODETI	
370	-0.50	0.22	0.00	-0.63	0.73	8.141	8.141	0.48	CODETI	
370	-0.50	0.03	-0.00	-0.63	0.65	1.000	1.000	0.34	CODETI	
378	-0.40	5.40	0.00	-0.63	5.72	8.141	8.141	4.36	CODETI	
378	-0.40	5.40	-0.00	-0.63	5.80	8.141	8.141	4.36	CODETI	
379	-0.33	6.93	-0.00	-0.63	7.22	8.141	8.141	5.51	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
379	-0.33	6.93	0.00	-0.63	7.26	8.141	8.141	5.51	CODETI	
380	-0.31	7.51	-0.00	-0.63	7.83	8.141	8.141	5.95	CODETI	
380	-0.31	0.92	0.00	-0.63	1.24	1.000	1.000	1.24	CODETI	
385	-0.31	0.95	-0.00	-0.63	1.26	1.000	1.000	1.26	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	-2.98	1.02	0.00	-6.01	6.15	1.000	1.000	4.00	CODETI	
410	-2.98	0.91	-0.00	-6.01	6.15	1.000	1.000	3.89	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	-2.98	0.86	0.00	-6.01	6.15	1.000	1.000	3.83	CODETI	
430 (PF4_CPO)	-2.98	0.17	-0.00	-6.01	6.15	1.000	1.000	3.15	CODETI	
440	-0.21	1.94	2.19	-0.41	4.87	10.614	10.614	35.06	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
450	-0.21	1.64	-2.19	-0.41	4.75	1.000	1.000	4.88	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	0.94	13.25	-0.19	-0.47	14.40	10.614	10.614	10.65	CODETI	
500	1.03	1.97	0.30	-0.47	3.52	1.000	1.000	2.29	CODETI	
500	1.03	1.97	-0.30	-0.47	3.47	1.000	1.000	2.29	CODETI	
503	1.09	13.24	0.36	-0.47	14.82	7.049	7.049	10.85	CODETI	
503	1.09	13.24	-0.36	-0.47	14.55	7.049	7.049	10.85	CODETI	
504	0.92	7.21	0.43	-0.47	8.64	7.049	7.049	7.31	CODETI	
504	0.92	7.21	-0.43	-0.47	8.48	7.049	7.049	7.31	CODETI	
505	0.76	2.22	0.45	-0.47	3.57	7.049	7.049	5.26	CODETI	
505	0.76	0.32	-0.45	-0.47	1.71	1.000	1.000	1.18	CODETI	
508	1.02	33.63	0.42	-0.47	35.13	7.049	7.049	25.84	CODETI	
508	1.02	33.63	-0.42	-0.47	34.66	7.049	7.049	25.84	CODETI	
509	1.28	40.21	0.30	-0.47	41.96	7.049	7.049	30.57	CODETI	
509	1.28	40.21	-0.30	-0.47	41.49	7.049	7.049	30.57	CODETI	
510	1.32	41.15	0.23	-0.47	42.94	7.049	7.049	31.19	CODETI	
510	1.32	5.84	-0.23	-0.47	7.53	1.000	1.000	6.09	CODETI	
514 (Té_VS_011)	1.37	34.08	0.23	-0.47	35.92	5.836	5.836	25.87	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
514 (Té_VS_011)	1.73	20.29	0.00	-0.47	22.09	5.836	5.836	15.45	CODETI	
515	1.82	3.48	-0.00	-0.47	5.76	1.000	1.000	3.71	CODETI	
515	0.88	1.67	0.00	-0.23	2.72	1.000	1.000	1.79	CODETI	
520	0.94	12.19	-0.00	-0.23	13.36	7.279	7.279	9.25	CODETI	
520	-0.00	31.54	-0.28	-0.23	31.55	7.279	7.279	23.96	CODETI	
525	0.00	1.99	0.28	-0.23	2.29	1.000	1.000	2.18	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.24	2.69	-0.58	0.00	3.15	1.000	1.000	2.93	CODETI	
547	0.65	4.73	0.61	0.00	5.52	6.943	6.943	7.31	CODETI	
547	0.65	4.73	-0.61	0.00	5.52	6.943	6.943	7.31	CODETI	
548	1.36	15.18	0.56	0.00	16.58	6.943	6.943	12.78	CODETI	
548	-0.45	15.18	-0.56	0.00	15.67	6.943	6.943	12.78	CODETI	
549	-0.72	9.00	0.36	0.00	9.75	6.943	6.943	7.73	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
549	-0.72	9.00	-0.36	0.00	9.75	6.943	6.943	7.73	CODETI	
550	-0.78	8.52	0.23	0.00	9.31	6.943	6.943	6.82	CODETI	
550	-0.78	1.23	-0.23	0.00	2.06	1.000	1.000	1.31	CODETI	
557	-0.67	9.89	0.09	0.00	10.55	6.943	6.943	7.47	CODETI	
557	-0.67	9.89	-0.09	0.00	10.55	6.943	6.943	7.47	CODETI	
558	-0.57	8.43	-0.19	0.00	9.01	6.943	6.943	6.62	CODETI	
558	-0.57	8.43	0.19	0.00	9.01	6.943	6.943	6.62	CODETI	
559	-0.35	4.63	-0.41	0.00	5.05	6.943	6.943	5.53	CODETI	
559	-0.35	4.63	0.41	0.00	5.05	6.943	6.943	5.53	CODETI	
560	-0.21	5.44	-0.49	0.00	5.74	6.943	6.943	6.49	CODETI	
560	-0.21	0.78	0.49	0.00	1.39	1.000	1.000	1.25	CODETI	
570	-0.22	2.72	-0.49	0.00	3.09	1.000	1.000	2.89	CODETI	
570	-0.22	6.80	0.49	0.00	7.08	2.500	2.500	5.42	CODETI	
580	-0.16	6.61	-0.27	0.00	6.79	2.500	2.500	5.06	CODETI	
580	-0.16	2.64	0.27	0.00	2.86	1.000	1.000	2.70	CODETI	
585	-0.16	2.83	-0.27	0.00	3.04	1.000	1.000	2.88	CODETI	
585	-0.16	2.83	0.27	0.00	3.04	1.000	1.000	2.88	CODETI	
590	-0.16	22.76	-0.27	0.00	22.93	7.057	7.057	17.32	CODETI	
590	-0.01	27.58	0.92	0.00	27.66	7.057	7.057	22.87	CODETI	
595 (SR_11)	-0.01	1.02	-0.92	0.00	2.11	1.000	1.000	2.10	CODETI	
595 (SR_11)	0.00	1.02	0.92	0.00	2.10	1.000	1.000	2.10	CODETI	
596 (SP_13)	-0.00	4.58	-0.92	0.00	4.94	1.000	1.000	4.93	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
596 (SP_13)	0.01	4.58	0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
598	0.00	32.38	-0.66	0.00	32.41	8.236	8.236	25.62	CODETI	
598	0.00	32.38	0.66	0.00	32.41	8.236	8.236	25.62	CODETI	
599	0.00	30.10	-0.16	0.00	30.11	8.236	8.236	22.66	CODETI	
599	0.00	30.10	0.16	0.00	30.11	8.236	8.236	22.66	CODETI	
600	0.00	28.27	0.07	0.00	28.28	8.236	8.236	21.22	CODETI	
600	0.00	3.43	-0.07	0.00	3.44	1.000	1.000	3.44	CODETI	
608	0.00	2.69	0.05	0.00	2.69	8.236	8.236	2.10	CODETI	
608	0.00	2.69	-0.05	0.00	2.69	8.236	8.236	2.10	CODETI	
609	0.00	1.75	0.01	0.00	1.75	8.236	8.236	1.32	CODETI	
609	0.00	1.75	-0.01	0.00	1.75	8.236	8.236	1.32	CODETI	
610	0.00	1.32	0.00	0.00	1.32	8.236	8.236	0.99	CODETI	
610	0.00	0.16	-0.00	0.00	0.16	1.000	1.000	0.16	CODETI	
615	0.00	0.04	0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
615	0.00	0.04	-0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
620	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	-0.00	27.30	0.51	-0.23	27.32	7.279	7.279	21.32	CODETI	
625	-0.00	2.32	-0.51	-0.23	2.74	1.000	1.000	2.64	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.23	3.88	1.05	0.00	4.61	1.000	1.000	4.41	CODETI	
642	0.51	11.31	-1.05	0.00	12.00	6.943	6.943	13.82	CODETI	
642	0.51	11.31	1.05	0.00	12.00	6.943	6.943	13.82	CODETI	
643	0.98	9.50	-0.82	0.00	10.60	6.943	6.943	11.16	CODETI	
643	0.98	9.50	0.82	0.00	10.60	6.943	6.943	11.16	CODETI	
644	1.21	15.75	-0.37	0.00	16.98	6.943	6.943	12.44	CODETI	
644	1.21	15.75	0.37	0.00	16.98	6.943	6.943	12.44	CODETI	
645	1.22	16.40	-0.11	0.00	17.62	6.943	6.943	12.35	CODETI	
645	1.22	2.36	0.11	0.00	3.59	1.000	1.000	2.37	CODETI	
590	1.43	18.14	-0.11	0.00	19.56	7.057	7.057	13.65	CODETI	
360 (Té_TH_700)	-0.31	1.36	-0.00	-0.63	1.67	1.000	1.000	1.67	CODETI	
660	-0.31	0.10	0.00	-0.63	0.65	1.000	1.000	0.42	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	-0.23	1.31	-0.00	-0.47	1.54	1.000	1.000	1.54	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	-0.23	0.05	0.00	-0.47	0.48	1.000	1.000	0.28	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	-0.21	18.86	-0.67	-0.41	19.11	10.614	10.614	17.93	CODETI	
720 (Té_VS_008)	-0.21	12.21	0.67	-0.41	12.49	10.614	10.614	14.28	CODETI	
720 (Té_VS_008)	-0.20	19.67	-0.14	-0.41	19.88	10.614	10.614	15.12	CODETI	
725	-0.21	1.01	0.14	-0.41	1.25	1.000	1.000	1.26	CODETI	
725	-0.31	1.56	-0.21	-0.63	1.92	1.000	1.000	1.92	CODETI	
730	-0.32	5.69	0.21	-0.63	6.02	1.000	1.000	6.02	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	-0.19	3.50	-0.14	-0.41	3.69	1.000	1.000	3.71	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
770 (Té_Gavage)	-0.19	7.45	0.14	-0.41	7.68	10.614	10.614	6.20	CODETI	
770 (Té_Gavage)	-0.20	3.17	-0.00	-0.41	3.37	10.614	10.614	2.58	CODETI	
780	-0.20	0.00	0.00	-0.41	0.43	1.000	1.000	0.21	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	-0.00	-0.63	0.65	2.000	2.000	0.31	CODETI	
800 (SB_02)	-0.67	0.88	0.00	-1.18	1.55	2.000	2.000	1.25	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	-0.59	0.46	0.00	-1.18	1.19	1.000	1.000	1.05	CODETI	
820	-0.59	0.00	0.00	-1.18	1.19	1.000	1.000	0.59	CODETI	
720 (Té_VS_008)	-0.32	20.83	-0.04	-0.63	21.16	10.614	10.614	15.95	CODETI	
830	-0.33	0.02	0.04	-0.63	0.65	1.000	1.000	0.40	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.33	0.08	-0.04	-0.63	0.65	1.000	1.000	0.43	CODETI	
865 (SP_14)	-0.33	0.00	0.04	-0.63	0.65	1.000	1.000	0.40	CODETI	
865 (SP_14)	-0.33	0.00	-0.04	-0.63	0.65	1.000	1.000	0.40	CODETI	
867	-0.35	0.85	0.04	-0.63	1.20	8.376	8.376	1.13	CODETI	
867	-0.35	0.85	-0.04	-0.63	1.20	8.376	8.376	1.13	CODETI	
868	-0.42	0.80	0.03	-0.63	1.22	8.376	8.376	1.02	CODETI	
868	-0.42	0.80	-0.03	-0.63	1.22	8.376	8.376	1.02	CODETI	
869	-0.51	1.92	0.01	-0.63	2.40	8.376	8.376	1.76	CODETI	
869	-0.51	1.92	-0.01	-0.63	2.42	8.376	8.376	1.76	CODETI	
870	-0.54	2.01	0.00	-0.63	2.53	8.376	8.376	1.82	CODETI	
870	-0.54	0.24	-0.00	-0.63	0.78	1.000	1.000	0.55	CODETI	
872	-0.78	0.13	0.00	-0.63	0.92	1.000	1.000	0.44	CODETI	
872	-0.78	0.13	0.00	-0.63	0.92	1.000	1.000	0.44	CODETI	
875 (SG_15)	-1.07	0.10	-0.00	-0.63	1.18	1.000	1.000	0.41	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.16	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
880	-0.18	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
880	-0.18	0.00	0.00	-0.63	0.65	2.500	2.500	0.31	CODETI	
890	-0.24	0.00	-0.00	-0.52	0.53	2.500	2.500	0.26	CODETI	
890	-0.24	0.00	0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	-0.25	0.00	-0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	1.10	16.87	-0.00	-0.63	18.35	10.614	10.614	12.97	CODETI	
772 (SG_16_1)	0.99	1.72	0.00	-0.63	3.34	1.000	1.000	2.03	CODETI	
772 (SG_16_1)	0.99	1.72	-0.00	-0.63	3.32	1.000	1.000	2.03	CODETI	
775	0.81	12.49	0.00	-0.63	13.92	7.057	7.057	9.68	CODETI	
775	0.65	11.73	-0.00	-0.63	12.83	7.057	7.057	9.11	CODETI	
910 (Té_VS_007)	0.26	1.83	0.00	-0.63	2.72	1.000	1.000	2.15	CODETI	
910 (Té_VS_007)	0.30	1.81	-0.00	-0.63	2.72	1.000	1.000	2.13	CODETI	
915 (SG_16_2)	0.24	2.05	0.00	-0.63	2.91	1.000	1.000	2.36	CODETI	
915 (SG_16_2)	0.24	2.05	-0.00	-0.63	2.89	1.000	1.000	2.36	CODETI	
920	0.21	2.05	0.00	-0.63	2.88	1.000	1.000	2.36	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.11	2.05	-0.00	-0.63	2.76	1.000	1.000	2.36	CODETI	
957	0.04	16.89	0.00	-0.63	17.56	8.472	8.472	12.98	CODETI	
957	0.04	16.89	-0.00	-0.63	17.31	8.472	8.472	12.98	CODETI	
958	-0.09	13.96	-0.00	-0.63	14.50	8.472	8.472	10.79	CODETI	
958	-0.09	13.96	0.00	-0.63	14.29	8.472	8.472	10.79	CODETI	
959	-0.25	9.73	-0.00	-0.63	10.11	8.472	8.472	7.61	CODETI	
959	-0.25	9.73	0.00	-0.63	9.98	8.472	8.472	7.61	CODETI	
960	-0.31	7.66	-0.00	-0.63	7.97	8.472	8.472	6.06	CODETI	
960	-0.31	0.90	0.00	-0.63	1.22	1.000	1.000	1.22	CODETI	
965	-0.31	0.32	-0.00	-0.63	0.65	1.000	1.000	0.64	CODETI	
965	-0.31	0.81	0.00	-0.63	1.12	2.500	2.500	0.92	CODETI	
970	-0.26	0.02	-0.00	-0.53	0.54	2.500	2.500	0.27	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
970	-0.26	0.01	0.00	-0.53	0.54	1.000	1.000	0.27	CODETI	
980	-0.26	0.00	-0.00	-0.53	0.54	1.000	1.000	0.26	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.25	39.43	0.00	-0.51	39.68	7.057	7.057	29.82	CODETI	
995	-0.25	6.34	-0.00	-0.51	6.59	1.000	1.000	6.59	CODETI	
995	-0.25	6.34	0.00	-0.51	6.59	1.000	1.000	6.59	CODETI	
998	-0.25	1.00	-0.00	-0.51	1.25	1.000	1.000	1.25	CODETI	
998	-0.25	5.49	0.00	-0.51	5.74	5.493	4.577	4.37	CODETI	
999	-0.25	4.48	-0.00	-0.51	4.73	5.493	4.577	3.61	CODETI	
999	-0.25	4.48	0.00	-0.51	4.73	5.493	4.577	3.61	CODETI	
1000	-0.32	4.68	0.00	-0.51	4.93	5.493	4.577	3.77	CODETI	
1000	-0.32	0.85	-0.00	-0.51	1.18	1.000	1.000	1.11	CODETI	
1002	-0.62	0.85	0.00	-0.51	1.47	1.000	1.000	1.11	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.62	0.85	-0.00	-0.51	1.48	1.000	1.000	1.11	CODETI	
1008	-0.93	0.85	0.00	-0.51	1.77	1.000	1.000	1.11	CODETI	
1008	-0.93	4.68	-0.00	-0.51	5.61	5.493	4.577	3.77	CODETI	
1009	-0.81	10.71	-0.00	-0.51	11.32	5.493	4.577	8.28	CODETI	
1009	0.02	10.71	0.00	-0.51	11.04	5.493	4.577	8.28	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1010	-0.25	2.78	-0.00	-0.51	3.03	5.493	4.577	2.34	CODETI	
1010	-0.25	0.51	0.00	-0.51	0.76	1.000	1.000	0.76	CODETI	
1020	-0.25	0.31	-0.00	-0.51	0.56	1.000	1.000	0.56	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.25	0.10	0.00	-0.51	0.53	1.000	1.000	0.35	CODETI	
1060	-0.25	0.07	-0.00	-0.51	0.53	1.000	1.000	0.33	CODETI	
1060	-0.25	0.15	0.00	-0.51	0.53	2.000	2.000	0.36	CODETI	
1070	-0.23	0.00	-0.00	-0.46	0.48	2.000	2.000	0.23	CODETI	
1070	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1100 (CT_ASP_Reg)	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.47	4.71	0.33	-0.51	5.62	1.000	1.000	5.01	CODETI	
1120	0.47	4.70	-0.33	-0.51	5.72	1.000	1.000	5.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1120	0.47	4.70	0.33	-0.51	5.62	1.000	1.000	5.00	CODETI	
1128	0.48	4.70	-0.33	-0.51	5.72	1.000	1.000	5.00	CODETI	
1128	0.48	25.75	0.33	-0.51	26.25	5.493	4.577	19.81	CODETI	
1129	0.30	17.53	-0.47	-0.51	18.36	5.493	4.577	13.95	CODETI	
1129	0.30	17.53	0.47	-0.51	18.02	5.493	4.577	13.95	CODETI	
1130	-0.27	4.14	-0.32	-0.51	4.42	5.493	4.577	4.63	CODETI	
1130	-0.27	0.84	0.32	-0.51	1.29	1.000	1.000	1.31	CODETI	
1132	-0.28	3.45	-0.32	-0.51	3.74	1.000	1.000	3.76	CODETI	
1132	-0.28	3.45	0.32	-0.51	3.78	1.000	1.000	3.76	CODETI	
1135 (SR_18)	-0.28	9.26	-0.32	-0.51	9.51	1.000	1.000	9.53	CODETI	
1135 (SR_18)	-0.26	9.26	0.32	-0.51	9.54	1.000	1.000	9.53	CODETI	
1138	-0.26	2.21	-0.32	-0.51	2.54	1.000	1.000	2.56	CODETI	
1138	-0.26	11.96	0.32	-0.51	12.24	5.493	4.577	9.74	CODETI	
1139	0.09	4.38	0.00	-0.51	4.97	5.493	4.577	4.16	CODETI	
1139	0.09	4.38	-0.00	-0.51	4.89	5.493	4.577	4.16	CODETI	
1140	0.16	6.51	0.33	-0.51	7.21	5.493	4.577	6.04	CODETI	
1140	0.16	1.24	-0.33	-0.51	1.97	1.000	1.000	1.66	CODETI	
1148	-0.13	1.45	0.33	-0.51	1.94	1.000	1.000	1.85	CODETI	
1148	-0.13	7.70	-0.33	-0.51	7.95	5.493	4.577	6.81	CODETI	
1149	-0.23	9.14	0.00	-0.51	9.42	5.493	4.577	7.43	CODETI	
1149	-0.23	9.14	-0.00	-0.51	9.37	5.493	4.577	7.43	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1150	-0.27	8.92	-0.32	-0.51	9.18	5.493	4.577	7.62	CODETI	
1150	-0.27	1.67	0.32	-0.51	2.04	1.000	1.000	2.04	CODETI	
1158	-0.27	0.85	-0.32	-0.51	1.26	1.000	1.000	1.32	CODETI	
1158	-0.27	4.38	0.32	-0.51	4.69	5.493	4.577	4.65	CODETI	
1159	-0.26	3.57	-0.23	-0.51	3.84	5.493	4.577	3.54	CODETI	
1159	-0.26	3.57	0.23	-0.51	3.86	5.493	4.577	3.54	CODETI	
1160	-0.25	5.66	-0.45	-0.51	5.98	5.493	4.577	6.36	CODETI	
1160	-0.25	1.18	0.45	-0.51	1.69	1.000	1.000	1.74	CODETI	
1165 (SR_19)	-0.25	1.23	-0.45	-0.51	1.74	1.000	1.000	1.78	CODETI	
1165 (SR_19)	-0.25	1.24	0.45	-0.51	1.74	1.000	1.000	1.78	CODETI	
1170 (Tête_ATRE)	-0.25	30.44	-0.45	-0.51	30.71	4.398	4.398	23.28	CODETI	
1170 (Tête_ATRE)	-0.26	30.44	0.45	-0.51	30.71	4.398	4.398	23.28	CODETI	
1175	-0.26	4.13	-0.45	-0.51	4.47	1.000	1.000	4.48	CODETI	
1175	-0.26	4.13	0.45	-0.51	4.47	1.000	1.000	4.48	CODETI	
1178	-0.26	2.90	-0.45	-0.51	3.27	1.000	1.000	3.29	CODETI	
1178	-0.26	15.91	0.45	-0.51	16.20	5.493	4.577	12.75	CODETI	
1179	-0.61	5.87	-0.30	-0.51	6.39	5.493	4.577	5.51	CODETI	
1179	-0.61	5.87	0.30	-0.51	6.51	5.493	4.577	5.51	CODETI	
1180	-0.83	3.77	0.00	-0.51	4.53	5.493	4.577	3.65	CODETI	
1180	-0.83	0.82	-0.00	-0.51	1.65	1.000	1.000	1.08	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1185	-0.85	0.81	0.00	-0.51	1.65	1.000	1.000	1.06	CODETI	
1185	0.06	0.03	-0.00	-0.51	0.61	1.000	1.000	0.29	CODETI	
1186 (SG_20)	0.02	0.00	0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	0.02	0.00	-0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	-0.00	-0.51	0.53	2.500	2.500	0.25	CODETI	
1195	-0.22	0.00	0.00	-0.46	0.48	2.500	2.500	0.23	CODETI	
1195	-0.22	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1210 (CT_REF_Reg)	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.05	0.00	0.00	-0.51	0.57	4.398	4.398	0.25	CODETI	
1211	-0.25	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1211	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1212 (CT_03)	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	-0.00	-0.51	0.53	7.242	6.035	0.25	CODETI	
1219	-0.40	1.63	0.00	-0.51	2.01	7.242	6.035	1.48	CODETI	
1219	-0.17	1.63	-0.00	-0.51	1.94	7.242	6.035	1.48	CODETI	
1220	-0.25	0.18	0.00	-0.51	0.53	7.242	6.035	0.39	CODETI	
1220	-0.25	0.03	-0.00	-0.51	0.53	1.000	1.000	0.28	CODETI	
1230	-0.25	0.06	0.00	-0.51	0.53	1.000	1.000	0.32	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	-0.28	0.00	0.00	-0.56	0.58	1.000	1.000	0.28	CODETI	
1268	-0.28	0.04	-0.00	-0.56	0.58	1.000	1.000	0.31	CODETI	
1268	-0.28	0.19	0.00	-0.56	0.58	5.380	4.483	0.42	CODETI	
1269	-0.29	0.59	-0.00	-0.56	0.88	5.380	4.483	0.72	CODETI	
1269	-0.29	0.59	0.00	-0.56	0.88	5.380	4.483	0.72	CODETI	
1270	-0.32	1.11	-0.00	-0.56	1.41	5.380	4.483	1.11	CODETI	
1270	-0.32	0.21	0.00	-0.56	0.58	1.000	1.000	0.48	CODETI	
1279	-0.33	3.03	0.17	-0.56	3.32	5.380	4.483	3.32	CODETI	
1279	-0.33	3.03	-0.17	-0.56	3.37	5.380	4.483	3.32	CODETI	
1280	-0.28	5.28	0.51	-0.56	5.66	5.380	4.483	6.43	CODETI	
1280	-0.28	1.13	-0.51	-0.56	1.74	1.000	1.000	1.80	CODETI	
1285	-0.28	10.72	0.51	-0.56	11.05	4.398	4.398	9.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1285	-0.28	30.51	0.17	-0.56	30.80	4.398	4.398	23.19	CODETI	
1286	-0.28	3.00	-0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1286	-0.28	3.00	0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1291	-0.28	1.46	-0.17	-0.56	1.77	1.000	1.000	1.78	CODETI	
1291	-0.28	6.55	0.17	-0.56	6.84	5.380	4.483	6.34	CODETI	
1292	-0.28	5.91	-0.08	-0.56	6.19	5.380	4.483	5.64	CODETI	
1292	-0.28	5.91	0.08	-0.56	6.20	5.380	4.483	5.64	CODETI	
1290	-0.28	5.22	-0.00	-0.56	5.49	5.380	4.483	4.97	CODETI	
1290	-0.28	1.16	0.00	-0.56	1.44	1.000	1.000	1.44	CODETI	
1300	-0.28	0.41	-0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1300	-0.28	0.41	0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1310	-0.28	0.01	-0.00	-0.56	0.58	1.000	1.000	0.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.27	6.01	2.25	-0.56	7.73	4.398	4.398	15.79	CODETI	
1320	-0.27	4.21	-2.25	-0.56	6.36	1.000	1.000	6.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-0.27	2.79	0.18	-0.56	3.08	1.000	1.000	3.09	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1328	-0.27	0.47	-0.18	-0.56	0.85	1.000	1.000	0.87	CODETI	
1328	-0.27	2.35	0.18	-0.56	2.65	5.380	4.483	2.66	CODETI	
1329	-0.09	4.01	0.00	-0.56	4.48	5.380	4.483	3.51	CODETI	
1329	-0.77	3.43	-0.13	-0.56	4.21	5.380	4.483	3.13	CODETI	
1330	-0.90	3.60	0.13	-0.56	4.45	5.380	4.483	3.25	CODETI	
1330	-0.90	0.69	-0.13	-0.56	1.61	1.000	1.000	1.01	CODETI	
1338	-0.66	1.54	0.13	-0.56	2.19	1.000	1.000	1.84	CODETI	
1338	-0.66	7.99	-0.13	-0.56	8.65	5.380	4.483	6.59	CODETI	
1339	-0.54	5.92	0.36	-0.56	6.38	5.380	4.483	5.67	CODETI	
1339	-0.54	5.92	-0.36	-0.56	6.50	5.380	4.483	5.67	CODETI	
1340	-0.35	0.93	0.40	-0.56	1.45	5.380	4.483	3.63	CODETI	
1340	-0.35	0.21	-0.40	-0.56	0.98	1.000	1.000	1.11	CODETI	
1343	-0.35	1.66	0.40	-0.56	2.09	1.000	1.000	2.13	CODETI	
1343	-0.35	1.66	-0.40	-0.56	2.16	1.000	1.000	2.13	CODETI	
1348	-0.35	1.62	0.40	-0.56	2.05	1.000	1.000	2.09	CODETI	
1348	-0.35	7.28	-0.40	-0.56	7.66	5.380	4.483	7.59	CODETI	
1349	-0.32	6.25	-0.23	-0.56	6.51	5.380	4.483	6.21	CODETI	
1349	-0.32	6.25	0.23	-0.56	6.59	5.380	4.483	6.21	CODETI	
1345	-0.27	2.03	-0.54	-0.56	2.55	5.380	4.483	4.86	CODETI	
1345	-0.27	0.38	0.54	-0.56	1.25	1.000	1.000	1.41	CODETI	
1350 (SP_23)	-0.27	1.94	-0.54	-0.56	2.47	1.000	1.000	2.49	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1350 (SP_23)	-0.27	1.94	0.54	-0.56	2.45	1.000	1.000	2.49	CODETI	
1355	-0.27	2.80	-0.54	-0.56	3.27	1.000	1.000	3.28	CODETI	
1355	-0.27	2.80	0.54	-0.56	3.25	1.000	1.000	3.28	CODETI	
1360	-0.27	3.15	-0.54	-0.56	3.60	1.000	1.000	3.61	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	-0.24	4.12	0.54	-0.51	4.49	1.000	1.000	4.51	CODETI	
514 (Té_VS_011)	-0.24	33.45	-0.33	-0.51	33.73	5.836	5.836	25.51	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.00	3.76	0.22	0.00	3.79	7.388	7.388	3.74	CODETI	
1417	0.06	2.12	-0.21	0.00	2.23	7.388	7.388	2.85	CODETI	
1417	0.06	2.12	0.21	0.00	2.23	7.388	7.388	2.85	CODETI	
1418	0.20	2.90	-0.15	0.00	3.11	7.388	7.388	2.75	CODETI	
1418	0.20	2.90	0.15	0.00	3.11	7.388	7.388	2.75	CODETI	
1419	0.30	5.06	-0.05	0.00	5.37	7.388	7.388	3.84	CODETI	
1419	0.30	5.06	0.05	0.00	5.37	7.388	7.388	3.84	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	0.33	5.37	0.01	0.00	5.70	7.388	7.388	4.03	CODETI	
1410	0.33	0.73	-0.01	0.00	1.06	1.000	1.000	0.73	CODETI	
1415 (SP_26)	0.97	0.73	0.01	0.00	1.70	1.000	1.000	0.73	CODETI	
1415 (SP_26)	-0.33	0.73	-0.01	0.00	1.06	1.000	1.000	0.73	CODETI	
1422	-0.29	0.73	0.01	0.00	1.02	1.000	1.000	0.73	CODETI	
1422	-0.29	3.71	-0.01	0.00	4.00	5.640	4.700	3.10	CODETI	
1421	-0.15	1.88	0.21	0.00	2.07	5.640	4.700	2.46	CODETI	
1421	-0.15	1.88	-0.21	0.00	2.07	5.640	4.700	2.46	CODETI	
1420	0.00	4.16	0.29	0.00	4.20	5.640	4.700	3.97	CODETI	
1420	0.00	0.74	-0.29	0.00	0.94	1.000	1.000	0.94	CODETI	
1425	0.00	1.20	0.29	0.00	1.33	1.000	1.000	1.33	CODETI	
1425	0.00	1.20	-0.29	0.00	1.33	1.000	1.000	1.33	CODETI	
1428	-0.00	8.55	0.21	0.00	8.56	7.391	7.391	6.84	CODETI	
1428	-0.00	8.55	-0.21	0.00	8.56	7.391	7.391	6.84	CODETI	
1429	-0.00	8.33	0.06	0.00	8.33	7.391	7.391	6.29	CODETI	
1429	-0.00	8.33	-0.06	0.00	8.33	7.391	7.391	6.29	CODETI	
1430	-0.00	7.95	-0.01	0.00	7.95	7.391	7.391	5.96	CODETI	
1430	-0.00	1.08	0.01	0.00	1.08	1.000	1.000	1.08	CODETI	
1440	-0.00	1.17	-0.01	0.00	1.18	1.000	1.000	1.17	CODETI	
1440	-0.00	1.17	0.01	0.00	1.18	1.000	1.000	1.17	CODETI	
1445 (SP_31)	-0.00	4.10	-0.01	0.00	4.11	1.000	1.000	4.10	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.00	4.10	0.01	0.00	4.10	1.000	1.000	4.10	CODETI	
1450	0.00	18.10	-0.01	0.00	18.10	5.231	5.231	13.57	CODETI	
1450	0.00	16.66	0.20	0.00	16.67	5.231	5.231	12.59	CODETI	
1451 (SP_27)	0.00	0.70	-0.20	0.00	0.80	1.000	1.000	0.80	CODETI	
1451 (SP_27)	0.00	0.70	0.20	0.00	0.80	1.000	1.000	0.80	CODETI	
1452	-0.00	0.65	-0.20	0.00	0.76	1.000	1.000	0.76	CODETI	
1452	-0.00	0.65	0.20	0.00	0.76	1.000	1.000	0.76	CODETI	
1455 (SP_28)	-0.00	5.43	-0.20	0.00	5.45	1.000	1.000	5.44	CODETI	
1455 (SP_28)	0.00	5.43	0.20	0.00	5.45	1.000	1.000	5.44	CODETI	
1458	0.00	1.04	-0.20	0.00	1.12	1.000	1.000	1.11	CODETI	
1458	0.00	4.90	0.20	0.00	4.91	5.640	4.700	4.71	CODETI	
1459	0.00	2.33	-0.30	0.00	2.40	5.640	4.700	3.28	CODETI	
1459	0.00	2.33	0.30	0.00	2.40	5.640	4.700	3.28	CODETI	
1460	0.00	6.59	0.11	0.00	6.59	5.640	4.700	6.00	CODETI	
1460	0.00	1.40	-0.11	0.00	1.42	1.000	1.000	1.42	CODETI	
1468	-0.00	1.18	0.11	0.00	1.20	1.000	1.000	1.20	CODETI	
1468	-0.00	5.53	-0.11	0.00	5.54	5.640	4.700	5.06	CODETI	
1469	-0.00	1.01	-0.19	0.00	1.08	5.640	4.700	1.88	CODETI	
1469	-0.00	1.01	0.19	0.00	1.08	5.640	4.700	1.88	CODETI	
1470	0.00	5.70	0.00	0.00	5.71	5.640	4.700	5.13	CODETI	
1470	0.00	1.21	-0.00	0.00	1.22	1.000	1.000	1.21	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.58	1.000	1.000	1.58	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	3.20	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1518	0.04	0.00	-0.00	0.00	0.04	1.000	1.000	0.00	CODETI	
1518	0.04	0.00	0.00	0.00	0.04	7.391	6.159	0.00	CODETI	
1519	0.06	0.22	0.00	0.00	0.28	7.391	6.159	0.17	CODETI	
1519	0.06	0.22	-0.00	0.00	0.28	7.391	6.159	0.17	CODETI	
1520	0.06	1.12	-0.00	0.00	1.17	7.391	6.159	0.84	CODETI	
1520	0.06	0.15	0.00	0.00	0.21	1.000	1.000	0.15	CODETI	
1523	0.16	2.10	-0.00	0.00	2.25	1.000	1.000	2.10	CODETI	
1523	0.16	11.83	-0.00	0.00	11.98	5.640	4.700	8.87	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 9 Poids + PS Mini en Normal**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1524	0.09	14.51	-0.00	0.00	14.59	5.640	4.700	10.88	CODETI	
1524	0.09	14.51	0.00	0.00	14.59	5.640	4.700	10.88	CODETI	
1525	0.00	17.68	-0.00	0.00	17.68	5.640	4.700	13.26	CODETI	
1525	0.00	3.13	0.00	0.00	3.14	1.000	1.000	3.13	CODETI	
1530	0.00	3.35	-0.00	0.00	3.35	1.000	1.000	3.35	CODETI	
1530	-0.00	3.35	-0.00	0.00	3.36	1.000	1.000	3.35	CODETI	
1540 (SR_30)	-0.00	4.83	0.00	0.00	4.84	1.000	1.000	4.83	CODETI	
1540 (SR_30)	0.00	4.83	0.00	0.00	4.84	1.000	1.000	4.83	CODETI	
1450	0.00	2.46	-0.00	0.00	2.46	5.231	5.231	1.84	CODETI	

STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.26	0.29	0.05	0.00	7.55	1.000	1.000	0.30	CODETI	
20	-6.97	0.33	-0.05	0.00	7.30	1.000	1.000	0.34	CODETI	
20	11.26	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
25	10.20	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
20	10.21	0.33	0.05	31.19	31.33	1.000	1.000	15.92	CODETI	
30	10.53	0.34	-0.05	31.19	31.33	1.000	1.000	15.92	CODETI	
30	10.59	0.32	0.05	31.19	31.33	1.000	1.000	15.91	CODETI	
40	10.95	0.33	-0.05	31.19	31.33	1.000	1.000	15.92	CODETI	
40	11.01	0.06	0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
45 (Weld_CW2)	12.69	0.06	-0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
45 (Weld_CW2)	12.69	0.06	0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
50	13.90	0.05	-0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
50	9.10	0.03	0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
55	9.89	0.03	-0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
55	9.91	0.03	0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
56	9.97	0.03	-0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
56	9.95	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
60	10.16	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
65	2.52	0.00	-0.00	5.69	5.82	1.000	1.000	2.82	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Piquage_N1)										
70	2.59	0.00	0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	2.83	1.29	5.05	5.69	10.90	1.000	1.000	13.00	CODETI	
110	2.83	2.10	-5.05	5.69	11.22	1.000	1.000	13.13	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	2.51	0.36	0.00	4.60	4.74	1.000	1.000	2.64	CODETI	
129	2.40	1.01	0.00	4.60	4.74	7.124	5.937	3.04	CODETI	
129	2.40	1.01	-0.00	4.60	4.74	7.124	5.937	3.04	CODETI	
130	2.28	1.90	0.00	4.60	4.74	7.124	5.937	3.71	CODETI	
130	2.28	0.27	-0.00	4.60	4.74	1.000	1.000	2.55	CODETI	
134 (Jupe_N3)	2.28	0.10	0.00	4.60	4.74	1.000	1.000	2.38	CODETI	
134 (Jupe_N3)	2.28	0.10	-0.00	4.60	4.74	1.000	1.000	2.38	CODETI	
135 (SR_N3)	2.28	0.38	0.00	4.60	4.74	1.000	1.000	2.66	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	1.90	0.53	0.00	4.60	4.74	1.000	1.000	2.81	CODETI	
160	2.02	0.08	-0.00	4.60	4.74	1.000	1.000	2.36	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	2.71	4.81	0.33	4.60	7.55	1.000	1.000	7.13	CODETI	
190	2.82	4.72	-0.33	4.60	7.58	1.000	1.000	7.05	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	2.22	3.99	-0.61	4.60	6.54	1.000	1.000	6.45	CODETI	
220	2.22	1.33	0.61	4.60	5.00	1.000	1.000	4.08	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	1.56	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
250	1.57	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
251 (CT_N1)	1.57	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
260	1.75	0.00	0.00	3.16	3.24	10.614	10.614	1.57	CODETI	
260	1.02	20.78	-0.78	2.07	21.86	10.614	10.614	20.91	CODETI	
262	1.02	1.57	0.78	2.07	3.17	1.000	1.000	3.23	CODETI	
262	1.57	2.41	-1.19	3.16	4.84	1.000	1.000	4.95	CODETI	
265 (SG_5)	1.57	2.10	1.19	3.16	4.65	1.000	1.000	4.74	CODETI	
265 (SG_5)	1.57	2.10	-1.19	3.16	4.65	1.000	1.000	4.74	CODETI	
267	1.57	8.00	1.13	3.16	9.82	8.376	8.376	17.01	CODETI	
267	1.57	8.00	-1.13	3.16	9.83	8.376	8.376	17.01	CODETI	
268	1.57	8.46	0.98	3.16	10.22	8.376	8.376	15.47	CODETI	
268	1.57	8.46	-0.98	3.16	10.23	8.376	8.376	15.47	CODETI	
269	1.57	7.63	0.85	3.16	9.34	8.376	8.376	13.66	CODETI	
269	1.57	7.63	-0.85	3.16	9.36	8.376	8.376	13.66	CODETI	
270	1.57	7.04	0.81	3.16	8.75	8.376	8.376	13.00	CODETI	
270	1.57	0.84	-0.81	3.16	3.73	1.000	1.000	3.39	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
271	1.58	5.26	0.81	3.16	7.01	1.000	1.000	7.07	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.81	5.10	-0.00	5.69	7.94	1.000	1.000	7.92	CODETI	
277	3.08	24.78	0.10	5.69	27.56	8.141	8.141	21.45	CODETI	
277	3.08	24.78	-0.10	5.69	27.85	8.141	8.141	21.45	CODETI	
278	3.49	10.31	0.28	5.69	13.74	8.141	8.141	11.30	CODETI	
278	3.49	10.31	-0.28	5.69	13.81	8.141	8.141	11.30	CODETI	
279	3.69	2.02	0.39	5.69	6.18	8.141	8.141	7.79	CODETI	
279	3.69	2.02	-0.39	5.69	5.90	8.141	8.141	7.79	CODETI	
280	3.69	0.06	0.40	5.69	5.90	8.141	8.141	7.73	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
280	3.69	0.01	-0.40	5.69	5.87	1.000	1.000	3.63	CODETI	
284	3.65	0.01	0.40	5.69	5.90	1.000	1.000	3.63	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	3.49	0.00	-0.40	5.69	5.87	1.000	1.000	3.63	CODETI	
290	3.31	0.00	0.40	5.69	5.89	1.000	1.000	3.63	CODETI	
290	3.31	0.00	-0.40	5.69	5.87	1.000	1.000	3.63	CODETI	
299	3.13	0.01	0.40	5.69	5.88	1.000	1.000	3.63	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	2.96	0.01	-0.40	5.69	5.87	1.000	1.000	3.63	CODETI	
306	2.91	1.99	0.39	5.69	5.97	9.368	9.368	8.47	CODETI	
306	2.91	1.99	-0.39	5.69	5.95	9.368	9.368	8.47	CODETI	
307	2.86	5.39	0.28	5.69	8.28	9.368	9.368	8.49	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
307	2.86	5.39	-0.28	5.69	8.27	9.368	9.368	8.49	CODETI	
308	2.82	7.34	0.10	5.69	10.17	9.368	9.368	8.51	CODETI	
308	2.82	7.34	-0.10	5.69	10.17	9.368	9.368	8.51	CODETI	
305	2.82	7.57	0.00	5.69	10.40	9.368	9.368	8.50	CODETI	
305	2.82	0.81	-0.00	5.69	5.82	1.000	1.000	3.63	CODETI	
435 (SR_07)	2.82	0.82	0.00	5.69	5.82	1.000	1.000	3.65	CODETI	
435 (SR_07)	2.84	0.82	-0.00	5.69	5.82	1.000	1.000	3.65	CODETI	
440	2.83	80.97	0.00	5.69	83.78	10.614	10.614	63.55	CODETI	
440	1.85	4.60	0.82	3.73	6.66	10.614	10.614	15.30	CODETI	
445	1.85	1.01	-0.82	3.73	4.32	1.000	1.000	3.76	CODETI	
445	2.83	14.48	1.25	5.69	17.49	9.368	9.368	23.50	CODETI	
311	2.85	11.39	-1.43	5.69	14.47	9.368	9.368	24.71	CODETI	
311	2.85	11.39	1.43	5.69	14.52	9.368	9.368	24.71	CODETI	
312	2.85	2.76	-1.64	5.69	7.36	9.368	9.368	25.93	CODETI	
312	2.85	2.76	1.64	5.69	7.33	9.368	9.368	25.93	CODETI	
313	2.82	7.19	-1.58	5.69	10.50	9.368	9.368	25.61	CODETI	
313	2.82	7.19	1.58	5.69	10.50	9.368	9.368	25.61	CODETI	
310	2.81	11.70	-1.45	5.69	14.83	9.368	9.368	24.97	CODETI	
310	2.81	1.25	1.45	5.69	6.64	1.000	1.000	5.97	CODETI	
315	2.79	1.04	-1.45	5.69	6.58	1.000	1.000	5.90	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.74	0.94	1.45	5.69	6.59	1.000	1.000	5.87	CODETI	
330	2.68	0.29	-1.45	5.69	6.43	1.000	1.000	5.73	CODETI	
330	2.68	0.29	1.45	5.69	6.47	1.000	1.000	5.73	CODETI	
335	2.63	0.19	-1.45	5.69	6.40	1.000	1.000	5.72	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	2.57	0.22	1.45	5.69	6.48	1.000	1.000	5.72	CODETI	
337	2.55	9.58	-1.36	5.69	12.96	9.368	9.368	23.28	CODETI	
337	2.55	9.58	1.36	5.69	12.87	9.368	9.368	23.28	CODETI	
338	2.60	21.46	-0.92	5.69	24.57	9.368	9.368	23.49	CODETI	
338	2.60	21.46	0.92	5.69	24.30	9.368	9.368	23.49	CODETI	
339	2.74	27.77	-0.24	5.69	30.68	9.368	9.368	23.92	CODETI	

STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
339	2.74	27.77	0.24	5.69	30.52	9.368	9.368	23.92	CODETI	
350	2.83	28.56	0.13	5.69	31.38	9.368	9.368	24.32	CODETI	
350	1.84	1.99	-0.08	3.73	3.95	1.000	1.000	3.84	CODETI	
355 (SR_8)	1.84	2.08	0.08	3.73	4.01	1.000	1.000	3.92	CODETI	
355 (SR_8)	1.85	2.08	-0.08	3.73	4.00	1.000	1.000	3.92	CODETI	
360 (Té_TH_700)	1.85	3.24	0.08	3.73	5.11	1.000	1.000	5.09	CODETI	
360 (Té_TH_700)	1.85	3.24	-0.41	3.73	5.21	1.000	1.000	5.19	CODETI	
365	1.84	39.53	0.41	3.73	41.37	10.614	10.614	32.20	CODETI	
365	1.85	5.96	1.60	3.73	8.44	10.614	10.614	27.70	CODETI	
366	1.85	0.59	-1.60	3.73	4.89	1.000	1.000	5.09	CODETI	
366	2.84	7.37	2.45	5.69	11.32	8.141	8.141	33.27	CODETI	
368	2.87	4.10	-2.49	5.69	8.93	8.141	8.141	33.36	CODETI	
368	2.87	4.10	2.49	5.69	8.87	8.141	8.141	33.36	CODETI	
369	2.95	9.09	-2.39	5.69	12.78	8.141	8.141	32.76	CODETI	
369	2.95	9.09	2.39	5.69	12.95	8.141	8.141	32.76	CODETI	
370	3.00	13.43	-2.25	5.69	16.75	8.141	8.141	32.03	CODETI	
370	3.00	1.65	2.25	5.69	7.42	1.000	1.000	7.61	CODETI	
378	3.03	12.21	-2.18	5.69	15.61	8.141	8.141	30.96	CODETI	
378	3.03	12.21	2.18	5.69	15.86	8.141	8.141	30.96	CODETI	
379	2.92	31.23	-1.69	5.69	34.13	8.141	8.141	34.05	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
379	2.92	31.23	1.69	5.69	34.32	8.141	8.141	34.05	CODETI	
380	2.84	39.16	-1.31	5.69	42.04	8.141	8.141	36.26	CODETI	
380	2.84	4.81	1.31	5.69	8.30	1.000	1.000	8.30	CODETI	
385	2.84	4.98	-1.31	5.69	8.47	1.000	1.000	8.45	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	12.56	6.10	1.31	25.28	26.12	1.000	1.000	19.18	CODETI	
410	12.56	7.02	-1.31	25.28	26.15	1.000	1.000	20.04	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	12.56	7.20	1.27	25.28	26.14	1.000	1.000	20.18	CODETI	
430 (PF4_CPO)	12.56	8.84	-1.27	25.28	26.23	1.000	1.000	21.74	CODETI	
440	1.84	9.49	3.29	3.73	13.11	10.614	10.614	54.77	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
450	1.84	1.33	-3.29	3.73	7.31	1.000	1.000	8.56	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	2.19	80.42	-2.60	4.27	82.78	10.614	10.614	75.22	CODETI	
500	2.29	7.63	4.00	4.27	12.46	1.000	1.000	13.16	CODETI	
500	2.29	7.63	-4.00	4.27	12.74	1.000	1.000	13.16	CODETI	
503	2.38	39.88	3.62	4.27	42.35	7.049	7.049	50.70	CODETI	
503	2.38	39.88	-3.62	4.27	42.87	7.049	7.049	50.70	CODETI	
504	2.37	46.03	2.69	4.27	48.18	7.049	7.049	46.82	CODETI	
504	2.37	46.03	-2.69	4.27	48.69	7.049	7.049	46.82	CODETI	
505	2.35	47.83	2.16	4.27	49.90	7.049	7.049	44.66	CODETI	
505	2.35	6.79	-2.16	4.27	10.10	1.000	1.000	10.16	CODETI	
508	2.47	37.54	2.22	4.27	39.55	7.049	7.049	38.80	CODETI	
508	2.47	37.54	-2.22	4.27	40.26	7.049	7.049	38.80	CODETI	
509	2.56	45.68	1.88	4.27	47.49	7.049	7.049	41.69	CODETI	
509	2.56	45.68	-1.88	4.27	48.38	7.049	7.049	41.69	CODETI	
510	2.58	51.60	1.48	4.27	53.32	7.049	7.049	43.85	CODETI	
510	2.58	7.32	-1.48	4.27	10.33	1.000	1.000	10.01	CODETI	
514 (Té_VS_011)	2.63	51.89	1.48	4.27	53.58	5.836	5.836	43.12	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
514 (Té_VS_011)	3.00	48.23	-2.42	4.27	51.46	5.836	5.836	44.01	CODETI	
515	3.09	12.18	2.42	4.27	15.61	1.000	1.000	15.22	CODETI	
515	1.49	5.87	-1.16	2.08	7.71	1.000	1.000	7.33	CODETI	
520	1.56	55.24	1.16	2.08	55.77	7.279	7.279	44.35	CODETI	
520	0.75	39.03	0.03	2.08	39.78	7.279	7.279	30.29	CODETI	
525	0.75	1.56	-0.03	2.08	2.87	1.000	1.000	2.58	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	5.13	1.24	0.07	4.27	6.44	1.000	1.000	3.36	CODETI	
547	5.68	14.80	0.04	4.27	20.27	6.943	6.943	13.22	CODETI	
547	5.68	14.80	-0.04	4.27	20.49	6.943	6.943	13.22	CODETI	
548	6.07	24.06	0.16	4.27	29.71	6.943	6.943	20.23	CODETI	
548	4.21	24.06	-0.16	4.27	28.26	6.943	6.943	20.23	CODETI	
549	2.90	14.65	0.10	4.27	17.33	6.943	6.943	13.15	CODETI	

STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
549	2.90	14.65	-0.10	4.27	17.55	6.943	6.943	13.15	CODETI	
550	2.17	35.74	0.01	4.27	37.79	6.943	6.943	28.92	CODETI	
550	2.17	5.15	-0.01	4.27	7.32	1.000	1.000	7.26	CODETI	
557	2.47	18.05	-0.29	4.27	20.24	6.943	6.943	15.98	CODETI	
557	2.47	18.05	0.29	4.27	20.52	6.943	6.943	15.98	CODETI	
558	2.71	15.80	-0.91	4.27	18.33	6.943	6.943	17.32	CODETI	
558	2.71	15.80	0.91	4.27	18.60	6.943	6.943	17.32	CODETI	
559	2.75	10.65	-1.42	4.27	13.49	6.943	6.943	18.96	CODETI	
559	2.75	10.65	1.42	4.27	13.70	6.943	6.943	18.96	CODETI	
560	2.69	7.12	-1.60	4.27	10.18	6.943	6.943	19.56	CODETI	
560	3.15	1.03	1.60	4.27	5.27	1.000	1.000	5.46	CODETI	
570	3.15	2.76	-1.60	4.27	6.92	1.000	1.000	6.33	CODETI	
570	3.15	6.91	1.60	4.27	10.55	2.500	2.500	10.03	CODETI	
580	3.60	7.83	-0.90	5.69	11.54	2.500	2.500	9.60	CODETI	
580	3.60	3.13	0.90	5.69	7.00	1.000	1.000	6.44	CODETI	
585	3.60	3.53	-0.90	5.69	7.60	1.000	1.000	6.78	CODETI	
585	3.60	3.53	0.90	5.69	7.38	1.000	1.000	6.78	CODETI	
590	3.60	33.01	-0.90	5.69	36.21	7.057	7.057	29.35	CODETI	
590	2.38	102.75	0.93	5.69	105.15	7.057	7.057	80.52	CODETI	
595 (SR_11)	2.38	15.25	-0.93	5.69	18.60	1.000	1.000	18.18	CODETI	
595 (SR_11)	2.39	15.25	0.93	5.69	18.42	1.000	1.000	18.18	CODETI	
596 (SP_13)	2.39	5.39	-0.93	5.69	8.85	1.000	1.000	8.53	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
596 (SP_13)	2.39	5.39	0.93	5.69	8.92	1.000	1.000	8.53	CODETI	
598	2.39	39.79	-0.67	5.69	43.06	8.236	8.236	33.79	CODETI	
598	2.39	39.79	0.67	5.69	42.52	8.236	8.236	33.79	CODETI	
599	2.42	37.34	-0.16	5.69	40.56	8.236	8.236	30.90	CODETI	
599	2.42	37.34	0.16	5.69	40.07	8.236	8.236	30.90	CODETI	
600	2.45	35.35	0.08	5.69	38.54	8.236	8.236	29.35	CODETI	
600	2.45	4.29	-0.08	5.69	7.52	1.000	1.000	7.12	CODETI	
608	2.42	3.06	0.05	5.69	6.33	8.236	8.236	5.20	CODETI	
608	2.42	3.06	-0.05	5.69	6.34	8.236	8.236	5.20	CODETI	
609	2.39	1.89	0.01	5.69	5.82	8.236	8.236	4.25	CODETI	
609	2.39	1.89	-0.01	5.69	5.82	8.236	8.236	4.25	CODETI	
610	2.38	1.44	0.00	5.69	5.82	8.236	8.236	3.90	CODETI	
610	2.38	0.18	-0.00	5.69	5.82	1.000	1.000	3.00	CODETI	
615	2.38	0.04	0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
615	2.38	0.04	-0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
620	2.38	0.00	-0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
520	0.23	18.54	0.82	2.08	19.70	7.279	7.279	17.55	CODETI	
625	0.23	1.05	-0.82	2.08	3.30	1.000	1.000	2.96	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.48	1.81	1.70	4.27	6.77	1.000	1.000	5.96	CODETI	
642	0.31	19.05	-1.46	4.27	23.14	6.943	6.943	22.95	CODETI	
642	0.31	19.05	1.46	4.27	22.77	6.943	6.943	22.95	CODETI	
643	0.38	22.31	-0.79	4.27	26.20	6.943	6.943	20.78	CODETI	
643	0.38	22.31	0.79	4.27	25.81	6.943	6.943	20.78	CODETI	
644	0.95	19.57	-0.05	4.27	22.85	6.943	6.943	16.80	CODETI	
644	0.95	19.57	0.05	4.27	22.54	6.943	6.943	16.80	CODETI	
645	1.35	22.65	0.28	4.27	25.53	6.943	6.943	19.35	CODETI	
645	1.35	3.26	-0.28	4.27	6.20	1.000	1.000	5.42	CODETI	
590	1.55	127.45	0.28	4.27	130.12	7.057	7.057	97.74	CODETI	
360 (Té_TH_700)	2.82	1.36	0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	-0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	0.00	4.21	4.34	1.000	1.000	3.39	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	2.08	0.05	-0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	1.02	20.78	-0.78	2.07	21.86	10.614	10.614	20.91	CODETI	
720 (Té_VS_008)	1.02	14.47	0.78	2.07	15.57	10.614	10.614	17.46	CODETI	
720 (Té_VS_008)	1.02	27.78	0.08	2.07	28.80	10.614	10.614	21.90	CODETI	
725	1.02	0.76	-0.08	2.07	2.17	1.000	1.000	1.81	CODETI	
725	1.57	1.17	0.13	3.16	3.27	1.000	1.000	2.77	CODETI	
730	1.56	5.98	-0.13	3.16	7.55	1.000	1.000	7.55	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	1.04	3.73	0.08	2.07	4.77	1.000	1.000	4.75	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
770 (Té_Gavage)	1.04	5.05	-0.08	2.07	6.06	10.614	10.614	5.04	CODETI	
770 (Té_Gavage)	1.02	3.17	-0.00	2.07	4.19	10.614	10.614	3.40	CODETI	
780	1.02	0.00	0.00	2.07	2.15	1.000	1.000	1.03	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	-0.00	3.16	3.24	2.000	2.000	1.57	CODETI	
800 (SB_02)	2.86	0.88	0.00	5.90	5.97	2.000	2.000	3.60	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	2.94	0.46	0.00	5.90	5.97	1.000	1.000	3.40	CODETI	
820	2.94	0.00	0.00	5.90	5.97	1.000	1.000	2.94	CODETI	
720 (Té_VS_008)	1.56	34.62	0.01	3.16	36.18	10.614	10.614	27.53	CODETI	
830	1.56	0.33	-0.01	3.16	3.24	1.000	1.000	1.90	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	1.56	0.08	0.01	3.16	3.24	1.000	1.000	1.65	CODETI	
865 (SP_14)	1.56	0.14	-0.01	3.16	3.24	1.000	1.000	1.71	CODETI	
865 (SP_14)	1.56	0.14	0.01	3.16	3.24	1.000	1.000	1.71	CODETI	
867	1.54	1.75	-0.01	3.16	3.38	8.376	8.376	2.89	CODETI	
867	1.54	1.75	0.01	3.16	3.38	8.376	8.376	2.89	CODETI	
868	1.46	0.22	-0.00	3.16	3.24	8.376	8.376	1.73	CODETI	
868	1.46	0.22	0.00	3.16	3.24	8.376	8.376	1.73	CODETI	
869	1.37	1.06	-0.00	3.16	3.24	8.376	8.376	2.36	CODETI	
869	1.37	1.06	0.00	3.16	3.24	8.376	8.376	2.36	CODETI	
870	1.34	1.20	0.00	3.16	3.24	8.376	8.376	2.46	CODETI	
870	1.34	0.14	-0.00	3.16	3.24	1.000	1.000	1.71	CODETI	
872	1.10	0.06	0.00	3.16	3.24	1.000	1.000	1.63	CODETI	
872	1.10	0.06	-0.00	3.16	3.24	1.000	1.000	1.63	CODETI	
875 (SG_15)	0.81	0.10	0.00	3.16	3.24	1.000	1.000	1.67	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	1.72	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
880	1.70	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
880	1.70	0.00	-0.00	3.16	3.24	2.500	2.500	1.57	CODETI	
890	1.30	0.00	0.00	2.58	2.66	2.500	2.500	1.28	CODETI	
890	1.30	0.00	-0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	1.29	0.00	0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	2.99	12.89	-0.00	3.16	15.88	10.614	10.614	11.24	CODETI	
772 (SG_16_1)	2.87	1.18	0.00	3.16	4.09	1.000	1.000	2.75	CODETI	
772 (SG_16_1)	2.87	1.18	-0.00	3.16	4.09	1.000	1.000	2.75	CODETI	
775	2.69	9.13	0.00	3.16	11.73	7.057	7.057	8.41	CODETI	
775	2.53	9.74	-0.00	3.16	12.27	7.057	7.057	8.87	CODETI	
910 (Té_VS_007)	2.15	1.77	0.00	3.16	3.94	1.000	1.000	3.34	CODETI	
910 (Té_VS_007)	2.18	1.75	-0.00	3.16	3.96	1.000	1.000	3.32	CODETI	
915 (SG_16_2)	2.12	2.05	0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
915 (SG_16_2)	2.12	2.05	-0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
920	2.09	2.05	0.00	3.16	4.15	1.000	1.000	3.61	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	1.99	2.05	-0.00	3.16	4.06	1.000	1.000	3.61	CODETI	
957	1.92	16.89	0.00	3.16	18.60	8.472	8.472	14.24	CODETI	
957	1.92	16.89	-0.00	3.16	18.82	8.472	8.472	14.24	CODETI	
958	1.79	13.96	-0.00	3.16	15.58	8.472	8.472	12.04	CODETI	
958	1.79	13.96	0.00	3.16	15.75	8.472	8.472	12.04	CODETI	
959	1.63	9.73	-0.00	3.16	11.26	8.472	8.472	8.87	CODETI	
959	1.63	9.73	0.00	3.16	11.36	8.472	8.472	8.87	CODETI	
960	1.57	7.66	-0.00	3.16	9.23	8.472	8.472	7.31	CODETI	
960	1.57	0.90	0.00	3.16	3.24	1.000	1.000	2.47	CODETI	
965	1.57	0.32	-0.00	3.16	3.24	1.000	1.000	1.89	CODETI	
965	1.57	0.81	0.00	3.16	3.24	2.500	2.500	2.17	CODETI	
970	1.30	0.02	-0.00	2.63	2.71	2.500	2.500	1.32	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
970	1.30	0.01	0.00	2.63	2.71	1.000	1.000	1.31	CODETI	
980	1.30	0.00	-0.00	2.63	2.71	1.000	1.000	1.30	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	1.27	39.48	0.00	2.56	40.75	7.057	7.057	30.87	CODETI	
995	1.27	6.35	-0.00	2.56	7.61	1.000	1.000	7.61	CODETI	
995	1.27	6.35	0.00	2.56	7.62	1.000	1.000	7.61	CODETI	
998	1.27	1.00	-0.00	2.56	2.63	1.000	1.000	2.27	CODETI	
998	1.27	5.51	0.00	2.56	6.77	5.493	4.577	5.39	CODETI	
999	1.26	4.48	-0.00	2.56	5.75	5.493	4.577	4.63	CODETI	
999	1.26	4.48	0.00	2.56	5.75	5.493	4.577	4.63	CODETI	
1000	1.20	4.69	0.00	2.56	6.02	5.493	4.577	4.78	CODETI	
1000	1.20	0.85	-0.00	2.56	2.63	1.000	1.000	2.12	CODETI	
1002	0.89	0.85	0.00	2.56	2.63	1.000	1.000	2.12	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	0.89	0.85	-0.00	2.56	2.63	1.000	1.000	2.12	CODETI	
1008	0.59	0.85	0.00	2.56	2.83	1.000	1.000	2.12	CODETI	
1008	0.59	4.69	-0.00	2.56	6.58	5.493	4.577	4.78	CODETI	
1009	0.71	10.71	-0.00	2.56	12.53	5.493	4.577	9.30	CODETI	
1009	1.53	10.71	0.00	2.56	12.24	5.493	4.577	9.30	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1010	1.27	2.78	-0.00	2.56	4.05	5.493	4.577	3.35	CODETI	
1010	1.27	0.51	0.00	2.56	2.63	1.000	1.000	1.77	CODETI	
1020	1.27	0.31	-0.00	2.56	2.63	1.000	1.000	1.57	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	1.27	0.10	0.00	2.56	2.63	1.000	1.000	1.37	CODETI	
1060	1.27	0.07	-0.00	2.56	2.63	1.000	1.000	1.34	CODETI	
1060	1.27	0.15	0.00	2.56	2.63	2.000	2.000	1.37	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	2.000	2.000	1.15	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1100 (CT_ASP_Reg)	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	1.99	4.71	0.33	2.56	6.73	1.000	1.000	6.02	CODETI	
1120	1.99	4.71	-0.33	2.56	6.68	1.000	1.000	6.02	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1120	1.99	4.71	0.33	2.56	6.73	1.000	1.000	6.02	CODETI	
1128	1.99	4.70	-0.33	2.56	6.68	1.000	1.000	6.01	CODETI	
1128	1.99	25.75	0.33	2.56	27.75	5.493	4.577	20.83	CODETI	
1129	1.82	17.53	-0.47	2.56	19.08	5.493	4.577	14.96	CODETI	
1129	1.82	17.53	0.47	2.56	19.38	5.493	4.577	14.96	CODETI	
1130	1.24	4.14	-0.32	2.56	5.47	5.493	4.577	5.64	CODETI	
1130	1.24	0.84	0.32	2.56	2.79	1.000	1.000	2.33	CODETI	
1132	1.24	3.45	-0.32	2.56	4.78	1.000	1.000	4.78	CODETI	
1132	1.24	3.45	0.32	2.56	4.77	1.000	1.000	4.78	CODETI	
1135 (SR_18)	1.24	9.26	-0.32	2.56	10.57	1.000	1.000	10.55	CODETI	
1135 (SR_18)	1.26	9.26	0.32	2.56	10.54	1.000	1.000	10.55	CODETI	
1138	1.26	2.21	-0.32	2.56	3.58	1.000	1.000	3.57	CODETI	
1138	1.26	11.96	0.32	2.56	13.24	5.493	4.577	10.75	CODETI	
1139	1.60	4.38	0.00	2.56	5.95	5.493	4.577	5.18	CODETI	
1139	1.60	4.38	-0.00	2.56	5.98	5.493	4.577	5.18	CODETI	
1140	1.68	6.51	0.33	2.56	8.14	5.493	4.577	7.06	CODETI	
1140	1.68	1.24	-0.33	2.56	3.02	1.000	1.000	2.67	CODETI	
1148	1.39	1.45	0.33	2.56	3.09	1.000	1.000	2.86	CODETI	
1148	1.39	7.70	-0.33	2.56	9.11	5.493	4.577	7.83	CODETI	
1149	1.29	9.14	0.00	2.56	10.38	5.493	4.577	8.44	CODETI	
1149	1.29	9.14	-0.00	2.56	10.43	5.493	4.577	8.44	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1150	1.25	8.92	-0.32	2.56	10.22	5.493	4.577	8.63	CODETI	
1150	1.25	1.67	0.32	2.56	3.16	1.000	1.000	3.05	CODETI	
1158	1.25	0.85	-0.32	2.56	2.79	1.000	1.000	2.33	CODETI	
1158	1.25	4.37	0.32	2.56	5.66	5.493	4.577	5.66	CODETI	
1159	1.26	3.57	-0.23	2.56	4.87	5.493	4.577	4.55	CODETI	
1159	1.26	3.57	0.23	2.56	4.85	5.493	4.577	4.55	CODETI	
1160	1.27	5.65	-0.45	2.56	6.98	5.493	4.577	7.37	CODETI	
1160	1.27	1.17	0.45	2.56	3.00	1.000	1.000	2.75	CODETI	
1165 (SR_19)	1.27	1.23	-0.45	2.56	3.03	1.000	1.000	2.80	CODETI	
1165 (SR_19)	1.27	1.24	0.45	2.56	3.02	1.000	1.000	2.80	CODETI	
1170 (Tê_ATRE)	1.27	30.44	-0.45	2.56	31.72	4.398	4.398	24.29	CODETI	
1170 (Tê_ATRE)	1.26	30.44	0.45	2.56	31.72	4.398	4.398	24.29	CODETI	
1175	1.26	4.13	-0.45	2.56	5.47	1.000	1.000	5.49	CODETI	
1175	1.26	4.13	0.45	2.56	5.46	1.000	1.000	5.49	CODETI	
1178	1.26	2.90	-0.45	2.56	4.27	1.000	1.000	4.30	CODETI	
1178	1.26	15.91	0.45	2.56	17.20	5.493	4.577	13.77	CODETI	
1179	0.91	5.87	-0.30	2.56	7.52	5.493	4.577	6.53	CODETI	
1179	0.91	5.87	0.30	2.56	7.45	5.493	4.577	6.53	CODETI	
1180	0.69	3.77	0.00	2.56	5.61	5.493	4.577	4.66	CODETI	
1180	0.69	0.82	-0.00	2.56	2.70	1.000	1.000	2.09	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1185	0.67	0.81	0.00	2.56	2.70	1.000	1.000	2.07	CODETI	
1185	1.58	0.03	-0.00	2.56	2.63	1.000	1.000	1.30	CODETI	
1186 (SG_20)	1.54	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	1.54	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	-0.00	2.56	2.63	2.500	2.500	1.27	CODETI	
1195	1.16	0.00	0.00	2.32	2.40	2.500	2.500	1.15	CODETI	
1195	1.16	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1210 (CT_REF_Reg)	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	1.57	0.00	0.00	2.56	2.63	4.398	4.398	1.27	CODETI	
1211	1.27	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1211	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1212 (CT_03)	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	-0.00	2.56	2.63	7.242	6.035	1.27	CODETI	
1219	1.12	1.63	0.00	2.56	3.06	7.242	6.035	2.49	CODETI	
1219	1.12	1.63	-0.00	2.56	3.06	7.242	6.035	2.49	CODETI	
1220	1.27	6.47	0.00	2.56	7.74	7.242	6.035	6.12	CODETI	
1220	1.27	0.89	-0.00	2.56	2.63	1.000	1.000	2.16	CODETI	
1230	1.27	1.07	0.00	2.56	2.63	1.000	1.000	2.33	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	2.28	0.00	0.00	4.60	4.74	1.000	1.000	2.28	CODETI	
1268	2.28	0.04	-0.00	4.60	4.74	1.000	1.000	2.31	CODETI	
1268	2.28	0.19	0.00	4.60	4.74	5.380	4.483	2.42	CODETI	
1269	2.26	0.59	-0.00	4.60	4.74	5.380	4.483	2.72	CODETI	
1269	2.26	0.59	0.00	4.60	4.74	5.380	4.483	2.72	CODETI	
1270	2.24	1.11	-0.00	4.60	4.74	5.380	4.483	3.11	CODETI	
1270	2.24	0.21	0.00	4.60	4.74	1.000	1.000	2.48	CODETI	
1279	2.23	3.03	0.17	4.60	5.40	5.380	4.483	5.32	CODETI	
1279	2.23	3.03	-0.17	4.60	5.43	5.380	4.483	5.32	CODETI	
1280	2.28	5.28	0.51	4.60	7.64	5.380	4.483	8.43	CODETI	
1280	2.28	1.13	-0.51	4.60	4.91	1.000	1.000	3.80	CODETI	
1285	2.28	10.72	0.51	4.60	13.04	4.398	4.398	11.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1285	2.27	30.51	0.17	4.60	32.79	4.398	4.398	25.19	CODETI	
1286	2.28	3.00	-0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1286	2.28	3.00	0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1291	2.28	1.46	-0.17	4.60	4.77	1.000	1.000	3.78	CODETI	
1291	2.28	6.55	0.17	4.60	8.84	5.380	4.483	8.34	CODETI	
1292	2.28	5.91	-0.08	4.60	8.20	5.380	4.483	7.64	CODETI	
1292	2.28	5.91	0.08	4.60	8.19	5.380	4.483	7.64	CODETI	
1290	2.28	5.22	-0.00	4.60	7.50	5.380	4.483	6.97	CODETI	
1290	2.28	1.16	0.00	4.60	4.74	1.000	1.000	3.44	CODETI	
1300	2.28	0.41	-0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1300	2.28	0.41	0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1310	2.28	0.01	-0.00	4.60	4.74	1.000	1.000	2.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	2.29	6.01	2.25	4.60	9.44	4.398	4.398	17.79	CODETI	
1320	2.29	4.21	-2.25	4.60	8.00	1.000	1.000	8.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	2.31	4.53	-3.21	4.60	9.38	1.000	1.000	10.13	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1328	2.31	1.58	3.21	4.60	7.51	1.000	1.000	8.88	CODETI	
1328	2.31	7.56	-3.21	4.60	11.77	5.380	4.483	28.92	CODETI	
1329	2.47	13.72	2.84	4.60	16.81	5.380	4.483	28.34	CODETI	
1329	1.82	12.23	-2.68	4.60	15.46	5.380	4.483	26.54	CODETI	
1330	1.68	22.63	1.14	4.60	25.61	5.380	4.483	24.31	CODETI	
1330	1.68	4.96	-1.14	4.60	8.19	1.000	1.000	7.74	CODETI	
1338	1.92	2.32	1.14	4.60	5.66	1.000	1.000	5.53	CODETI	
1338	1.92	11.01	-1.14	4.60	13.66	5.380	4.483	15.41	CODETI	
1339	2.24	1.51	1.53	4.60	5.85	5.380	4.483	14.71	CODETI	
1339	2.24	1.51	-1.53	4.60	5.88	5.380	4.483	14.71	CODETI	
1340	2.50	13.05	1.10	4.60	15.50	5.380	4.483	16.25	CODETI	
1340	2.50	2.68	-1.10	4.60	5.83	1.000	1.000	5.74	CODETI	
1343	2.50	3.46	1.10	4.60	6.61	1.000	1.000	6.38	CODETI	
1343	2.50	3.46	-1.10	4.60	6.36	1.000	1.000	6.38	CODETI	
1348	2.50	3.36	1.10	4.60	6.53	1.000	1.000	6.29	CODETI	
1348	2.50	15.73	-1.10	4.60	18.36	5.380	4.483	18.48	CODETI	
1349	2.46	17.43	-0.21	4.60	19.65	5.380	4.483	17.34	CODETI	
1349	2.46	17.43	0.21	4.60	19.90	5.380	4.483	17.34	CODETI	
1345	2.31	15.45	-1.16	4.60	17.84	5.380	4.483	17.46	CODETI	
1345	2.31	2.96	1.16	4.60	6.15	1.000	1.000	6.04	CODETI	
1350 (SP_23)	2.32	4.35	-1.16	4.60	7.20	1.000	1.000	7.21	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1350 (SP_23)	2.32	4.35	1.16	4.60	7.14	1.000	1.000	7.21	CODETI	
1355	2.32	5.16	-1.16	4.60	7.88	1.000	1.000	7.94	CODETI	
1355	2.32	5.16	1.16	4.60	7.83	1.000	1.000	7.94	CODETI	
1360	2.32	5.50	-1.16	4.60	8.18	1.000	1.000	8.25	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	2.32	6.27	1.16	4.60	8.91	1.000	1.000	8.97	CODETI	
514 (Té_VS_011)	2.32	38.96	-0.71	4.60	41.22	5.836	5.836	32.15	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.06	18.79	-0.61	0.00	18.88	7.388	7.388	15.62	CODETI	
1417	-0.24	24.36	0.60	0.00	24.62	7.388	7.388	19.43	CODETI	
1417	-0.24	24.36	-0.60	0.00	24.62	7.388	7.388	19.43	CODETI	
1418	-0.52	33.72	0.46	0.00	34.24	7.388	7.388	25.79	CODETI	
1418	-0.52	33.72	-0.46	0.00	34.24	7.388	7.388	25.79	CODETI	
1419	-0.63	38.53	0.19	0.00	39.17	7.388	7.388	28.98	CODETI	
1419	-0.63	38.53	-0.19	0.00	39.17	7.388	7.388	28.98	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-0.62	38.85	0.03	0.00	39.47	7.388	7.388	29.14	CODETI	
1410	-0.62	5.26	-0.03	0.00	5.88	1.000	1.000	5.26	CODETI	
1415 (SP_26)	0.02	3.12	0.03	0.00	3.14	1.000	1.000	3.12	CODETI	
1415 (SP_26)	0.02	3.12	-0.03	0.00	3.14	1.000	1.000	3.12	CODETI	
1422	0.06	3.00	0.03	0.00	3.05	1.000	1.000	3.00	CODETI	
1422	0.06	14.71	-0.03	0.00	14.77	5.640	4.700	12.68	CODETI	
1421	0.09	10.38	-0.87	0.00	10.61	5.640	4.700	11.42	CODETI	
1421	0.09	10.38	0.87	0.00	10.61	5.640	4.700	11.42	CODETI	
1420	0.00	2.94	-1.16	0.00	3.74	5.640	4.700	10.08	CODETI	
1420	0.00	0.55	1.16	0.00	2.38	1.000	1.000	2.38	CODETI	
1425	0.00	0.83	-1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1425	0.00	0.83	1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1428	0.01	33.93	-0.88	0.00	33.98	7.391	7.391	27.27	CODETI	
1428	0.01	33.93	0.88	0.00	33.98	7.391	7.391	27.27	CODETI	
1429	0.02	39.56	-0.25	0.00	39.59	7.391	7.391	29.80	CODETI	
1429	0.02	39.56	0.25	0.00	39.59	7.391	7.391	29.80	CODETI	
1430	0.03	41.48	0.10	0.00	41.51	7.391	7.391	31.14	CODETI	
1430	0.03	5.61	-0.10	0.00	5.64	1.000	1.000	5.62	CODETI	
1440	0.02	11.71	0.10	0.00	11.74	1.000	1.000	11.71	CODETI	
1440	0.02	11.71	-0.10	0.00	11.74	1.000	1.000	11.71	CODETI	
1445 (SP_31)	0.02	17.49	0.10	0.00	17.52	1.000	1.000	17.50	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.03	17.49	-0.10	0.00	17.53	1.000	1.000	17.50	CODETI	
1450	0.03	83.00	0.10	0.00	83.04	5.231	5.231	62.26	CODETI	
1450	0.01	80.28	0.69	0.00	80.30	5.231	5.231	60.45	CODETI	
1451 (SP_27)	0.00	6.50	-0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1451 (SP_27)	0.00	6.50	0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1452	0.00	4.66	-0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1452	0.00	4.66	0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1455 (SP_28)	-0.00	4.53	-0.69	0.00	4.74	1.000	1.000	4.74	CODETI	
1455 (SP_28)	0.00	4.53	0.69	0.00	4.74	1.000	1.000	4.74	CODETI	
1458	0.00	0.58	-0.69	0.00	1.50	1.000	1.000	1.50	CODETI	
1458	0.00	2.73	0.69	0.00	3.07	5.640	4.700	6.35	CODETI	
1459	0.01	6.48	-0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1459	0.01	6.48	0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1460	0.01	10.24	0.24	0.00	10.26	5.640	4.700	9.43	CODETI	
1460	0.01	2.18	-0.24	0.00	2.23	1.000	1.000	2.23	CODETI	
1468	0.00	1.39	0.24	0.00	1.47	1.000	1.000	1.47	CODETI	
1468	0.00	6.54	-0.24	0.00	6.56	5.640	4.700	6.21	CODETI	
1469	0.00	1.87	-0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1469	0.00	1.87	0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1470	0.00	5.50	0.00	0.00	5.50	5.640	4.700	4.95	CODETI	
1470	0.00	1.17	-0.00	0.00	1.17	1.000	1.000	1.17	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	3.20	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.02	-0.00	0.00	0.05	1.000	1.000	0.02	CODETI	
1518	0.04	0.04	0.00	0.00	0.08	1.000	1.000	0.04	CODETI	
1518	0.04	0.28	-0.00	0.00	0.32	7.391	6.159	0.25	CODETI	
1519	0.07	0.93	-0.02	0.00	1.00	7.391	6.159	0.87	CODETI	
1519	0.07	0.93	0.02	0.00	1.00	7.391	6.159	0.87	CODETI	
1520	0.08	1.36	-0.07	0.00	1.44	7.391	6.159	1.43	CODETI	
1520	0.08	0.22	0.07	0.00	0.33	1.000	1.000	0.26	CODETI	
1523	0.18	2.03	-0.07	0.00	2.21	1.000	1.000	2.04	CODETI	
1523	0.18	11.14	0.07	0.00	11.32	5.640	4.700	8.62	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 10 Poids + PMS + 1 Système Sécurité en Exceptionnel**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1524	0.11	13.61	-0.20	0.00	13.72	5.640	4.700	10.55	CODETI	
1524	0.11	13.61	0.20	0.00	13.72	5.640	4.700	10.55	CODETI	
1525	0.02	16.56	-0.32	0.00	16.60	5.640	4.700	12.87	CODETI	
1525	0.02	2.97	0.32	0.00	3.07	1.000	1.000	3.04	CODETI	
1530	0.02	3.19	-0.32	0.00	3.28	1.000	1.000	3.26	CODETI	
1530	0.02	3.19	0.33	0.00	3.28	1.000	1.000	3.26	CODETI	
1540 (SR_30)	0.02	4.68	-0.33	0.00	4.74	1.000	1.000	4.72	CODETI	
1540 (SR_30)	0.03	4.68	0.33	0.00	4.75	1.000	1.000	4.72	CODETI	
1450	0.03	12.54	-0.33	0.00	12.59	5.231	5.231	9.75	CODETI	



STRESSES EXTENDED REPORT: Stresses on Elements  
CASE 12 Poids + PMS + 2 Systèmes Sécurité

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.23	0.18	0.04	0.00	7.41	1.000	1.000	0.20	CODETI	
20	-6.94	0.23	-0.04	0.00	7.16	1.000	1.000	0.24	CODETI	
20	11.26	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
25	10.20	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
20	10.23	0.23	0.04	31.19	31.33	1.000	1.000	15.82	CODETI	
30	10.56	0.23	-0.04	31.19	31.33	1.000	1.000	15.82	CODETI	
30	10.62	0.25	0.04	31.19	31.33	1.000	1.000	15.84	CODETI	
40	10.98	0.27	-0.04	31.19	31.33	1.000	1.000	15.85	CODETI	
40	11.01	0.06	0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
45 (Weld_CW2)	12.69	0.06	-0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
45 (Weld_CW2)	12.69	0.06	0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
50	13.90	0.05	-0.00	31.19	31.33	1.000	1.000	15.63	CODETI	
50	9.10	0.03	0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
55	9.89	0.03	-0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
55	9.91	0.03	0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
56	9.97	0.03	-0.00	20.44	20.57	1.000	1.000	10.23	CODETI	
56	9.95	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
60	10.16	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
65	2.52	0.00	-0.00	5.69	5.82	1.000	1.000	2.82	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Piquage_N1)										
70	2.59	0.00	0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	2.83	2.77	4.45	5.69	10.52	1.000	1.000	12.15	CODETI	
110	2.83	3.19	-4.45	5.69	10.74	1.000	1.000	12.28	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	2.51	0.36	0.00	4.60	4.74	1.000	1.000	2.64	CODETI	
129	2.40	1.01	0.00	4.60	4.74	7.124	5.937	3.04	CODETI	
129	2.40	1.01	-0.00	4.60	4.74	7.124	5.937	3.04	CODETI	
130	2.28	1.90	0.00	4.60	4.74	7.124	5.937	3.71	CODETI	
130	2.28	0.27	-0.00	4.60	4.74	1.000	1.000	2.55	CODETI	
134 (Jupe_N3)	2.28	0.10	0.00	4.60	4.74	1.000	1.000	2.38	CODETI	
134 (Jupe_N3)	2.28	0.10	-0.00	4.60	4.74	1.000	1.000	2.38	CODETI	
135 (SR_N3)	2.28	0.38	0.00	4.60	4.74	1.000	1.000	2.66	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	1.90	0.53	0.00	4.60	4.74	1.000	1.000	2.81	CODETI	
160	2.02	0.08	-0.00	4.60	4.74	1.000	1.000	2.36	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	2.71	4.81	0.33	4.60	7.55	1.000	1.000	7.13	CODETI	
190	2.82	4.72	-0.33	4.60	7.58	1.000	1.000	7.05	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	2.22	4.00	-0.61	4.60	6.54	1.000	1.000	6.46	CODETI	
220	2.22	1.33	0.61	4.60	5.00	1.000	1.000	4.08	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	1.56	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
250	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
251 (CT_N1)	1.57	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
260	1.75	0.00	0.00	3.16	3.24	10.614	10.614	1.57	CODETI	
260	1.02	20.64	-0.77	2.07	21.72	10.614	10.614	20.77	CODETI	
262	1.02	1.55	0.77	2.07	3.15	1.000	1.000	3.21	CODETI	
262	1.57	2.38	-1.18	3.16	4.81	1.000	1.000	4.92	CODETI	
265 (SG_5)	1.57	2.06	1.18	3.16	4.62	1.000	1.000	4.70	CODETI	
265 (SG_5)	1.57	2.06	-1.18	3.16	4.62	1.000	1.000	4.70	CODETI	
267	1.57	7.42	1.13	3.16	9.27	8.376	8.376	16.76	CODETI	
267	1.57	7.42	-1.13	3.16	9.27	8.376	8.376	16.76	CODETI	
268	1.57	7.89	0.98	3.16	9.65	8.376	8.376	15.22	CODETI	
268	1.57	7.89	-0.98	3.16	9.67	8.376	8.376	15.22	CODETI	
269	1.57	7.01	0.85	3.16	8.74	8.376	8.376	13.43	CODETI	
269	1.57	7.01	-0.85	3.16	8.75	8.376	8.376	13.43	CODETI	
270	1.57	6.40	0.81	3.16	8.12	8.376	8.376	12.78	CODETI	
270	1.57	0.76	-0.81	3.16	3.71	1.000	1.000	3.35	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
271	1.58	5.26	0.81	3.16	7.01	1.000	1.000	7.07	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.81	5.09	-0.00	5.69	7.94	1.000	1.000	7.91	CODETI	
277	3.08	24.65	0.09	5.69	27.44	8.141	8.141	21.35	CODETI	
277	3.08	24.65	-0.09	5.69	27.73	8.141	8.141	21.35	CODETI	
278	3.49	10.12	0.26	5.69	13.56	8.141	8.141	11.04	CODETI	
278	3.49	10.12	-0.26	5.69	13.62	8.141	8.141	11.04	CODETI	
279	3.69	1.88	0.35	5.69	6.09	8.141	8.141	7.33	CODETI	
279	3.69	1.88	-0.35	5.69	5.88	8.141	8.141	7.33	CODETI	
280	3.69	0.05	0.36	5.69	5.89	8.141	8.141	7.26	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
280	3.69	0.01	-0.36	5.69	5.86	1.000	1.000	3.55	CODETI	
284	3.65	0.01	0.36	5.69	5.88	1.000	1.000	3.55	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	3.49	0.00	-0.36	5.69	5.86	1.000	1.000	3.55	CODETI	
290	3.31	0.00	0.36	5.69	5.88	1.000	1.000	3.55	CODETI	
290	3.31	0.00	-0.36	5.69	5.86	1.000	1.000	3.55	CODETI	
299	3.13	0.01	0.36	5.69	5.87	1.000	1.000	3.55	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	2.96	0.01	-0.36	5.69	5.87	1.000	1.000	3.55	CODETI	
306	2.92	1.81	0.35	5.69	5.93	9.368	9.368	7.93	CODETI	
306	2.92	1.81	-0.35	5.69	5.91	9.368	9.368	7.93	CODETI	
307	2.86	4.89	0.26	5.69	7.79	9.368	9.368	7.95	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
307	2.86	4.89	-0.26	5.69	7.77	9.368	9.368	7.95	CODETI	
308	2.82	6.66	0.09	5.69	9.48	9.368	9.368	7.98	CODETI	
308	2.82	6.66	-0.09	5.69	9.48	9.368	9.368	7.98	CODETI	
305	2.82	6.87	0.00	5.69	9.69	9.368	9.368	7.97	CODETI	
305	2.82	0.73	-0.00	5.69	5.82	1.000	1.000	3.56	CODETI	
435 (SR_07)	2.82	0.75	0.00	5.69	5.82	1.000	1.000	3.57	CODETI	
435 (SR_07)	2.84	0.75	-0.00	5.69	5.82	1.000	1.000	3.57	CODETI	
440	2.83	81.08	0.00	5.69	83.89	10.614	10.614	63.63	CODETI	
440	1.85	5.48	0.42	3.73	7.37	10.614	10.614	9.74	CODETI	
445	1.85	0.96	-0.42	3.73	4.01	1.000	1.000	3.13	CODETI	
445	2.83	13.85	0.65	5.69	16.73	9.368	9.368	16.65	CODETI	
311	2.83	12.63	-0.84	5.69	15.54	9.368	9.368	17.90	CODETI	
311	2.83	12.63	0.84	5.69	15.54	9.368	9.368	17.90	CODETI	
312	2.80	7.30	-1.12	5.69	10.39	9.368	9.368	19.50	CODETI	
312	2.80	7.30	1.12	5.69	10.39	9.368	9.368	19.50	CODETI	
313	2.75	0.59	-1.22	5.69	6.32	9.368	9.368	19.94	CODETI	
313	2.75	0.59	1.22	5.69	6.34	9.368	9.368	19.94	CODETI	
310	2.73	4.70	-1.18	5.69	8.06	9.368	9.368	19.80	CODETI	
310	2.73	0.50	1.18	5.69	6.31	1.000	1.000	5.24	CODETI	
315	2.72	0.38	-1.18	5.69	6.26	1.000	1.000	5.22	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.66	0.33	1.18	5.69	6.29	1.000	1.000	5.21	CODETI	
330	2.61	0.09	-1.18	5.69	6.22	1.000	1.000	5.19	CODETI	
330	2.61	0.09	1.18	5.69	6.27	1.000	1.000	5.19	CODETI	
335	2.55	0.04	-1.18	5.69	6.21	1.000	1.000	5.19	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	2.49	0.05	1.18	5.69	6.28	1.000	1.000	5.19	CODETI	
337	2.48	4.24	-1.16	5.69	7.77	9.368	9.368	19.40	CODETI	
337	2.48	4.24	1.16	5.69	8.02	9.368	9.368	19.40	CODETI	
338	2.55	13.05	-0.92	5.69	16.24	9.368	9.368	19.02	CODETI	
338	2.55	13.05	0.92	5.69	16.11	9.368	9.368	19.02	CODETI	
339	2.72	19.35	-0.50	5.69	22.30	9.368	9.368	18.93	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
339	2.72	19.35	0.50	5.69	22.08	9.368	9.368	18.93	CODETI	
350	2.82	21.45	-0.26	5.69	24.27	9.368	9.368	19.33	CODETI	
350	1.84	1.49	0.17	3.73	3.92	1.000	1.000	3.37	CODETI	
355 (SR_8)	1.84	1.64	-0.17	3.73	3.93	1.000	1.000	3.51	CODETI	
355 (SR_8)	1.85	1.64	0.17	3.73	3.93	1.000	1.000	3.51	CODETI	
360 (Té_TH_700)	1.85	2.29	-0.17	3.73	4.25	1.000	1.000	4.16	CODETI	
360 (Té_TH_700)	1.84	2.30	-0.16	3.73	4.24	1.000	1.000	4.16	CODETI	
365	1.84	28.34	0.16	3.73	30.18	10.614	10.614	23.24	CODETI	
365	1.85	1.93	1.28	3.73	5.08	10.614	10.614	22.29	CODETI	
366	1.85	0.47	-1.28	3.73	4.58	1.000	1.000	4.45	CODETI	
366	2.84	5.85	1.96	5.69	9.63	8.141	8.141	27.20	CODETI	
368	2.83	1.77	-2.01	5.69	7.30	8.141	8.141	27.39	CODETI	
368	2.83	1.77	2.01	5.69	7.30	8.141	8.141	27.39	CODETI	
369	2.83	6.42	-1.95	5.69	10.11	8.141	8.141	27.15	CODETI	
369	2.83	6.42	1.95	5.69	10.09	8.141	8.141	27.15	CODETI	
370	2.84	10.40	-1.85	5.69	13.71	8.141	8.141	26.67	CODETI	
370	2.84	1.28	1.85	5.69	6.99	1.000	1.000	6.73	CODETI	
378	2.91	7.97	-1.80	5.69	11.40	8.141	8.141	25.59	CODETI	
378	2.91	7.97	1.80	5.69	11.46	8.141	8.141	25.59	CODETI	
379	2.87	23.16	-1.42	5.69	26.09	8.141	8.141	27.38	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
379	2.87	23.16	1.42	5.69	26.19	8.141	8.141	27.38	CODETI	
380	2.84	29.32	-1.12	5.69	32.20	8.141	8.141	28.74	CODETI	
380	2.84	3.60	1.12	5.69	7.28	1.000	1.000	7.07	CODETI	
385	2.84	3.71	-1.12	5.69	7.37	1.000	1.000	7.16	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	12.56	4.57	1.12	25.28	26.03	1.000	1.000	17.63	CODETI	
410	12.56	5.36	-1.12	25.28	26.04	1.000	1.000	18.36	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	12.56	5.50	1.10	25.28	26.04	1.000	1.000	18.47	CODETI	
430 (PF4_CPO)	12.56	6.75	-1.10	25.28	26.07	1.000	1.000	19.64	CODETI	
440	1.84	8.95	2.91	3.73	12.26	10.614	10.614	48.60	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
450	1.84	1.90	-2.91	3.73	6.92	1.000	1.000	7.96	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	2.70	55.43	-2.31	4.27	58.32	10.614	10.614	57.67	CODETI	
500	2.80	4.73	3.57	4.27	9.78	1.000	1.000	10.67	CODETI	
500	2.80	4.73	-3.57	4.27	10.37	1.000	1.000	10.67	CODETI	
503	2.87	22.57	3.33	4.27	25.57	7.049	7.049	41.15	CODETI	
503	2.87	22.57	-3.33	4.27	26.30	7.049	7.049	41.15	CODETI	
504	2.79	31.62	2.65	4.27	34.07	7.049	7.049	38.80	CODETI	
504	2.79	31.62	-2.65	4.27	34.82	7.049	7.049	38.80	CODETI	
505	2.71	35.31	2.23	4.27	37.52	7.049	7.049	37.59	CODETI	
505	2.71	5.01	-2.23	4.27	8.91	1.000	1.000	8.82	CODETI	
508	2.89	37.82	2.29	4.27	40.17	7.049	7.049	39.41	CODETI	
508	2.89	37.82	-2.29	4.27	40.97	7.049	7.049	39.41	CODETI	
509	3.06	46.69	1.98	4.27	48.96	7.049	7.049	42.89	CODETI	
509	3.06	46.69	-1.98	4.27	49.91	7.049	7.049	42.89	CODETI	
510	3.09	51.79	1.62	4.27	53.95	7.049	7.049	44.54	CODETI	
510	3.09	7.35	-1.62	4.27	10.92	1.000	1.000	10.14	CODETI	
514 (Té_VS_011)	3.14	49.22	1.62	4.27	51.48	5.836	5.836	41.64	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
514 (Té_VS_011)	3.53	41.73	-2.42	4.27	45.51	5.836	5.836	39.88	CODETI	
515	3.61	10.15	2.42	4.27	14.21	1.000	1.000	13.35	CODETI	
515	1.74	4.89	-1.16	2.08	7.03	1.000	1.000	6.43	CODETI	
520	1.81	45.28	1.16	2.08	45.57	7.279	7.279	37.28	CODETI	
520	0.68	33.10	0.04	2.08	33.78	7.279	7.279	25.84	CODETI	
525	0.68	1.38	-0.04	2.08	2.77	1.000	1.000	2.40	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	5.00	1.22	0.07	4.27	6.29	1.000	1.000	3.34	CODETI	
547	5.45	12.00	0.04	4.27	17.30	6.943	6.943	11.12	CODETI	
547	5.45	12.00	-0.04	4.27	17.46	6.943	6.943	11.12	CODETI	
548	5.69	17.01	0.15	4.27	22.44	6.943	6.943	14.97	CODETI	
548	3.85	17.01	-0.15	4.27	20.86	6.943	6.943	14.97	CODETI	
549	2.51	22.55	0.10	4.27	24.68	6.943	6.943	19.05	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
549	2.51	22.55	-0.10	4.27	25.06	6.943	6.943	19.05	CODETI	
550	1.80	43.16	0.01	4.27	45.57	6.943	6.943	34.48	CODETI	
550	1.80	6.22	-0.01	4.27	8.60	1.000	1.000	8.33	CODETI	
557	2.14	18.40	-0.29	4.27	20.48	6.943	6.943	16.24	CODETI	
557	2.14	18.40	0.29	4.27	20.55	6.943	6.943	16.24	CODETI	
558	2.54	15.91	-0.92	4.27	18.27	6.943	6.943	17.39	CODETI	
558	2.54	15.91	0.92	4.27	18.54	6.943	6.943	17.39	CODETI	
559	2.78	13.71	-1.43	4.27	16.46	6.943	6.943	20.17	CODETI	
559	2.78	13.71	1.43	4.27	16.74	6.943	6.943	20.17	CODETI	
560	2.83	11.88	-1.60	4.27	14.79	6.943	6.943	20.97	CODETI	
560	3.06	1.71	1.60	4.27	5.75	1.000	1.000	5.73	CODETI	
570	3.06	2.41	-1.60	4.27	6.61	1.000	1.000	6.11	CODETI	
570	3.06	6.02	1.60	4.27	9.62	2.500	2.500	9.61	CODETI	
580	3.53	4.69	-0.90	5.69	8.53	2.500	2.500	7.70	CODETI	
580	3.53	1.87	0.90	5.69	6.19	1.000	1.000	5.42	CODETI	
585	3.53	2.00	-0.90	5.69	6.60	1.000	1.000	5.51	CODETI	
585	3.53	2.00	0.90	5.69	6.21	1.000	1.000	5.51	CODETI	
590	3.53	16.90	-0.90	5.69	20.31	7.057	7.057	18.68	CODETI	
590	2.38	44.01	0.93	5.69	46.70	7.057	7.057	37.27	CODETI	
595 (SR_11)	2.38	8.78	-0.93	5.69	12.19	1.000	1.000	11.80	CODETI	
595 (SR_11)	2.39	8.78	0.93	5.69	12.12	1.000	1.000	11.80	CODETI	
596 (SP_13)	2.38	5.39	-0.93	5.69	8.85	1.000	1.000	8.53	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
596 (SP_13)	2.39	5.39	0.93	5.69	8.92	1.000	1.000	8.53	CODETI	
598	2.39	39.79	-0.67	5.69	43.06	8.236	8.236	33.79	CODETI	
598	2.39	39.79	0.67	5.69	42.52	8.236	8.236	33.79	CODETI	
599	2.42	37.34	-0.16	5.69	40.56	8.236	8.236	30.90	CODETI	
599	2.42	37.34	0.16	5.69	40.07	8.236	8.236	30.90	CODETI	
600	2.45	35.35	0.08	5.69	38.54	8.236	8.236	29.35	CODETI	
600	2.45	4.29	-0.08	5.69	7.52	1.000	1.000	7.12	CODETI	
608	2.42	3.06	0.05	5.69	6.33	8.236	8.236	5.20	CODETI	
608	2.42	3.06	-0.05	5.69	6.34	8.236	8.236	5.20	CODETI	
609	2.39	1.89	0.01	5.69	5.82	8.236	8.236	4.25	CODETI	
609	2.39	1.89	-0.01	5.69	5.82	8.236	8.236	4.25	CODETI	
610	2.38	1.44	0.00	5.69	5.82	8.236	8.236	3.90	CODETI	
610	2.38	0.18	-0.00	5.69	5.82	1.000	1.000	3.00	CODETI	
615	2.38	0.04	0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
615	2.38	0.04	0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
620	2.38	0.00	0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
520	0.28	15.17	0.82	2.08	16.43	7.279	7.279	15.49	CODETI	
625	0.28	1.64	-0.82	2.08	3.77	1.000	1.000	3.33	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	4.17	3.24	1.70	4.27	8.15	1.000	1.000	6.81	CODETI	
642	4.10	22.30	-1.46	4.27	26.13	6.943	6.943	24.70	CODETI	
642	4.10	22.30	1.46	4.27	26.57	6.943	6.943	24.70	CODETI	
643	3.61	19.70	-0.80	4.27	23.03	6.943	6.943	19.05	CODETI	
643	3.61	19.70	0.80	4.27	23.37	6.943	6.943	19.05	CODETI	
644	2.75	30.14	-0.05	4.27	32.36	6.943	6.943	24.72	CODETI	
644	2.75	30.14	0.05	4.27	32.89	6.943	6.943	24.72	CODETI	
645	2.27	41.35	0.28	4.27	43.30	6.943	6.943	33.26	CODETI	
645	2.27	5.95	-0.28	4.27	8.24	1.000	1.000	8.09	CODETI	
590	2.48	67.90	0.28	4.27	69.65	7.057	7.057	53.12	CODETI	
360 (Té_TH_700)	2.82	1.36	0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	-0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	0.00	4.21	4.34	1.000	1.000	3.39	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	2.08	0.05	-0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	1.02	20.64	-0.77	2.07	21.72	10.614	10.614	20.77	CODETI	
720 (Té_VS_008)	1.02	14.34	0.77	2.07	15.44	10.614	10.614	17.33	CODETI	
720 (Té_VS_008)	1.02	27.68	0.09	2.07	28.70	10.614	10.614	21.83	CODETI	
725	1.02	0.78	-0.09	2.07	2.17	1.000	1.000	1.82	CODETI	
725	1.57	1.19	0.14	3.16	3.27	1.000	1.000	2.79	CODETI	
730	1.56	6.00	-0.14	3.16	7.57	1.000	1.000	7.57	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	1.04	3.74	0.09	2.07	4.79	1.000	1.000	4.77	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
770 (Té_Gavage)	1.04	4.90	-0.09	2.07	5.91	10.614	10.614	4.96	CODETI	
770 (Té_Gavage)	1.02	3.17	-0.00	2.07	4.19	10.614	10.614	3.40	CODETI	
780	1.02	0.00	0.00	2.07	2.15	1.000	1.000	1.03	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	-0.00	3.16	3.24	2.000	2.000	1.57	CODETI	
800 (SB_02)	2.86	0.88	0.00	5.90	5.97	2.000	2.000	3.60	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	2.94	0.46	0.00	5.90	5.97	1.000	1.000	3.40	CODETI	
820	2.94	0.00	0.00	5.90	5.97	1.000	1.000	2.94	CODETI	
720 (Té_VS_008)	1.56	34.61	0.01	3.16	36.17	10.614	10.614	27.53	CODETI	
830	1.56	0.33	-0.01	3.16	3.24	1.000	1.000	1.90	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	1.56	0.08	0.01	3.16	3.24	1.000	1.000	1.65	CODETI	
865 (SP_14)	1.56	0.14	-0.01	3.16	3.24	1.000	1.000	1.71	CODETI	
865 (SP_14)	1.56	0.14	0.01	3.16	3.24	1.000	1.000	1.71	CODETI	
867	1.54	1.76	-0.01	3.16	3.38	8.376	8.376	2.89	CODETI	
867	1.54	1.76	0.01	3.16	3.38	8.376	8.376	2.89	CODETI	
868	1.46	0.24	-0.00	3.16	3.24	8.376	8.376	1.75	CODETI	
868	1.46	0.24	0.00	3.16	3.24	8.376	8.376	1.75	CODETI	
869	1.37	1.06	-0.00	3.16	3.24	8.376	8.376	2.36	CODETI	
869	1.37	1.06	0.00	3.16	3.24	8.376	8.376	2.36	CODETI	
870	1.34	1.19	0.00	3.16	3.24	8.376	8.376	2.46	CODETI	
870	1.34	0.14	-0.00	3.16	3.24	1.000	1.000	1.71	CODETI	
872	1.10	0.06	0.00	3.16	3.24	1.000	1.000	1.63	CODETI	
872	1.10	0.06	-0.00	3.16	3.24	1.000	1.000	1.63	CODETI	
875 (SG_15)	0.81	0.10	0.00	3.16	3.24	1.000	1.000	1.67	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	1.72	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
880	1.70	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
880	1.70	0.00	-0.00	3.16	3.24	2.500	2.500	1.57	CODETI	
890	1.30	0.00	0.00	2.58	2.66	2.500	2.500	1.28	CODETI	
890	1.30	0.00	-0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	1.29	0.00	0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	2.99	12.69	-0.00	3.16	15.68	10.614	10.614	11.09	CODETI	
772 (SG_16_1)	2.87	1.16	0.00	3.16	4.06	1.000	1.000	2.72	CODETI	
772 (SG_16_1)	2.87	1.16	-0.00	3.16	4.06	1.000	1.000	2.72	CODETI	
775	2.69	9.02	0.00	3.16	11.62	7.057	7.057	8.34	CODETI	
775	2.53	9.62	-0.00	3.16	12.16	7.057	7.057	8.79	CODETI	
910 (Té_VS_007)	2.15	1.77	0.00	3.16	3.93	1.000	1.000	3.33	CODETI	
910 (Té_VS_007)	2.18	1.75	-0.00	3.16	3.95	1.000	1.000	3.32	CODETI	
915 (SG_16_2)	2.12	2.05	0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
915 (SG_16_2)	2.12	2.05	-0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
920	2.09	2.05	0.00	3.16	4.15	1.000	1.000	3.61	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	1.99	2.05	-0.00	3.16	4.06	1.000	1.000	3.61	CODETI	
957	1.92	16.89	0.00	3.16	18.60	8.472	8.472	14.24	CODETI	
957	1.92	16.89	-0.00	3.16	18.82	8.472	8.472	14.24	CODETI	
958	1.79	13.96	-0.00	3.16	15.58	8.472	8.472	12.04	CODETI	
958	1.79	13.96	0.00	3.16	15.75	8.472	8.472	12.04	CODETI	
959	1.63	9.73	-0.00	3.16	11.26	8.472	8.472	8.87	CODETI	
959	1.63	9.73	0.00	3.16	11.36	8.472	8.472	8.87	CODETI	
960	1.57	7.66	-0.00	3.16	9.23	8.472	8.472	7.31	CODETI	
960	1.57	0.90	0.00	3.16	3.24	1.000	1.000	2.47	CODETI	
965	1.57	0.32	-0.00	3.16	3.24	1.000	1.000	1.89	CODETI	
965	1.57	0.81	0.00	3.16	3.24	2.500	2.500	2.17	CODETI	
970	1.30	0.02	-0.00	2.63	2.71	2.500	2.500	1.32	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
970	1.30	0.01	0.00	2.63	2.71	1.000	1.000	1.31	CODETI	
980	1.30	0.00	-0.00	2.63	2.71	1.000	1.000	1.30	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	1.27	39.48	0.00	2.56	40.75	7.057	7.057	30.87	CODETI	
995	1.27	6.35	-0.00	2.56	7.61	1.000	1.000	7.61	CODETI	
995	1.27	6.35	0.00	2.56	7.62	1.000	1.000	7.61	CODETI	
998	1.27	1.00	-0.00	2.56	2.63	1.000	1.000	2.27	CODETI	
998	1.27	5.51	0.00	2.56	6.77	5.493	4.577	5.40	CODETI	
999	1.26	4.48	-0.00	2.56	5.75	5.493	4.577	4.63	CODETI	
999	1.26	4.48	0.00	2.56	5.75	5.493	4.577	4.63	CODETI	
1000	1.20	4.69	0.00	2.56	6.02	5.493	4.577	4.78	CODETI	
1000	1.20	0.85	-0.00	2.56	2.63	1.000	1.000	2.12	CODETI	
1002	0.89	0.85	0.00	2.56	2.63	1.000	1.000	2.12	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	0.89	0.85	-0.00	2.56	2.63	1.000	1.000	2.12	CODETI	
1008	0.59	0.85	0.00	2.56	2.83	1.000	1.000	2.12	CODETI	
1008	0.59	4.69	-0.00	2.56	6.58	5.493	4.577	4.78	CODETI	
1009	0.71	10.71	-0.00	2.56	12.53	5.493	4.577	9.30	CODETI	
1009	1.53	10.71	0.00	2.56	12.24	5.493	4.577	9.30	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1010	1.27	2.78	-0.00	2.56	4.05	5.493	4.577	3.35	CODETI	
1010	1.27	0.51	0.00	2.56	2.63	1.000	1.000	1.77	CODETI	
1020	1.27	0.31	-0.00	2.56	2.63	1.000	1.000	1.57	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	1.27	0.10	0.00	2.56	2.63	1.000	1.000	1.37	CODETI	
1060	1.27	0.07	-0.00	2.56	2.63	1.000	1.000	1.34	CODETI	
1060	1.27	0.15	0.00	2.56	2.63	2.000	2.000	1.37	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	2.000	2.000	1.15	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1100 (CT_ASP_Reg)	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	1.99	4.71	0.33	2.56	6.73	1.000	1.000	6.02	CODETI	
1120	1.99	4.70	-0.33	2.56	6.68	1.000	1.000	6.02	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1120	1.99	4.70	0.33	2.56	6.73	1.000	1.000	6.02	CODETI	
1128	1.99	4.70	-0.33	2.56	6.68	1.000	1.000	6.01	CODETI	
1128	1.99	25.75	0.33	2.56	27.75	5.493	4.577	20.83	CODETI	
1129	1.82	17.53	-0.47	2.56	19.08	5.493	4.577	14.96	CODETI	
1129	1.82	17.53	0.47	2.56	19.37	5.493	4.577	14.96	CODETI	
1130	1.24	4.14	-0.32	2.56	5.47	5.493	4.577	5.64	CODETI	
1130	1.24	0.84	0.32	2.56	2.79	1.000	1.000	2.33	CODETI	
1132	1.24	3.45	-0.32	2.56	4.78	1.000	1.000	4.78	CODETI	
1132	1.24	3.45	0.32	2.56	4.77	1.000	1.000	4.78	CODETI	
1135 (SR_18)	1.24	9.26	-0.32	2.56	10.57	1.000	1.000	10.55	CODETI	
1135 (SR_18)	1.26	9.26	0.32	2.56	10.54	1.000	1.000	10.55	CODETI	
1138	1.26	2.21	-0.32	2.56	3.58	1.000	1.000	3.57	CODETI	
1138	1.26	11.96	0.32	2.56	13.24	5.493	4.577	10.75	CODETI	
1139	1.60	4.38	0.00	2.56	5.95	5.493	4.577	5.18	CODETI	
1139	1.60	4.38	-0.00	2.56	5.98	5.493	4.577	5.18	CODETI	
1140	1.68	6.51	0.33	2.56	8.14	5.493	4.577	7.06	CODETI	
1140	1.68	1.24	-0.33	2.56	3.02	1.000	1.000	2.67	CODETI	
1148	1.39	1.45	0.33	2.56	3.09	1.000	1.000	2.86	CODETI	
1148	1.39	7.70	-0.33	2.56	9.11	5.493	4.577	7.83	CODETI	
1149	1.29	9.14	0.00	2.56	10.38	5.493	4.577	8.44	CODETI	
1149	1.29	9.14	-0.00	2.56	10.43	5.493	4.577	8.44	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1150	1.25	8.92	-0.32	2.56	10.22	5.493	4.577	8.63	CODETI	
1150	1.25	1.67	0.32	2.56	3.16	1.000	1.000	3.05	CODETI	
1158	1.25	0.85	-0.32	2.56	2.79	1.000	1.000	2.33	CODETI	
1158	1.25	4.37	0.32	2.56	5.66	5.493	4.577	5.66	CODETI	
1159	1.26	3.57	-0.23	2.56	4.87	5.493	4.577	4.55	CODETI	
1159	1.26	3.57	0.23	2.56	4.85	5.493	4.577	4.55	CODETI	
1160	1.27	5.65	-0.45	2.56	6.98	5.493	4.577	7.37	CODETI	
1160	1.27	1.17	0.45	2.56	3.00	1.000	1.000	2.75	CODETI	
1165 (SR_19)	1.27	1.23	-0.45	2.56	3.03	1.000	1.000	2.80	CODETI	
1165 (SR_19)	1.27	1.24	0.45	2.56	3.02	1.000	1.000	2.80	CODETI	
1170 (Té_ATRE)	1.27	30.44	-0.45	2.56	31.72	4.398	4.398	24.29	CODETI	
1170 (Té_ATRE)	1.26	30.44	0.45	2.56	31.72	4.398	4.398	24.29	CODETI	
1175	1.26	4.13	-0.45	2.56	5.47	1.000	1.000	5.49	CODETI	
1175	1.26	4.13	0.45	2.56	5.46	1.000	1.000	5.49	CODETI	
1178	1.26	2.90	-0.45	2.56	4.27	1.000	1.000	4.30	CODETI	
1178	1.26	15.91	0.45	2.56	17.20	5.493	4.577	13.77	CODETI	
1179	0.91	5.87	-0.30	2.56	7.52	5.493	4.577	6.53	CODETI	
1179	0.91	5.87	0.30	2.56	7.45	5.493	4.577	6.53	CODETI	
1180	0.69	3.77	0.00	2.56	5.61	5.493	4.577	4.66	CODETI	
1180	0.69	0.82	-0.00	2.56	2.70	1.000	1.000	2.09	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1185	0.67	0.81	0.00	2.56	2.70	1.000	1.000	2.07	CODETI	
1185	1.58	0.03	-0.00	2.56	2.63	1.000	1.000	1.30	CODETI	
1186 (SG_20)	1.54	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	1.54	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	-0.00	2.56	2.63	2.500	2.500	1.27	CODETI	
1195	1.16	0.00	0.00	2.32	2.40	2.500	2.500	1.15	CODETI	
1195	1.16	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1210 (CT_REF_Reg)	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	1.57	0.00	0.00	2.56	2.63	4.398	4.398	1.27	CODETI	
1211	1.27	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1211	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1212 (CT_03)	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	-0.00	2.56	2.63	7.242	6.035	1.27	CODETI	
1219	1.12	1.63	0.00	2.56	3.06	7.242	6.035	2.49	CODETI	
1219	1.12	1.63	-0.00	2.56	3.06	7.242	6.035	2.49	CODETI	
1220	1.27	6.47	0.00	2.56	7.74	7.242	6.035	6.12	CODETI	
1220	1.27	0.89	-0.00	2.56	2.63	1.000	1.000	2.16	CODETI	
1230	1.27	1.07	0.00	2.56	2.63	1.000	1.000	2.33	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	2.28	0.00	0.00	4.60	4.74	1.000	1.000	2.28	CODETI	
1268	2.28	0.04	-0.00	4.60	4.74	1.000	1.000	2.31	CODETI	
1268	2.28	0.19	0.00	4.60	4.74	5.380	4.483	2.42	CODETI	
1269	2.26	0.59	-0.00	4.60	4.74	5.380	4.483	2.72	CODETI	
1269	2.26	0.59	0.00	4.60	4.74	5.380	4.483	2.72	CODETI	
1270	2.24	1.11	-0.00	4.60	4.74	5.380	4.483	3.11	CODETI	
1270	2.24	0.21	0.00	4.60	4.74	1.000	1.000	2.48	CODETI	
1279	2.23	3.03	0.17	4.60	5.40	5.380	4.483	5.32	CODETI	
1279	2.23	3.03	-0.17	4.60	5.43	5.380	4.483	5.32	CODETI	
1280	2.28	5.28	0.51	4.60	7.64	5.380	4.483	8.43	CODETI	
1280	2.28	1.13	-0.51	4.60	4.91	1.000	1.000	3.80	CODETI	
1285	2.28	10.72	0.51	4.60	13.04	4.398	4.398	11.00	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1285	2.27	30.51	0.17	4.60	32.79	4.398	4.398	25.19	CODETI	
1286	2.28	3.00	-0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1286	2.28	3.00	0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1291	2.28	1.46	-0.17	4.60	4.77	1.000	1.000	3.78	CODETI	
1291	2.28	6.55	0.17	4.60	8.84	5.380	4.483	8.34	CODETI	
1292	2.28	5.91	-0.08	4.60	8.20	5.380	4.483	7.64	CODETI	
1292	2.28	5.91	0.08	4.60	8.19	5.380	4.483	7.64	CODETI	
1290	2.28	5.22	-0.00	4.60	7.50	5.380	4.483	6.97	CODETI	
1290	2.28	1.16	0.00	4.60	4.74	1.000	1.000	3.44	CODETI	
1300	2.28	0.41	-0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1300	2.28	0.41	0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1310	2.28	0.01	-0.00	4.60	4.74	1.000	1.000	2.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	2.29	6.01	2.25	4.60	9.44	4.398	4.398	17.79	CODETI	
1320	2.29	4.21	-2.25	4.60	8.00	1.000	1.000	8.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	2.32	4.11	-2.66	4.60	8.35	1.000	1.000	9.01	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1328	2.32	1.43	2.66	4.60	6.93	1.000	1.000	7.80	CODETI	
1328	2.32	6.73	-2.66	4.60	10.50	5.380	4.483	24.54	CODETI	
1329	2.48	10.71	2.43	4.60	13.71	5.380	4.483	24.14	CODETI	
1329	1.87	9.38	-2.28	4.60	12.62	5.380	4.483	22.55	CODETI	
1330	1.73	18.29	1.06	4.60	21.22	5.380	4.483	20.59	CODETI	
1330	1.73	4.01	-1.06	4.60	7.28	1.000	1.000	6.82	CODETI	
1338	1.97	1.95	1.06	4.60	5.47	1.000	1.000	5.16	CODETI	
1338	1.97	8.96	-1.06	4.60	11.62	5.380	4.483	13.92	CODETI	
1339	2.26	3.31	1.43	4.60	6.63	5.380	4.483	14.11	CODETI	
1339	2.26	3.31	-1.43	4.60	6.66	5.380	4.483	14.11	CODETI	
1340	2.48	12.73	1.05	4.60	15.16	5.380	4.483	15.69	CODETI	
1340	2.48	2.58	-1.05	4.60	5.75	1.000	1.000	5.60	CODETI	
1343	2.48	2.70	1.05	4.60	6.03	1.000	1.000	5.70	CODETI	
1343	2.48	2.70	-1.05	4.60	5.81	1.000	1.000	5.70	CODETI	
1348	2.48	2.51	1.05	4.60	5.92	1.000	1.000	5.55	CODETI	
1348	2.48	11.74	-1.05	4.60	14.37	5.380	4.483	15.47	CODETI	
1349	2.45	12.98	0.07	4.60	15.28	5.380	4.483	13.44	CODETI	
1349	2.45	12.98	-0.07	4.60	15.44	5.380	4.483	13.44	CODETI	
1345	2.32	11.95	-0.63	4.60	14.24	5.380	4.483	12.75	CODETI	
1345	2.32	2.27	0.63	4.60	5.27	1.000	1.000	4.87	CODETI	
1350 (SP_23)	2.33	3.83	-0.63	4.60	6.40	1.000	1.000	6.31	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1350 (SP_23)	2.33	3.83	0.63	4.60	6.32	1.000	1.000	6.31	CODETI	
1355	2.33	4.80	-0.63	4.60	7.27	1.000	1.000	7.24	CODETI	
1355	2.33	4.80	0.63	4.60	7.23	1.000	1.000	7.24	CODETI	
1360	2.33	5.19	-0.63	4.60	7.64	1.000	1.000	7.62	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	2.33	6.14	0.63	4.60	8.57	1.000	1.000	8.55	CODETI	
514 (Té_VS_011)	2.33	40.78	-0.38	4.60	43.01	5.836	5.836	33.05	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.06	18.79	-0.61	0.00	18.89	7.388	7.388	15.62	CODETI	
1417	-0.24	24.36	0.60	0.00	24.63	7.388	7.388	19.43	CODETI	
1417	-0.24	24.36	-0.60	0.00	24.63	7.388	7.388	19.43	CODETI	
1418	-0.52	33.72	0.46	0.00	34.25	7.388	7.388	25.79	CODETI	
1418	-0.52	33.72	-0.46	0.00	34.25	7.388	7.388	25.79	CODETI	
1419	-0.63	38.54	0.19	0.00	39.18	7.388	7.388	28.98	CODETI	
1419	-0.63	38.54	-0.19	0.00	39.18	7.388	7.388	28.98	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-0.62	38.86	0.03	0.00	39.48	7.388	7.388	29.15	CODETI	
1410	-0.62	5.26	-0.03	0.00	5.88	1.000	1.000	5.26	CODETI	
1415 (SP_26)	0.02	3.12	0.03	0.00	3.14	1.000	1.000	3.12	CODETI	
1415 (SP_26)	0.02	3.12	-0.03	0.00	3.14	1.000	1.000	3.12	CODETI	
1422	0.06	2.99	0.03	0.00	3.05	1.000	1.000	2.99	CODETI	
1422	0.06	14.71	-0.03	0.00	14.76	5.640	4.700	12.67	CODETI	
1421	0.09	10.37	-0.87	0.00	10.61	5.640	4.700	11.41	CODETI	
1421	0.09	10.37	0.87	0.00	10.61	5.640	4.700	11.41	CODETI	
1420	0.00	2.93	-1.16	0.00	3.74	5.640	4.700	10.07	CODETI	
1420	0.00	0.55	1.16	0.00	2.38	1.000	1.000	2.38	CODETI	
1425	0.00	0.83	-1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1425	0.00	0.83	1.16	0.00	2.46	1.000	1.000	2.46	CODETI	
1428	0.01	33.92	-0.88	0.00	33.97	7.391	7.391	27.26	CODETI	
1428	0.01	33.92	0.88	0.00	33.97	7.391	7.391	27.26	CODETI	
1429	0.02	39.55	-0.25	0.00	39.58	7.391	7.391	29.79	CODETI	
1429	0.02	39.55	0.25	0.00	39.58	7.391	7.391	29.79	CODETI	
1430	0.03	41.47	0.10	0.00	41.50	7.391	7.391	31.13	CODETI	
1430	0.03	5.61	-0.10	0.00	5.64	1.000	1.000	5.62	CODETI	
1440	0.02	11.71	0.10	0.00	11.73	1.000	1.000	11.71	CODETI	
1440	0.02	11.71	-0.10	0.00	11.73	1.000	1.000	11.71	CODETI	
1445 (SP_31)	0.02	17.49	0.10	0.00	17.52	1.000	1.000	17.49	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.03	17.49	-0.10	0.00	17.53	1.000	1.000	17.49	CODETI	
1450	0.03	82.98	0.10	0.00	83.02	5.231	5.231	62.24	CODETI	
1450	0.01	80.26	0.69	0.00	80.28	5.231	5.231	60.44	CODETI	
1451 (SP_27)	0.00	6.50	-0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1451 (SP_27)	0.00	6.50	0.69	0.00	6.65	1.000	1.000	6.65	CODETI	
1452	0.00	4.65	-0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1452	0.00	4.65	0.69	0.00	4.86	1.000	1.000	4.86	CODETI	
1455 (SP_28)	-0.00	4.53	-0.69	0.00	4.74	1.000	1.000	4.74	CODETI	
1455 (SP_28)	0.00	4.53	0.69	0.00	4.74	1.000	1.000	4.74	CODETI	
1458	0.00	0.58	-0.69	0.00	1.50	1.000	1.000	1.50	CODETI	
1458	0.00	2.73	0.69	0.00	3.07	5.640	4.700	6.35	CODETI	
1459	0.01	6.48	-0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1459	0.01	6.48	0.51	0.00	6.57	5.640	4.700	7.27	CODETI	
1460	0.01	10.24	0.24	0.00	10.26	5.640	4.700	9.43	CODETI	
1460	0.01	2.18	-0.24	0.00	2.23	1.000	1.000	2.23	CODETI	
1468	0.00	1.39	0.24	0.00	1.47	1.000	1.000	1.47	CODETI	
1468	0.00	6.54	-0.24	0.00	6.56	5.640	4.700	6.21	CODETI	
1469	0.00	1.87	-0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1469	0.00	1.87	0.15	0.00	1.90	5.640	4.700	2.09	CODETI	
1470	0.00	5.50	0.00	0.00	5.50	5.640	4.700	4.95	CODETI	
1470	0.00	1.17	-0.00	0.00	1.17	1.000	1.000	1.17	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	



**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	3.20	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.59	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.02	-0.00	0.00	0.05	1.000	1.000	0.02	CODETI	
1518	0.04	0.04	0.00	0.00	0.08	1.000	1.000	0.04	CODETI	
1518	0.04	0.28	-0.00	0.00	0.32	7.391	6.159	0.25	CODETI	
1519	0.07	0.93	-0.02	0.00	1.00	7.391	6.159	0.87	CODETI	
1519	0.07	0.93	0.02	0.00	1.00	7.391	6.159	0.87	CODETI	
1520	0.08	1.36	-0.07	0.00	1.44	7.391	6.159	1.43	CODETI	
1520	0.08	0.22	0.07	0.00	0.33	1.000	1.000	0.26	CODETI	
1523	0.18	2.03	-0.07	0.00	2.21	1.000	1.000	2.04	CODETI	
1523	0.18	11.14	0.07	0.00	11.32	5.640	4.700	8.62	CODETI	

**STRESSES EXTENDED REPORT: Stresses on Elements**
**CASE 12 Poids + PMS + 2 Systèmes Sécurité**

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1524	0.11	13.60	-0.20	0.00	13.72	5.640	4.700	10.55	CODETI	
1524	0.11	13.60	0.20	0.00	13.72	5.640	4.700	10.55	CODETI	
1525	0.03	16.56	-0.32	0.00	16.60	5.640	4.700	12.87	CODETI	
1525	0.03	2.97	0.32	0.00	3.07	1.000	1.000	3.04	CODETI	
1530	0.03	3.19	-0.32	0.00	3.28	1.000	1.000	3.26	CODETI	
1530	0.02	3.19	0.33	0.00	3.28	1.000	1.000	3.26	CODETI	
1540 (SR_30)	0.02	4.68	-0.33	0.00	4.74	1.000	1.000	4.72	CODETI	
1540 (SR_30)	0.03	4.68	0.33	0.00	4.75	1.000	1.000	4.72	CODETI	
1450	0.03	12.55	-0.33	0.00	12.59	5.231	5.231	9.75	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-0.28	1.03	0.09	0.00	1.32	1.000	1.000	1.05	CODETI	
20	-0.28	0.95	-0.09	0.00	1.24	1.000	1.000	0.96	CODETI	
20	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
25	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
20	-0.28	0.95	0.09	0.00	1.25	1.000	1.000	0.97	CODETI	
30	-0.28	0.94	-0.09	0.00	1.24	1.000	1.000	0.96	CODETI	
30	-0.20	0.77	0.11	0.00	1.00	1.000	1.000	0.80	CODETI	
40	-0.20	0.76	-0.11	0.00	0.99	1.000	1.000	0.79	CODETI	
40	-0.01	0.03	0.01	0.00	0.04	1.000	1.000	0.03	CODETI	
45 (Weld_CW2)	-0.01	0.01	-0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
45 (Weld_CW2)	-0.01	0.01	0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
50	-0.01	0.01	-0.01	0.00	0.02	1.000	1.000	0.02	CODETI	
50	-0.01	0.00	0.01	0.00	0.02	1.000	1.000	0.01	CODETI	
55	-0.01	0.01	-0.01	0.00	0.02	1.000	1.000	0.01	CODETI	
55	-0.01	0.02	-0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
56	-0.01	0.02	0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
56	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
60	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
65 (Piquage_N1)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.14	5.23	-7.23	0.00	15.43	1.000	1.000	15.38	CODETI	
110	-0.14	2.63	7.23	0.00	14.72	1.000	1.000	14.70	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.03	0.78	-0.00	0.00	0.81	1.000	1.000	0.78	CODETI	
129	-0.02	5.28	0.00	0.00	5.30	7.124	5.937	5.28	CODETI	
129	-0.02	5.28	-0.00	0.00	5.30	7.124	5.937	5.28	CODETI	
130	-0.00	4.61	0.00	0.00	4.61	7.124	5.937	4.61	CODETI	
130	-0.00	0.65	-0.00	0.00	0.65	1.000	1.000	0.65	CODETI	
134 (Jupe_N3)	-0.00	0.05	0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
134 (Jupe_N3)	-0.00	0.05	-0.00	0.00	0.05	1.000	1.000	0.05	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
135 (SR_N3)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.00	2.44	0.00	0.00	2.44	1.000	1.000	2.44	CODETI	
160	-0.00	0.38	-0.00	0.00	0.38	1.000	1.000	0.38	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	-0.18	3.79	-0.11	0.00	3.98	1.000	1.000	3.80	CODETI	
190	-0.18	3.76	0.11	0.00	3.95	1.000	1.000	3.77	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.16	4.93	5.33	0.00	11.82	1.000	1.000	11.75	CODETI	
220	-0.16	2.29	-5.33	0.00	10.95	1.000	1.000	10.91	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
250	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
251 (CT_N1)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
260	-0.00	0.00	0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
260	0.00	84.69	-5.51	0.00	85.41	10.614	10.614	144.35	CODETI	
262	0.00	6.02	5.51	0.00	12.55	1.000	1.000	12.55	CODETI	
262	0.01	9.23	-8.44	0.00	19.24	1.000	1.000	19.24	CODETI	
265 (SG_5)	0.01	8.15	8.44	0.00	18.75	1.000	1.000	18.74	CODETI	
265 (SG_5)	0.01	8.15	-8.44	0.00	18.75	1.000	1.000	18.74	CODETI	
267	0.01	65.43	7.72	0.00	67.23	8.376	8.376	144.90	CODETI	
267	0.01	65.43	-7.72	0.00	67.23	8.376	8.376	144.90	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
268	0.01	105.67	5.12	0.00	106.17	8.376	8.376	136.08	CODETI	
268	0.01	105.67	-5.12	0.00	106.17	8.376	8.376	136.08	CODETI	
269	0.00	120.18	1.60	0.00	120.23	8.376	8.376	123.15	CODETI	
269	0.00	120.18	-1.60	0.00	120.23	8.376	8.376	123.15	CODETI	
270	0.00	115.87	-0.21	0.00	115.88	8.376	8.376	115.93	CODETI	
270	0.00	13.83	0.21	0.00	13.84	1.000	1.000	13.84	CODETI	
271	0.00	7.67	-0.21	0.00	7.68	1.000	1.000	7.68	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	6.52	-0.01	0.00	6.53	1.000	1.000	6.52	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
277	-0.30	36.50	0.40	0.00	36.81	8.141	8.141	37.07	CODETI	
277	-0.30	36.50	-0.40	0.00	36.81	8.141	8.141	37.07	CODETI	
278	-0.83	20.00	1.06	0.00	20.94	8.141	8.141	26.42	CODETI	
278	-0.83	20.00	-1.06	0.00	20.94	8.141	8.141	26.42	CODETI	
279	-1.14	6.11	1.44	0.00	7.79	8.141	8.141	24.22	CODETI	
279	-1.14	6.11	-1.44	0.00	7.79	8.141	8.141	24.22	CODETI	
280	-1.18	0.99	1.49	0.00	3.68	8.141	8.141	24.24	CODETI	
280	-1.18	0.12	-1.49	0.00	3.25	1.000	1.000	2.98	CODETI	
284	-1.18	0.11	1.49	0.00	3.24	1.000	1.000	2.98	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	-1.18	0.10	-1.49	0.00	3.24	1.000	1.000	2.98	CODETI	
290	-1.18	0.05	1.49	0.00	3.22	1.000	1.000	2.98	CODETI	
290	-1.18	0.05	-1.49	0.00	3.22	1.000	1.000	2.98	CODETI	
299	-1.18	0.02	1.49	0.00	3.21	1.000	1.000	2.98	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	-1.18	0.03	-1.49	0.00	3.21	1.000	1.000	2.98	CODETI	
306	-1.14	7.67	1.43	0.00	9.26	9.368	9.368	27.91	CODETI	
306	-1.14	7.67	-1.43	0.00	9.26	9.368	9.368	27.91	CODETI	
307	-0.83	22.76	1.04	0.00	23.68	9.368	9.368	29.92	CODETI	
307	-0.83	22.76	-1.04	0.00	23.68	9.368	9.368	29.92	CODETI	
308	-0.30	38.47	0.36	0.00	38.78	9.368	9.368	39.05	CODETI	
308	-0.30	38.47	-0.36	0.00	38.78	9.368	9.368	39.05	CODETI	
305	-0.01	45.92	-0.01	0.00	45.93	9.368	9.368	45.92	CODETI	
305	-0.01	4.90	0.01	0.00	4.91	1.000	1.000	4.90	CODETI	
435 (SR_07)	-0.01	8.51	-0.01	0.00	8.52	1.000	1.000	8.51	CODETI	
435 (SR_07)	-0.01	8.51	0.01	0.00	8.52	1.000	1.000	8.51	CODETI	
440	-0.01	182.30	-0.01	0.00	182.31	10.614	10.614	182.30	CODETI	
440	-0.09	16.71	0.79	0.00	16.88	10.614	10.614	23.63	CODETI	
445	-0.09	1.27	-0.79	0.00	2.08	1.000	1.000	2.02	CODETI	
445	-0.15	18.26	1.21	0.00	18.56	9.368	9.368	29.06	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
311	-0.28	11.73	-1.41	0.00	12.33	9.368	9.368	28.82	CODETI	
311	-0.28	11.73	1.41	0.00	12.33	9.368	9.368	28.82	CODETI	
312	-0.48	3.75	-1.55	0.00	5.24	9.368	9.368	29.22	CODETI	
312	-0.48	3.75	1.55	0.00	5.24	9.368	9.368	29.22	CODETI	
313	-0.56	15.06	-1.33	0.00	15.84	9.368	9.368	29.06	CODETI	
313	-0.56	15.06	1.33	0.00	15.84	9.368	9.368	29.06	CODETI	
310	-0.54	19.51	-1.10	0.00	20.17	9.368	9.368	28.41	CODETI	
310	-0.54	2.08	1.10	0.00	3.42	1.000	1.000	3.03	CODETI	
315	-0.54	1.99	-1.10	0.00	3.35	1.000	1.000	2.97	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	-0.54	1.94	1.10	0.00	3.31	1.000	1.000	2.94	CODETI	
330	-0.54	1.55	-1.10	0.00	3.03	1.000	1.000	2.69	CODETI	
330	-0.54	1.55	1.10	0.00	3.03	1.000	1.000	2.69	CODETI	
335	-0.54	1.27	-1.10	0.00	2.85	1.000	1.000	2.54	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	-0.54	1.25	1.10	0.00	2.84	1.000	1.000	2.53	CODETI	
337	-0.56	6.79	-1.20	0.00	7.72	9.368	9.368	23.45	CODETI	
337	-0.56	6.79	1.20	0.00	7.72	9.368	9.368	23.45	CODETI	
338	-0.48	10.62	-1.10	0.00	11.32	9.368	9.368	23.26	CODETI	
338	-0.48	10.62	1.10	0.00	11.32	9.368	9.368	23.26	CODETI	
339	-0.28	21.08	-0.66	0.00	21.40	9.368	9.368	24.46	CODETI	
339	-0.28	21.08	0.66	0.00	21.40	9.368	9.368	24.46	CODETI	
350	-0.15	25.25	-0.35	0.00	25.41	9.368	9.368	26.11	CODETI	
350	-0.09	1.76	0.23	0.00	1.91	1.000	1.000	1.82	CODETI	
355 (SR_8)	-0.09	2.04	-0.23	0.00	2.18	1.000	1.000	2.09	CODETI	
355 (SR_8)	-0.09	2.04	0.23	0.00	2.18	1.000	1.000	2.09	CODETI	
360 (Té_TH_700)	-0.09	2.98	-0.23	0.00	3.11	1.000	1.000	3.02	CODETI	
360 (Té_TH_700)	-0.09	2.98	0.23	0.00	3.11	1.000	1.000	3.02	CODETI	
365	-0.09	46.20	-0.23	0.00	46.30	10.614	10.614	46.46	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
365	-0.48	49.26	0.12	0.00	49.74	10.614	10.614	49.32	CODETI	
366	-0.48	3.87	-0.12	0.00	4.36	1.000	1.000	3.88	CODETI	
366	-0.74	48.30	0.18	0.00	49.04	8.141	8.141	48.39	CODETI	
368	-0.61	44.00	-0.08	0.00	44.61	8.141	8.141	44.02	CODETI	
368	-0.61	44.00	0.08	0.00	44.61	8.141	8.141	44.02	CODETI	
369	-0.28	33.17	0.12	0.00	33.45	8.141	8.141	33.22	CODETI	
369	-0.28	33.17	-0.12	0.00	33.45	8.141	8.141	33.22	CODETI	
370	-0.09	26.72	0.21	0.00	26.81	8.141	8.141	26.93	CODETI	
370	-0.09	3.28	-0.21	0.00	3.40	1.000	1.000	3.31	CODETI	
378	-0.27	9.02	0.15	0.00	9.30	8.141	8.141	9.34	CODETI	
378	-0.27	9.02	-0.15	0.00	9.30	8.141	8.141	9.34	CODETI	
379	-0.60	19.06	0.03	0.00	19.66	8.141	8.141	19.07	CODETI	
379	-0.60	19.06	-0.03	0.00	19.66	8.141	8.141	19.07	CODETI	
380	-0.73	23.09	-0.02	0.00	23.82	8.141	8.141	23.10	CODETI	
380	-0.73	2.84	0.02	0.00	3.57	1.000	1.000	2.84	CODETI	
385	-0.73	3.01	-0.02	0.00	3.74	1.000	1.000	3.01	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	-0.75	2.73	0.02	0.00	3.48	1.000	1.000	2.73	CODETI	
410	-0.75	0.79	-0.02	0.00	1.54	1.000	1.000	0.79	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	-0.74	0.52	0.02	0.00	1.26	1.000	1.000	0.52	CODETI	
430 (PF4_CPO)	-0.74	2.46	-0.02	0.00	3.19	1.000	1.000	2.46	CODETI	
440	-0.08	25.68	-4.71	0.00	27.43	10.614	10.614	103.30	CODETI	
450	-0.08	1.15	4.71	0.00	9.51	1.000	1.000	9.50	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	-0.57	89.62	-3.17	0.00	90.41	10.614	10.614	112.01	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
500	-0.57	10.09	4.88	0.00	14.45	1.000	1.000	14.03	CODETI	
500	-0.57	10.09	-4.88	0.00	14.45	1.000	1.000	14.03	CODETI	
503	-0.71	54.91	5.42	0.00	56.67	7.049	7.049	94.14	CODETI	
503	-0.71	54.91	-5.42	0.00	56.67	7.049	7.049	94.14	CODETI	
504	-0.91	38.75	6.05	0.00	41.46	7.049	7.049	93.63	CODETI	
504	-0.91	38.75	-6.05	0.00	41.46	7.049	7.049	93.63	CODETI	
505	-0.96	36.16	6.10	0.00	39.07	7.049	7.049	93.24	CODETI	
505	-0.96	5.13	-6.10	0.00	13.63	1.000	1.000	13.23	CODETI	
508	-0.91	49.30	5.69	0.00	51.48	7.049	7.049	94.18	CODETI	
508	-0.91	49.30	-5.69	0.00	51.48	7.049	7.049	94.18	CODETI	
509	-0.71	78.53	4.09	0.00	79.66	7.049	7.049	97.40	CODETI	
509	-0.71	78.53	-4.09	0.00	79.66	7.049	7.049	97.40	CODETI	
510	-0.57	90.74	2.95	0.00	91.50	7.049	7.049	99.80	CODETI	
510	-0.57	12.87	-2.95	0.00	14.68	1.000	1.000	14.16	CODETI	
514 (Té_VS_011)	-0.57	83.31	2.95	0.00	84.09	5.836	5.836	90.14	CODETI	
514 (Té_VS_011)	-1.15	123.07	-0.00	0.00	124.22	5.836	5.836	123.07	CODETI	
515	-1.15	21.09	0.00	0.00	22.23	1.000	1.000	21.09	CODETI	
515	-0.55	10.16	-0.00	0.00	10.71	1.000	1.000	10.16	CODETI	
520	-0.55	73.92	0.00	0.00	74.48	7.279	7.279	73.92	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
520	-0.58	39.71	0.00	0.00	40.29	7.279	7.279	39.71	CODETI	
525	-0.58	4.86	-0.00	0.00	5.44	1.000	1.000	4.86	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	-1.21	9.75	0.00	0.00	10.96	1.000	1.000	9.75	CODETI	
547	-1.07	63.38	-0.01	0.00	64.45	6.943	6.943	63.38	CODETI	
547	-1.07	63.38	0.01	0.00	64.45	6.943	6.943	63.38	CODETI	
548	-0.59	49.89	-0.01	0.00	50.48	6.943	6.943	49.89	CODETI	
548	-0.29	49.89	0.01	0.00	50.17	6.943	6.943	49.89	CODETI	
549	0.46	28.78	-0.01	0.00	29.24	6.943	6.943	28.78	CODETI	
549	0.46	28.78	0.01	0.00	29.24	6.943	6.943	28.78	CODETI	
550	0.78	19.54	-0.01	0.00	20.32	6.943	6.943	19.54	CODETI	
550	0.78	2.81	0.01	0.00	3.60	1.000	1.000	2.81	CODETI	
557	1.07	38.60	-0.01	0.00	39.67	6.943	6.943	38.60	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
557	1.07	38.60	0.01	0.00	39.67	6.943	6.943	38.60	CODETI	
558	1.41	48.20	-0.01	0.00	49.61	6.943	6.943	48.20	CODETI	
558	1.41	48.20	0.01	0.00	49.61	6.943	6.943	48.20	CODETI	
559	1.37	47.10	-0.01	0.00	48.47	6.943	6.943	47.10	CODETI	
559	1.37	47.10	0.01	0.00	48.47	6.943	6.943	47.10	CODETI	
560	1.20	42.28	-0.00	0.00	43.48	6.943	6.943	42.28	CODETI	
560	1.20	6.09	0.00	0.00	7.29	1.000	1.000	6.09	CODETI	
570	1.20	2.71	-0.00	0.00	3.91	1.000	1.000	2.71	CODETI	
570	1.20	6.78	0.00	0.00	7.98	2.500	2.500	6.78	CODETI	
580	0.90	2.16	-0.00	0.00	3.07	2.500	2.500	2.16	CODETI	
580	0.90	0.87	0.00	0.00	1.77	1.000	1.000	0.87	CODETI	
585	0.90	1.39	-0.00	0.00	2.29	1.000	1.000	1.39	CODETI	
585	0.90	1.39	0.00	0.00	2.29	1.000	1.000	1.39	CODETI	
590	0.90	19.64	-0.00	0.00	20.54	7.057	7.057	19.64	CODETI	
590	0.01	69.86	0.00	0.00	69.86	7.057	7.057	69.86	CODETI	
595 (SR_11)	0.01	7.26	-0.00	0.00	7.27	1.000	1.000	7.26	CODETI	
595 (SR_11)	0.00	7.26	0.00	0.00	7.26	1.000	1.000	7.26	CODETI	
596 (SP_13)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
596 (SP_13)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
598	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	



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CASE 13 Thermique @ TMS

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598	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
608	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
608	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
620	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	-0.59	34.22	0.00	0.00	34.81	7.279	7.279	34.22	CODETI	
625	-0.59	2.28	-0.00	0.00	2.87	1.000	1.000	2.28	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	-1.22	3.35	0.00	0.00	4.58	1.000	1.000	3.35	CODETI	
642	-1.57	2.50	-0.01	0.00	4.06	6.943	6.943	2.50	CODETI	
642	-1.57	2.50	0.01	0.00	4.06	6.943	6.943	2.50	CODETI	
643	-1.92	7.42	-0.01	0.00	9.34	6.943	6.943	7.42	CODETI	
643	-1.92	7.42	0.01	0.00	9.34	6.943	6.943	7.42	CODETI	
644	-1.75	2.78	-0.01	0.00	4.54	6.943	6.943	2.79	CODETI	
644	-1.75	2.78	0.01	0.00	4.54	6.943	6.943	2.79	CODETI	
645	-1.50	4.41	-0.01	0.00	5.91	6.943	6.943	4.42	CODETI	
645	-1.50	0.64	0.01	0.00	2.13	1.000	1.000	0.64	CODETI	
590	-1.50	88.18	-0.01	0.00	89.68	7.057	7.057	88.18	CODETI	
360 (Té_TH_700)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Té_TH_700)										
690	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	0.00	84.69	-5.51	0.00	85.41	10.614	10.614	144.35	CODETI	
720 (Té_VS_008)	0.00	113.56	5.51	0.00	114.10	10.614	10.614	162.97	CODETI	
720 (Té_VS_008)	-0.12	81.99	-3.91	0.00	82.48	10.614	10.614	116.70	CODETI	
725	-0.12	10.19	3.91	0.00	12.95	1.000	1.000	12.85	CODETI	
725	-0.18	15.62	-6.00	0.00	19.84	1.000	1.000	19.70	CODETI	
730	-0.18	18.72	6.00	0.00	22.39	1.000	1.000	22.23	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	-0.13	12.40	-3.91	0.00	14.76	1.000	1.000	14.66	CODETI	
770 (Té_Gavage)	-0.13	129.23	3.91	0.00	129.59	10.614	10.614	153.61	CODETI	
770 (Té_Gavage)	0.00	0.00	-0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
780	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
795	-0.00	0.03	0.00	0.00	0.03	1.000	1.000	0.03	CODETI	
795	-0.07	0.06	0.00	0.00	0.13	2.000	2.000	0.06	CODETI	
800 (SB_02)	-0.02	0.48	0.00	0.00	0.50	2.000	2.000	0.48	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
820	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
720 (Té_VS_008)	-0.04	53.72	-3.07	0.00	54.11	10.614	10.614	84.38	CODETI	
830	-0.04	3.36	3.07	0.00	7.01	1.000	1.000	6.99	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.04	3.10	-3.07	0.00	6.89	1.000	1.000	6.87	CODETI	
865 (SP_14)	-0.04	2.63	3.07	0.00	6.69	1.000	1.000	6.67	CODETI	
865 (SP_14)	-0.04	2.63	-3.07	0.00	6.69	1.000	1.000	6.67	CODETI	
867	-0.05	21.29	2.83	0.00	22.08	8.376	8.376	52.02	CODETI	
867	-0.05	21.29	-2.83	0.00	22.08	8.376	8.376	52.02	CODETI	
868	-0.06	37.35	1.93	0.00	37.61	8.376	8.376	49.36	CODETI	
868	-0.06	37.35	-1.93	0.00	37.61	8.376	8.376	49.36	CODETI	
869	-0.06	43.92	0.65	0.00	43.99	8.376	8.376	45.24	CODETI	
869	-0.06	43.92	-0.65	0.00	43.99	8.376	8.376	45.24	CODETI	
870	-0.05	42.97	0.00	0.00	43.02	8.376	8.376	42.97	CODETI	
870	-0.05	5.13	-0.00	0.00	5.18	1.000	1.000	5.13	CODETI	
872	-0.05	2.77	0.00	0.00	2.82	1.000	1.000	2.77	CODETI	
872	-0.05	2.77	0.00	0.00	2.82	1.000	1.000	2.77	CODETI	
875 (SG_15)	-0.05	0.00	-0.00	0.00	0.05	1.000	1.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	-0.06	235.47	0.00	0.00	235.53	10.614	10.614	235.47	CODETI	*
772 (SG_16_1)	-0.06	21.89	-0.00	0.00	21.95	1.000	1.000	21.89	CODETI	
772 (SG_16_1)	-0.06	21.89	0.00	0.00	21.95	1.000	1.000	21.89	CODETI	
775	-0.06	109.73	-0.00	0.00	109.80	7.057	7.057	109.73	CODETI	
775	-0.01	109.25	-0.00	0.00	109.25	7.057	7.057	109.25	CODETI	
910 (Té_VS_007)	-0.01	2.24	0.00	0.00	2.24	1.000	1.000	2.24	CODETI	
910	-0.00	2.22	-0.00	0.00	2.22	1.000	1.000	2.22	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Té_VS_007)										
915 (SG_16_2)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
915 (SG_16_2)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
920	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
957	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
957	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
959	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
959	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.00	29.29	0.00	0.00	29.29	7.057	7.057	29.29	CODETI	
995	-0.00	5.62	-0.00	0.00	5.63	1.000	1.000	5.62	CODETI	
995	-0.00	5.62	-0.00	0.00	5.63	1.000	1.000	5.62	CODETI	
998	-0.00	1.46	0.00	0.00	1.46	1.000	1.000	1.46	CODETI	
998	-0.00	8.00	-0.00	0.00	8.00	5.493	4.577	8.00	CODETI	
999	-0.15	3.19	0.00	0.00	3.33	5.493	4.577	3.19	CODETI	
999	-0.15	3.19	-0.00	0.00	3.33	5.493	4.577	3.19	CODETI	
1000	-0.19	1.61	-0.00	0.00	1.81	5.493	4.577	1.61	CODETI	



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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1000	-0.19	0.29	0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1002	-0.19	0.29	-0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.19	0.29	0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1008	-0.19	0.29	-0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1008	-0.19	1.61	0.00	0.00	1.81	5.493	4.577	1.61	CODETI	
1009	-0.14	0.00	-0.00	0.00	0.14	5.493	4.577	0.00	CODETI	
1009	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1060	-0.00	0.00	0.00	0.00	0.00	2.000	2.000	0.00	CODETI	
1070	-0.00	0.00	-0.00	0.00	0.00	2.000	2.000	0.00	CODETI	
1070	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1100 (CT_ASP_Reg)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	-0.18	3.76	-0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1120	-0.18	3.76	0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1120	-0.18	3.76	-0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1128	-0.18	3.76	0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1128	-0.18	20.55	-0.11	0.00	20.73	5.493	4.577	20.67	CODETI	
1129	-0.12	18.52	0.29	0.00	18.66	5.493	4.577	18.82	CODETI	
1129	-0.12	18.52	-0.29	0.00	18.66	5.493	4.577	18.82	CODETI	
1130	0.01	14.20	0.30	0.00	14.22	5.493	4.577	14.60	CODETI	
1130	0.01	2.59	-0.30	0.00	2.66	1.000	1.000	2.66	CODETI	
1132	0.01	2.02	0.30	0.00	2.12	1.000	1.000	2.11	CODETI	
1132	0.01	2.02	-0.30	0.00	2.12	1.000	1.000	2.11	CODETI	
1135 (SR_18)	0.01	0.97	0.30	0.00	1.15	1.000	1.000	1.14	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1135 (SR_18)	0.00	0.97	-0.30	0.00	1.14	1.000	1.000	1.14	CODETI	
1138	0.00	0.65	0.30	0.00	0.89	1.000	1.000	0.89	CODETI	
1138	0.00	3.49	-0.30	0.00	3.55	5.493	4.577	4.87	CODETI	
1139	0.02	3.79	0.13	0.00	3.82	5.493	4.577	4.44	CODETI	
1139	0.02	3.79	-0.13	0.00	3.82	5.493	4.577	4.44	CODETI	
1140	0.03	3.72	-0.11	0.00	3.76	5.493	4.577	4.33	CODETI	
1140	0.03	0.76	0.11	0.00	0.82	1.000	1.000	0.79	CODETI	
1148	0.03	0.81	-0.11	0.00	0.87	1.000	1.000	0.84	CODETI	
1148	0.03	4.03	0.11	0.00	4.06	5.493	4.577	4.60	CODETI	
1149	0.02	3.83	0.13	0.00	3.86	5.493	4.577	4.48	CODETI	
1149	0.02	3.83	-0.13	0.00	3.86	5.493	4.577	4.48	CODETI	
1150	0.00	2.30	0.30	0.00	2.38	5.493	4.577	4.10	CODETI	
1150	0.00	0.44	-0.30	0.00	0.75	1.000	1.000	0.75	CODETI	
1158	0.00	0.24	0.30	0.00	0.65	1.000	1.000	0.65	CODETI	
1158	0.00	1.30	-0.30	0.00	1.44	5.493	4.577	3.58	CODETI	
1159	0.00	2.02	0.21	0.00	2.07	5.493	4.577	3.28	CODETI	
1159	0.00	2.02	-0.21	0.00	2.07	5.493	4.577	3.28	CODETI	
1160	0.00	2.22	0.05	0.00	2.22	5.493	4.577	2.63	CODETI	
1160	0.00	0.47	-0.05	0.00	0.48	1.000	1.000	0.48	CODETI	
1165 (SR_19)	0.00	0.46	0.05	0.00	0.47	1.000	1.000	0.47	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1165 (SR_19)	0.00	0.46	-0.05	0.00	0.47	1.000	1.000	0.47	CODETI	
1170 (Té_ATRE)	0.00	0.80	0.05	0.00	0.81	4.398	4.398	0.92	CODETI	
1170 (Té_ATRE)	0.00	0.80	-0.05	0.00	0.81	4.398	4.398	0.92	CODETI	
1175	0.00	0.09	0.05	0.00	0.14	1.000	1.000	0.14	CODETI	
1175	0.00	0.09	-0.05	0.00	0.14	1.000	1.000	0.14	CODETI	
1178	0.00	0.06	0.05	0.00	0.12	1.000	1.000	0.12	CODETI	
1178	0.00	0.32	-0.05	0.00	0.34	5.493	4.577	0.66	CODETI	
1179	0.01	0.35	0.03	0.00	0.36	5.493	4.577	0.54	CODETI	
1179	0.01	0.35	-0.03	0.00	0.36	5.493	4.577	0.54	CODETI	
1180	0.01	0.36	-0.00	0.00	0.37	5.493	4.577	0.43	CODETI	
1180	0.01	0.08	0.00	0.00	0.09	1.000	1.000	0.08	CODETI	
1185	0.01	0.07	-0.00	0.00	0.08	1.000	1.000	0.07	CODETI	
1185	-0.00	0.01	0.00	0.00	0.01	1.000	1.000	0.01	CODETI	
1186 (SG_20)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(SR_20_1)										
1186 (SG_20)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1210 (CT_REF_Reg)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.00	0.00	-0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1211	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1211	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1212 (CT_03)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1216	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1216	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	-0.23	0.00	0.00	0.00	0.23	7.242	6.035	0.00	CODETI	
1220	0.00	6.65	0.00	0.00	6.65	7.242	6.035	6.65	CODETI	
1220	0.00	0.92	-0.00	0.00	0.92	1.000	1.000	0.92	CODETI	
1230	0.00	1.13	0.00	0.00	1.13	1.000	1.000	1.13	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1279	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1279	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1286	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1286	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1291	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1291	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1320	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-1.95	41.23	15.85	0.00	53.56	1.000	1.000	52.00	CODETI	
1328	-1.95	27.58	-15.85	0.00	43.32	1.000	1.000	42.02	CODETI	
1328	-1.95	129.87	15.85	0.00	135.57	5.380	4.483	226.05	CODETI	*



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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1329	-2.27	82.70	-21.02	0.00	94.80	5.380	4.483	240.82	CODETI	*
1329	-2.46	83.13	20.46	0.00	94.86	5.380	4.483	235.37	CODETI	*
1330	-1.55	102.58	-16.86	0.00	109.45	5.380	4.483	216.40	CODETI	*
1330	-1.55	21.94	16.86	0.00	41.09	1.000	1.000	40.22	CODETI	
1338	-1.55	22.37	-16.86	0.00	41.33	1.000	1.000	40.46	CODETI	
1338	-1.55	103.29	16.86	0.00	110.13	5.380	4.483	217.65	CODETI	*
1339	-2.35	71.12	-20.99	0.00	84.62	5.380	4.483	236.80	CODETI	*
1339	-2.35	71.12	20.99	0.00	84.62	5.380	4.483	236.80	CODETI	*
1340	-1.79	110.58	-16.40	0.00	117.06	5.380	4.483	217.98	CODETI	*
1340	-1.79	23.79	16.40	0.00	41.59	1.000	1.000	40.52	CODETI	
1343	-1.79	15.48	-16.40	0.00	37.06	1.000	1.000	36.26	CODETI	
1343	-1.79	15.48	16.40	0.00	37.06	1.000	1.000	36.26	CODETI	
1348	-1.79	19.92	-16.40	0.00	39.33	1.000	1.000	38.37	CODETI	
1348	-1.79	95.69	16.40	0.00	102.85	5.380	4.483	206.45	CODETI	*
1349	-2.64	93.15	-18.69	0.00	102.82	5.380	4.483	222.14	CODETI	*
1349	-2.64	93.15	18.69	0.00	102.82	5.380	4.483	222.14	CODETI	*
1345	-1.95	125.34	-12.73	0.00	129.81	5.380	4.483	198.48	CODETI	*
1345	-1.95	26.69	12.73	0.00	38.33	1.000	1.000	36.89	CODETI	
1350 (SP_23)	-1.95	12.62	-12.73	0.00	29.34	1.000	1.000	28.42	CODETI	
1350 (SP_23)	-1.95	12.62	12.73	0.00	29.34	1.000	1.000	28.42	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1355	-1.95	10.33	-12.73	0.00	28.27	1.000	1.000	27.48	CODETI	
1355	-1.95	10.33	12.73	0.00	28.27	1.000	1.000	27.48	CODETI	
1360	-1.95	10.31	-12.73	0.00	28.26	1.000	1.000	27.48	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	-1.95	11.39	12.73	0.00	28.75	1.000	1.000	27.90	CODETI	
514 (Té_VS_011)	-1.95	77.77	-7.78	0.00	81.22	5.836	5.836	119.55	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.16	31.37	5.33	0.00	33.29	7.388	7.388	84.84	CODETI	
1417	-0.52	43.13	-5.29	0.00	44.91	7.388	7.388	89.27	CODETI	
1417	-0.52	43.13	5.29	0.00	44.91	7.388	7.388	89.27	CODETI	
1418	-1.11	75.00	-4.24	0.00	76.58	7.388	7.388	97.72	CODETI	
1418	-1.11	75.00	4.24	0.00	76.58	7.388	7.388	97.72	CODETI	
1419	-1.40	96.02	-2.18	0.00	97.52	7.388	7.388	101.27	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1419	-1.40	96.02	2.18	0.00	97.52	7.388	7.388	101.27	CODETI	
1410	-1.41	99.19	-0.94	0.00	100.62	7.388	7.388	100.15	CODETI	
1410	-1.41	13.43	0.94	0.00	14.96	1.000	1.000	13.56	CODETI	
1415 (SP_26)	-1.41	2.69	-0.94	0.00	4.51	1.000	1.000	3.28	CODETI	
1415 (SP_26)	-0.11	2.69	0.94	0.00	3.37	1.000	1.000	3.28	CODETI	
1422	-0.11	2.29	-0.94	0.00	3.05	1.000	1.000	2.96	CODETI	
1422	-0.11	10.82	0.94	0.00	11.09	5.640	4.700	16.70	CODETI	
1421	0.08	8.76	-1.32	0.00	9.23	5.640	4.700	17.34	CODETI	
1421	0.08	8.76	1.32	0.00	9.23	5.640	4.700	17.34	CODETI	
1420	0.23	19.13	-0.63	0.00	19.40	5.640	4.700	22.30	CODETI	
1420	0.23	3.74	0.63	0.00	4.17	1.000	1.000	3.95	CODETI	
1425	0.23	4.61	-0.63	0.00	5.00	1.000	1.000	4.78	CODETI	
1425	0.23	4.61	0.63	0.00	5.00	1.000	1.000	4.78	CODETI	
1428	0.25	47.51	-0.89	0.00	47.79	7.391	7.391	49.29	CODETI	
1428	0.25	47.51	0.89	0.00	47.79	7.391	7.391	49.29	CODETI	
1429	0.27	46.17	-1.35	0.00	46.52	7.391	7.391	50.32	CODETI	
1429	0.27	46.17	1.35	0.00	46.52	7.391	7.391	50.32	CODETI	
1430	0.28	45.08	-1.56	0.00	45.47	7.391	7.391	50.65	CODETI	
1430	0.28	6.10	1.56	0.00	7.10	1.000	1.000	6.85	CODETI	
1440	0.28	6.99	-1.56	0.00	7.91	1.000	1.000	7.65	CODETI	

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CASE 13 Thermique @ TMS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1440	0.28	6.99	1.56	0.00	7.91	1.000	1.000	7.65	CODETI	
1445 (SP_31)	0.28	7.71	-1.56	0.00	8.58	1.000	1.000	8.32	CODETI	
1445 (SP_31)	0.28	7.71	1.56	0.00	8.58	1.000	1.000	8.32	CODETI	
1450	0.28	40.21	-1.56	0.00	40.61	5.231	5.231	43.41	CODETI	
1450	-0.00	11.27	1.24	0.00	11.54	5.231	5.231	17.15	CODETI	
1451 (SP_27)	-0.00	1.44	-1.24	0.00	2.86	1.000	1.000	2.86	CODETI	
1451 (SP_27)	0.00	1.44	1.24	0.00	2.86	1.000	1.000	2.86	CODETI	
1452	0.00	1.14	-1.24	0.00	2.72	1.000	1.000	2.72	CODETI	
1452	0.00	1.14	1.24	0.00	2.72	1.000	1.000	2.72	CODETI	
1455 (SP_28)	0.00	2.33	-1.24	0.00	3.40	1.000	1.000	3.40	CODETI	
1455 (SP_28)	-0.00	2.33	1.24	0.00	3.40	1.000	1.000	3.40	CODETI	
1458	-0.00	1.21	-1.24	0.00	2.75	1.000	1.000	2.75	CODETI	
1458	-0.00	5.78	1.24	0.00	6.29	5.640	4.700	15.53	CODETI	
1459	-0.02	10.41	-0.54	0.00	10.48	5.640	4.700	13.85	CODETI	
1459	-0.02	10.41	0.54	0.00	10.48	5.640	4.700	13.85	CODETI	
1460	-0.02	9.15	0.32	0.00	9.19	5.640	4.700	11.54	CODETI	
1460	-0.02	1.94	-0.32	0.00	2.07	1.000	1.000	2.05	CODETI	
1468	-0.02	0.56	0.32	0.00	0.87	1.000	1.000	0.85	CODETI	
1468	-0.02	2.71	-0.32	0.00	2.81	5.640	4.700	4.82	CODETI	
1469	-0.02	2.27	0.12	0.00	2.30	5.640	4.700	2.98	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1469	-0.02	2.27	-0.12	0.00	2.30	5.640	4.700	2.98	CODETI	
1470	0.00	0.54	0.00	0.00	0.54	5.640	4.700	0.63	CODETI	
1470	0.00	0.11	-0.00	0.00	0.11	1.000	1.000	0.11	CODETI	
1475 (SG_29)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1475 (SG_29)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	0.00	0.00	0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.09	-0.00	0.00	0.09	1.000	1.000	0.09	CODETI	
1518	0.00	0.20	0.00	0.00	0.20	1.000	1.000	0.20	CODETI	
1518	0.00	1.34	-0.00	0.00	1.34	7.391	6.159	1.50	CODETI	
1519	-0.08	4.84	-0.10	0.00	4.92	7.391	6.159	5.58	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1519	-0.08	4.84	0.10	0.00	4.92	7.391	6.159	5.58	CODETI	
1520	-0.14	7.30	-0.28	0.00	7.46	7.391	6.159	9.11	CODETI	
1520	-0.14	1.10	0.28	0.00	1.36	1.000	1.000	1.23	CODETI	
1523	-0.14	3.94	-0.28	0.00	4.12	1.000	1.000	3.98	CODETI	
1523	-0.14	19.29	0.28	0.00	19.44	5.640	4.700	22.46	CODETI	
1524	-0.16	19.99	-0.80	0.00	20.21	5.640	4.700	24.66	CODETI	
1524	-0.16	19.99	0.80	0.00	20.21	5.640	4.700	24.66	CODETI	
1525	-0.16	19.29	-1.30	0.00	19.63	5.640	4.700	26.50	CODETI	
1525	-0.16	3.91	1.30	0.00	4.83	1.000	1.000	4.70	CODETI	
1530	-0.16	4.04	-1.30	0.00	4.94	1.000	1.000	4.80	CODETI	
1530	-0.16	4.01	1.32	0.00	4.94	1.000	1.000	4.80	CODETI	
1540 (SR_30)	-0.16	4.80	-1.32	0.00	5.62	1.000	1.000	5.48	CODETI	
1540 (SR_30)	-0.16	4.80	1.32	0.00	5.62	1.000	1.000	5.48	CODETI	
1450	-0.16	42.41	-1.32	0.00	42.65	5.231	5.231	44.61	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-0.29	1.05	0.10	0.00	1.35	1.000	1.000	1.07	CODETI	
20	-0.29	0.96	-0.10	0.00	1.27	1.000	1.000	0.98	CODETI	
20	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
25	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
20	-0.29	0.97	0.10	0.00	1.27	1.000	1.000	0.99	CODETI	
30	-0.29	0.96	-0.10	0.00	1.27	1.000	1.000	0.98	CODETI	
30	-0.21	0.78	0.10	0.00	1.02	1.000	1.000	0.81	CODETI	
40	-0.21	0.77	-0.10	0.00	1.00	1.000	1.000	0.80	CODETI	
40	-0.01	0.02	0.01	0.00	0.04	1.000	1.000	0.03	CODETI	
45 (Weld_CW2)	-0.01	0.02	-0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
45 (Weld_CW2)	-0.01	0.02	0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
50	-0.01	0.02	-0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
50	-0.01	0.01	0.00	0.00	0.02	1.000	1.000	0.01	CODETI	
55	-0.01	0.01	-0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
55	-0.01	0.02	-0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
56	-0.01	0.02	0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
56	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
60	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
65 (Piquage_N1)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.11	5.46	-7.14	0.00	15.33	1.000	1.000	15.29	CODETI	
110	-0.11	2.78	7.14	0.00	14.57	1.000	1.000	14.54	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.03	0.78	-0.00	0.00	0.81	1.000	1.000	0.78	CODETI	
129	-0.02	5.28	0.00	0.00	5.30	7.124	5.937	5.28	CODETI	
129	-0.02	5.28	-0.00	0.00	5.30	7.124	5.937	5.28	CODETI	
130	-0.00	4.61	0.00	0.00	4.61	7.124	5.937	4.61	CODETI	
130	-0.00	0.65	-0.00	0.00	0.65	1.000	1.000	0.65	CODETI	
134 (Jupe_N3)	-0.00	0.05	0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
134 (Jupe_N3)	-0.00	0.05	-0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
135 (SR_N3)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.00	1.70	0.00	0.00	1.70	1.000	1.000	1.70	CODETI	
160	-0.00	0.27	-0.00	0.00	0.27	1.000	1.000	0.27	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	-0.18	3.79	-0.11	0.00	3.98	1.000	1.000	3.80	CODETI	
190	-0.18	3.76	0.11	0.00	3.95	1.000	1.000	3.77	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.18	4.53	1.41	0.00	5.50	1.000	1.000	5.34	CODETI	
220	-0.18	2.45	-1.41	0.00	3.86	1.000	1.000	3.74	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
250	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
251 (CT_N1)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
260	-0.00	0.00	0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
260	0.00	84.56	-5.51	0.00	85.28	10.614	10.614	144.29	CODETI	
262	0.00	6.00	5.51	0.00	12.55	1.000	1.000	12.54	CODETI	
262	0.01	9.20	-8.44	0.00	19.23	1.000	1.000	19.23	CODETI	
265 (SG_5)	0.01	8.11	8.44	0.00	18.74	1.000	1.000	18.73	CODETI	
265 (SG_5)	0.01	8.11	-8.44	0.00	18.74	1.000	1.000	18.73	CODETI	
267	0.01	65.14	7.72	0.00	66.95	8.376	8.376	144.80	CODETI	
267	0.01	65.14	-7.72	0.00	66.95	8.376	8.376	144.80	CODETI	
268	0.01	105.50	5.12	0.00	106.01	8.376	8.376	135.97	CODETI	

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268	0.01	105.50	-5.12	0.00	106.01	8.376	8.376	135.97	CODETI	
269	0.00	120.05	1.60	0.00	120.10	8.376	8.376	123.02	CODETI	
269	0.00	120.05	-1.60	0.00	120.10	8.376	8.376	123.02	CODETI	
270	0.00	115.74	-0.21	0.00	115.74	8.376	8.376	115.79	CODETI	
270	0.00	13.82	0.21	0.00	13.83	1.000	1.000	13.82	CODETI	
271	0.00	7.64	-0.21	0.00	7.65	1.000	1.000	7.65	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	6.48	-0.01	0.00	6.49	1.000	1.000	6.48	CODETI	
277	-0.30	36.06	0.39	0.00	36.36	8.141	8.141	36.60	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
277	-0.30	36.06	-0.39	0.00	36.36	8.141	8.141	36.60	CODETI	
278	-0.83	19.57	1.03	0.00	20.50	8.141	8.141	25.76	CODETI	
278	-0.83	19.57	-1.03	0.00	20.50	8.141	8.141	25.76	CODETI	
279	-1.14	5.91	1.40	0.00	7.58	8.141	8.141	23.49	CODETI	
279	-1.14	5.91	-1.40	0.00	7.58	8.141	8.141	23.49	CODETI	
280	-1.18	0.98	1.44	0.00	3.60	8.141	8.141	23.50	CODETI	
280	-1.18	0.12	-1.44	0.00	3.16	1.000	1.000	2.89	CODETI	
284	-1.18	0.11	1.44	0.00	3.16	1.000	1.000	2.89	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	-1.18	0.09	-1.44	0.00	3.15	1.000	1.000	2.89	CODETI	
290	-1.18	0.05	1.44	0.00	3.13	1.000	1.000	2.88	CODETI	
290	-1.18	0.05	-1.44	0.00	3.13	1.000	1.000	2.88	CODETI	
299	-1.18	0.02	1.44	0.00	3.12	1.000	1.000	2.88	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	-1.18	0.03	-1.44	0.00	3.13	1.000	1.000	2.88	CODETI	
306	-1.14	7.44	1.39	0.00	9.01	9.368	9.368	27.06	CODETI	
306	-1.14	7.44	-1.39	0.00	9.01	9.368	9.368	27.06	CODETI	
307	-0.83	22.23	1.00	0.00	23.15	9.368	9.368	29.13	CODETI	
307	-0.83	22.23	-1.00	0.00	23.15	9.368	9.368	29.13	CODETI	
308	-0.30	37.89	0.35	0.00	38.20	9.368	9.368	38.45	CODETI	
308	-0.30	37.89	-0.35	0.00	38.20	9.368	9.368	38.45	CODETI	
305	-0.01	45.41	-0.01	0.00	45.42	9.368	9.368	45.41	CODETI	
305	-0.01	4.85	0.01	0.00	4.86	1.000	1.000	4.85	CODETI	
435 (SR_07)	-0.01	8.48	-0.01	0.00	8.49	1.000	1.000	8.48	CODETI	
435 (SR_07)	-0.01	8.48	0.01	0.00	8.49	1.000	1.000	8.48	CODETI	
440	-0.01	182.14	-0.01	0.00	182.15	10.614	10.614	182.14	CODETI	
440	-0.08	16.65	0.85	0.00	16.82	10.614	10.614	24.54	CODETI	
445	-0.08	1.31	-0.85	0.00	2.19	1.000	1.000	2.14	CODETI	
445	-0.12	18.79	1.30	0.00	19.09	9.368	9.368	30.79	CODETI	
311	-0.25	11.96	-1.50	0.00	12.57	9.368	9.368	30.60	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
311	-0.25	11.96	1.50	0.00	12.57	9.368	9.368	30.60	CODETI	
312	-0.45	3.29	-1.64	0.00	4.97	9.368	9.368	30.84	CODETI	
312	-0.45	3.29	1.64	0.00	4.97	9.368	9.368	30.84	CODETI	
313	-0.52	15.82	-1.39	0.00	16.57	9.368	9.368	30.50	CODETI	
313	-0.52	15.82	1.39	0.00	16.57	9.368	9.368	30.50	CODETI	
310	-0.51	20.57	-1.15	0.00	21.20	9.368	9.368	29.80	CODETI	
310	-0.51	2.20	1.15	0.00	3.55	1.000	1.000	3.18	CODETI	
315	-0.51	2.10	-1.15	0.00	3.47	1.000	1.000	3.11	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	-0.51	2.04	1.15	0.00	3.44	1.000	1.000	3.08	CODETI	
330	-0.51	1.62	-1.15	0.00	3.13	1.000	1.000	2.81	CODETI	
330	-0.51	1.62	1.15	0.00	3.13	1.000	1.000	2.81	CODETI	
335	-0.51	1.27	-1.15	0.00	2.91	1.000	1.000	2.63	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	-0.51	1.24	1.15	0.00	2.89	1.000	1.000	2.62	CODETI	
337	-0.52	5.85	-1.25	0.00	6.84	9.368	9.368	24.05	CODETI	
337	-0.52	5.85	1.25	0.00	6.84	9.368	9.368	24.05	CODETI	
338	-0.44	11.27	-1.13	0.00	11.93	9.368	9.368	24.05	CODETI	
338	-0.44	11.27	1.13	0.00	11.93	9.368	9.368	24.05	CODETI	
339	-0.25	22.53	-0.66	0.00	22.81	9.368	9.368	25.69	CODETI	
339	-0.25	22.53	0.66	0.00	22.81	9.368	9.368	25.69	CODETI	
350	-0.12	26.75	-0.33	0.00	26.88	9.368	9.368	27.46	CODETI	
350	-0.08	1.86	0.22	0.00	1.99	1.000	1.000	1.91	CODETI	
355 (SR_8)	-0.08	2.14	-0.22	0.00	2.26	1.000	1.000	2.18	CODETI	
355 (SR_8)	-0.08	2.14	0.22	0.00	2.26	1.000	1.000	2.18	CODETI	
360 (Té_TH_700)	-0.08	3.05	-0.22	0.00	3.16	1.000	1.000	3.08	CODETI	
360 (Té_TH_700)	-0.08	3.05	0.22	0.00	3.16	1.000	1.000	3.08	CODETI	
365	-0.08	46.30	-0.22	0.00	46.38	10.614	10.614	46.52	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
365	-0.43	46.64	0.02	0.00	47.07	10.614	10.614	46.64	CODETI	
366	-0.43	3.66	-0.02	0.00	4.09	1.000	1.000	3.66	CODETI	
366	-0.66	45.67	0.03	0.00	46.32	8.141	8.141	45.67	CODETI	
368	-0.53	41.53	0.08	0.00	42.06	8.141	8.141	41.55	CODETI	
368	-0.53	41.53	-0.08	0.00	42.06	8.141	8.141	41.55	CODETI	
369	-0.22	31.24	0.28	0.00	31.46	8.141	8.141	31.56	CODETI	
369	-0.22	31.24	-0.28	0.00	31.46	8.141	8.141	31.56	CODETI	
370	-0.04	25.18	0.36	0.00	25.24	8.141	8.141	25.86	CODETI	
370	-0.04	3.09	-0.36	0.00	3.22	1.000	1.000	3.18	CODETI	
378	-0.21	8.16	0.30	0.00	8.40	8.141	8.141	9.53	CODETI	
378	-0.21	8.16	-0.30	0.00	8.40	8.141	8.141	9.53	CODETI	
379	-0.52	17.52	0.16	0.00	18.05	8.141	8.141	17.72	CODETI	
379	-0.52	17.52	-0.16	0.00	18.05	8.141	8.141	17.72	CODETI	
380	-0.64	21.34	0.09	0.00	21.98	8.141	8.141	21.39	CODETI	
380	-0.64	2.62	-0.09	0.00	3.27	1.000	1.000	2.63	CODETI	
385	-0.64	2.78	0.09	0.00	3.43	1.000	1.000	2.79	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	-0.65	2.84	-0.09	0.00	3.50	1.000	1.000	2.85	CODETI	
410	-0.65	1.65	0.09	0.00	2.31	1.000	1.000	1.66	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	-0.65	1.48	-0.09	0.00	2.14	1.000	1.000	1.49	CODETI	
430 (PF4_CPO)	-0.65	0.58	0.09	0.00	1.25	1.000	1.000	0.61	CODETI	
440	-0.07	25.28	-4.65	0.00	27.00	10.614	10.614	101.95	CODETI	
450	-0.07	1.20	4.65	0.00	9.39	1.000	1.000	9.38	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	-0.58	80.21	-3.13	0.00	81.03	10.614	10.614	104.16	CODETI	
500	-0.58	9.31	4.82	0.00	13.81	1.000	1.000	13.40	CODETI	

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500	-0.58	9.31	-4.82	0.00	13.81	1.000	1.000	13.40	CODETI	
503	-0.71	52.19	5.38	0.00	53.98	7.049	7.049	92.11	CODETI	
503	-0.71	52.19	-5.38	0.00	53.98	7.049	7.049	92.11	CODETI	
504	-0.87	35.67	6.03	0.00	38.48	7.049	7.049	92.17	CODETI	
504	-0.87	35.67	-6.03	0.00	38.48	7.049	7.049	92.17	CODETI	
505	-0.91	33.15	6.09	0.00	36.17	7.049	7.049	91.99	CODETI	
505	-0.91	4.70	-6.09	0.00	13.40	1.000	1.000	13.05	CODETI	
508	-0.87	48.31	5.69	0.00	50.48	7.049	7.049	93.68	CODETI	
508	-0.87	48.31	-5.69	0.00	50.48	7.049	7.049	93.68	CODETI	
509	-0.71	77.51	4.12	0.00	78.65	7.049	7.049	96.84	CODETI	
509	-0.71	77.51	-4.12	0.00	78.65	7.049	7.049	96.84	CODETI	
510	-0.58	89.66	3.00	0.00	90.44	7.049	7.049	99.12	CODETI	
510	-0.58	12.72	-3.00	0.00	14.59	1.000	1.000	14.06	CODETI	
514 (Té_VS_011)	-0.58	81.86	3.00	0.00	82.66	5.836	5.836	89.02	CODETI	
514 (Té_VS_011)	-1.12	118.46	-0.00	0.00	119.58	5.836	5.836	118.46	CODETI	
515	-1.12	20.30	0.00	0.00	21.42	1.000	1.000	20.30	CODETI	
515	-0.54	9.78	-0.00	0.00	10.32	1.000	1.000	9.78	CODETI	
520	-0.54	71.15	0.00	0.00	71.69	7.279	7.279	71.15	CODETI	

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520	-0.58	38.67	0.00	0.00	39.25	7.279	7.279	38.67	CODETI	
525	-0.58	4.77	-0.00	0.00	5.35	1.000	1.000	4.77	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	-1.20	9.60	0.00	0.00	10.80	1.000	1.000	9.60	CODETI	
547	-1.07	62.65	-0.01	0.00	63.73	6.943	6.943	62.65	CODETI	
547	-1.07	62.65	0.01	0.00	63.73	6.943	6.943	62.65	CODETI	
548	-0.61	49.64	-0.01	0.00	50.25	6.943	6.943	49.64	CODETI	
548	-0.31	49.64	0.01	0.00	49.94	6.943	6.943	49.64	CODETI	
549	0.42	28.88	-0.01	0.00	29.30	6.943	6.943	28.88	CODETI	
549	0.42	28.88	0.01	0.00	29.30	6.943	6.943	28.88	CODETI	
550	0.75	19.72	-0.01	0.00	20.47	6.943	6.943	19.72	CODETI	
550	0.75	2.84	0.01	0.00	3.59	1.000	1.000	2.84	CODETI	
557	1.03	38.13	-0.01	0.00	39.16	6.943	6.943	38.13	CODETI	

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557	1.03	38.13	0.01	0.00	39.16	6.943	6.943	38.13	CODETI	
558	1.38	47.93	-0.01	0.00	49.30	6.943	6.943	47.93	CODETI	
558	1.38	47.93	0.01	0.00	49.30	6.943	6.943	47.93	CODETI	
559	1.35	47.25	-0.00	0.00	48.60	6.943	6.943	47.25	CODETI	
559	1.35	47.25	0.00	0.00	48.60	6.943	6.943	47.25	CODETI	
560	1.19	42.71	-0.00	0.00	43.90	6.943	6.943	42.71	CODETI	
560	1.19	6.15	0.00	0.00	7.35	1.000	1.000	6.15	CODETI	
570	1.19	2.93	-0.00	0.00	4.12	1.000	1.000	2.93	CODETI	
570	1.19	7.32	0.00	0.00	8.52	2.500	2.500	7.32	CODETI	
580	0.90	1.57	-0.00	0.00	2.47	2.500	2.500	1.57	CODETI	
580	0.90	0.63	0.00	0.00	1.53	1.000	1.000	0.63	CODETI	
585	0.90	1.13	-0.00	0.00	2.02	1.000	1.000	1.13	CODETI	
585	0.90	1.13	0.00	0.00	2.02	1.000	1.000	1.13	CODETI	
590	0.90	17.35	-0.00	0.00	18.24	7.057	7.057	17.35	CODETI	
590	0.01	67.46	0.00	0.00	67.47	7.057	7.057	67.46	CODETI	
595 (SR_11)	0.01	7.00	-0.00	0.00	7.01	1.000	1.000	7.00	CODETI	
595 (SR_11)	0.00	7.00	0.00	0.00	7.01	1.000	1.000	7.00	CODETI	
596 (SP_13)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
596 (SP_13)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
598	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	

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CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
598	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
608	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
608	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
620	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	-0.59	32.48	0.00	0.00	33.07	7.279	7.279	32.48	CODETI	
625	-0.59	2.14	-0.00	0.00	2.73	1.000	1.000	2.14	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	-1.22	3.11	0.00	0.00	4.33	1.000	1.000	3.11	CODETI	
642	-1.54	1.71	-0.01	0.00	3.25	6.943	6.943	1.71	CODETI	
642	-1.54	1.71	0.01	0.00	3.25	6.943	6.943	1.71	CODETI	
643	-1.87	7.51	-0.01	0.00	9.38	6.943	6.943	7.51	CODETI	
643	-1.87	7.51	0.01	0.00	9.38	6.943	6.943	7.51	CODETI	
644	-1.69	2.52	-0.01	0.00	4.22	6.943	6.943	2.53	CODETI	
644	-1.69	2.52	0.01	0.00	4.22	6.943	6.943	2.53	CODETI	
645	-1.44	4.68	-0.01	0.00	6.12	6.943	6.943	4.68	CODETI	
645	-1.44	0.67	0.01	0.00	2.11	1.000	1.000	0.67	CODETI	
590	-1.44	87.99	-0.01	0.00	89.43	7.057	7.057	87.99	CODETI	
360 (Té_TH_700)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	0.00	84.56	-5.51	0.00	85.28	10.614	10.614	144.29	CODETI	
720 (Té_VS_008)	0.00	113.50	5.51	0.00	114.03	10.614	10.614	162.94	CODETI	
720 (Té_VS_008)	-0.12	82.01	-3.91	0.00	82.51	10.614	10.614	116.74	CODETI	
725	-0.12	10.19	3.91	0.00	12.95	1.000	1.000	12.85	CODETI	
725	-0.18	15.62	-6.00	0.00	19.85	1.000	1.000	19.70	CODETI	
730	-0.18	18.72	6.00	0.00	22.39	1.000	1.000	22.23	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
760	-0.13	12.40	-3.91	0.00	14.77	1.000	1.000	14.66	CODETI	
770 (Té_Gavage)	-0.13	129.24	3.91	0.00	129.60	10.614	10.614	153.64	CODETI	
770 (Té_Gavage)	-0.00	0.00	0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
780	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
795	-0.00	0.03	0.00	0.00	0.03	1.000	1.000	0.03	CODETI	
795	-0.07	0.06	0.00	0.00	0.13	2.000	2.000	0.06	CODETI	
800 (SB_02)	-0.02	0.48	0.00	0.00	0.50	2.000	2.000	0.48	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
820	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
720 (Té_VS_008)	-0.04	53.73	-3.07	0.00	54.12	10.614	10.614	84.38	CODETI	
830	-0.04	3.36	3.07	0.00	7.01	1.000	1.000	6.99	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.04	3.10	-3.07	0.00	6.89	1.000	1.000	6.87	CODETI	
865 (SP_14)	-0.04	2.63	3.07	0.00	6.69	1.000	1.000	6.67	CODETI	
865 (SP_14)	-0.04	2.63	-3.07	0.00	6.69	1.000	1.000	6.67	CODETI	
867	-0.05	21.29	2.83	0.00	22.09	8.376	8.376	52.02	CODETI	
867	-0.05	21.29	-2.83	0.00	22.09	8.376	8.376	52.02	CODETI	
868	-0.06	37.35	1.93	0.00	37.61	8.376	8.376	49.36	CODETI	
868	-0.06	37.35	-1.93	0.00	37.61	8.376	8.376	49.36	CODETI	
869	-0.06	43.92	0.65	0.00	43.99	8.376	8.376	45.24	CODETI	
869	-0.06	43.92	-0.65	0.00	43.99	8.376	8.376	45.24	CODETI	
870	-0.05	42.97	0.00	0.00	43.02	8.376	8.376	42.97	CODETI	
870	-0.05	5.13	-0.00	0.00	5.18	1.000	1.000	5.13	CODETI	
872	-0.05	2.77	0.00	0.00	2.82	1.000	1.000	2.77	CODETI	
872	-0.05	2.77	0.00	0.00	2.82	1.000	1.000	2.77	CODETI	
875 (SG_15)	-0.05	0.00	-0.00	0.00	0.05	1.000	1.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	-0.06	235.51	0.00	0.00	235.58	10.614	10.614	235.51	CODETI	*
772 (SG_16_1)	-0.06	21.89	-0.00	0.00	21.96	1.000	1.000	21.89	CODETI	
772 (SG_16_1)	-0.06	21.89	0.00	0.00	21.96	1.000	1.000	21.89	CODETI	
775	-0.06	109.75	-0.00	0.00	109.81	7.057	7.057	109.75	CODETI	
775	-0.01	109.26	-0.00	0.00	109.27	7.057	7.057	109.26	CODETI	
910 (Té_VS_007)	-0.01	2.24	0.00	0.00	2.24	1.000	1.000	2.24	CODETI	
910 (Té_VS_007)	-0.00	2.22	-0.00	0.00	2.22	1.000	1.000	2.22	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
915 (SG_16_2)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
915 (SG_16_2)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
920	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
957	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
957	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
959	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	

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959	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.00	29.29	0.00	0.00	29.29	7.057	7.057	29.29	CODETI	
995	-0.00	5.62	-0.00	0.00	5.63	1.000	1.000	5.62	CODETI	
995	-0.00	5.62	-0.00	0.00	5.63	1.000	1.000	5.62	CODETI	
998	-0.00	1.46	0.00	0.00	1.46	1.000	1.000	1.46	CODETI	
998	-0.00	8.00	-0.00	0.00	8.00	5.493	4.577	8.00	CODETI	
999	-0.15	3.19	0.00	0.00	3.33	5.493	4.577	3.19	CODETI	
999	-0.15	3.19	-0.00	0.00	3.33	5.493	4.577	3.19	CODETI	
1000	-0.19	1.61	-0.00	0.00	1.81	5.493	4.577	1.61	CODETI	
1000	-0.19	0.29	0.00	0.00	0.49	1.000	1.000	0.29	CODETI	

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1002	-0.19	0.29	-0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.19	0.29	0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1008	-0.19	0.29	-0.00	0.00	0.49	1.000	1.000	0.29	CODETI	
1008	-0.19	1.61	0.00	0.00	1.81	5.493	4.577	1.61	CODETI	
1009	-0.14	0.00	-0.00	0.00	0.14	5.493	4.577	0.00	CODETI	
1009	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	0.00	0.00	0.00	2.000	2.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1070	-0.00	0.00	-0.00	0.00	0.00	2.000	2.000	0.00	CODETI	
1070	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1100 (CT_ASP_Reg)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	-0.18	3.76	-0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1120	-0.18	3.76	0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1120	-0.18	3.76	-0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1128	-0.18	3.76	0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1128	-0.18	20.55	-0.11	0.00	20.73	5.493	4.577	20.67	CODETI	
1129	-0.12	18.52	0.29	0.00	18.65	5.493	4.577	18.82	CODETI	
1129	-0.12	18.52	-0.29	0.00	18.65	5.493	4.577	18.82	CODETI	
1130	0.01	14.20	0.30	0.00	14.22	5.493	4.577	14.60	CODETI	
1130	0.01	2.59	-0.30	0.00	2.66	1.000	1.000	2.66	CODETI	
1132	0.01	2.02	0.30	0.00	2.12	1.000	1.000	2.11	CODETI	
1132	0.01	2.02	-0.30	0.00	2.12	1.000	1.000	2.11	CODETI	
1135 (SR_18)	0.01	0.97	0.30	0.00	1.15	1.000	1.000	1.14	CODETI	

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1135 (SR_18)	0.00	0.97	-0.30	0.00	1.14	1.000	1.000	1.14	CODETI	
1138	0.00	0.65	0.30	0.00	0.89	1.000	1.000	0.89	CODETI	
1138	0.00	3.49	-0.30	0.00	3.55	5.493	4.577	4.87	CODETI	
1139	0.02	3.79	0.13	0.00	3.82	5.493	4.577	4.44	CODETI	
1139	0.02	3.79	-0.13	0.00	3.82	5.493	4.577	4.44	CODETI	
1140	0.03	3.72	-0.11	0.00	3.76	5.493	4.577	4.33	CODETI	
1140	0.03	0.76	0.11	0.00	0.82	1.000	1.000	0.79	CODETI	
1148	0.03	0.81	-0.11	0.00	0.87	1.000	1.000	0.84	CODETI	
1148	0.03	4.03	0.11	0.00	4.06	5.493	4.577	4.59	CODETI	
1149	0.02	3.82	0.13	0.00	3.86	5.493	4.577	4.47	CODETI	
1149	0.02	3.82	-0.13	0.00	3.86	5.493	4.577	4.47	CODETI	
1150	0.00	2.30	0.30	0.00	2.38	5.493	4.577	4.10	CODETI	
1150	0.00	0.44	-0.30	0.00	0.75	1.000	1.000	0.75	CODETI	
1158	0.00	0.24	0.30	0.00	0.65	1.000	1.000	0.65	CODETI	
1158	0.00	1.30	-0.30	0.00	1.44	5.493	4.577	3.58	CODETI	
1159	0.00	2.02	0.21	0.00	2.07	5.493	4.577	3.27	CODETI	
1159	0.00	2.02	-0.21	0.00	2.07	5.493	4.577	3.27	CODETI	
1160	0.00	2.22	0.05	0.00	2.22	5.493	4.577	2.63	CODETI	
1160	0.00	0.47	-0.05	0.00	0.48	1.000	1.000	0.48	CODETI	
1165 (SR_19)	0.00	0.46	0.05	0.00	0.47	1.000	1.000	0.47	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1165 (SR_19)	0.00	0.46	-0.05	0.00	0.47	1.000	1.000	0.47	CODETI	
1170 (Té_ATRE)	0.00	0.80	0.05	0.00	0.81	4.398	4.398	0.92	CODETI	
1170 (Té_ATRE)	0.00	0.80	-0.05	0.00	0.81	4.398	4.398	0.92	CODETI	
1175	0.00	0.09	0.05	0.00	0.14	1.000	1.000	0.14	CODETI	
1175	0.00	0.09	-0.05	0.00	0.14	1.000	1.000	0.14	CODETI	
1178	0.00	0.06	0.05	0.00	0.12	1.000	1.000	0.12	CODETI	
1178	0.00	0.32	-0.05	0.00	0.34	5.493	4.577	0.66	CODETI	
1179	0.01	0.35	0.03	0.00	0.36	5.493	4.577	0.54	CODETI	
1179	0.01	0.35	-0.03	0.00	0.36	5.493	4.577	0.54	CODETI	
1180	0.01	0.36	-0.00	0.00	0.37	5.493	4.577	0.43	CODETI	
1180	0.01	0.08	0.00	0.00	0.09	1.000	1.000	0.08	CODETI	
1185	0.01	0.07	-0.00	0.00	0.08	1.000	1.000	0.07	CODETI	
1185	-0.00	0.01	0.00	0.00	0.01	1.000	1.000	0.01	CODETI	
1186 (SG_20)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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1186 (SG_20)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1210 (CT_REF_Reg)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.00	0.00	-0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1211	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1211	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1212 (CT_03)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1216	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1216	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	-0.23	0.00	0.00	0.00	0.23	7.242	6.035	0.00	CODETI	
1220	0.00	6.65	0.00	0.00	6.65	7.242	6.035	6.65	CODETI	
1220	0.00	0.92	-0.00	0.00	0.92	1.000	1.000	0.92	CODETI	
1230	0.00	1.13	0.00	0.00	1.13	1.000	1.000	1.13	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1279	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1279	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1286	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1286	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1291	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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1291	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1320	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-1.73	38.12	14.95	0.00	49.81	1.000	1.000	48.44	CODETI	
1328	-1.73	24.18	-14.95	0.00	39.56	1.000	1.000	38.45	CODETI	
1328	-1.73	113.55	14.95	0.00	119.09	5.380	4.483	206.83	CODETI	*
1329	-2.04	71.38	-19.26	0.00	82.91	5.380	4.483	219.22	CODETI	*

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1329	-2.24	71.50	18.61	0.00	82.60	5.380	4.483	212.68	CODETI	*
1330	-1.46	93.79	-15.05	0.00	99.89	5.380	4.483	194.89	CODETI	*
1330	-1.46	20.15	15.05	0.00	37.06	1.000	1.000	36.23	CODETI	
1338	-1.46	20.36	-15.05	0.00	37.18	1.000	1.000	36.34	CODETI	
1338	-1.46	94.49	15.05	0.00	100.56	5.380	4.483	195.53	CODETI	*
1339	-2.22	69.06	-18.77	0.00	80.56	5.380	4.483	213.47	CODETI	*
1339	-2.22	69.06	18.77	0.00	80.56	5.380	4.483	213.47	CODETI	*
1340	-1.69	101.33	-14.66	0.00	107.11	5.380	4.483	196.22	CODETI	*
1340	-1.69	21.68	14.66	0.00	37.50	1.000	1.000	36.47	CODETI	
1343	-1.69	13.94	-14.66	0.00	33.23	1.000	1.000	32.47	CODETI	
1343	-1.69	13.94	14.66	0.00	33.23	1.000	1.000	32.47	CODETI	
1348	-1.69	17.99	-14.66	0.00	35.32	1.000	1.000	34.40	CODETI	
1348	-1.69	86.02	14.66	0.00	92.49	5.380	4.483	185.09	CODETI	
1349	-2.42	80.26	-16.91	0.00	89.33	5.380	4.483	199.22	CODETI	*
1349	-2.42	80.26	16.91	0.00	89.33	5.380	4.483	199.22	CODETI	*
1345	-1.73	107.88	-11.80	0.00	112.12	5.380	4.483	177.52	CODETI	
1345	-1.73	23.07	11.80	0.00	34.23	1.000	1.000	33.00	CODETI	
1350 (SP_23)	-1.73	10.49	-11.80	0.00	26.57	1.000	1.000	25.82	CODETI	
1350 (SP_23)	-1.73	10.49	11.80	0.00	26.57	1.000	1.000	25.82	CODETI	
1355	-1.73	9.45	-11.80	0.00	26.11	1.000	1.000	25.42	CODETI	

Tuyautes Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1355	-1.73	9.45	11.80	0.00	26.11	1.000	1.000	25.42	CODETI	
1360	-1.73	9.93	-11.80	0.00	26.32	1.000	1.000	25.60	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	-1.73	11.65	11.80	0.00	27.12	1.000	1.000	26.31	CODETI	
514 (Té_VS_011)	-1.73	80.04	-7.21	0.00	83.03	5.836	5.836	116.11	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.18	32.11	1.41	0.00	32.42	7.388	7.388	38.30	CODETI	
1417	-0.53	43.06	-1.36	0.00	43.68	7.388	7.388	47.53	CODETI	
1417	-0.53	43.06	1.36	0.00	43.68	7.388	7.388	47.53	CODETI	
1418	-1.11	61.64	-1.01	0.00	62.78	7.388	7.388	63.42	CODETI	
1418	-1.11	61.64	1.01	0.00	62.78	7.388	7.388	63.42	CODETI	
1419	-1.38	70.97	-0.41	0.00	72.36	7.388	7.388	71.23	CODETI	
1419	-1.38	70.97	0.41	0.00	72.36	7.388	7.388	71.23	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-1.38	71.15	-0.07	0.00	72.53	7.388	7.388	71.16	CODETI	
1410	-1.38	9.63	0.07	0.00	11.02	1.000	1.000	9.63	CODETI	
1415 (SP_26)	-1.38	2.03	-0.07	0.00	3.41	1.000	1.000	2.03	CODETI	
1415 (SP_26)	-0.09	2.03	0.07	0.00	2.12	1.000	1.000	2.03	CODETI	
1422	-0.09	1.56	-0.07	0.00	1.65	1.000	1.000	1.57	CODETI	
1422	-0.09	7.69	0.07	0.00	7.78	5.640	4.700	8.86	CODETI	
1421	-0.03	2.21	-0.38	0.00	2.36	5.640	4.700	4.80	CODETI	
1421	-0.03	2.21	0.38	0.00	2.36	5.640	4.700	4.80	CODETI	
1420	0.04	5.89	-0.14	0.00	5.95	5.640	4.700	7.23	CODETI	
1420	0.04	1.25	0.14	0.00	1.33	1.000	1.000	1.28	CODETI	
1425	0.04	2.10	-0.14	0.00	2.17	1.000	1.000	2.12	CODETI	
1425	0.04	2.10	0.14	0.00	2.17	1.000	1.000	2.12	CODETI	
1428	0.07	30.07	-0.22	0.00	30.14	7.391	7.391	30.24	CODETI	
1428	0.07	30.07	0.22	0.00	30.14	7.391	7.391	30.24	CODETI	
1429	0.11	31.15	-0.38	0.00	31.27	7.391	7.391	31.65	CODETI	
1429	0.11	31.15	0.38	0.00	31.27	7.391	7.391	31.65	CODETI	
1430	0.13	31.56	-0.45	0.00	31.71	7.391	7.391	32.26	CODETI	
1430	0.13	4.27	0.45	0.00	4.49	1.000	1.000	4.37	CODETI	
1440	0.13	5.99	-0.45	0.00	6.18	1.000	1.000	6.05	CODETI	
1440	0.13	5.99	0.45	0.00	6.18	1.000	1.000	6.05	CODETI	

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Stresses on Elements

CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.13	7.28	-0.45	0.00	7.46	1.000	1.000	7.33	CODETI	
1445 (SP_31)	0.13	7.28	0.45	0.00	7.46	1.000	1.000	7.33	CODETI	
1450	0.13	41.26	-0.45	0.00	41.39	5.231	5.231	41.52	CODETI	
1450	-0.00	6.64	1.01	0.00	6.95	5.231	5.231	12.50	CODETI	
1451 (SP_27)	-0.00	0.90	-1.01	0.00	2.21	1.000	1.000	2.21	CODETI	
1451 (SP_27)	0.00	0.90	1.01	0.00	2.21	1.000	1.000	2.21	CODETI	
1452	0.00	0.66	-1.01	0.00	2.13	1.000	1.000	2.13	CODETI	
1452	0.00	0.66	1.01	0.00	2.13	1.000	1.000	2.13	CODETI	
1455 (SP_28)	0.00	1.88	-1.01	0.00	2.76	1.000	1.000	2.76	CODETI	
1455 (SP_28)	-0.00	1.88	1.01	0.00	2.76	1.000	1.000	2.76	CODETI	
1458	-0.00	0.98	-1.01	0.00	2.25	1.000	1.000	2.25	CODETI	
1458	-0.00	4.65	1.01	0.00	5.07	5.640	4.700	12.69	CODETI	
1459	0.01	8.51	-0.44	0.00	8.56	5.640	4.700	11.33	CODETI	
1459	0.01	8.51	0.44	0.00	8.56	5.640	4.700	11.33	CODETI	
1460	0.01	7.47	0.26	0.00	7.50	5.640	4.700	9.44	CODETI	
1460	0.01	1.59	-0.26	0.00	1.69	1.000	1.000	1.67	CODETI	
1468	0.01	0.45	0.26	0.00	0.70	1.000	1.000	0.69	CODETI	
1468	0.01	2.11	-0.26	0.00	2.19	5.640	4.700	3.89	CODETI	
1469	0.01	1.79	0.10	0.00	1.81	5.640	4.700	2.39	CODETI	
1469	0.01	1.79	-0.10	0.00	1.81	5.640	4.700	2.39	CODETI	



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CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1470	0.00	0.43	0.00	0.00	0.43	5.640	4.700	0.51	CODETI	
1470	0.00	0.09	-0.00	0.00	0.09	1.000	1.000	0.09	CODETI	
1475 (SG_29)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1475 (SG_29)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	-0.00	0.00	0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	-0.00	0.06	-0.00	0.00	0.06	1.000	1.000	0.06	CODETI	
1518	-0.00	0.14	0.00	0.00	0.14	1.000	1.000	0.14	CODETI	
1518	-0.00	0.88	-0.00	0.00	0.88	7.391	6.159	1.05	CODETI	
1519	0.02	3.15	-0.08	0.00	3.18	7.391	6.159	3.92	CODETI	
1519	0.02	3.15	0.08	0.00	3.18	7.391	6.159	3.92	CODETI	

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Stresses on Elements

CASE 14 Thermique @ TS

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1520	0.04	4.67	-0.24	0.00	4.73	7.391	6.159	6.53	CODETI	
1520	0.04	0.75	0.24	0.00	0.92	1.000	1.000	0.88	CODETI	
1523	0.04	3.01	-0.24	0.00	3.09	1.000	1.000	3.05	CODETI	
1523	0.04	14.24	0.24	0.00	14.28	5.640	4.700	17.20	CODETI	
1524	0.04	14.61	-0.67	0.00	14.71	5.640	4.700	18.99	CODETI	
1524	0.04	14.61	0.67	0.00	14.71	5.640	4.700	18.99	CODETI	
1525	0.04	13.83	-1.09	0.00	14.04	5.640	4.700	20.59	CODETI	
1525	0.04	2.92	1.09	0.00	3.69	1.000	1.000	3.65	CODETI	
1530	0.04	3.04	-1.09	0.00	3.78	1.000	1.000	3.75	CODETI	
1530	0.04	3.02	1.11	0.00	3.78	1.000	1.000	3.75	CODETI	
1540 (SR_30)	0.04	3.74	-1.11	0.00	4.39	1.000	1.000	4.35	CODETI	
1540 (SR_30)	0.04	3.74	1.11	0.00	4.39	1.000	1.000	4.35	CODETI	
1450	0.04	33.52	-1.11	0.00	33.64	5.231	5.231	35.48	CODETI	

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CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-0.06	0.19	0.00	0.00	0.26	1.000	1.000	0.19	CODETI	
20	-0.06	0.19	-0.00	0.00	0.26	1.000	1.000	0.19	CODETI	
20	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
25	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
20	-0.06	0.19	0.00	0.00	0.26	1.000	1.000	0.19	CODETI	
30	-0.06	0.19	-0.00	0.00	0.26	1.000	1.000	0.19	CODETI	
30	-0.03	0.12	0.00	0.00	0.16	1.000	1.000	0.12	CODETI	
40	-0.03	0.12	-0.00	0.00	0.16	1.000	1.000	0.12	CODETI	
40	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
45 (Weld_CW2)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
45 (Weld_CW2)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
50	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
50	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
55	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
55	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
56	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
60	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
65 (Piquage_N1)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	0.01	1.70	-0.19	0.00	1.75	1.000	1.000	1.74	CODETI	
110	0.01	1.26	0.19	0.00	1.32	1.000	1.000	1.32	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	0.02	0.37	-0.00	0.00	0.38	1.000	1.000	0.37	CODETI	
129	0.01	2.47	-0.00	0.00	2.48	7.124	5.937	2.47	CODETI	
129	0.01	2.47	0.00	0.00	2.48	7.124	5.937	2.47	CODETI	
130	0.00	2.16	-0.00	0.00	2.16	7.124	5.937	2.16	CODETI	
130	0.00	0.30	0.00	0.00	0.30	1.000	1.000	0.30	CODETI	
134 (Jupe_N3)	0.00	0.02	-0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
134 (Jupe_N3)	0.00	0.02	0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
135 (SR_N3)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
160	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	-0.01	0.22	-0.02	0.00	0.23	1.000	1.000	0.22	CODETI	
190	-0.01	0.21	0.02	0.00	0.22	1.000	1.000	0.21	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.00	2.96	0.16	0.00	2.98	1.000	1.000	2.98	CODETI	
220	-0.00	0.30	-0.16	0.00	0.43	1.000	1.000	0.43	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
250	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
251 (CT_N1)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
260	-0.00	0.00	0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
260	0.00	4.52	-0.30	0.00	4.56	10.614	10.614	7.85	CODETI	
262	0.00	0.31	0.30	0.00	0.68	1.000	1.000	0.68	CODETI	
262	0.00	0.48	-0.46	0.00	1.04	1.000	1.000	1.04	CODETI	
265 (SG_5)	0.00	0.42	0.46	0.00	1.02	1.000	1.000	1.02	CODETI	
265 (SG_5)	0.00	0.42	-0.46	0.00	1.02	1.000	1.000	1.02	CODETI	
267	0.00	3.26	0.42	0.00	3.37	8.376	8.376	7.82	CODETI	
267	0.00	3.26	-0.42	0.00	3.37	8.376	8.376	7.82	CODETI	
268	0.00	5.57	0.28	0.00	5.60	8.376	8.376	7.32	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
268	0.00	5.57	-0.28	0.00	5.60	8.376	8.376	7.32	CODETI	
269	0.00	6.40	0.09	0.00	6.40	8.376	8.376	6.58	CODETI	
269	0.00	6.40	-0.09	0.00	6.40	8.376	8.376	6.58	CODETI	
270	0.00	6.16	-0.01	0.00	6.17	8.376	8.376	6.17	CODETI	
270	0.00	0.74	0.01	0.00	0.74	1.000	1.000	0.74	CODETI	
271	0.00	0.37	-0.01	0.00	0.37	1.000	1.000	0.37	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.30	-0.00	0.00	0.31	1.000	1.000	0.30	CODETI	
277	-0.02	1.48	0.01	0.00	1.50	8.141	8.141	1.49	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
277	-0.02	1.48	-0.01	0.00	1.50	8.141	8.141	1.49	CODETI	
278	-0.04	0.57	0.01	0.00	0.61	8.141	8.141	0.60	CODETI	
278	-0.04	0.57	-0.01	0.00	0.61	8.141	8.141	0.60	CODETI	
279	-0.06	0.04	0.01	0.00	0.10	8.141	8.141	0.22	CODETI	
279	-0.06	0.04	-0.01	0.00	0.10	8.141	8.141	0.22	CODETI	
280	-0.06	0.06	0.01	0.00	0.12	8.141	8.141	0.22	CODETI	
280	-0.06	0.01	-0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
284	-0.06	0.01	0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	-0.06	0.01	-0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
290	-0.06	0.00	0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
290	-0.06	0.00	-0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
299	-0.06	0.00	0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	-0.06	0.00	-0.01	0.00	0.07	1.000	1.000	0.03	CODETI	
306	-0.06	0.11	0.01	0.00	0.18	9.368	9.368	0.26	CODETI	
306	-0.06	0.11	-0.01	0.00	0.18	9.368	9.368	0.26	CODETI	
307	-0.04	0.61	0.01	0.00	0.65	9.368	9.368	0.63	CODETI	
307	-0.04	0.61	-0.01	0.00	0.65	9.368	9.368	0.63	CODETI	
308	-0.02	1.46	0.00	0.00	1.48	9.368	9.368	1.46	CODETI	
308	-0.02	1.46	-0.00	0.00	1.48	9.368	9.368	1.46	CODETI	
305	-0.00	1.94	-0.00	0.00	1.94	9.368	9.368	1.94	CODETI	
305	-0.00	0.21	0.00	0.00	0.21	1.000	1.000	0.21	CODETI	
435 (SR_07)	-0.00	0.42	-0.00	0.00	0.42	1.000	1.000	0.42	CODETI	
435 (SR_07)	-0.00	0.42	0.00	0.00	0.42	1.000	1.000	0.42	CODETI	
440	-0.00	10.95	-0.00	0.00	10.95	10.614	10.614	10.95	CODETI	
440	0.00	3.04	0.21	0.00	3.08	10.614	10.614	5.46	CODETI	
445	0.00	0.17	-0.21	0.00	0.46	1.000	1.000	0.46	CODETI	
445	0.01	2.47	0.33	0.00	2.56	9.368	9.368	6.61	CODETI	
311	0.02	3.18	-0.29	0.00	3.26	9.368	9.368	6.31	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
311	0.02	3.18	0.29	0.00	3.26	9.368	9.368	6.31	CODETI	
312	0.04	4.35	-0.19	0.00	4.41	9.368	9.368	5.56	CODETI	
312	0.04	4.35	0.19	0.00	4.41	9.368	9.368	5.56	CODETI	
313	0.06	4.47	-0.06	0.00	4.53	9.368	9.368	4.61	CODETI	
313	0.06	4.47	0.06	0.00	4.53	9.368	9.368	4.61	CODETI	
310	0.06	4.09	-0.00	0.00	4.15	9.368	9.368	4.09	CODETI	
310	0.06	0.44	0.00	0.00	0.49	1.000	1.000	0.44	CODETI	
315	0.06	0.39	-0.00	0.00	0.45	1.000	1.000	0.39	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.06	0.37	0.00	0.00	0.43	1.000	1.000	0.37	CODETI	
330	0.06	0.18	-0.00	0.00	0.23	1.000	1.000	0.18	CODETI	
330	0.06	0.18	0.00	0.00	0.23	1.000	1.000	0.18	CODETI	
335	0.06	0.03	-0.00	0.00	0.08	1.000	1.000	0.03	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.06	0.05	0.00	0.00	0.10	1.000	1.000	0.05	CODETI	
337	0.06	1.29	0.01	0.00	1.35	9.368	9.368	1.32	CODETI	
337	0.06	1.29	-0.01	0.00	1.35	9.368	9.368	1.32	CODETI	
338	0.04	2.01	0.06	0.00	2.06	9.368	9.368	2.31	CODETI	
338	0.04	2.01	-0.06	0.00	2.06	9.368	9.368	2.31	CODETI	
339	0.02	2.37	0.12	0.00	2.40	9.368	9.368	3.27	CODETI	
339	0.02	2.37	-0.12	0.00	2.40	9.368	9.368	3.27	CODETI	
350	0.01	2.46	0.15	0.00	2.49	9.368	9.368	3.73	CODETI	
350	0.00	0.17	-0.10	0.00	0.26	1.000	1.000	0.26	CODETI	
355 (SR_8)	0.00	0.25	0.10	0.00	0.32	1.000	1.000	0.32	CODETI	
355 (SR_8)	0.00	0.25	-0.10	0.00	0.32	1.000	1.000	0.32	CODETI	
360 (Té_TH_700)	0.00	0.41	0.10	0.00	0.46	1.000	1.000	0.45	CODETI	
360 (Té_TH_700)	0.00	0.41	-0.10	0.00	0.46	1.000	1.000	0.45	CODETI	
365	0.00	6.55	0.10	0.00	6.56	10.614	10.614	6.87	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
365	0.01	2.18	-0.19	0.00	2.22	10.614	10.614	4.54	CODETI	
366	0.01	0.21	0.19	0.00	0.44	1.000	1.000	0.43	CODETI	
366	0.02	2.68	-0.29	0.00	2.76	8.141	8.141	5.39	CODETI	
368	0.02	2.80	0.29	0.00	2.88	8.141	8.141	5.42	CODETI	
368	0.02	2.80	-0.29	0.00	2.88	8.141	8.141	5.42	CODETI	
369	0.01	3.72	0.25	0.00	3.77	8.141	8.141	5.51	CODETI	
369	0.01	3.72	-0.25	0.00	3.77	8.141	8.141	5.51	CODETI	
370	0.01	4.32	0.21	0.00	4.35	8.141	8.141	5.56	CODETI	
370	0.01	0.53	-0.21	0.00	0.69	1.000	1.000	0.68	CODETI	
378	0.01	4.36	0.25	0.00	4.40	8.141	8.141	5.91	CODETI	
378	0.01	4.36	-0.25	0.00	4.40	8.141	8.141	5.91	CODETI	
379	0.02	4.02	0.28	0.00	4.08	8.141	8.141	6.03	CODETI	
379	0.02	4.02	-0.28	0.00	4.08	8.141	8.141	6.03	CODETI	
380	0.02	4.09	0.28	0.00	4.15	8.141	8.141	6.07	CODETI	
380	0.02	0.50	-0.28	0.00	0.76	1.000	1.000	0.75	CODETI	
385	0.02	0.51	0.28	0.00	0.76	1.000	1.000	0.75	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.02	0.34	-0.28	0.00	0.66	1.000	1.000	0.65	CODETI	
410	0.02	0.09	0.28	0.00	0.56	1.000	1.000	0.56	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.02	0.12	-0.27	0.00	0.57	1.000	1.000	0.56	CODETI	
430 (PF4_CPO)	0.02	0.61	0.27	0.00	0.83	1.000	1.000	0.82	CODETI	
440	0.01	3.05	-0.12	0.00	3.07	10.614	10.614	4.01	CODETI	
450	0.01	0.68	0.12	0.00	0.73	1.000	1.000	0.72	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	-0.09	8.41	-0.02	0.00	8.49	10.614	10.614	8.41	CODETI	
500	-0.09	1.11	0.02	0.00	1.20	1.000	1.000	1.11	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
500	-0.09	1.11	-0.02	0.00	1.20	1.000	1.000	1.11	CODETI	
503	-0.08	7.08	0.07	0.00	7.17	7.049	7.049	7.15	CODETI	
503	-0.08	7.08	-0.07	0.00	7.17	7.049	7.049	7.15	CODETI	
504	-0.06	6.29	0.14	0.00	6.35	7.049	7.049	6.59	CODETI	
504	-0.06	6.29	-0.14	0.00	6.35	7.049	7.049	6.59	CODETI	
505	-0.05	5.75	0.17	0.00	5.81	7.049	7.049	6.22	CODETI	
505	-0.05	0.82	-0.17	0.00	0.93	1.000	1.000	0.88	CODETI	
508	-0.06	3.41	0.14	0.00	3.49	7.049	7.049	3.96	CODETI	
508	-0.06	3.41	-0.14	0.00	3.49	7.049	7.049	3.96	CODETI	
509	-0.08	3.35	0.08	0.00	3.44	7.049	7.049	3.53	CODETI	
509	-0.08	3.35	-0.08	0.00	3.44	7.049	7.049	3.53	CODETI	
510	-0.09	3.35	0.04	0.00	3.44	7.049	7.049	3.40	CODETI	
510	-0.09	0.48	-0.04	0.00	0.57	1.000	1.000	0.48	CODETI	
514 (Té_VS_011)	-0.09	2.53	0.04	0.00	2.62	5.836	5.836	2.58	CODETI	
514 (Té_VS_011)	-0.03	2.08	0.00	0.00	2.11	5.836	5.836	2.08	CODETI	
515	-0.03	0.36	-0.00	0.00	0.39	1.000	1.000	0.36	CODETI	
515	-0.01	0.17	0.00	0.00	0.19	1.000	1.000	0.17	CODETI	
520	-0.01	1.25	-0.00	0.00	1.26	7.279	7.279	1.25	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
520	0.06	2.04	-0.00	0.00	2.10	7.279	7.279	2.04	CODETI	
525	0.06	0.35	0.00	0.00	0.41	1.000	1.000	0.35	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.13	0.76	-0.00	0.00	0.89	1.000	1.000	0.76	CODETI	
547	0.13	5.53	0.00	0.00	5.66	6.943	6.943	5.53	CODETI	
547	0.13	5.53	-0.00	0.00	5.66	6.943	6.943	5.53	CODETI	
548	0.12	5.13	0.00	0.00	5.25	6.943	6.943	5.13	CODETI	
548	0.13	5.13	-0.00	0.00	5.26	6.943	6.943	5.13	CODETI	
549	0.08	3.93	0.00	0.00	4.01	6.943	6.943	3.93	CODETI	
549	0.08	3.93	-0.00	0.00	4.01	6.943	6.943	3.93	CODETI	
550	0.06	3.09	0.00	0.00	3.15	6.943	6.943	3.09	CODETI	
550	0.06	0.45	-0.00	0.00	0.50	1.000	1.000	0.45	CODETI	
557	0.02	3.07	0.00	0.00	3.09	6.943	6.943	3.07	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
557	0.02	3.07	-0.00	0.00	3.09	6.943	6.943	3.07	CODETI	
558	-0.05	5.06	0.00	0.00	5.11	6.943	6.943	5.06	CODETI	
558	-0.05	5.06	-0.00	0.00	5.11	6.943	6.943	5.06	CODETI	
559	-0.11	6.68	0.00	0.00	6.79	6.943	6.943	6.68	CODETI	
559	-0.11	6.68	-0.00	0.00	6.79	6.943	6.943	6.68	CODETI	
560	-0.13	7.22	0.00	0.00	7.35	6.943	6.943	7.22	CODETI	
560	-0.13	1.04	-0.00	0.00	1.17	1.000	1.000	1.04	CODETI	
570	-0.13	1.27	0.00	0.00	1.39	1.000	1.000	1.27	CODETI	
570	-0.13	3.17	-0.00	0.00	3.30	2.500	2.500	3.17	CODETI	
580	-0.09	2.19	0.00	0.00	2.29	2.500	2.500	2.19	CODETI	
580	-0.09	0.88	-0.00	0.00	0.97	1.000	1.000	0.88	CODETI	
585	-0.09	0.91	0.00	0.00	1.01	1.000	1.000	0.91	CODETI	
585	-0.09	0.91	-0.00	0.00	1.01	1.000	1.000	0.91	CODETI	
590	-0.09	7.10	0.00	0.00	7.20	7.057	7.057	7.10	CODETI	
590	0.00	1.11	0.00	0.00	1.11	7.057	7.057	1.11	CODETI	
595 (SR_11)	0.00	0.09	-0.00	0.00	0.09	1.000	1.000	0.09	CODETI	
595 (SR_11)	0.00	0.09	0.00	0.00	0.09	1.000	1.000	0.09	CODETI	
596 (SP_13)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
596 (SP_13)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
598	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	



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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
598	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
608	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
608	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
620	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	0.06	3.29	-0.00	0.00	3.35	7.279	7.279	3.29	CODETI	
625	0.06	0.33	0.00	0.00	0.39	1.000	1.000	0.33	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.12	0.62	-0.00	0.00	0.74	1.000	1.000	0.62	CODETI	
642	0.10	3.09	0.00	0.00	3.19	6.943	6.943	3.09	CODETI	
642	0.10	3.09	-0.00	0.00	3.19	6.943	6.943	3.09	CODETI	
643	0.04	1.23	0.00	0.00	1.27	6.943	6.943	1.24	CODETI	
643	0.04	1.23	-0.00	0.00	1.27	6.943	6.943	1.24	CODETI	
644	-0.04	0.89	0.00	0.00	0.93	6.943	6.943	0.89	CODETI	
644	-0.04	0.89	-0.00	0.00	0.93	6.943	6.943	0.89	CODETI	
645	-0.07	1.84	0.00	0.00	1.91	6.943	6.943	1.84	CODETI	
645	-0.07	0.27	-0.00	0.00	0.34	1.000	1.000	0.27	CODETI	
590	-0.07	10.53	0.00	0.00	10.60	7.057	7.057	10.53	CODETI	
360 (Té_TH_700)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	0.00	4.52	-0.30	0.00	4.56	10.614	10.614	7.85	CODETI	
720 (Té_VS_008)	0.00	6.16	0.30	0.00	6.19	10.614	10.614	8.90	CODETI	
720 (Té_VS_008)	-0.01	9.29	-0.00	0.00	9.29	10.614	10.614	9.29	CODETI	
725	-0.01	0.59	0.00	0.00	0.59	1.000	1.000	0.59	CODETI	
725	-0.01	0.90	-0.01	0.00	0.91	1.000	1.000	0.90	CODETI	
730	-0.01	0.55	0.01	0.00	0.56	1.000	1.000	0.55	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
760	-0.00	0.34	-0.00	0.00	0.34	1.000	1.000	0.34	CODETI	
770 (Té_Gavage)	-0.00	3.51	0.00	0.00	3.51	10.614	10.614	3.51	CODETI	
770 (Té_Gavage)	0.00	0.00	0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
780	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
795	-0.00	0.03	0.00	0.00	0.03	1.000	1.000	0.03	CODETI	
795	-0.07	0.06	0.00	0.00	0.13	2.000	2.000	0.06	CODETI	
800 (SB_02)	-0.02	0.48	0.00	0.00	0.50	2.000	2.000	0.48	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
820	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
720 (Té_VS_008)	0.00	10.79	-0.08	0.00	10.79	10.614	10.614	10.93	CODETI	
830	0.00	0.27	0.08	0.00	0.32	1.000	1.000	0.32	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.16	-0.08	0.00	0.23	1.000	1.000	0.23	CODETI	
865 (SP_14)	0.00	0.10	0.08	0.00	0.20	1.000	1.000	0.20	CODETI	
865 (SP_14)	0.00	0.10	-0.08	0.00	0.20	1.000	1.000	0.20	CODETI	
867	0.00	0.70	0.08	0.00	0.71	8.376	8.376	1.47	CODETI	
867	0.00	0.70	-0.08	0.00	0.71	8.376	8.376	1.47	CODETI	
868	-0.00	1.06	0.05	0.00	1.07	8.376	8.376	1.38	CODETI	
868	-0.00	1.06	-0.05	0.00	1.07	8.376	8.376	1.38	CODETI	
869	-0.00	1.22	0.02	0.00	1.22	8.376	8.376	1.26	CODETI	
869	-0.00	1.22	-0.02	0.00	1.22	8.376	8.376	1.26	CODETI	
870	-0.00	1.19	0.00	0.00	1.20	8.376	8.376	1.19	CODETI	
870	-0.00	0.14	-0.00	0.00	0.15	1.000	1.000	0.14	CODETI	
872	-0.00	0.08	0.00	0.00	0.08	1.000	1.000	0.08	CODETI	
872	-0.00	0.08	0.00	0.00	0.08	1.000	1.000	0.08	CODETI	
875 (SG_15)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	-0.00	5.38	0.00	0.00	5.38	10.614	10.614	5.38	CODETI	
772 (SG_16_1)	-0.00	0.53	-0.00	0.00	0.54	1.000	1.000	0.53	CODETI	
772 (SG_16_1)	-0.00	0.53	0.00	0.00	0.54	1.000	1.000	0.53	CODETI	
775	-0.00	2.72	-0.00	0.00	2.72	7.057	7.057	2.72	CODETI	
775	-0.00	2.59	-0.00	0.00	2.59	7.057	7.057	2.59	CODETI	
910 (Té_VS_007)	-0.00	0.05	0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
910 (Té_VS_007)	-0.00	0.05	-0.00	0.00	0.05	1.000	1.000	0.05	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
915 (SG_16_2)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
915 (SG_16_2)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
920	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
957	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
957	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
959	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
959	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.00	1.01	0.00	0.00	1.01	7.057	7.057	1.01	CODETI	
995	-0.00	0.19	-0.00	0.00	0.19	1.000	1.000	0.19	CODETI	
995	-0.00	0.19	-0.00	0.00	0.19	1.000	1.000	0.19	CODETI	
998	-0.00	0.05	0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
998	-0.00	0.28	-0.00	0.00	0.28	5.493	4.577	0.28	CODETI	
999	-0.01	0.11	0.00	0.00	0.12	5.493	4.577	0.11	CODETI	
999	-0.01	0.11	-0.00	0.00	0.12	5.493	4.577	0.11	CODETI	
1000	-0.01	0.06	-0.00	0.00	0.06	5.493	4.577	0.06	CODETI	
1000	-0.01	0.01	0.00	0.00	0.02	1.000	1.000	0.01	CODETI	



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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1002	-0.01	0.01	-0.00	0.00	0.02	1.000	1.000	0.01	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.01	0.01	0.00	0.00	0.02	1.000	1.000	0.01	CODETI	
1008	-0.01	0.01	-0.00	0.00	0.02	1.000	1.000	0.01	CODETI	
1008	-0.01	0.06	0.00	0.00	0.06	5.493	4.577	0.06	CODETI	
1009	-0.00	0.00	-0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1009	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	-0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	-0.00	0.00	0.00	2.000	2.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1070	-0.00	0.00	-0.00	0.00	0.00	2.000	2.000	0.00	CODETI	
1070	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1100 (CT_ASP_Reg)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	-0.01	0.21	-0.02	0.00	0.22	1.000	1.000	0.21	CODETI	
1120	-0.01	0.21	0.02	0.00	0.22	1.000	1.000	0.21	CODETI	
1120	-0.01	0.21	-0.02	0.00	0.22	1.000	1.000	0.21	CODETI	
1128	-0.01	0.21	0.02	0.00	0.22	1.000	1.000	0.21	CODETI	
1128	-0.01	1.15	-0.02	0.00	1.16	5.493	4.577	1.18	CODETI	
1129	-0.01	1.02	0.03	0.00	1.03	5.493	4.577	1.06	CODETI	
1129	-0.01	1.02	-0.03	0.00	1.03	5.493	4.577	1.06	CODETI	
1130	0.00	0.79	0.02	0.00	0.79	5.493	4.577	0.82	CODETI	
1130	0.00	0.14	-0.02	0.00	0.15	1.000	1.000	0.15	CODETI	
1132	0.00	0.11	0.02	0.00	0.12	1.000	1.000	0.12	CODETI	
1132	0.00	0.11	-0.02	0.00	0.12	1.000	1.000	0.12	CODETI	
1135 (SR_18)	0.00	0.06	0.02	0.00	0.07	1.000	1.000	0.07	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1135 (SR_18)	0.00	0.06	-0.02	0.00	0.07	1.000	1.000	0.07	CODETI	
1138	0.00	0.04	0.02	0.00	0.06	1.000	1.000	0.06	CODETI	
1138	0.00	0.21	-0.02	0.00	0.22	5.493	4.577	0.32	CODETI	
1139	0.00	0.26	0.00	0.00	0.26	5.493	4.577	0.31	CODETI	
1139	0.00	0.26	-0.00	0.00	0.26	5.493	4.577	0.31	CODETI	
1140	0.00	0.20	-0.02	0.00	0.21	5.493	4.577	0.31	CODETI	
1140	0.00	0.04	0.02	0.00	0.06	1.000	1.000	0.06	CODETI	
1148	0.00	0.05	-0.02	0.00	0.06	1.000	1.000	0.06	CODETI	
1148	0.00	0.24	0.02	0.00	0.25	5.493	4.577	0.33	CODETI	
1149	0.00	0.29	0.00	0.00	0.29	5.493	4.577	0.33	CODETI	
1149	0.00	0.29	-0.00	0.00	0.29	5.493	4.577	0.33	CODETI	
1150	0.00	0.20	0.02	0.00	0.21	5.493	4.577	0.32	CODETI	
1150	0.00	0.04	-0.02	0.00	0.06	1.000	1.000	0.06	CODETI	
1158	0.00	0.04	0.02	0.00	0.05	1.000	1.000	0.05	CODETI	
1158	0.00	0.20	-0.02	0.00	0.20	5.493	4.577	0.29	CODETI	
1159	0.00	0.21	0.02	0.00	0.21	5.493	4.577	0.28	CODETI	
1159	0.00	0.21	-0.02	0.00	0.21	5.493	4.577	0.28	CODETI	
1160	0.00	0.21	0.01	0.00	0.21	5.493	4.577	0.24	CODETI	
1160	0.00	0.04	-0.01	0.00	0.04	1.000	1.000	0.04	CODETI	
1165 (SR_19)	0.00	0.04	0.01	0.00	0.04	1.000	1.000	0.04	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1165 (SR_19)	0.00	0.04	-0.01	0.00	0.04	1.000	1.000	0.04	CODETI	
1170 (Té_ATRE)	0.00	0.07	0.01	0.00	0.07	4.398	4.398	0.08	CODETI	
1170 (Té_ATRE)	0.00	0.07	-0.01	0.00	0.07	4.398	4.398	0.08	CODETI	
1175	0.00	0.01	0.01	0.00	0.01	1.000	1.000	0.01	CODETI	
1175	0.00	0.01	-0.01	0.00	0.01	1.000	1.000	0.01	CODETI	
1178	0.00	0.01	0.01	0.00	0.01	1.000	1.000	0.01	CODETI	
1178	0.00	0.03	-0.01	0.00	0.03	5.493	4.577	0.06	CODETI	
1179	0.00	0.03	0.00	0.00	0.03	5.493	4.577	0.05	CODETI	
1179	0.00	0.03	-0.00	0.00	0.03	5.493	4.577	0.05	CODETI	
1180	0.00	0.03	-0.00	0.00	0.03	5.493	4.577	0.03	CODETI	
1180	0.00	0.01	0.00	0.00	0.01	1.000	1.000	0.01	CODETI	
1185	0.00	0.01	0.00	0.00	0.01	1.000	1.000	0.01	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1186 (SG_20)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1186 (SG_20)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1210 (CT_REF_Reg)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1211	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1211	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1212 (CT_03)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1216	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1216	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	-0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	-0.20	0.00	0.00	0.00	0.20	7.242	6.035	0.00	CODETI	
1220	0.00	6.03	0.00	0.00	6.03	7.242	6.035	6.03	CODETI	
1220	0.00	0.83	-0.00	0.00	0.83	1.000	1.000	0.83	CODETI	
1230	0.00	1.03	0.00	0.00	1.03	1.000	1.000	1.03	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1279	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1279	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1286	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1286	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1291	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1291	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1320	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	0.05	0.72	-0.15	0.00	0.83	1.000	1.000	0.78	CODETI	
1328	0.05	0.92	0.15	0.00	1.02	1.000	1.000	0.96	CODETI	
1328	0.05	4.44	-0.15	0.00	4.51	5.380	4.483	5.19	CODETI	
1329	0.06	3.78	0.39	0.00	3.92	5.380	4.483	5.84	CODETI	



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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1329	0.04	3.61	-0.43	0.00	3.75	5.380	4.483	5.97	CODETI	
1330	0.00	2.24	0.46	0.00	2.42	5.380	4.483	5.45	CODETI	
1330	0.00	0.44	-0.46	0.00	1.02	1.000	1.000	1.01	CODETI	
1338	0.00	0.51	0.46	0.00	1.05	1.000	1.000	1.04	CODETI	
1338	0.00	2.27	-0.46	0.00	2.45	5.380	4.483	5.62	CODETI	
1339	0.01	0.32	0.55	0.00	1.15	5.380	4.483	5.94	CODETI	
1339	0.01	0.32	-0.55	0.00	1.15	5.380	4.483	5.94	CODETI	
1340	0.02	2.59	0.42	0.00	2.74	5.380	4.483	5.51	CODETI	
1340	0.02	0.58	-0.42	0.00	1.03	1.000	1.000	1.02	CODETI	
1343	0.02	0.26	0.42	0.00	0.89	1.000	1.000	0.88	CODETI	
1343	0.02	0.26	-0.42	0.00	0.89	1.000	1.000	0.88	CODETI	
1348	0.02	0.36	0.42	0.00	0.93	1.000	1.000	0.92	CODETI	
1348	0.02	1.95	-0.42	0.00	2.14	5.380	4.483	4.95	CODETI	
1349	0.05	3.99	0.31	0.00	4.09	5.380	4.483	5.46	CODETI	
1349	0.05	3.99	-0.31	0.00	4.09	5.380	4.483	5.46	CODETI	
1345	0.05	4.91	0.02	0.00	4.96	5.380	4.483	5.49	CODETI	
1345	0.05	1.02	-0.02	0.00	1.07	1.000	1.000	1.02	CODETI	
1350 (SP_23)	0.05	0.93	0.02	0.00	0.99	1.000	1.000	0.93	CODETI	
1350 (SP_23)	0.06	0.93	-0.02	0.00	0.99	1.000	1.000	0.93	CODETI	
1355	0.06	0.61	0.02	0.00	0.66	1.000	1.000	0.61	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1355	0.06	0.61	-0.02	0.00	0.66	1.000	1.000	0.61	CODETI	
1360	0.06	0.51	0.02	0.00	0.57	1.000	1.000	0.51	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.06	0.40	-0.02	0.00	0.46	1.000	1.000	0.40	CODETI	
514 (Té_VS_011)	0.06	3.20	0.01	0.00	3.26	5.836	5.836	3.21	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.00	3.29	0.16	0.00	3.31	7.388	7.388	4.03	CODETI	
1417	-0.14	7.47	-0.14	0.00	7.61	7.388	7.388	7.76	CODETI	
1417	-0.14	7.47	0.14	0.00	7.61	7.388	7.388	7.76	CODETI	
1418	-0.38	14.69	-0.09	0.00	15.06	7.388	7.388	14.74	CODETI	
1418	-0.38	14.69	0.09	0.00	15.06	7.388	7.388	14.74	CODETI	
1419	-0.51	18.83	-0.01	0.00	19.34	7.388	7.388	18.83	CODETI	
1419	-0.51	18.83	0.01	0.00	19.34	7.388	7.388	18.83	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-0.53	19.36	0.04	0.00	19.89	7.388	7.388	19.37	CODETI	
1410	-0.53	2.62	-0.04	0.00	3.15	1.000	1.000	2.62	CODETI	
1415 (SP_26)	-0.53	2.60	0.04	0.00	3.13	1.000	1.000	2.60	CODETI	
1415 (SP_26)	0.02	2.60	-0.04	0.00	2.62	1.000	1.000	2.60	CODETI	
1422	0.02	2.60	0.04	0.00	2.62	1.000	1.000	2.60	CODETI	
1422	0.02	12.26	-0.04	0.00	12.28	5.640	4.700	14.67	CODETI	
1421	0.01	8.99	-0.89	0.00	9.17	5.640	4.700	14.68	CODETI	
1421	0.01	8.99	0.89	0.00	9.17	5.640	4.700	14.68	CODETI	
1420	-0.00	2.42	-1.29	0.00	3.53	5.640	4.700	14.73	CODETI	
1420	-0.00	0.43	1.29	0.00	2.61	1.000	1.000	2.61	CODETI	
1425	-0.00	0.50	-1.29	0.00	2.62	1.000	1.000	2.62	CODETI	
1425	-0.00	0.50	1.29	0.00	2.62	1.000	1.000	2.62	CODETI	
1428	-0.00	7.26	-1.23	0.00	7.67	7.391	7.391	19.64	CODETI	
1428	-0.00	7.26	1.23	0.00	7.67	7.391	7.391	19.64	CODETI	
1429	-0.00	11.86	-1.06	0.00	12.05	7.391	7.391	19.70	CODETI	
1429	-0.00	11.86	1.06	0.00	12.05	7.391	7.391	19.70	CODETI	
1430	-0.00	13.87	-0.95	0.00	14.00	7.391	7.391	19.74	CODETI	
1430	-0.00	1.88	0.95	0.00	2.67	1.000	1.000	2.67	CODETI	
1440	-0.00	2.05	-0.95	0.00	2.80	1.000	1.000	2.80	CODETI	
1440	-0.00	2.05	0.95	0.00	2.80	1.000	1.000	2.80	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	-0.00	2.18	-0.95	0.00	2.89	1.000	1.000	2.89	CODETI	
1445 (SP_31)	0.00	2.18	0.95	0.00	2.89	1.000	1.000	2.89	CODETI	
1450	0.00	8.69	-0.95	0.00	8.89	5.231	5.231	13.20	CODETI	
1450	0.00	10.31	0.74	0.00	10.41	5.231	5.231	12.87	CODETI	
1451 (SP_27)	0.00	0.71	-0.74	0.00	1.63	1.000	1.000	1.63	CODETI	
1451 (SP_27)	0.00	0.71	0.74	0.00	1.63	1.000	1.000	1.63	CODETI	
1452	0.00	0.23	-0.74	0.00	1.49	1.000	1.000	1.49	CODETI	
1452	0.00	0.23	0.74	0.00	1.49	1.000	1.000	1.49	CODETI	
1455 (SP_28)	0.00	1.34	-0.74	0.00	1.99	1.000	1.000	1.99	CODETI	
1455 (SP_28)	-0.00	1.34	0.74	0.00	1.99	1.000	1.000	1.99	CODETI	
1458	-0.00	0.70	-0.74	0.00	1.63	1.000	1.000	1.63	CODETI	
1458	-0.00	3.30	0.74	0.00	3.61	5.640	4.700	9.20	CODETI	
1459	-0.00	6.16	-0.32	0.00	6.20	5.640	4.700	8.23	CODETI	
1459	-0.00	6.16	0.32	0.00	6.20	5.640	4.700	8.23	CODETI	
1460	-0.00	5.42	0.19	0.00	5.44	5.640	4.700	6.85	CODETI	
1460	-0.00	1.15	-0.19	0.00	1.22	1.000	1.000	1.22	CODETI	
1468	-0.00	0.32	0.19	0.00	0.50	1.000	1.000	0.50	CODETI	
1468	-0.00	1.50	-0.19	0.00	1.55	5.640	4.700	2.81	CODETI	
1469	-0.00	1.27	0.07	0.00	1.28	5.640	4.700	1.72	CODETI	
1469	-0.00	1.27	-0.07	0.00	1.28	5.640	4.700	1.72	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1470	0.00	0.30	0.00	0.00	0.30	5.640	4.700	0.36	CODETI	
1470	0.00	0.06	-0.00	0.00	0.07	1.000	1.000	0.06	CODETI	
1475 (SG_29)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1475 (SG_29)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1518	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1518	-0.00	0.00	0.00	0.00	0.00	7.391	6.159	0.00	CODETI	
1519	-0.00	0.00	-0.00	0.00	0.00	7.391	6.159	0.00	CODETI	
1519	-0.00	0.00	0.00	0.00	0.00	7.391	6.159	0.00	CODETI	

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Stresses on Elements

CASE 15 Thermique @ TS Mini

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1520	0.00	0.00	-0.00	0.00	0.00	7.391	6.159	0.00	CODETI	
1520	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1523	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1523	-0.00	0.00	0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1524	0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1524	0.00	0.00	0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1525	0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1525	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1530	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1530	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1540 (SR_30)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1540 (SR_30)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1450	-0.00	2.77	-0.00	0.00	2.77	5.231	5.231	2.77	CODETI	

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CASE 16 Thermique @ TExS en Exceptionnel

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-0.35	1.22	0.12	0.00	1.58	1.000	1.000	1.24	CODETI	
20	-0.35	1.13	-0.12	0.00	1.49	1.000	1.000	1.15	CODETI	
20	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
25	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
20	-0.35	1.13	0.12	0.00	1.50	1.000	1.000	1.16	CODETI	
30	-0.35	1.12	-0.12	0.00	1.49	1.000	1.000	1.15	CODETI	
30	-0.27	0.94	0.13	0.00	1.24	1.000	1.000	0.98	CODETI	
40	-0.27	0.93	-0.13	0.00	1.23	1.000	1.000	0.97	CODETI	
40	-0.01	0.03	0.01	0.00	0.04	1.000	1.000	0.03	CODETI	
45 (Weld_CW2)	-0.01	0.01	-0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
45 (Weld_CW2)	-0.01	0.01	0.01	0.00	0.03	1.000	1.000	0.02	CODETI	
50	-0.01	0.01	-0.01	0.00	0.02	1.000	1.000	0.02	CODETI	
50	-0.01	0.00	0.01	0.00	0.02	1.000	1.000	0.01	CODETI	
55	-0.01	0.01	-0.01	0.00	0.02	1.000	1.000	0.01	CODETI	
55	-0.01	0.02	-0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
56	-0.01	0.02	0.00	0.00	0.02	1.000	1.000	0.02	CODETI	
56	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
60	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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Stresses on Elements

CASE 16 Thermique @ TExS en Exceptionnel

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
65 (Piquage_N1)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.15	7.41	-7.59	0.00	16.95	1.000	1.000	16.88	CODETI	
110	-0.15	3.95	7.59	0.00	15.72	1.000	1.000	15.68	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.03	0.78	-0.00	0.00	0.81	1.000	1.000	0.78	CODETI	
129	-0.02	5.28	0.00	0.00	5.30	7.124	5.937	5.28	CODETI	
129	-0.02	5.28	-0.00	0.00	5.30	7.124	5.937	5.28	CODETI	
130	-0.00	4.61	0.00	0.00	4.61	7.124	5.937	4.61	CODETI	
130	-0.00	0.65	-0.00	0.00	0.65	1.000	1.000	0.65	CODETI	
134 (Jupe_N3)	-0.00	0.05	0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
134 (Jupe_N3)	-0.00	0.05	-0.00	0.00	0.05	1.000	1.000	0.05	CODETI	
135 (SR_N3)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	



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135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.00	2.44	0.00	0.00	2.44	1.000	1.000	2.44	CODETI	
160	-0.00	0.38	-0.00	0.00	0.38	1.000	1.000	0.38	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	-0.18	3.79	-0.11	0.00	3.98	1.000	1.000	3.80	CODETI	
190	-0.18	3.76	0.11	0.00	3.95	1.000	1.000	3.77	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.16	4.93	5.33	0.00	11.82	1.000	1.000	11.75	CODETI	
220	-0.16	2.29	-5.33	0.00	10.95	1.000	1.000	10.91	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
250	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
251 (CT_N1)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
260	-0.00	0.00	0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
260	0.01	101.05	-6.58	0.00	101.91	10.614	10.614	172.37	CODETI	
262	0.01	7.17	6.58	0.00	14.99	1.000	1.000	14.98	CODETI	
262	0.01	10.99	-10.08	0.00	22.97	1.000	1.000	22.97	CODETI	
265 (SG_5)	0.01	9.70	10.08	0.00	22.38	1.000	1.000	22.38	CODETI	
265 (SG_5)	0.01	9.70	-10.08	0.00	22.38	1.000	1.000	22.38	CODETI	
267	0.01	77.86	9.22	0.00	80.02	8.376	8.376	172.93	CODETI	
267	0.01	77.86	-9.22	0.00	80.02	8.376	8.376	172.93	CODETI	
268	0.01	126.06	6.11	0.00	126.66	8.376	8.376	162.38	CODETI	

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268	0.01	126.06	-6.11	0.00	126.66	8.376	8.376	162.38	CODETI	
269	0.00	143.38	1.91	0.00	143.44	8.376	8.376	146.90	CODETI	
269	0.00	143.38	-1.91	0.00	143.44	8.376	8.376	146.90	CODETI	
270	0.00	138.20	-0.25	0.00	138.20	8.376	8.376	138.27	CODETI	
270	0.00	16.50	0.25	0.00	16.51	1.000	1.000	16.51	CODETI	
271	0.00	9.11	-0.25	0.00	9.13	1.000	1.000	9.13	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	7.73	-0.01	0.00	7.73	1.000	1.000	7.73	CODETI	
277	-0.36	42.91	0.45	0.00	43.28	8.141	8.141	43.54	CODETI	

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277	-0.36	42.91	-0.45	0.00	43.28	8.141	8.141	43.54	CODETI	
278	-0.99	23.24	1.21	0.00	24.35	8.141	8.141	30.52	CODETI	
278	-0.99	23.24	-1.21	0.00	24.35	8.141	8.141	30.52	CODETI	
279	-1.36	7.06	1.65	0.00	9.04	8.141	8.141	27.81	CODETI	
279	-1.36	7.06	-1.65	0.00	9.04	8.141	8.141	27.81	CODETI	
280	-1.41	1.22	1.71	0.00	4.31	8.141	8.141	27.83	CODETI	
280	-1.41	0.15	-1.71	0.00	3.75	1.000	1.000	3.42	CODETI	
284	-1.41	0.14	1.71	0.00	3.75	1.000	1.000	3.42	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	-1.41	0.12	-1.71	0.00	3.74	1.000	1.000	3.42	CODETI	
290	-1.41	0.06	1.71	0.00	3.72	1.000	1.000	3.42	CODETI	
290	-1.41	0.06	-1.71	0.00	3.72	1.000	1.000	3.42	CODETI	
299	-1.41	0.03	1.71	0.00	3.71	1.000	1.000	3.42	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	-1.41	0.05	-1.71	0.00	3.71	1.000	1.000	3.42	CODETI	
306	-1.36	8.88	1.64	0.00	10.76	9.368	9.368	32.03	CODETI	
306	-1.36	8.88	-1.64	0.00	10.76	9.368	9.368	32.03	CODETI	
307	-1.00	26.41	1.19	0.00	27.51	9.368	9.368	34.51	CODETI	
307	-1.00	26.41	-1.19	0.00	27.51	9.368	9.368	34.51	CODETI	
308	-0.36	45.08	0.41	0.00	45.45	9.368	9.368	45.72	CODETI	
308	-0.36	45.08	-0.41	0.00	45.45	9.368	9.368	45.72	CODETI	
305	-0.01	54.07	-0.02	0.00	54.09	9.368	9.368	54.07	CODETI	
305	-0.01	5.77	0.02	0.00	5.78	1.000	1.000	5.77	CODETI	
435 (SR_07)	-0.01	10.13	-0.02	0.00	10.14	1.000	1.000	10.13	CODETI	
435 (SR_07)	-0.01	10.13	0.02	0.00	10.14	1.000	1.000	10.13	CODETI	
440	-0.01	215.54	-0.02	0.00	215.56	10.614	10.614	215.54	CODETI	*
440	-0.11	18.89	1.57	0.00	19.25	10.614	10.614	38.23	CODETI	
445	-0.11	1.78	-1.57	0.00	3.66	1.000	1.000	3.60	CODETI	
445	-0.16	25.57	2.40	0.00	26.17	9.368	9.368	51.73	CODETI	
311	-0.30	14.82	-2.68	0.00	16.04	9.368	9.368	52.30	CODETI	

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311	-0.30	14.82	2.68	0.00	16.04	9.368	9.368	52.30	CODETI	
312	-0.51	8.83	-2.78	0.00	10.86	9.368	9.368	52.76	CODETI	
312	-0.51	8.83	2.78	0.00	10.86	9.368	9.368	52.76	CODETI	
313	-0.58	28.79	-2.26	0.00	29.71	9.368	9.368	51.27	CODETI	
313	-0.58	28.79	2.26	0.00	29.71	9.368	9.368	51.27	CODETI	
310	-0.56	35.97	-1.83	0.00	36.71	9.368	9.368	49.68	CODETI	
310	-0.56	3.84	1.83	0.00	5.72	1.000	1.000	5.30	CODETI	
315	-0.56	3.64	-1.83	0.00	5.56	1.000	1.000	5.16	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	-0.56	3.53	1.83	0.00	5.48	1.000	1.000	5.08	CODETI	
330	-0.56	2.62	-1.83	0.00	4.84	1.000	1.000	4.50	CODETI	
330	-0.56	2.62	1.83	0.00	4.84	1.000	1.000	4.50	CODETI	
335	-0.56	1.80	-1.83	0.00	4.35	1.000	1.000	4.08	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	-0.56	1.72	1.83	0.00	4.31	1.000	1.000	4.04	CODETI	
337	-0.58	6.81	-1.94	0.00	8.34	9.368	9.368	36.94	CODETI	
337	-0.58	6.81	1.94	0.00	8.34	9.368	9.368	36.94	CODETI	
338	-0.50	21.62	-1.66	0.00	22.37	9.368	9.368	37.90	CODETI	
338	-0.50	21.62	1.66	0.00	22.37	9.368	9.368	37.90	CODETI	
339	-0.30	38.63	-0.81	0.00	38.96	9.368	9.368	41.48	CODETI	
339	-0.30	38.63	0.81	0.00	38.96	9.368	9.368	41.48	CODETI	
350	-0.16	43.95	-0.24	0.00	44.12	9.368	9.368	44.19	CODETI	
350	-0.11	3.06	0.16	0.00	3.18	1.000	1.000	3.08	CODETI	
355 (SR_8)	-0.11	3.42	-0.16	0.00	3.54	1.000	1.000	3.44	CODETI	
355 (SR_8)	-0.10	3.42	0.16	0.00	3.54	1.000	1.000	3.44	CODETI	
360 (Té_TH_700)	-0.10	4.62	-0.16	0.00	4.74	1.000	1.000	4.63	CODETI	
360 (Té_TH_700)	-0.10	4.62	0.16	0.00	4.74	1.000	1.000	4.63	CODETI	
365	-0.10	66.66	-0.16	0.00	66.77	10.614	10.614	66.75	CODETI	

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365	-0.55	59.88	-0.43	0.00	60.44	10.614	10.614	60.59	CODETI	
366	-0.55	4.47	0.43	0.00	5.10	1.000	1.000	4.55	CODETI	
366	-0.85	55.79	-0.67	0.00	56.66	8.141	8.141	56.84	CODETI	
368	-0.65	48.69	0.84	0.00	49.37	8.141	8.141	50.57	CODETI	
368	-0.65	48.69	-0.84	0.00	49.37	8.141	8.141	50.57	CODETI	
369	-0.19	32.11	1.07	0.00	32.36	8.141	8.141	36.56	CODETI	
369	-0.19	32.11	-1.07	0.00	32.36	8.141	8.141	36.56	CODETI	
370	0.08	23.00	1.13	0.00	23.18	8.141	8.141	29.40	CODETI	
370	0.08	2.82	-1.13	0.00	3.67	1.000	1.000	3.61	CODETI	
378	-0.17	21.77	1.10	0.00	22.05	8.141	8.141	28.21	CODETI	
378	-0.17	21.77	-1.10	0.00	22.05	8.141	8.141	28.21	CODETI	
379	-0.64	38.08	0.95	0.00	38.77	8.141	8.141	41.08	CODETI	
379	-0.64	38.08	-0.95	0.00	38.77	8.141	8.141	41.08	CODETI	
380	-0.83	44.80	0.82	0.00	45.66	8.141	8.141	46.76	CODETI	
380	-0.83	5.50	-0.82	0.00	6.54	1.000	1.000	5.74	CODETI	
385	-0.83	5.77	0.82	0.00	6.80	1.000	1.000	6.00	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	-0.85	5.40	-0.82	0.00	6.47	1.000	1.000	5.65	CODETI	
410	-0.85	2.63	0.82	0.00	3.86	1.000	1.000	3.11	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	-0.84	2.27	-0.82	0.00	3.51	1.000	1.000	2.80	CODETI	
430 (PF4_CPO)	-0.84	2.56	0.82	0.00	3.77	1.000	1.000	3.04	CODETI	
440	-0.09	31.63	-4.94	0.00	33.23	10.614	10.614	109.61	CODETI	
450	-0.09	1.75	4.94	0.00	10.06	1.000	1.000	10.04	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	-1.27	70.07	-4.10	0.00	71.81	10.614	10.614	111.73	CODETI	
500	-1.27	9.10	6.31	0.00	16.34	1.000	1.000	15.57	CODETI	

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500	-1.27	9.10	-6.31	0.00	16.34	1.000	1.000	15.57	CODETI	
503	-1.42	59.83	7.23	0.00	62.93	7.049	7.049	118.16	CODETI	
503	-1.42	59.83	-7.23	0.00	62.93	7.049	7.049	118.16	CODETI	
504	-1.56	26.27	8.40	0.00	32.50	7.049	7.049	121.27	CODETI	
504	-1.56	26.27	-8.40	0.00	32.50	7.049	7.049	121.27	CODETI	
505	-1.54	11.50	8.61	0.00	21.60	7.049	7.049	121.94	CODETI	
505	-1.54	1.63	-8.61	0.00	17.51	1.000	1.000	17.30	CODETI	
508	-1.56	63.16	7.96	0.00	66.65	7.049	7.049	128.78	CODETI	
508	-1.56	63.16	-7.96	0.00	66.65	7.049	7.049	128.78	CODETI	
509	-1.42	109.41	5.58	0.00	111.40	7.049	7.049	134.73	CODETI	
509	-1.42	109.41	-5.58	0.00	111.40	7.049	7.049	134.73	CODETI	
510	-1.27	127.04	3.93	0.00	128.55	7.049	7.049	138.62	CODETI	
510	-1.27	18.02	-3.93	0.00	20.83	1.000	1.000	19.66	CODETI	
514 (Té_VS_011)	-1.27	117.12	3.93	0.00	118.65	5.836	5.836	125.80	CODETI	
514 (Té_VS_011)	-1.50	174.36	-0.00	0.00	175.86	5.836	5.836	174.36	CODETI	
515	-1.50	29.88	0.00	0.00	31.38	1.000	1.000	29.88	CODETI	
515	-0.72	14.39	-0.00	0.00	15.11	1.000	1.000	14.39	CODETI	
520	-0.72	104.73	0.00	0.00	105.45	7.279	7.279	104.73	CODETI	

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520	-0.14	32.73	0.00	0.00	32.87	7.279	7.279	32.73	CODETI	
525	-0.14	2.89	-0.00	0.00	3.03	1.000	1.000	2.89	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	-0.28	5.09	0.00	0.00	5.37	1.000	1.000	5.09	CODETI	
547	-0.02	26.60	-0.00	0.00	26.61	6.943	6.943	26.60	CODETI	
547	-0.02	26.60	0.00	0.00	26.61	6.943	6.943	26.60	CODETI	
548	0.50	12.02	-0.00	0.00	12.51	6.943	6.943	12.02	CODETI	
548	0.85	12.02	0.00	0.00	12.87	6.943	6.943	12.02	CODETI	
549	1.36	2.33	-0.00	0.00	3.69	6.943	6.943	2.33	CODETI	
549	1.36	2.33	0.00	0.00	3.69	6.943	6.943	2.33	CODETI	
550	1.48	5.70	-0.00	0.00	7.17	6.943	6.943	5.70	CODETI	
550	1.48	0.82	0.00	0.00	2.30	1.000	1.000	0.82	CODETI	
557	1.50	18.40	-0.00	0.00	19.90	6.943	6.943	18.40	CODETI	

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557	1.50	18.40	0.00	0.00	19.90	6.943	6.943	18.40	CODETI	
558	1.25	11.26	-0.00	0.00	12.51	6.943	6.943	11.26	CODETI	
558	1.25	11.26	0.00	0.00	12.51	6.943	6.943	11.26	CODETI	
559	0.66	5.36	-0.00	0.00	6.02	6.943	6.943	5.36	CODETI	
559	0.66	5.36	0.00	0.00	6.02	6.943	6.943	5.36	CODETI	
560	0.28	16.32	-0.00	0.00	16.60	6.943	6.943	16.32	CODETI	
560	0.28	2.35	0.00	0.00	2.63	1.000	1.000	2.35	CODETI	
570	0.28	8.62	-0.00	0.00	8.90	1.000	1.000	8.62	CODETI	
570	0.28	21.55	0.00	0.00	21.83	2.500	2.500	21.55	CODETI	
580	0.21	23.27	-0.00	0.00	23.48	2.500	2.500	23.27	CODETI	
580	0.21	9.31	0.00	0.00	9.52	1.000	1.000	9.31	CODETI	
585	0.21	10.28	-0.00	0.00	10.48	1.000	1.000	10.28	CODETI	
585	0.21	10.28	0.00	0.00	10.48	1.000	1.000	10.28	CODETI	
590	0.21	90.80	-0.00	0.00	91.00	7.057	7.057	90.80	CODETI	
590	0.01	95.56	0.00	0.00	95.57	7.057	7.057	95.56	CODETI	
595 (SR_11)	0.01	9.81	-0.00	0.00	9.82	1.000	1.000	9.81	CODETI	
595 (SR_11)	0.01	9.81	0.00	0.00	9.82	1.000	1.000	9.81	CODETI	
596 (SP_13)	0.01	0.00	-0.00	0.00	0.01	1.000	1.000	0.00	CODETI	
596 (SP_13)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
598	0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	

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598	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
599	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
600	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
608	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
608	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
609	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	-0.00	0.00	-0.00	0.00	0.00	8.236	8.236	0.00	CODETI	
610	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
615	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
620	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	-0.15	71.99	0.00	0.00	72.15	7.279	7.279	71.99	CODETI	
625	-0.15	5.85	-0.00	0.00	6.01	1.000	1.000	5.85	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	-0.31	9.84	0.00	0.00	10.16	1.000	1.000	9.84	CODETI	
642	-0.95	31.98	-0.00	0.00	32.92	6.943	6.943	31.98	CODETI	
642	-0.95	31.98	0.00	0.00	32.92	6.943	6.943	31.98	CODETI	
643	-1.98	2.74	-0.00	0.00	4.72	6.943	6.943	2.74	CODETI	
643	-1.98	2.74	0.00	0.00	4.72	6.943	6.943	2.74	CODETI	
644	-2.48	11.47	-0.00	0.00	13.95	6.943	6.943	11.47	CODETI	
644	-2.48	11.47	0.00	0.00	13.95	6.943	6.943	11.47	CODETI	
645	-2.48	11.64	-0.00	0.00	14.13	6.943	6.943	11.64	CODETI	
645	-2.48	1.68	0.00	0.00	4.16	1.000	1.000	1.68	CODETI	
590	-2.48	8.37	-0.00	0.00	10.85	7.057	7.057	8.37	CODETI	
360 (Té_TH_700)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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690	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	0.01	101.05	-6.58	0.00	101.91	10.614	10.614	172.37	CODETI	
720 (Té_VS_008)	0.01	135.60	6.58	0.00	136.25	10.614	10.614	194.64	CODETI	
720 (Té_VS_008)	-0.14	98.08	-4.79	0.00	98.69	10.614	10.614	141.21	CODETI	
725	-0.14	12.30	4.79	0.00	15.69	1.000	1.000	15.58	CODETI	
725	-0.22	18.85	-7.34	0.00	24.06	1.000	1.000	23.89	CODETI	
730	-0.22	22.67	7.34	0.00	27.19	1.000	1.000	27.00	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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760	-0.15	15.02	-4.79	0.00	17.94	1.000	1.000	17.81	CODETI	
770 (Té_Gavage)	-0.15	156.95	4.79	0.00	157.38	10.614	10.614	186.95	CODETI	
770 (Té_Gavage)	0.00	0.00	-0.00	0.00	0.00	10.614	10.614	0.00	CODETI	
780	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
795	-0.00	0.03	0.00	0.00	0.03	1.000	1.000	0.03	CODETI	
795	-0.07	0.06	0.00	0.00	0.13	2.000	2.000	0.06	CODETI	
800 (SB_02)	-0.02	0.48	0.00	0.00	0.50	2.000	2.000	0.48	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
820	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
720 (Té_VS_008)	-0.04	61.62	-3.55	0.00	62.07	10.614	10.614	97.42	CODETI	
830	-0.04	3.89	3.55	0.00	8.12	1.000	1.000	8.10	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.04	3.59	-3.55	0.00	7.98	1.000	1.000	7.96	CODETI	
865 (SP_14)	-0.04	3.05	3.55	0.00	7.75	1.000	1.000	7.74	CODETI	
865 (SP_14)	-0.04	3.05	-3.55	0.00	7.76	1.000	1.000	7.74	CODETI	
867	-0.05	24.44	3.29	0.00	25.36	8.376	8.376	60.23	CODETI	
867	-0.05	24.44	-3.29	0.00	25.36	8.376	8.376	60.23	CODETI	
868	-0.06	43.14	2.23	0.00	43.43	8.376	8.376	57.11	CODETI	
868	-0.06	43.14	-2.23	0.00	43.43	8.376	8.376	57.11	CODETI	
869	-0.05	50.78	0.75	0.00	50.85	8.376	8.376	52.32	CODETI	
869	-0.05	50.78	-0.75	0.00	50.85	8.376	8.376	52.32	CODETI	
870	-0.04	49.69	0.00	0.00	49.73	8.376	8.376	49.69	CODETI	
870	-0.04	5.93	-0.00	0.00	5.97	1.000	1.000	5.93	CODETI	
872	-0.04	3.20	0.00	0.00	3.24	1.000	1.000	3.20	CODETI	
872	-0.04	3.20	0.00	0.00	3.24	1.000	1.000	3.20	CODETI	
875 (SG_15)	-0.04	0.00	-0.00	0.00	0.04	1.000	1.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
880	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
890	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	-0.07	286.57	0.00	0.00	286.64	10.614	10.614	286.57	CODETI	*
772 (SG_16_1)	-0.07	26.61	-0.00	0.00	26.67	1.000	1.000	26.61	CODETI	
772 (SG_16_1)	-0.07	26.61	0.00	0.00	26.67	1.000	1.000	26.61	CODETI	
775	-0.07	133.34	-0.00	0.00	133.40	7.057	7.057	133.34	CODETI	
775	-0.01	132.86	-0.00	0.00	132.86	7.057	7.057	132.86	CODETI	
910 (Té_VS_007)	-0.01	2.72	0.00	0.00	2.73	1.000	1.000	2.72	CODETI	
910 (Té_VS_007)	-0.00	2.70	-0.00	0.00	2.70	1.000	1.000	2.70	CODETI	

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915 (SG_16_2)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
915 (SG_16_2)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
920	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
957	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
957	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
958	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
959	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	

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959	-0.00	0.00	0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	-0.00	0.00	0.00	8.472	8.472	0.00	CODETI	
960	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
965	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
970	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.00	29.93	0.00	0.00	29.93	7.057	7.057	29.93	CODETI	
995	-0.00	5.75	-0.00	0.00	5.75	1.000	1.000	5.75	CODETI	
995	-0.00	5.75	-0.00	0.00	5.75	1.000	1.000	5.75	CODETI	
998	-0.00	1.49	0.00	0.00	1.49	1.000	1.000	1.49	CODETI	
998	-0.00	8.18	-0.00	0.00	8.18	5.493	4.577	8.18	CODETI	
999	-0.15	3.26	0.00	0.00	3.40	5.493	4.577	3.26	CODETI	
999	-0.15	3.26	-0.00	0.00	3.40	5.493	4.577	3.26	CODETI	
1000	-0.20	1.65	-0.00	0.00	1.85	5.493	4.577	1.65	CODETI	
1000	-0.20	0.30	0.00	0.00	0.50	1.000	1.000	0.30	CODETI	

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1002	-0.20	0.30	-0.00	0.00	0.50	1.000	1.000	0.30	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.20	0.30	0.00	0.00	0.50	1.000	1.000	0.30	CODETI	
1008	-0.20	0.30	-0.00	0.00	0.50	1.000	1.000	0.30	CODETI	
1008	-0.20	1.65	0.00	0.00	1.85	5.493	4.577	1.65	CODETI	
1009	-0.15	0.00	-0.00	0.00	0.15	5.493	4.577	0.00	CODETI	
1009	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	0.00	0.00	0.00	5.493	4.577	0.00	CODETI	
1010	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1060	-0.00	0.00	0.00	0.00	0.00	2.000	2.000	0.00	CODETI	

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1070	-0.00	0.00	-0.00	0.00	0.00	2.000	2.000	0.00	CODETI	
1070	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1090	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1100 (CT_ASP_Reg)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	-0.18	3.76	-0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1120	-0.18	3.76	0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1120	-0.18	3.76	-0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1128	-0.18	3.76	0.11	0.00	3.94	1.000	1.000	3.76	CODETI	
1128	-0.18	20.55	-0.11	0.00	20.73	5.493	4.577	20.67	CODETI	
1129	-0.12	18.52	0.29	0.00	18.65	5.493	4.577	18.82	CODETI	
1129	-0.12	18.52	-0.29	0.00	18.65	5.493	4.577	18.82	CODETI	
1130	0.01	14.20	0.30	0.00	14.22	5.493	4.577	14.60	CODETI	
1130	0.01	2.59	-0.30	0.00	2.66	1.000	1.000	2.66	CODETI	
1132	0.01	2.02	0.30	0.00	2.12	1.000	1.000	2.11	CODETI	
1132	0.01	2.02	-0.30	0.00	2.12	1.000	1.000	2.11	CODETI	
1135 (SR_18)	0.01	0.97	0.30	0.00	1.15	1.000	1.000	1.14	CODETI	

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1135 (SR_18)	0.00	0.97	-0.30	0.00	1.14	1.000	1.000	1.14	CODETI	
1138	0.00	0.65	0.30	0.00	0.89	1.000	1.000	0.89	CODETI	
1138	0.00	3.49	-0.30	0.00	3.55	5.493	4.577	4.87	CODETI	
1139	0.02	3.79	0.13	0.00	3.82	5.493	4.577	4.44	CODETI	
1139	0.02	3.79	-0.13	0.00	3.82	5.493	4.577	4.44	CODETI	
1140	0.03	3.72	-0.11	0.00	3.76	5.493	4.577	4.33	CODETI	
1140	0.03	0.76	0.11	0.00	0.82	1.000	1.000	0.79	CODETI	
1148	0.03	0.81	-0.11	0.00	0.87	1.000	1.000	0.84	CODETI	
1148	0.03	4.03	0.11	0.00	4.06	5.493	4.577	4.59	CODETI	
1149	0.02	3.83	0.13	0.00	3.86	5.493	4.577	4.47	CODETI	
1149	0.02	3.83	-0.13	0.00	3.86	5.493	4.577	4.47	CODETI	
1150	0.00	2.30	0.30	0.00	2.38	5.493	4.577	4.10	CODETI	
1150	0.00	0.44	-0.30	0.00	0.75	1.000	1.000	0.75	CODETI	
1158	0.00	0.24	0.30	0.00	0.65	1.000	1.000	0.65	CODETI	
1158	0.00	1.31	-0.30	0.00	1.44	5.493	4.577	3.58	CODETI	
1159	0.00	2.02	0.21	0.00	2.07	5.493	4.577	3.27	CODETI	
1159	0.00	2.02	-0.21	0.00	2.07	5.493	4.577	3.27	CODETI	
1160	0.00	2.22	0.05	0.00	2.22	5.493	4.577	2.63	CODETI	
1160	0.00	0.47	-0.05	0.00	0.48	1.000	1.000	0.48	CODETI	
1165 (SR_19)	0.00	0.46	0.05	0.00	0.47	1.000	1.000	0.47	CODETI	

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1165 (SR_19)	0.00	0.46	-0.05	0.00	0.47	1.000	1.000	0.47	CODETI	
1170 (Té_ATRE)	0.00	0.80	0.05	0.00	0.81	4.398	4.398	0.92	CODETI	
1170 (Té_ATRE)	0.00	0.80	-0.05	0.00	0.81	4.398	4.398	0.92	CODETI	
1175	0.00	0.09	0.05	0.00	0.14	1.000	1.000	0.14	CODETI	
1175	0.00	0.09	-0.05	0.00	0.14	1.000	1.000	0.14	CODETI	
1178	0.00	0.06	0.05	0.00	0.12	1.000	1.000	0.12	CODETI	
1178	0.00	0.32	-0.05	0.00	0.34	5.493	4.577	0.66	CODETI	
1179	0.01	0.35	0.03	0.00	0.36	5.493	4.577	0.54	CODETI	
1179	0.01	0.35	-0.03	0.00	0.36	5.493	4.577	0.54	CODETI	
1180	0.01	0.36	-0.00	0.00	0.37	5.493	4.577	0.43	CODETI	
1180	0.01	0.08	0.00	0.00	0.09	1.000	1.000	0.08	CODETI	
1185	0.01	0.07	-0.00	0.00	0.08	1.000	1.000	0.07	CODETI	
1185	-0.00	0.01	0.00	0.00	0.01	1.000	1.000	0.01	CODETI	
1186 (SG_20)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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1186 (SG_20)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1190	-0.00	0.00	0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	-0.00	0.00	-0.00	0.00	0.00	2.500	2.500	0.00	CODETI	
1195	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1200	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1210 (CT_REF_Reg)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.00	0.00	-0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1211	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1211	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1212 (CT_03)	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1216	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1216	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1218	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	0.00	0.00	-0.00	0.00	0.00	7.242	6.035	0.00	CODETI	
1219	-0.23	0.00	0.00	0.00	0.23	7.242	6.035	0.00	CODETI	
1220	0.00	6.65	0.00	0.00	6.65	7.242	6.035	6.65	CODETI	
1220	0.00	0.92	-0.00	0.00	0.92	1.000	1.000	0.92	CODETI	
1230	0.00	1.13	0.00	0.00	1.13	1.000	1.000	1.13	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1268	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1269	0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1270	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1279	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1279	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1280	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1286	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1286	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1291	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	

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1291	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1292	-0.00	0.00	0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	-0.00	0.00	0.00	5.380	4.483	0.00	CODETI	
1290	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1300	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.00	0.00	0.00	0.00	0.00	4.398	4.398	0.00	CODETI	
1320	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-2.22	45.22	18.62	0.00	60.32	1.000	1.000	58.59	CODETI	
1328	-2.22	31.26	-18.62	0.00	50.09	1.000	1.000	48.63	CODETI	
1328	-2.22	147.15	18.62	0.00	153.95	5.380	4.483	261.61	CODETI	*
1329	-2.54	91.65	-24.31	0.00	106.00	5.380	4.483	277.16	CODETI	*

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1329	-3.09	92.13	23.40	0.00	106.10	5.380	4.483	268.16	CODETI	*
1330	-2.16	116.04	-19.31	0.00	124.35	5.380	4.483	246.79	CODETI	*
1330	-2.16	24.77	19.31	0.00	47.07	1.000	1.000	45.87	CODETI	
1338	-2.16	26.68	-19.31	0.00	48.20	1.000	1.000	46.94	CODETI	
1338	-2.16	125.30	19.31	0.00	133.18	5.380	4.483	252.51	CODETI	*
1339	-3.07	97.59	-23.96	0.00	111.49	5.380	4.483	275.69	CODETI	*
1339	-3.07	97.59	23.96	0.00	111.49	5.380	4.483	275.69	CODETI	*
1340	-2.21	131.16	-18.66	0.00	138.49	5.380	4.483	250.95	CODETI	*
1340	-2.21	27.99	18.66	0.00	48.00	1.000	1.000	46.65	CODETI	
1343	-2.21	21.46	-18.66	0.00	44.19	1.000	1.000	43.05	CODETI	
1343	-2.21	21.46	18.66	0.00	44.19	1.000	1.000	43.05	CODETI	
1348	-2.21	26.99	-18.66	0.00	47.39	1.000	1.000	46.06	CODETI	
1348	-2.21	127.20	18.66	0.00	134.68	5.380	4.483	247.78	CODETI	*
1349	-3.14	101.52	-23.42	0.00	114.66	5.380	4.483	271.64	CODETI	*
1349	-3.14	101.52	23.42	0.00	114.66	5.380	4.483	271.64	CODETI	*
1345	-2.23	130.73	-18.24	0.00	137.87	5.380	4.483	246.74	CODETI	*
1345	-2.23	27.79	18.24	0.00	47.25	1.000	1.000	45.86	CODETI	
1350 (SP_23)	-2.23	9.45	-18.24	0.00	38.31	1.000	1.000	37.69	CODETI	
1350 (SP_23)	-2.22	9.45	18.24	0.00	38.30	1.000	1.000	37.69	CODETI	
1355	-2.22	11.57	-18.24	0.00	39.00	1.000	1.000	38.28	CODETI	

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1355	-2.22	11.57	18.24	0.00	39.00	1.000	1.000	38.28	CODETI	
1360	-2.22	13.00	-18.24	0.00	39.53	1.000	1.000	38.73	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	-2.22	15.93	18.24	0.00	40.75	1.000	1.000	39.81	CODETI	
514 (Té_VS_011)	-2.22	102.50	-11.15	0.00	107.07	5.836	5.836	165.61	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.16	31.37	5.33	0.00	33.29	7.388	7.388	84.82	CODETI	
1417	-0.52	43.13	-5.29	0.00	44.91	7.388	7.388	89.25	CODETI	
1417	-0.52	43.13	5.29	0.00	44.91	7.388	7.388	89.25	CODETI	
1418	-1.11	74.99	-4.24	0.00	76.57	7.388	7.388	97.70	CODETI	
1418	-1.11	74.99	4.24	0.00	76.57	7.388	7.388	97.70	CODETI	
1419	-1.40	96.00	-2.18	0.00	97.50	7.388	7.388	101.26	CODETI	
1419	-1.40	96.00	2.18	0.00	97.50	7.388	7.388	101.26	CODETI	

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1410	-1.41	99.18	-0.94	0.00	100.60	7.388	7.388	100.13	CODETI	
1410	-1.41	13.42	0.94	0.00	14.95	1.000	1.000	13.55	CODETI	
1415 (SP_26)	-1.41	2.69	-0.94	0.00	4.51	1.000	1.000	3.28	CODETI	
1415 (SP_26)	-0.11	2.69	0.94	0.00	3.37	1.000	1.000	3.28	CODETI	
1422	-0.11	2.29	-0.94	0.00	3.05	1.000	1.000	2.96	CODETI	
1422	-0.11	10.83	0.94	0.00	11.10	5.640	4.700	16.70	CODETI	
1421	0.08	8.76	-1.32	0.00	9.23	5.640	4.700	17.34	CODETI	
1421	0.08	8.76	1.32	0.00	9.23	5.640	4.700	17.34	CODETI	
1420	0.23	19.13	-0.63	0.00	19.40	5.640	4.700	22.30	CODETI	
1420	0.23	3.74	0.63	0.00	4.17	1.000	1.000	3.95	CODETI	
1425	0.23	4.61	-0.63	0.00	5.00	1.000	1.000	4.78	CODETI	
1425	0.23	4.61	0.63	0.00	5.00	1.000	1.000	4.78	CODETI	
1428	0.25	47.49	-0.89	0.00	47.77	7.391	7.391	49.27	CODETI	
1428	0.25	47.49	0.89	0.00	47.77	7.391	7.391	49.27	CODETI	
1429	0.27	46.15	-1.35	0.00	46.50	7.391	7.391	50.30	CODETI	
1429	0.27	46.15	1.35	0.00	46.50	7.391	7.391	50.30	CODETI	
1430	0.28	45.06	-1.56	0.00	45.45	7.391	7.391	50.63	CODETI	
1430	0.28	6.10	1.56	0.00	7.10	1.000	1.000	6.85	CODETI	
1440	0.28	6.98	-1.56	0.00	7.91	1.000	1.000	7.65	CODETI	
1440	0.28	6.98	1.56	0.00	7.91	1.000	1.000	7.65	CODETI	

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1445 (SP_31)	0.28	7.71	-1.56	0.00	8.57	1.000	1.000	8.31	CODETI	
1445 (SP_31)	0.28	7.71	1.56	0.00	8.57	1.000	1.000	8.31	CODETI	
1450	0.28	40.19	-1.56	0.00	40.59	5.231	5.231	43.38	CODETI	
1450	-0.00	11.25	1.23	0.00	11.52	5.231	5.231	17.13	CODETI	
1451 (SP_27)	-0.00	1.44	-1.23	0.00	2.86	1.000	1.000	2.86	CODETI	
1451 (SP_27)	0.00	1.44	1.23	0.00	2.86	1.000	1.000	2.86	CODETI	
1452	0.00	1.14	-1.23	0.00	2.72	1.000	1.000	2.72	CODETI	
1452	0.00	1.14	1.23	0.00	2.72	1.000	1.000	2.72	CODETI	
1455 (SP_28)	0.00	2.33	-1.23	0.00	3.40	1.000	1.000	3.40	CODETI	
1455 (SP_28)	-0.00	2.33	1.23	0.00	3.40	1.000	1.000	3.40	CODETI	
1458	-0.00	1.21	-1.23	0.00	2.75	1.000	1.000	2.75	CODETI	
1458	-0.00	5.78	1.23	0.00	6.29	5.640	4.700	15.52	CODETI	
1459	-0.02	10.40	-0.54	0.00	10.47	5.640	4.700	13.85	CODETI	
1459	-0.02	10.40	0.54	0.00	10.47	5.640	4.700	13.85	CODETI	
1460	-0.02	9.14	0.32	0.00	9.19	5.640	4.700	11.54	CODETI	
1460	-0.02	1.94	-0.32	0.00	2.07	1.000	1.000	2.05	CODETI	
1468	-0.02	0.56	0.32	0.00	0.87	1.000	1.000	0.85	CODETI	
1468	-0.02	2.71	-0.32	0.00	2.81	5.640	4.700	4.82	CODETI	
1469	-0.02	2.27	0.12	0.00	2.29	5.640	4.700	2.98	CODETI	
1469	-0.02	2.27	-0.12	0.00	2.29	5.640	4.700	2.98	CODETI	



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1470	0.00	0.54	0.00	0.00	0.54	5.640	4.700	0.63	CODETI	
1470	0.00	0.11	-0.00	0.00	0.11	1.000	1.000	0.11	CODETI	
1475 (SG_29)	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1475 (SG_29)	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1478	0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	0.00	0.00	0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1479	-0.00	0.00	0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	-0.00	0.00	0.00	5.640	4.700	0.00	CODETI	
1480	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.09	-0.00	0.00	0.09	1.000	1.000	0.09	CODETI	
1518	0.00	0.20	0.00	0.00	0.20	1.000	1.000	0.20	CODETI	
1518	0.00	1.34	-0.00	0.00	1.34	7.391	6.159	1.50	CODETI	
1519	-0.08	4.84	-0.10	0.00	4.92	7.391	6.159	5.58	CODETI	
1519	-0.08	4.84	0.10	0.00	4.92	7.391	6.159	5.58	CODETI	

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 16 Thermique @ TExS en Exceptionnel

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1520	-0.14	7.30	-0.28	0.00	7.46	7.391	6.159	9.11	CODETI	
1520	-0.14	1.10	0.28	0.00	1.36	1.000	1.000	1.23	CODETI	
1523	-0.14	3.94	-0.28	0.00	4.12	1.000	1.000	3.98	CODETI	
1523	-0.14	19.29	0.28	0.00	19.44	5.640	4.700	22.46	CODETI	
1524	-0.16	19.98	-0.80	0.00	20.20	5.640	4.700	24.66	CODETI	
1524	-0.16	19.98	0.80	0.00	20.20	5.640	4.700	24.66	CODETI	
1525	-0.16	19.29	-1.30	0.00	19.62	5.640	4.700	26.49	CODETI	
1525	-0.16	3.91	1.30	0.00	4.83	1.000	1.000	4.70	CODETI	
1530	-0.16	4.04	-1.30	0.00	4.94	1.000	1.000	4.80	CODETI	
1530	-0.16	4.01	1.32	0.00	4.94	1.000	1.000	4.80	CODETI	
1540 (SR_30)	-0.16	4.80	-1.32	0.00	5.62	1.000	1.000	5.48	CODETI	
1540 (SR_30)	-0.16	4.80	1.32	0.00	5.62	1.000	1.000	5.48	CODETI	
1450	-0.16	42.40	-1.32	0.00	42.65	5.231	5.231	44.60	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.43	0.87	0.10	0.00	8.30	1.000	1.000	0.89	CODETI	
20	-7.13	0.80	-0.10	0.00	7.94	1.000	1.000	0.82	CODETI	
20	-0.18	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
25	-1.24	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
20	-7.44	0.81	0.10	-3.81	8.26	1.000	1.000	2.73	CODETI	
30	-7.12	0.80	-0.10	-3.81	7.93	1.000	1.000	2.73	CODETI	
30	-7.03	0.61	0.11	-3.81	7.65	1.000	1.000	2.55	CODETI	
40	-6.67	0.59	-0.11	-3.81	7.28	1.000	1.000	2.54	CODETI	
40	-6.47	0.07	0.01	-3.81	6.55	1.000	1.000	1.97	CODETI	
45 (Weld_CW2)	-4.80	0.05	-0.01	-3.81	4.86	1.000	1.000	1.96	CODETI	
45 (Weld_CW2)	-4.80	0.05	0.01	-3.81	4.86	1.000	1.000	1.96	CODETI	
50	-3.58	0.04	-0.01	-3.81	3.83	1.000	1.000	1.95	CODETI	
50	-2.35	0.03	0.01	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.55	0.02	-0.01	-2.50	2.51	1.000	1.000	1.27	CODETI	
55	-1.54	0.01	0.00	-2.50	2.51	1.000	1.000	1.26	CODETI	
56	-1.48	0.01	-0.00	-2.50	2.51	1.000	1.000	1.26	CODETI	
56	-1.49	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
60	-1.28	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
65 (Piquage_N1)	-0.65	0.00	0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	
70	-0.58	0.00	-0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.48	2.13	-3.95	-0.70	8.32	1.000	1.000	8.52	CODETI	
110	-0.48	0.78	3.95	-0.70	7.96	1.000	1.000	8.28	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.08	0.42	-0.00	-0.56	0.90	1.000	1.000	0.70	CODETI	
129	-0.18	4.27	0.00	-0.56	4.64	7.124	5.937	4.55	CODETI	
129	-0.18	4.27	-0.00	-0.56	4.57	7.124	5.937	4.55	CODETI	
130	-0.28	6.51	0.00	-0.56	6.79	7.124	5.937	6.79	CODETI	
130	-0.28	0.91	-0.00	-0.56	1.19	1.000	1.000	1.19	CODETI	
134 (Jupe_N3)	-0.28	0.05	0.00	-0.56	0.58	1.000	1.000	0.33	CODETI	
134 (Jupe_N3)	-0.28	0.05	-0.00	-0.56	0.58	1.000	1.000	0.33	CODETI	
135 (SR_N3)	-0.28	0.38	0.00	-0.56	0.67	1.000	1.000	0.66	CODETI	

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.66	2.44	0.00	-0.56	3.09	1.000	1.000	2.72	CODETI	
160	-0.54	0.38	-0.00	-0.56	0.93	1.000	1.000	0.66	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	-0.02	1.02	0.22	-0.56	1.59	1.000	1.000	1.39	CODETI	
190	0.08	0.96	-0.22	-0.56	1.66	1.000	1.000	1.34	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.44	4.85	5.56	-0.56	12.31	1.000	1.000	12.41	CODETI	
220	-0.44	2.77	-5.56	-0.56	11.49	1.000	1.000	11.74	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	-0.32	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
250	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
251 (CT_N1)	-0.31	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
260	-0.13	0.00	0.00	-0.63	0.65	10.614	10.614	0.31	CODETI	
260	-0.20	102.73	-6.18	-0.41	103.67	10.614	10.614	166.78	CODETI	
262	-0.20	7.34	6.18	-0.41	14.48	1.000	1.000	14.57	CODETI	
262	-0.31	11.25	-9.47	-0.63	22.18	1.000	1.000	22.34	CODETI	
265 (SG_5)	-0.30	9.84	9.47	-0.63	21.49	1.000	1.000	21.65	CODETI	
265 (SG_5)	-0.30	9.84	-9.47	-0.63	21.48	1.000	1.000	21.65	CODETI	
267	-0.30	68.52	8.70	-0.63	71.01	8.376	8.376	161.41	CODETI	
267	-0.30	68.52	-8.70	-0.63	70.99	8.376	8.376	161.41	CODETI	
268	-0.30	108.83	6.01	-0.63	109.81	8.376	8.376	148.52	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
268	-0.30	108.83	-6.01	-0.63	109.79	8.376	8.376	148.52	CODETI	
269	-0.30	121.57	2.42	-0.63	121.99	8.376	8.376	128.46	CODETI	
269	-0.30	121.57	-2.42	-0.63	121.97	8.376	8.376	128.46	CODETI	
270	-0.31	115.83	0.60	-0.63	116.16	8.376	8.376	116.58	CODETI	
270	-0.31	13.83	-0.60	-0.63	14.19	1.000	1.000	14.20	CODETI	
271	-0.30	3.54	0.60	-0.63	4.04	1.000	1.000	4.05	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.82	3.13	-0.02	5.69	6.00	1.000	1.000	5.95	CODETI	
277	2.78	24.28	0.41	5.69	27.16	8.141	8.141	28.01	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
277	2.78	24.28	-0.41	5.69	27.07	8.141	8.141	28.01	CODETI	
278	2.68	17.51	1.09	5.69	20.60	8.141	8.141	27.80	CODETI	
278	2.68	17.51	-1.09	5.69	20.38	8.141	8.141	27.80	CODETI	
279	2.57	6.29	1.48	5.69	9.82	8.141	8.141	27.79	CODETI	
279	2.57	6.29	-1.48	5.69	9.88	8.141	8.141	27.79	CODETI	
280	2.53	0.95	1.53	5.69	6.58	8.141	8.141	27.80	CODETI	
280	2.53	0.12	-1.53	5.69	6.53	1.000	1.000	5.89	CODETI	
284	2.49	0.11	1.53	5.69	6.43	1.000	1.000	5.89	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	2.33	0.09	-1.53	5.69	6.57	1.000	1.000	5.89	CODETI	
290	2.15	0.04	1.53	5.69	6.38	1.000	1.000	5.89	CODETI	
290	2.15	0.04	-1.53	5.69	6.59	1.000	1.000	5.89	CODETI	
299	1.97	0.02	1.53	5.69	6.36	1.000	1.000	5.89	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	1.80	0.03	-1.53	5.69	6.67	1.000	1.000	5.89	CODETI	
306	1.80	7.85	1.48	5.69	12.07	9.368	9.368	31.58	CODETI	
306	1.80	7.85	-1.48	5.69	12.01	9.368	9.368	31.58	CODETI	
307	2.04	22.93	1.07	5.69	26.62	9.368	9.368	33.28	CODETI	
307	2.04	22.93	-1.07	5.69	26.33	9.368	9.368	33.28	CODETI	
308	2.52	38.12	0.37	5.69	41.25	9.368	9.368	41.58	CODETI	
308	2.52	38.12	-0.37	5.69	40.74	9.368	9.368	41.58	CODETI	
305	2.81	45.36	-0.01	5.69	48.19	9.368	9.368	48.18	CODETI	
305	2.81	4.84	0.01	5.69	7.69	1.000	1.000	7.66	CODETI	
435 (SR_07)	2.81	8.58	-0.01	5.69	11.41	1.000	1.000	11.40	CODETI	
435 (SR_07)	2.82	8.58	0.01	5.69	11.40	1.000	1.000	11.40	CODETI	
440	2.82	101.63	-0.01	5.69	104.46	10.614	10.614	104.46	CODETI	
440	1.75	15.22	0.37	3.73	16.99	10.614	10.614	18.93	CODETI	
445	1.75	1.31	-0.37	3.73	4.01	1.000	1.000	3.34	CODETI	
445	2.68	18.75	0.56	5.69	21.53	9.368	9.368	24.31	CODETI	
311	2.55	15.88	-0.79	5.69	19.04	9.368	9.368	24.57	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
311	2.55	15.88	0.79	5.69	18.87	9.368	9.368	24.57	CODETI	
312	2.33	9.13	-1.14	5.69	12.65	9.368	9.368	26.03	CODETI	
312	2.33	9.13	1.14	5.69	12.58	9.368	9.368	26.03	CODETI	
313	2.23	6.05	-1.24	5.69	9.79	9.368	9.368	26.83	CODETI	
313	2.23	6.05	1.24	5.69	9.83	9.368	9.368	26.83	CODETI	
310	2.23	8.51	-1.18	5.69	12.16	9.368	9.368	26.58	CODETI	
310	2.23	0.91	1.18	5.69	6.48	1.000	1.000	5.36	CODETI	
315	2.22	0.82	-1.18	5.69	6.26	1.000	1.000	5.33	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.16	0.78	1.18	5.69	6.47	1.000	1.000	5.32	CODETI	
330	2.10	0.75	-1.18	5.69	6.24	1.000	1.000	5.31	CODETI	
330	2.10	0.75	1.18	5.69	6.47	1.000	1.000	5.31	CODETI	
335	2.05	1.11	-1.18	5.69	6.27	1.000	1.000	5.44	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 3 Poids + PS + TMS en Normal

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340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	1.99	1.18	1.18	5.69	6.62	1.000	1.000	5.47	CODETI	
337	1.95	8.90	-1.31	5.69	12.86	9.368	9.368	28.97	CODETI	
337	1.95	8.90	1.31	5.69	12.78	9.368	9.368	28.97	CODETI	
338	2.09	2.51	-1.38	5.69	6.71	9.368	9.368	28.71	CODETI	
338	2.09	2.51	1.38	5.69	7.33	9.368	9.368	28.71	CODETI	
339	2.44	15.33	-1.19	5.69	18.68	9.368	9.368	29.82	CODETI	
339	2.44	15.33	1.19	5.69	18.49	9.368	9.368	29.82	CODETI	
350	2.67	22.66	-1.02	5.69	25.72	9.368	9.368	32.48	CODETI	
350	1.74	1.58	0.67	3.73	4.38	1.000	1.000	3.91	CODETI	
355 (SR_8)	1.74	2.21	-0.67	3.73	4.58	1.000	1.000	4.42	CODETI	
355 (SR_8)	1.75	2.21	0.67	3.73	4.69	1.000	1.000	4.42	CODETI	
360 (Té_TH_700)	1.75	3.17	-0.67	3.73	5.28	1.000	1.000	5.28	CODETI	
360 (Té_TH_700)	1.74	3.18	0.34	3.73	5.21	1.000	1.000	5.09	CODETI	
365	1.74	53.63	-0.34	3.73	55.57	10.614	10.614	55.95	CODETI	

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365	1.36	37.48	0.13	3.73	39.01	10.614	10.614	39.42	CODETI	
366	1.36	3.27	-0.13	3.73	5.61	1.000	1.000	5.13	CODETI	
366	2.09	40.86	0.20	5.69	43.88	8.141	8.141	43.81	CODETI	
368	2.15	38.89	-0.09	5.69	42.38	8.141	8.141	41.74	CODETI	
368	2.15	38.89	0.09	5.69	41.87	8.141	8.141	41.74	CODETI	
369	2.38	31.94	0.11	5.69	35.21	8.141	8.141	34.82	CODETI	
369	2.38	31.94	-0.11	5.69	34.80	8.141	8.141	34.82	CODETI	
370	2.54	27.02	0.21	5.69	30.13	8.141	8.141	30.05	CODETI	
370	2.54	3.32	-0.21	5.69	6.52	1.000	1.000	6.17	CODETI	
378	2.46	5.57	0.14	5.69	8.76	8.141	8.141	8.86	CODETI	
378	2.46	5.57	-0.14	5.69	8.76	8.141	8.141	8.86	CODETI	
379	2.20	12.01	0.02	5.69	15.45	8.141	8.141	14.83	CODETI	
379	2.20	12.01	-0.02	5.69	15.36	8.141	8.141	14.83	CODETI	
380	2.09	15.18	-0.04	5.69	18.73	8.141	8.141	18.02	CODETI	
380	2.09	1.86	0.04	5.69	5.83	1.000	1.000	4.69	CODETI	
385	2.09	2.01	-0.04	5.69	5.83	1.000	1.000	4.83	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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CASE 3 Poids + PS + TMS en Normal

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395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	11.80	1.65	0.04	25.28	25.89	1.000	1.000	14.19	CODETI	
410	11.80	0.32	-0.04	25.28	25.89	1.000	1.000	12.88	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	11.81	0.48	0.04	25.28	25.89	1.000	1.000	13.03	CODETI	
430 (PF4_CPO)	11.81	2.29	-0.04	25.28	25.89	1.000	1.000	14.83	CODETI	
440	1.75	25.01	-2.57	3.73	27.25	10.614	10.614	61.89	CODETI	
450	1.75	1.21	2.57	3.73	6.03	1.000	1.000	7.13	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	2.75	105.68	-3.33	4.27	108.64	10.614	10.614	129.30	CODETI	
500	2.85	12.49	5.14	4.27	17.25	1.000	1.000	18.28	CODETI	

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500	2.85	12.49	-5.14	4.27	18.46	1.000	1.000	18.28	CODETI	
503	2.77	70.30	5.75	4.27	72.67	7.049	7.049	109.39	CODETI	
503	2.77	70.30	-5.75	4.27	73.97	7.049	7.049	109.39	CODETI	
504	2.39	49.01	6.47	4.27	52.46	7.049	7.049	105.60	CODETI	
504	2.39	49.01	-6.47	4.27	53.00	7.049	7.049	105.60	CODETI	
505	2.18	41.03	6.54	4.27	45.02	7.049	7.049	103.06	CODETI	
505	2.18	5.82	-6.54	4.27	15.33	1.000	1.000	16.43	CODETI	
508	2.49	42.49	6.10	4.27	45.88	7.049	7.049	98.04	CODETI	
508	2.49	42.49	-6.10	4.27	46.61	7.049	7.049	98.04	CODETI	
509	2.95	81.36	4.37	4.27	83.09	7.049	7.049	104.17	CODETI	
509	2.95	81.36	-4.37	4.27	84.77	7.049	7.049	104.17	CODETI	
510	3.14	96.58	3.15	4.27	97.92	7.049	7.049	108.40	CODETI	
510	3.14	13.70	-3.15	4.27	17.98	1.000	1.000	17.19	CODETI	
514 (Té_VS_011)	3.19	92.42	3.15	4.27	93.90	5.836	5.836	101.57	CODETI	
514 (Té_VS_011)	2.93	130.92	0.00	4.27	133.85	5.836	5.836	133.03	CODETI	
515	3.02	22.43	-0.00	4.27	25.08	1.000	1.000	24.55	CODETI	
515	1.45	10.80	0.00	2.08	12.26	1.000	1.000	11.82	CODETI	
520	1.52	78.63	-0.00	2.08	79.15	7.279	7.279	79.65	CODETI	

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520	0.55	71.04	-0.28	2.08	71.59	7.279	7.279	72.17	CODETI	
525	0.55	6.83	0.28	2.08	8.34	1.000	1.000	7.87	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	-0.97	12.40	-0.58	0.00	13.42	1.000	1.000	12.45	CODETI	
547	-0.42	67.97	0.61	0.00	68.39	6.943	6.943	68.49	CODETI	
547	-0.42	67.97	-0.61	0.00	68.39	6.943	6.943	68.49	CODETI	
548	0.76	35.29	0.55	0.00	36.07	6.943	6.943	36.11	CODETI	
548	-0.74	35.29	-0.55	0.00	36.04	6.943	6.943	36.11	CODETI	
549	-0.27	23.77	0.36	0.00	24.05	6.943	6.943	24.28	CODETI	
549	-0.27	23.77	-0.36	0.00	24.05	6.943	6.943	24.28	CODETI	
550	0.00	17.58	0.22	0.00	17.58	6.943	6.943	17.85	CODETI	
550	0.00	2.53	-0.22	0.00	2.57	1.000	1.000	2.57	CODETI	
557	0.40	33.08	0.09	0.00	33.48	6.943	6.943	33.10	CODETI	

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557	0.40	33.08	-0.09	0.00	33.48	6.943	6.943	33.10	CODETI	
558	0.84	44.04	-0.20	0.00	44.88	6.943	6.943	44.13	CODETI	
558	0.84	44.04	0.20	0.00	44.88	6.943	6.943	44.13	CODETI	
559	1.02	48.20	-0.42	0.00	49.22	6.943	6.943	48.55	CODETI	
559	1.02	48.20	0.42	0.00	49.22	6.943	6.943	48.55	CODETI	
560	0.99	47.11	-0.49	0.00	48.11	6.943	6.943	47.60	CODETI	
560	0.99	6.78	0.49	0.00	7.83	1.000	1.000	6.86	CODETI	
570	0.99	5.44	-0.49	0.00	6.50	1.000	1.000	5.53	CODETI	
570	0.99	13.61	0.49	0.00	14.63	2.500	2.500	13.83	CODETI	
580	0.74	4.51	-0.28	0.00	5.28	2.500	2.500	4.72	CODETI	
580	0.74	1.81	0.28	0.00	2.60	1.000	1.000	1.89	CODETI	
585	0.74	1.47	-0.28	0.00	2.28	1.000	1.000	1.58	CODETI	
585	0.74	1.47	0.28	0.00	2.28	1.000	1.000	1.58	CODETI	
590	0.74	3.47	-0.28	0.00	4.25	7.057	7.057	5.22	CODETI	
590	-0.00	42.02	0.92	0.00	42.07	7.057	7.057	43.98	CODETI	
595 (SR_11)	-0.01	8.25	-0.92	0.00	8.46	1.000	1.000	8.45	CODETI	
595 (SR_11)	0.00	8.25	0.92	0.00	8.46	1.000	1.000	8.45	CODETI	
596 (SP_13)	0.00	4.58	-0.92	0.00	4.93	1.000	1.000	4.93	CODETI	
596 (SP_13)	0.01	4.58	0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
598	0.00	32.38	-0.66	0.00	32.41	8.236	8.236	34.16	CODETI	



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598	0.00	32.38	0.66	0.00	32.41	8.236	8.236	34.16	CODETI	
599	0.00	30.10	-0.16	0.00	30.11	8.236	8.236	30.22	CODETI	
599	0.00	30.10	0.16	0.00	30.11	8.236	8.236	30.22	CODETI	
600	0.00	28.27	0.07	0.00	28.28	8.236	8.236	28.30	CODETI	
600	0.00	3.43	-0.07	0.00	3.44	1.000	1.000	3.44	CODETI	
608	0.00	2.69	0.05	0.00	2.69	8.236	8.236	2.80	CODETI	
608	0.00	2.69	-0.05	0.00	2.69	8.236	8.236	2.80	CODETI	
609	0.00	1.75	0.01	0.00	1.75	8.236	8.236	1.76	CODETI	
609	0.00	1.75	-0.01	0.00	1.75	8.236	8.236	1.76	CODETI	
610	0.00	1.32	-0.00	0.00	1.32	8.236	8.236	1.32	CODETI	
610	0.00	0.16	0.00	0.00	0.16	1.000	1.000	0.16	CODETI	
615	0.00	0.04	-0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
615	0.00	0.04	0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
620	-0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	0.54	6.87	0.51	2.08	8.21	7.279	7.279	11.12	CODETI	
625	0.54	0.14	-0.51	2.08	2.36	1.000	1.000	2.05	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	-0.99	0.60	1.06	0.00	2.65	1.000	1.000	2.20	CODETI	
642	-1.06	8.95	-1.05	0.00	10.22	6.943	6.943	17.15	CODETI	
642	-1.06	8.95	1.05	0.00	10.22	6.943	6.943	17.15	CODETI	
643	-0.94	11.08	-0.83	0.00	12.13	6.943	6.943	16.00	CODETI	
643	-0.94	11.08	0.83	0.00	12.13	6.943	6.943	16.00	CODETI	
644	-0.53	14.72	-0.38	0.00	15.28	6.943	6.943	15.64	CODETI	
644	-0.53	14.72	0.38	0.00	15.28	6.943	6.943	15.64	CODETI	
645	-0.28	18.68	-0.12	0.00	18.95	6.943	6.943	18.74	CODETI	
645	-0.28	2.69	0.12	0.00	2.97	1.000	1.000	2.70	CODETI	
590	-0.07	81.26	-0.11	0.00	81.33	7.057	7.057	81.28	CODETI	
360 (Té_TH_700)	2.82	1.36	-0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	-0.00	4.21	4.34	1.000	1.000	3.39	CODETI	

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CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	2.08	0.05	0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	-0.20	102.73	-6.18	-0.41	103.67	10.614	10.614	166.78	CODETI	
720 (Té_VS_008)	-0.20	124.97	6.18	-0.41	125.79	10.614	10.614	181.34	CODETI	
720 (Té_VS_008)	-0.32	101.63	-4.05	-0.41	102.27	10.614	10.614	133.30	CODETI	
725	-0.33	9.19	4.05	-0.41	12.31	1.000	1.000	12.45	CODETI	
725	-0.50	14.09	-6.21	-0.63	19.16	1.000	1.000	19.09	CODETI	
730	-0.50	13.03	6.21	-0.63	18.09	1.000	1.000	18.31	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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760	-0.31	8.90	-4.05	-0.41	12.27	1.000	1.000	12.24	CODETI	
770 (Té_Gavage)	-0.31	136.67	4.05	-0.41	137.01	10.614	10.614	161.65	CODETI	
770 (Té_Gavage)	-0.20	3.17	-0.00	-0.41	3.37	10.614	10.614	3.37	CODETI	
780	-0.20	0.00	0.00	-0.41	0.43	1.000	1.000	0.21	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	-0.00	-0.63	0.65	2.000	2.000	0.31	CODETI	
800 (SB_02)	-0.67	0.88	0.00	-1.18	1.55	2.000	2.000	1.47	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	-0.59	0.46	0.00	-1.18	1.19	1.000	1.000	1.05	CODETI	
820	-0.59	0.00	0.00	-1.18	1.19	1.000	1.000	0.59	CODETI	
720 (Té_VS_008)	-0.37	63.56	-3.11	-0.63	64.23	10.614	10.614	91.90	CODETI	
830	-0.37	3.37	3.11	-0.63	7.20	1.000	1.000	7.38	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.37	3.08	-3.11	-0.63	7.11	1.000	1.000	7.25	CODETI	
865 (SP_14)	-0.37	2.63	3.11	-0.63	6.85	1.000	1.000	7.06	CODETI	
865 (SP_14)	-0.37	2.63	-3.11	-0.63	6.90	1.000	1.000	7.06	CODETI	
867	-0.40	21.21	2.87	-0.63	22.19	8.376	8.376	52.91	CODETI	
867	-0.40	21.21	-2.87	-0.63	22.36	8.376	8.376	52.91	CODETI	
868	-0.48	37.97	1.96	-0.63	38.31	8.376	8.376	50.46	CODETI	
868	-0.48	37.97	-1.96	-0.63	38.65	8.376	8.376	50.46	CODETI	
869	-0.56	44.90	0.66	-0.63	44.99	8.376	8.376	46.55	CODETI	
869	-0.56	44.90	-0.66	-0.63	45.49	8.376	8.376	46.55	CODETI	
870	-0.58	43.99	0.00	-0.63	44.03	8.376	8.376	44.30	CODETI	
870	-0.58	5.25	-0.00	-0.63	5.84	1.000	1.000	5.57	CODETI	
872	-0.83	2.87	0.00	-0.63	3.66	1.000	1.000	3.18	CODETI	
872	-0.83	2.87	0.00	-0.63	3.69	1.000	1.000	3.18	CODETI	
875 (SG_15)	-1.12	0.10	-0.00	-0.63	1.22	1.000	1.000	0.41	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.16	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
880	-0.18	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
880	-0.18	0.00	0.00	-0.63	0.65	2.500	2.500	0.31	CODETI	
890	-0.24	0.00	-0.00	-0.52	0.53	2.500	2.500	0.26	CODETI	
890	-0.24	0.00	0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	-0.25	0.00	-0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	1.04	251.60	0.00	-0.63	252.64	10.614	10.614	251.91	CODETI	
772 (SG_16_1)	0.93	23.60	-0.00	-0.63	25.16	1.000	1.000	23.92	CODETI	
772 (SG_16_1)	0.93	23.60	0.00	-0.63	24.80	1.000	1.000	23.92	CODETI	
775	0.74	120.31	-0.00	-0.63	121.68	7.057	7.057	120.62	CODETI	
775	0.65	120.44	-0.00	-0.63	121.09	7.057	7.057	120.75	CODETI	
910 (Té_VS_007)	0.26	3.70	0.00	-0.63	4.59	1.000	1.000	4.01	CODETI	
910 (Té_VS_007)	0.30	3.62	-0.00	-0.63	4.50	1.000	1.000	3.93	CODETI	

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915 (SG_16_2)	0.24	2.05	0.00	-0.63	2.91	1.000	1.000	2.36	CODETI	
915 (SG_16_2)	0.24	2.05	-0.00	-0.63	2.89	1.000	1.000	2.36	CODETI	
920	0.21	2.05	0.00	-0.63	2.88	1.000	1.000	2.36	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.11	2.05	-0.00	-0.63	2.76	1.000	1.000	2.36	CODETI	
957	0.04	16.89	0.00	-0.63	17.56	8.472	8.472	17.21	CODETI	
957	0.04	16.89	-0.00	-0.63	17.31	8.472	8.472	17.21	CODETI	
958	-0.09	13.96	0.00	-0.63	14.50	8.472	8.472	14.28	CODETI	
958	-0.09	13.96	-0.00	-0.63	14.29	8.472	8.472	14.28	CODETI	
959	-0.25	9.73	-0.00	-0.63	10.11	8.472	8.472	10.04	CODETI	

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959	-0.25	9.73	0.00	-0.63	9.98	8.472	8.472	10.04	CODETI	
960	-0.31	7.66	-0.00	-0.63	7.97	8.472	8.472	7.97	CODETI	
960	-0.31	0.90	0.00	-0.63	1.22	1.000	1.000	1.22	CODETI	
965	-0.31	0.32	-0.00	-0.63	0.65	1.000	1.000	0.64	CODETI	
965	-0.31	0.81	0.00	-0.63	1.12	2.500	2.500	1.12	CODETI	
970	-0.26	0.02	-0.00	-0.53	0.54	2.500	2.500	0.28	CODETI	
970	-0.26	0.01	0.00	-0.53	0.54	1.000	1.000	0.27	CODETI	
980	-0.26	0.00	-0.00	-0.53	0.54	1.000	1.000	0.26	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.25	10.14	0.00	-0.51	10.39	7.057	7.057	10.39	CODETI	
995	-0.25	0.71	-0.00	-0.51	0.97	1.000	1.000	0.97	CODETI	
995	-0.25	0.71	0.00	-0.51	0.97	1.000	1.000	0.97	CODETI	
998	-0.25	0.46	-0.00	-0.51	0.71	1.000	1.000	0.71	CODETI	
998	-0.25	2.51	0.00	-0.51	2.76	5.493	4.577	2.76	CODETI	
999	-0.40	1.29	-0.00	-0.51	1.68	5.493	4.577	1.54	CODETI	
999	-0.40	1.29	0.00	-0.51	1.69	5.493	4.577	1.54	CODETI	
1000	-0.52	3.07	-0.00	-0.51	3.54	5.493	4.577	3.32	CODETI	
1000	-0.52	0.56	0.00	-0.51	1.07	1.000	1.000	0.81	CODETI	



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1002	-0.82	0.56	-0.00	-0.51	1.38	1.000	1.000	0.81	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.82	0.56	0.00	-0.51	1.38	1.000	1.000	0.81	CODETI	
1008	-1.12	0.56	-0.00	-0.51	1.68	1.000	1.000	0.81	CODETI	
1008	-1.12	3.07	0.00	-0.51	4.19	5.493	4.577	3.32	CODETI	
1009	-0.95	10.71	-0.00	-0.51	11.47	5.493	4.577	10.96	CODETI	
1009	0.02	10.71	0.00	-0.51	11.04	5.493	4.577	10.96	CODETI	
1010	-0.25	2.78	-0.00	-0.51	3.03	5.493	4.577	3.03	CODETI	
1010	-0.25	0.51	0.00	-0.51	0.76	1.000	1.000	0.76	CODETI	
1020	-0.25	0.31	-0.00	-0.51	0.56	1.000	1.000	0.56	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.25	0.10	0.00	-0.51	0.53	1.000	1.000	0.35	CODETI	
1060	-0.25	0.07	-0.00	-0.51	0.53	1.000	1.000	0.33	CODETI	
1060	-0.25	0.15	0.00	-0.51	0.53	2.000	2.000	0.40	CODETI	

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1070	-0.23	0.00	-0.00	-0.46	0.48	2.000	2.000	0.23	CODETI	
1070	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1100 (CT_ASP_Reg)	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.29	0.95	0.22	-0.51	1.78	1.000	1.000	1.30	CODETI	
1120	0.29	0.95	-0.22	-0.51	1.81	1.000	1.000	1.30	CODETI	
1120	0.29	0.95	0.22	-0.51	1.78	1.000	1.000	1.30	CODETI	
1128	0.30	0.95	-0.22	-0.51	1.81	1.000	1.000	1.30	CODETI	
1128	0.30	5.22	0.22	-0.51	5.94	5.493	4.577	6.01	CODETI	
1129	0.18	1.60	-0.17	-0.51	2.31	5.493	4.577	2.87	CODETI	
1129	0.18	1.60	0.17	-0.51	2.28	5.493	4.577	2.87	CODETI	
1130	-0.27	17.07	-0.02	-0.51	17.31	5.493	4.577	17.38	CODETI	
1130	-0.27	3.12	0.02	-0.51	3.39	1.000	1.000	3.37	CODETI	
1132	-0.27	5.41	-0.02	-0.51	5.65	1.000	1.000	5.67	CODETI	
1132	-0.27	5.41	0.02	-0.51	5.68	1.000	1.000	5.67	CODETI	
1135 (SR_18)	-0.27	10.18	-0.02	-0.51	10.42	1.000	1.000	10.43	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1135 (SR_18)	-0.25	10.18	0.02	-0.51	10.44	1.000	1.000	10.43	CODETI	
1138	-0.26	2.75	-0.02	-0.51	3.00	1.000	1.000	3.00	CODETI	
1138	-0.26	15.04	0.02	-0.51	15.29	5.493	4.577	15.35	CODETI	
1139	0.11	2.31	0.14	-0.51	2.94	5.493	4.577	3.22	CODETI	
1139	0.11	2.31	-0.14	-0.51	2.90	5.493	4.577	3.22	CODETI	
1140	0.19	3.31	0.22	-0.51	4.04	5.493	4.577	4.36	CODETI	
1140	0.19	0.60	-0.22	-0.51	1.36	1.000	1.000	1.00	CODETI	
1148	-0.10	0.76	0.22	-0.51	1.25	1.000	1.000	1.13	CODETI	
1148	-0.10	4.19	-0.22	-0.51	4.53	5.493	4.577	5.09	CODETI	
1149	-0.20	5.59	0.14	-0.51	5.90	5.493	4.577	6.14	CODETI	
1149	-0.20	5.59	-0.14	-0.51	5.80	5.493	4.577	6.14	CODETI	
1150	-0.26	6.64	-0.02	-0.51	6.89	5.493	4.577	7.03	CODETI	
1150	-0.26	1.23	0.02	-0.51	1.50	1.000	1.000	1.49	CODETI	
1158	-0.26	0.62	-0.02	-0.51	0.89	1.000	1.000	0.88	CODETI	
1158	-0.26	3.15	0.02	-0.51	3.41	5.493	4.577	3.68	CODETI	
1159	-0.26	3.17	-0.02	-0.51	3.41	5.493	4.577	3.73	CODETI	
1159	-0.26	3.17	0.02	-0.51	3.43	5.493	4.577	3.73	CODETI	
1160	-0.25	6.93	-0.40	-0.51	7.23	5.493	4.577	9.56	CODETI	
1160	-0.25	1.49	0.40	-0.51	1.92	1.000	1.000	1.95	CODETI	
1165 (SR_19)	-0.25	1.55	-0.40	-0.51	1.98	1.000	1.000	2.00	CODETI	

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1165 (SR_19)	-0.25	1.56	0.40	-0.51	1.97	1.000	1.000	2.00	CODETI	
1170 (Té_ATRE)	-0.25	29.71	-0.40	-0.51	29.97	4.398	4.398	30.17	CODETI	
1170 (Té_ATRE)	-0.26	29.71	0.40	-0.51	29.98	4.398	4.398	30.17	CODETI	
1175	-0.26	4.04	-0.40	-0.51	4.37	1.000	1.000	4.37	CODETI	
1175	-0.26	4.04	0.40	-0.51	4.37	1.000	1.000	4.37	CODETI	
1178	-0.26	2.84	-0.40	-0.51	3.19	1.000	1.000	3.20	CODETI	
1178	-0.26	15.61	0.40	-0.51	15.89	5.493	4.577	16.47	CODETI	
1179	-0.60	5.63	-0.27	-0.51	6.15	5.493	4.577	6.84	CODETI	
1179	-0.60	5.63	0.27	-0.51	6.26	5.493	4.577	6.84	CODETI	
1180	-0.82	3.41	0.00	-0.51	4.17	5.493	4.577	4.35	CODETI	
1180	-0.82	0.74	-0.00	-0.51	1.56	1.000	1.000	1.00	CODETI	
1185	-0.84	0.73	0.00	-0.51	1.57	1.000	1.000	0.99	CODETI	
1185	0.06	0.02	-0.00	-0.51	0.60	1.000	1.000	0.28	CODETI	
1186 (SG_20)	0.02	0.00	0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1186 (SG_20)	0.02	0.00	-0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	-0.00	-0.51	0.53	2.500	2.500	0.25	CODETI	
1195	-0.22	0.00	0.00	-0.46	0.48	2.500	2.500	0.23	CODETI	
1195	-0.22	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1210 (CT_REF_Reg)	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.05	0.00	0.00	-0.51	0.57	4.398	4.398	0.25	CODETI	
1211	-0.25	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1211	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1212 (CT_03)	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	

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1216	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	-0.00	-0.51	0.53	7.242	6.035	0.25	CODETI	
1219	-0.40	1.63	0.00	-0.51	2.01	7.242	6.035	1.89	CODETI	
1219	-0.40	1.63	-0.00	-0.51	2.03	7.242	6.035	1.89	CODETI	
1220	-0.25	6.47	0.00	-0.51	6.73	7.242	6.035	6.73	CODETI	
1220	-0.25	0.89	-0.00	-0.51	1.15	1.000	1.000	1.15	CODETI	
1230	-0.25	1.07	0.00	-0.51	1.32	1.000	1.000	1.32	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	-0.28	0.00	0.00	-0.56	0.58	1.000	1.000	0.28	CODETI	
1268	-0.28	0.04	-0.00	-0.56	0.58	1.000	1.000	0.31	CODETI	
1268	-0.28	0.19	0.00	-0.56	0.58	5.380	4.483	0.47	CODETI	
1269	-0.29	0.59	-0.00	-0.56	0.88	5.380	4.483	0.87	CODETI	
1269	-0.29	0.59	0.00	-0.56	0.88	5.380	4.483	0.87	CODETI	
1270	-0.32	1.11	-0.00	-0.56	1.41	5.380	4.483	1.39	CODETI	
1270	-0.32	0.21	0.00	-0.56	0.58	1.000	1.000	0.48	CODETI	
1279	-0.33	3.03	0.17	-0.56	3.32	5.380	4.483	4.33	CODETI	
1279	-0.33	3.03	-0.17	-0.56	3.37	5.380	4.483	4.33	CODETI	
1280	-0.28	5.28	0.51	-0.56	5.66	5.380	4.483	8.48	CODETI	
1280	-0.28	1.13	-0.51	-0.56	1.74	1.000	1.000	1.80	CODETI	
1285	-0.28	10.72	0.51	-0.56	11.05	4.398	4.398	11.90	CODETI	
1285	-0.28	30.51	0.17	-0.56	30.80	4.398	4.398	30.83	CODETI	
1286	-0.28	3.00	-0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1286	-0.28	3.00	0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1291	-0.28	1.46	-0.17	-0.56	1.77	1.000	1.000	1.78	CODETI	

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1291	-0.28	6.55	0.17	-0.56	6.84	5.380	4.483	8.36	CODETI	
1292	-0.28	5.91	-0.08	-0.56	6.19	5.380	4.483	7.43	CODETI	
1292	-0.28	5.91	0.08	-0.56	6.20	5.380	4.483	7.43	CODETI	
1290	-0.28	5.22	-0.00	-0.56	5.49	5.380	4.483	6.54	CODETI	
1290	-0.28	1.16	0.00	-0.56	1.44	1.000	1.000	1.44	CODETI	
1300	-0.28	0.41	-0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1300	-0.28	0.41	0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1310	-0.28	0.01	-0.00	-0.56	0.58	1.000	1.000	0.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.27	6.01	2.25	-0.56	7.73	4.398	4.398	20.96	CODETI	
1320	-0.27	4.21	-2.25	-0.56	6.36	1.000	1.000	6.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-2.21	43.27	16.02	-0.56	55.63	1.000	1.000	54.12	CODETI	
1328	-2.21	27.40	-16.02	-0.56	43.25	1.000	1.000	42.43	CODETI	
1328	-2.21	129.36	16.02	-0.56	135.42	5.380	4.483	227.06	CODETI	
1329	-2.35	79.03	-21.00	-0.56	91.09	5.380	4.483	239.64	CODETI	



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1329	-3.20	79.42	20.32	-0.56	92.08	5.380	4.483	232.99	CODETI	
1330	-2.42	103.33	-16.70	-0.56	110.37	5.380	4.483	215.45	CODETI	
1330	-2.42	22.01	16.70	-0.56	41.38	1.000	1.000	40.27	CODETI	
1338	-2.17	22.10	-16.70	-0.56	40.96	1.000	1.000	40.33	CODETI	
1338	-2.17	102.96	16.70	-0.56	110.31	5.380	4.483	215.73	CODETI	
1339	-2.86	75.36	-20.60	-0.56	87.92	5.380	4.483	234.42	CODETI	
1339	-2.86	75.36	20.60	-0.56	88.41	5.380	4.483	234.42	CODETI	
1340	-2.12	109.34	-15.98	-0.56	115.42	5.380	4.483	213.78	CODETI	
1340	-2.12	23.53	15.98	-0.56	40.98	1.000	1.000	39.96	CODETI	
1343	-2.12	16.72	-15.98	-0.56	36.81	1.000	1.000	36.34	CODETI	
1343	-2.12	16.72	15.98	-0.56	37.09	1.000	1.000	36.34	CODETI	
1348	-2.12	21.00	-15.98	-0.56	39.12	1.000	1.000	38.52	CODETI	
1348	-2.12	100.23	15.98	-0.56	107.22	5.380	4.483	206.01	CODETI	
1349	-2.95	91.22	-18.77	-0.56	100.86	5.380	4.483	222.25	CODETI	
1349	-2.95	91.22	18.77	-0.56	101.38	5.380	4.483	222.25	CODETI	
1345	-2.21	124.65	-13.03	-0.56	128.96	5.380	4.483	200.65	CODETI	
1345	-2.21	26.62	13.03	-0.56	38.86	1.000	1.000	37.52	CODETI	
1350 (SP_23)	-2.21	14.75	-13.03	-0.56	30.79	1.000	1.000	30.22	CODETI	
1350 (SP_23)	-2.21	14.75	13.03	-0.56	31.09	1.000	1.000	30.22	CODETI	
1355	-2.21	13.11	-13.03	-0.56	29.95	1.000	1.000	29.44	CODETI	

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1355	-2.21	13.11	13.03	-0.56	30.22	1.000	1.000	29.44	CODETI	
1360	-2.21	13.17	-13.03	-0.56	29.97	1.000	1.000	29.47	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.35	14.30	13.03	4.60	29.89	1.000	1.000	32.00	CODETI	
514 (Té_VS_011)	0.35	83.36	-7.96	4.60	89.00	5.836	5.836	127.09	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.16	34.06	5.56	0.00	35.98	7.388	7.388	88.92	CODETI	
1417	-0.45	44.15	-5.50	0.00	45.94	7.388	7.388	92.53	CODETI	
1417	-0.45	44.15	5.50	0.00	45.94	7.388	7.388	92.53	CODETI	
1418	-0.90	74.18	-4.39	0.00	75.59	7.388	7.388	98.55	CODETI	
1418	-0.90	74.18	4.39	0.00	75.59	7.388	7.388	98.55	CODETI	
1419	-1.08	94.59	-2.23	0.00	95.78	7.388	7.388	100.15	CODETI	
1419	-1.08	94.59	2.23	0.00	95.78	7.388	7.388	100.15	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-1.06	97.77	-0.92	0.00	98.85	7.388	7.388	98.72	CODETI	
1410	-1.06	13.23	0.92	0.00	14.41	1.000	1.000	13.36	CODETI	
1415 (SP_26)	-0.42	2.01	-0.92	0.00	3.06	1.000	1.000	2.73	CODETI	
1415 (SP_26)	-0.42	2.01	0.92	0.00	3.06	1.000	1.000	2.73	CODETI	
1422	-0.38	1.48	-0.92	0.00	2.62	1.000	1.000	2.37	CODETI	
1422	-0.38	6.96	0.92	0.00	7.57	5.640	4.700	13.35	CODETI	
1421	-0.05	9.42	-1.03	0.00	9.69	5.640	4.700	15.25	CODETI	
1421	-0.05	9.42	1.03	0.00	9.69	5.640	4.700	15.25	CODETI	
1420	0.23	21.70	-0.23	0.00	21.94	5.640	4.700	23.59	CODETI	
1420	0.23	4.16	0.23	0.00	4.41	1.000	1.000	4.18	CODETI	
1425	0.23	5.28	-0.23	0.00	5.53	1.000	1.000	5.30	CODETI	
1425	0.23	5.28	0.23	0.00	5.53	1.000	1.000	5.30	CODETI	
1428	0.25	51.26	-0.54	0.00	51.52	7.391	7.391	51.87	CODETI	
1428	0.25	51.26	0.54	0.00	51.52	7.391	7.391	51.87	CODETI	
1429	0.27	49.72	-1.12	0.00	50.04	7.391	7.391	52.40	CODETI	
1429	0.27	49.72	1.12	0.00	50.04	7.391	7.391	52.40	CODETI	
1430	0.28	48.34	-1.38	0.00	48.70	7.391	7.391	52.49	CODETI	
1430	0.28	6.54	1.38	0.00	7.36	1.000	1.000	7.10	CODETI	
1440	0.28	6.15	-1.38	0.00	7.00	1.000	1.000	6.74	CODETI	
1440	0.28	6.15	1.38	0.00	7.00	1.000	1.000	6.74	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

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1445 (SP_31)	0.28	5.78	-1.38	0.00	6.66	1.000	1.000	6.41	CODETI	
1445 (SP_31)	0.28	5.78	1.38	0.00	6.66	1.000	1.000	6.41	CODETI	
1450	0.28	30.96	-1.38	0.00	31.36	5.231	5.231	34.18	CODETI	
1450	0.00	14.98	1.58	0.00	15.31	5.231	5.231	22.28	CODETI	
1451 (SP_27)	-0.00	1.31	-1.58	0.00	3.42	1.000	1.000	3.41	CODETI	
1451 (SP_27)	0.00	1.31	1.58	0.00	3.42	1.000	1.000	3.41	CODETI	
1452	0.00	1.34	-1.58	0.00	3.43	1.000	1.000	3.43	CODETI	
1452	0.00	1.34	1.58	0.00	3.43	1.000	1.000	3.43	CODETI	
1455 (SP_28)	-0.00	2.96	-1.58	0.00	4.33	1.000	1.000	4.33	CODETI	
1455 (SP_28)	0.00	2.96	1.58	0.00	4.33	1.000	1.000	4.33	CODETI	
1458	0.00	0.39	-1.58	0.00	3.18	1.000	1.000	3.18	CODETI	
1458	0.00	2.06	1.58	0.00	3.76	5.640	4.700	17.92	CODETI	
1459	-0.02	13.90	-0.90	0.00	14.03	5.640	4.700	19.50	CODETI	
1459	-0.02	13.90	0.90	0.00	14.03	5.640	4.700	19.50	CODETI	
1460	-0.02	16.76	0.46	0.00	16.81	5.640	4.700	20.78	CODETI	
1460	-0.02	3.56	-0.46	0.00	3.71	1.000	1.000	3.68	CODETI	
1468	-0.03	1.78	0.46	0.00	2.03	1.000	1.000	2.01	CODETI	
1468	-0.03	8.41	-0.46	0.00	8.48	5.640	4.700	11.34	CODETI	
1469	-0.02	3.48	-0.06	0.00	3.50	5.640	4.700	4.21	CODETI	
1469	-0.02	3.48	0.06	0.00	3.50	5.640	4.700	4.21	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

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1470	0.00	5.14	0.00	0.00	5.14	5.640	4.700	6.16	CODETI	
1470	0.00	1.09	-0.00	0.00	1.10	1.000	1.000	1.09	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	4.26	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.09	-0.00	0.00	0.12	1.000	1.000	0.09	CODETI	
1518	0.04	0.20	0.00	0.00	0.24	1.000	1.000	0.20	CODETI	
1518	0.04	1.34	-0.00	0.00	1.38	7.391	6.159	1.50	CODETI	
1519	-0.02	4.99	-0.10	0.00	5.01	7.391	6.159	5.72	CODETI	
1519	-0.02	4.99	0.10	0.00	5.01	7.391	6.159	5.72	CODETI	

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Stresses on Elements

CASE 3 Poids + PS + TMS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1520	-0.08	8.11	-0.28	0.00	8.21	7.391	6.159	9.77	CODETI	
1520	-0.08	1.20	0.28	0.00	1.40	1.000	1.000	1.32	CODETI	
1523	0.02	5.21	-0.28	0.00	5.26	1.000	1.000	5.24	CODETI	
1523	0.02	27.24	0.28	0.00	27.27	5.640	4.700	29.57	CODETI	
1524	-0.07	30.19	-0.80	0.00	30.30	5.640	4.700	33.47	CODETI	
1524	-0.07	30.19	0.80	0.00	30.30	5.640	4.700	33.47	CODETI	
1525	-0.16	32.56	-1.30	0.00	32.83	5.640	4.700	37.29	CODETI	
1525	-0.16	6.08	1.30	0.00	6.76	1.000	1.000	6.61	CODETI	
1530	-0.16	6.34	-1.30	0.00	7.00	1.000	1.000	6.85	CODETI	
1530	-0.17	6.32	1.32	0.00	7.01	1.000	1.000	6.85	CODETI	
1540 (SR_30)	-0.17	8.03	-1.32	0.00	8.61	1.000	1.000	8.45	CODETI	
1540 (SR_30)	-0.16	8.03	1.32	0.00	8.61	1.000	1.000	8.45	CODETI	
1450	-0.16	40.62	-1.32	0.00	40.87	5.231	5.231	42.91	CODETI	

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CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.43	0.89	0.11	0.00	8.32	1.000	1.000	0.92	CODETI	
20	-7.14	0.82	-0.11	0.00	7.96	1.000	1.000	0.85	CODETI	
20	6.73	0.00	-0.00	11.35	11.43	1.000	1.000	5.67	CODETI	
25	5.67	0.00	0.00	11.35	11.43	1.000	1.000	5.67	CODETI	
20	3.11	0.83	0.11	17.33	17.41	1.000	1.000	9.51	CODETI	
30	3.43	0.82	-0.11	17.33	17.40	1.000	1.000	9.50	CODETI	
30	3.52	0.63	0.11	17.33	17.41	1.000	1.000	9.32	CODETI	
40	3.88	0.62	-0.11	17.33	17.40	1.000	1.000	9.31	CODETI	
40	4.08	0.07	0.01	17.33	17.40	1.000	1.000	8.72	CODETI	
45 (Weld_CW2)	5.76	0.06	-0.01	17.33	17.40	1.000	1.000	8.71	CODETI	
45 (Weld_CW2)	5.76	0.06	0.01	17.33	17.40	1.000	1.000	8.71	CODETI	
50	6.97	0.05	-0.01	17.33	17.40	1.000	1.000	8.70	CODETI	
50	4.56	0.03	0.01	11.35	11.43	1.000	1.000	5.70	CODETI	
55	5.36	0.03	-0.01	11.35	11.43	1.000	1.000	5.69	CODETI	
55	5.37	0.01	0.00	11.35	11.43	1.000	1.000	5.68	CODETI	
56	5.43	0.01	-0.00	11.35	11.43	1.000	1.000	5.68	CODETI	
56	5.42	0.00	0.00	11.35	11.43	1.000	1.000	5.66	CODETI	
60	5.63	0.00	-0.00	11.35	11.43	1.000	1.000	5.66	CODETI	

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65 (Piquage_N1)	1.27	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
70	1.34	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	1.45	2.35	-3.85	3.16	8.59	1.000	1.000	9.63	CODETI	
110	1.45	0.66	3.85	3.16	8.06	1.000	1.000	9.31	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	1.46	0.42	-0.00	2.56	2.63	1.000	1.000	1.68	CODETI	
129	1.36	4.27	0.00	2.56	5.60	7.124	5.937	5.53	CODETI	
129	1.36	4.27	-0.00	2.56	5.63	7.124	5.937	5.53	CODETI	
130	1.27	6.51	0.00	2.56	7.78	7.124	5.937	7.78	CODETI	
130	1.27	0.91	-0.00	2.56	2.63	1.000	1.000	2.18	CODETI	
134 (Jupe_N3)	1.26	0.05	0.00	2.56	2.63	1.000	1.000	1.32	CODETI	
134 (Jupe_N3)	1.26	0.05	-0.00	2.56	2.63	1.000	1.000	1.32	CODETI	
135 (SR_N3)	1.26	0.38	0.00	2.56	2.63	1.000	1.000	1.65	CODETI	



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135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	0.89	1.70	0.00	2.56	3.37	1.000	1.000	2.97	CODETI	
160	1.00	0.27	-0.00	2.56	2.63	1.000	1.000	1.53	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	1.52	1.02	0.22	2.56	2.70	1.000	1.000	2.38	CODETI	
190	1.63	0.96	-0.22	2.56	2.84	1.000	1.000	2.32	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	1.09	4.46	1.64	2.56	6.53	1.000	1.000	6.80	CODETI	
220	1.09	2.95	-1.64	2.56	5.48	1.000	1.000	5.67	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.62	0.00	-0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
250	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
251 (CT_N1)	0.63	0.00	-0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
260	0.81	0.00	0.00	1.26	1.29	10.614	10.614	0.63	CODETI	
260	0.41	102.63	-6.18	0.83	103.78	10.614	10.614	166.94	CODETI	
262	0.41	7.32	6.18	0.83	14.57	1.000	1.000	14.77	CODETI	
262	0.64	11.22	-9.47	1.26	22.35	1.000	1.000	22.64	CODETI	
265 (SG_5)	0.64	9.81	9.47	1.26	21.62	1.000	1.000	21.96	CODETI	
265 (SG_5)	0.64	9.81	-9.47	1.26	21.63	1.000	1.000	21.96	CODETI	
267	0.64	68.24	8.71	1.26	71.02	8.376	8.376	161.64	CODETI	
267	0.64	68.24	-8.71	1.26	71.04	8.376	8.376	161.64	CODETI	
268	0.64	108.66	6.01	1.26	109.94	8.376	8.376	148.73	CODETI	

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268	0.64	108.66	-6.01	1.26	109.96	8.376	8.376	148.73	CODETI	
269	0.64	121.43	2.42	1.26	122.15	8.376	8.376	128.65	CODETI	
269	0.64	121.43	-2.42	1.26	122.17	8.376	8.376	128.65	CODETI	
270	0.63	115.69	0.60	1.26	116.32	8.376	8.376	116.76	CODETI	
270	0.63	13.81	-0.60	1.26	14.50	1.000	1.000	14.49	CODETI	
271	0.64	3.46	0.60	1.26	4.25	1.000	1.000	4.29	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.82	3.04	-0.02	5.69	5.92	1.000	1.000	5.87	CODETI	
277	2.78	23.58	0.40	5.69	26.45	8.141	8.141	27.28	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
277	2.78	23.58	-0.40	5.69	26.37	8.141	8.141	27.28	CODETI	
278	2.68	16.99	1.06	5.69	20.07	8.141	8.141	27.06	CODETI	
278	2.68	16.99	-1.06	5.69	19.86	8.141	8.141	27.06	CODETI	
279	2.57	6.09	1.44	5.69	9.61	8.141	8.141	27.06	CODETI	
279	2.57	6.09	-1.44	5.69	9.68	8.141	8.141	27.06	CODETI	
280	2.53	0.94	1.49	5.69	6.54	8.141	8.141	27.07	CODETI	
280	2.53	0.12	-1.49	5.69	6.50	1.000	1.000	5.80	CODETI	
284	2.49	0.11	1.49	5.69	6.40	1.000	1.000	5.80	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	2.33	0.09	-1.49	5.69	6.53	1.000	1.000	5.80	CODETI	
290	2.15	0.04	1.49	5.69	6.35	1.000	1.000	5.80	CODETI	
290	2.15	0.04	-1.49	5.69	6.56	1.000	1.000	5.80	CODETI	
299	1.97	0.02	1.49	5.69	6.33	1.000	1.000	5.80	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	1.80	0.03	-1.49	5.69	6.63	1.000	1.000	5.80	CODETI	
306	1.80	7.63	1.43	5.69	11.83	9.368	9.368	30.73	CODETI	
306	1.80	7.63	-1.43	5.69	11.78	9.368	9.368	30.73	CODETI	
307	2.04	22.38	1.04	5.69	26.07	9.368	9.368	32.47	CODETI	
307	2.04	22.38	-1.04	5.69	25.78	9.368	9.368	32.47	CODETI	
308	2.52	37.52	0.36	5.69	40.64	9.368	9.368	40.95	CODETI	
308	2.52	37.52	-0.36	5.69	40.15	9.368	9.368	40.95	CODETI	
305	2.81	44.82	-0.01	5.69	47.65	9.368	9.368	47.65	CODETI	
305	2.81	4.78	0.01	5.69	7.63	1.000	1.000	7.61	CODETI	
435 (SR_07)	2.81	8.55	-0.01	5.69	11.38	1.000	1.000	11.37	CODETI	
435 (SR_07)	2.82	8.55	0.01	5.69	11.37	1.000	1.000	11.37	CODETI	
440	2.82	101.33	-0.01	5.69	104.15	10.614	10.614	104.15	CODETI	
440	1.76	15.17	0.43	3.73	16.95	10.614	10.614	19.51	CODETI	
445	1.76	1.34	-0.43	3.73	4.06	1.000	1.000	3.43	CODETI	
445	2.70	19.27	0.65	5.69	22.04	9.368	9.368	25.67	CODETI	
311	2.58	16.07	-0.89	5.69	19.22	9.368	9.368	25.99	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
311	2.58	16.07	0.89	5.69	19.03	9.368	9.368	25.99	CODETI	
312	2.37	8.24	-1.23	5.69	11.78	9.368	9.368	27.28	CODETI	
312	2.37	8.24	1.23	5.69	11.73	9.368	9.368	27.28	CODETI	
313	2.26	5.65	-1.31	5.69	9.40	9.368	9.368	27.92	CODETI	
313	2.26	5.65	1.31	5.69	9.48	9.368	9.368	27.92	CODETI	
310	2.26	9.14	-1.23	5.69	12.77	9.368	9.368	27.67	CODETI	
310	2.26	0.98	1.23	5.69	6.53	1.000	1.000	5.47	CODETI	
315	2.25	0.89	-1.23	5.69	6.30	1.000	1.000	5.44	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.19	0.86	1.23	5.69	6.52	1.000	1.000	5.43	CODETI	
330	2.13	0.82	-1.23	5.69	6.28	1.000	1.000	5.42	CODETI	
330	2.13	0.82	1.23	5.69	6.52	1.000	1.000	5.42	CODETI	
335	2.08	1.11	-1.23	5.69	6.31	1.000	1.000	5.53	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	2.02	1.17	1.23	5.69	6.65	1.000	1.000	5.55	CODETI	
337	1.99	8.11	-1.36	5.69	12.07	9.368	9.368	29.56	CODETI	
337	1.99	8.11	1.36	5.69	12.01	9.368	9.368	29.56	CODETI	
338	2.12	3.45	-1.40	5.69	7.53	9.368	9.368	29.36	CODETI	
338	2.12	3.45	1.40	5.69	7.92	9.368	9.368	29.36	CODETI	
339	2.47	16.78	-1.18	5.69	20.09	9.368	9.368	30.61	CODETI	
339	2.47	16.78	1.18	5.69	19.88	9.368	9.368	30.61	CODETI	
350	2.69	23.90	-1.00	5.69	26.93	9.368	9.368	33.17	CODETI	
350	1.76	1.66	0.65	3.73	4.40	1.000	1.000	3.95	CODETI	
355 (SR_8)	1.76	2.25	-0.65	3.73	4.59	1.000	1.000	4.44	CODETI	
355 (SR_8)	1.76	2.25	0.65	3.73	4.69	1.000	1.000	4.44	CODETI	
360 (Té_TH_700)	1.76	3.20	-0.65	3.73	5.29	1.000	1.000	5.29	CODETI	
360 (Té_TH_700)	1.76	3.20	0.32	3.73	5.21	1.000	1.000	5.11	CODETI	
365	1.76	52.66	-0.32	3.73	54.59	10.614	10.614	54.94	CODETI	

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365	1.42	34.94	0.03	3.73	36.47	10.614	10.614	36.78	CODETI	
366	1.42	3.07	-0.03	3.73	5.35	1.000	1.000	4.91	CODETI	
366	2.17	38.30	0.05	5.69	41.26	8.141	8.141	41.13	CODETI	
368	2.23	36.45	0.07	5.69	39.87	8.141	8.141	39.29	CODETI	
368	2.23	36.45	-0.07	5.69	39.39	8.141	8.141	39.29	CODETI	
369	2.43	30.01	0.27	5.69	33.23	8.141	8.141	33.17	CODETI	
369	2.43	30.01	-0.27	5.69	32.85	8.141	8.141	33.17	CODETI	
370	2.58	25.48	0.36	5.69	28.55	8.141	8.141	28.98	CODETI	
370	2.58	3.13	-0.36	5.69	6.44	1.000	1.000	6.04	CODETI	
378	2.52	5.70	0.30	5.69	8.84	8.141	8.141	10.31	CODETI	
378	2.52	5.70	-0.30	5.69	8.85	8.141	8.141	10.31	CODETI	
379	2.28	10.97	0.15	5.69	14.34	8.141	8.141	14.06	CODETI	
379	2.28	10.97	-0.15	5.69	14.26	8.141	8.141	14.06	CODETI	
380	2.18	13.83	0.07	5.69	17.30	8.141	8.141	16.71	CODETI	
380	2.18	1.70	-0.07	5.69	5.83	1.000	1.000	4.53	CODETI	
385	2.18	1.82	0.07	5.69	5.83	1.000	1.000	4.65	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	23.81	1.80	-0.07	49.30	50.48	1.000	1.000	26.26	CODETI	
410	23.81	0.83	0.07	49.30	50.48	1.000	1.000	25.30	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	23.81	0.74	-0.07	49.30	50.48	1.000	1.000	25.21	CODETI	
430 (PF4_CPO)	23.81	0.49	0.07	49.30	50.48	1.000	1.000	24.97	CODETI	
440	1.77	24.59	-2.51	3.73	26.83	10.614	10.614	60.53	CODETI	
450	1.77	1.15	2.51	3.73	5.91	1.000	1.000	6.99	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	2.74	96.37	-3.30	4.27	99.33	10.614	10.614	121.24	CODETI	
500	2.84	11.69	5.08	4.27	16.56	1.000	1.000	17.60	CODETI	

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500	2.84	11.69	-5.08	4.27	17.73	1.000	1.000	17.60	CODETI	
503	2.78	67.23	5.71	4.27	69.62	7.049	7.049	106.98	CODETI	
503	2.78	67.23	-5.71	4.27	70.94	7.049	7.049	106.98	CODETI	
504	2.43	45.91	6.45	4.27	49.42	7.049	7.049	103.95	CODETI	
504	2.43	45.91	-6.45	4.27	50.03	7.049	7.049	103.95	CODETI	
505	2.23	38.04	6.53	4.27	42.11	7.049	7.049	101.76	CODETI	
505	2.23	5.40	-6.53	4.27	15.13	1.000	1.000	16.25	CODETI	
508	2.53	41.61	6.10	4.27	44.99	7.049	7.049	97.67	CODETI	
508	2.53	41.61	-6.10	4.27	45.80	7.049	7.049	97.67	CODETI	
509	2.96	80.06	4.40	4.27	81.80	7.049	7.049	103.40	CODETI	
509	2.96	80.06	-4.40	4.27	83.48	7.049	7.049	103.40	CODETI	
510	3.13	95.08	3.20	4.27	96.44	7.049	7.049	107.33	CODETI	
510	3.13	13.49	-3.20	4.27	17.81	1.000	1.000	17.04	CODETI	
514 (Té_VS_011)	3.18	90.29	3.20	4.27	91.81	5.836	5.836	99.81	CODETI	
514 (Té_VS_011)	2.96	126.36	0.00	4.27	129.32	5.836	5.836	128.47	CODETI	
515	3.04	21.65	-0.00	4.27	24.34	1.000	1.000	23.76	CODETI	
515	1.47	10.43	0.00	2.08	11.89	1.000	1.000	11.44	CODETI	
520	1.53	75.90	-0.00	2.08	76.40	7.279	7.279	76.91	CODETI	

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520	0.55	70.00	-0.28	2.08	70.56	7.279	7.279	71.14	CODETI	
525	0.55	6.75	0.28	2.08	8.25	1.000	1.000	7.79	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	-0.96	12.25	-0.58	0.00	13.26	1.000	1.000	12.30	CODETI	
547	-0.42	67.24	0.61	0.00	67.67	6.943	6.943	67.76	CODETI	
547	-0.42	67.24	-0.61	0.00	67.67	6.943	6.943	67.76	CODETI	
548	0.74	35.04	0.55	0.00	35.80	6.943	6.943	35.87	CODETI	
548	-0.76	35.04	-0.55	0.00	35.82	6.943	6.943	35.87	CODETI	
549	-0.30	23.87	0.36	0.00	24.18	6.943	6.943	24.37	CODETI	
549	-0.30	23.87	-0.36	0.00	24.18	6.943	6.943	24.37	CODETI	
550	-0.04	17.74	0.22	0.00	17.78	6.943	6.943	18.01	CODETI	
550	-0.04	2.56	-0.22	0.00	2.63	1.000	1.000	2.59	CODETI	
557	0.36	32.63	0.09	0.00	32.99	6.943	6.943	32.65	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
557	0.36	32.63	-0.09	0.00	32.99	6.943	6.943	32.65	CODETI	
558	0.80	43.77	-0.20	0.00	44.58	6.943	6.943	43.86	CODETI	
558	0.80	43.77	0.20	0.00	44.58	6.943	6.943	43.86	CODETI	
559	1.00	48.34	-0.42	0.00	49.35	6.943	6.943	48.69	CODETI	
559	1.00	48.34	0.42	0.00	49.35	6.943	6.943	48.69	CODETI	
560	0.98	47.53	-0.49	0.00	48.52	6.943	6.943	48.02	CODETI	
560	0.98	6.85	0.49	0.00	7.89	1.000	1.000	6.92	CODETI	
570	0.98	5.66	-0.49	0.00	6.71	1.000	1.000	5.75	CODETI	
570	0.98	14.16	0.49	0.00	15.17	2.500	2.500	14.37	CODETI	
580	0.74	5.10	-0.28	0.00	5.86	2.500	2.500	5.28	CODETI	
580	0.74	2.04	0.28	0.00	2.83	1.000	1.000	2.11	CODETI	
585	0.74	1.73	-0.28	0.00	2.53	1.000	1.000	1.82	CODETI	
585	0.74	1.73	0.28	0.00	2.53	1.000	1.000	1.82	CODETI	
590	0.73	5.72	-0.28	0.00	6.48	7.057	7.057	6.92	CODETI	
590	-0.00	39.62	0.92	0.00	39.67	7.057	7.057	41.70	CODETI	
595 (SR_11)	-0.01	7.99	-0.92	0.00	8.21	1.000	1.000	8.20	CODETI	
595 (SR_11)	0.00	7.99	0.92	0.00	8.21	1.000	1.000	8.20	CODETI	
596 (SP_13)	-0.00	4.58	-0.92	0.00	4.93	1.000	1.000	4.93	CODETI	
596 (SP_13)	0.01	4.58	0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
598	0.00	32.38	-0.66	0.00	32.41	8.236	8.236	34.16	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
598	0.00	32.38	0.66	0.00	32.41	8.236	8.236	34.16	CODETI	
599	0.00	30.10	-0.16	0.00	30.11	8.236	8.236	30.22	CODETI	
599	0.00	30.10	0.16	0.00	30.11	8.236	8.236	30.22	CODETI	
600	0.00	28.27	0.07	0.00	28.28	8.236	8.236	28.30	CODETI	
600	0.00	3.43	-0.07	0.00	3.44	1.000	1.000	3.44	CODETI	
608	0.00	2.69	0.05	0.00	2.69	8.236	8.236	2.80	CODETI	
608	0.00	2.69	-0.05	0.00	2.69	8.236	8.236	2.80	CODETI	
609	0.00	1.75	0.01	0.00	1.75	8.236	8.236	1.76	CODETI	
609	0.00	1.75	-0.01	0.00	1.75	8.236	8.236	1.76	CODETI	
610	0.00	1.32	-0.00	0.00	1.32	8.236	8.236	1.32	CODETI	
610	0.00	0.16	0.00	0.00	0.16	1.000	1.000	0.16	CODETI	
615	0.00	0.04	-0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
615	0.00	0.04	0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
620	0.00	0.00	0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	0.54	5.17	0.51	2.08	6.59	7.279	7.279	10.05	CODETI	
625	0.54	0.23	-0.51	2.08	2.37	1.000	1.000	2.06	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	-0.99	0.82	1.06	0.00	2.78	1.000	1.000	2.27	CODETI	
642	-1.03	9.71	-1.05	0.00	10.95	6.943	6.943	17.56	CODETI	
642	-1.03	9.71	1.05	0.00	10.95	6.943	6.943	17.56	CODETI	
643	-0.89	11.12	-0.83	0.00	12.13	6.943	6.943	16.03	CODETI	
643	-0.89	11.12	0.83	0.00	12.13	6.943	6.943	16.03	CODETI	
644	-0.48	14.80	-0.38	0.00	15.29	6.943	6.943	15.71	CODETI	
644	-0.48	14.80	0.38	0.00	15.29	6.943	6.943	15.71	CODETI	
645	-0.22	18.83	-0.11	0.00	19.05	6.943	6.943	18.90	CODETI	
645	-0.22	2.71	0.11	0.00	2.94	1.000	1.000	2.72	CODETI	
590	-0.01	81.08	-0.11	0.00	81.09	7.057	7.057	81.10	CODETI	
360 (Té_TH_700)	2.82	1.36	-0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	-0.00	4.21	4.34	1.000	1.000	3.39	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
690	2.08	0.05	0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	0.41	102.63	-6.18	0.83	103.78	10.614	10.614	166.94	CODETI	
720 (Té_VS_008)	0.41	124.92	6.18	0.83	125.93	10.614	10.614	181.53	CODETI	
720 (Té_VS_008)	0.29	101.66	-4.05	0.83	102.27	10.614	10.614	133.54	CODETI	
725	0.29	9.19	4.05	0.83	12.66	1.000	1.000	12.66	CODETI	
725	0.44	14.09	-6.21	1.26	19.11	1.000	1.000	19.41	CODETI	
730	0.44	13.03	6.21	1.26	18.60	1.000	1.000	18.62	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
760	0.30	8.90	-4.05	0.83	12.26	1.000	1.000	12.44	CODETI	
770 (Té_Gavage)	0.30	136.69	4.05	0.83	137.44	10.614	10.614	161.88	CODETI	
770 (Té_Gavage)	0.41	3.17	0.00	0.83	3.58	10.614	10.614	3.57	CODETI	
780	0.41	0.00	-0.00	0.83	0.86	1.000	1.000	0.41	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
795	0.63	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
795	0.63	0.00	-0.00	1.26	1.29	2.000	2.000	0.63	CODETI	
800 (SB_02)	1.09	0.88	0.00	2.36	2.39	2.000	2.000	2.06	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	1.17	0.46	0.00	2.36	2.39	1.000	1.000	1.63	CODETI	
820	1.17	0.00	0.00	2.36	2.39	1.000	1.000	1.17	CODETI	
720 (Té_VS_008)	0.57	63.56	-3.11	1.26	64.44	10.614	10.614	92.22	CODETI	
830	0.57	3.37	3.11	1.26	7.42	1.000	1.000	7.70	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

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840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.57	3.08	-3.11	1.26	7.21	1.000	1.000	7.56	CODETI	
865 (SP_14)	0.57	2.63	3.11	1.26	7.04	1.000	1.000	7.38	CODETI	
865 (SP_14)	0.57	2.63	-3.11	1.26	6.99	1.000	1.000	7.38	CODETI	
867	0.54	21.21	2.87	1.26	22.67	8.376	8.376	53.23	CODETI	
867	0.54	21.21	-2.87	1.26	22.50	8.376	8.376	53.23	CODETI	
868	0.46	37.97	1.96	1.26	38.96	8.376	8.376	50.77	CODETI	
868	0.46	37.97	-1.96	1.26	38.62	8.376	8.376	50.77	CODETI	
869	0.38	44.91	0.66	1.26	45.80	8.376	8.376	46.87	CODETI	
869	0.38	44.91	-0.66	1.26	45.30	8.376	8.376	46.87	CODETI	
870	0.36	43.99	0.00	1.26	44.89	8.376	8.376	44.62	CODETI	
870	0.36	5.25	-0.00	1.26	6.09	1.000	1.000	5.88	CODETI	
872	0.11	2.87	0.00	1.26	4.01	1.000	1.000	3.49	CODETI	
872	0.11	2.87	0.00	1.26	3.98	1.000	1.000	3.49	CODETI	
875 (SG_15)	-0.18	0.10	-0.00	1.26	1.55	1.000	1.000	0.72	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

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875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.78	0.00	0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
880	0.76	0.00	-0.00	1.26	1.29	1.000	1.000	0.63	CODETI	
880	0.76	0.00	0.00	1.26	1.29	2.500	2.500	0.63	CODETI	
890	0.53	0.00	-0.00	1.03	1.06	2.500	2.500	0.51	CODETI	
890	0.53	0.00	0.00	1.03	1.06	1.000	1.000	0.51	CODETI	
895	0.52	0.00	-0.00	1.03	1.06	1.000	1.000	0.51	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	1.98	251.64	0.00	1.26	253.62	10.614	10.614	252.27	CODETI	
772 (SG_16_1)	1.87	23.61	-0.00	1.26	25.13	1.000	1.000	24.24	CODETI	
772 (SG_16_1)	1.87	23.61	0.00	1.26	25.48	1.000	1.000	24.24	CODETI	
775	1.68	120.33	-0.00	1.26	120.76	7.057	7.057	120.95	CODETI	
775	1.59	120.46	-0.00	1.26	122.04	7.057	7.057	121.09	CODETI	
910 (Té_VS_007)	1.20	3.70	0.00	1.26	4.86	1.000	1.000	4.33	CODETI	
910 (Té_VS_007)	1.24	3.62	-0.00	1.26	4.86	1.000	1.000	4.24	CODETI	

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915 (SG_16_2)	1.18	2.05	0.00	1.26	3.21	1.000	1.000	2.67	CODETI	
915 (SG_16_2)	1.18	2.05	-0.00	1.26	3.22	1.000	1.000	2.67	CODETI	
920	1.15	2.05	0.00	1.26	3.18	1.000	1.000	2.67	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	1.05	2.05	-0.00	1.26	3.10	1.000	1.000	2.67	CODETI	
957	0.98	16.89	0.00	1.26	17.63	8.472	8.472	17.52	CODETI	
957	0.98	16.89	-0.00	1.26	17.88	8.472	8.472	17.52	CODETI	
958	0.85	13.96	0.00	1.26	14.61	8.472	8.472	14.59	CODETI	
958	0.85	13.96	-0.00	1.26	14.81	8.472	8.472	14.59	CODETI	
959	0.69	9.73	-0.00	1.26	10.29	8.472	8.472	10.36	CODETI	

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959	0.69	9.73	0.00	1.26	10.42	8.472	8.472	10.36	CODETI	
960	0.63	7.66	-0.00	1.26	8.29	8.472	8.472	8.29	CODETI	
960	0.63	0.90	0.00	1.26	1.54	1.000	1.000	1.53	CODETI	
965	0.63	0.32	-0.00	1.26	1.29	1.000	1.000	0.95	CODETI	
965	0.63	0.81	0.00	1.26	1.44	2.500	2.500	1.43	CODETI	
970	0.52	0.02	-0.00	1.05	1.08	2.500	2.500	0.54	CODETI	
970	0.52	0.01	0.00	1.05	1.08	1.000	1.000	0.53	CODETI	
980	0.52	0.00	-0.00	1.05	1.08	1.000	1.000	0.52	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	0.51	10.14	0.00	1.02	10.65	7.057	7.057	10.65	CODETI	
995	0.51	0.71	-0.00	1.02	1.23	1.000	1.000	1.22	CODETI	
995	0.51	0.71	0.00	1.02	1.23	1.000	1.000	1.22	CODETI	
998	0.51	0.46	-0.00	1.02	1.05	1.000	1.000	0.96	CODETI	
998	0.51	2.51	0.00	1.02	3.02	5.493	4.577	3.02	CODETI	
999	0.36	1.29	-0.00	1.02	1.94	5.493	4.577	1.80	CODETI	
999	0.36	1.29	0.00	1.02	1.94	5.493	4.577	1.80	CODETI	
1000	0.24	3.07	-0.00	1.02	3.84	5.493	4.577	3.58	CODETI	
1000	0.24	0.56	0.00	1.02	1.34	1.000	1.000	1.07	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1002	-0.06	0.56	-0.00	1.02	1.64	1.000	1.000	1.07	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.06	0.56	0.00	1.02	1.64	1.000	1.000	1.07	CODETI	
1008	-0.36	0.56	-0.00	1.02	1.94	1.000	1.000	1.07	CODETI	
1008	-0.36	3.07	0.00	1.02	4.40	5.493	4.577	3.58	CODETI	
1009	-0.19	10.71	-0.00	1.02	11.92	5.493	4.577	11.22	CODETI	
1009	0.77	10.71	0.00	1.02	11.48	5.493	4.577	11.22	CODETI	
1010	0.51	2.78	-0.00	1.02	3.29	5.493	4.577	3.29	CODETI	
1010	0.51	0.51	0.00	1.02	1.05	1.000	1.000	1.01	CODETI	
1020	0.51	0.31	-0.00	1.02	1.05	1.000	1.000	0.81	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.51	0.10	0.00	1.02	1.05	1.000	1.000	0.61	CODETI	
1060	0.51	0.07	-0.00	1.02	1.05	1.000	1.000	0.58	CODETI	
1060	0.51	0.15	0.00	1.02	1.05	2.000	2.000	0.65	CODETI	

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CASE 4 Poids + PMS + TS en Normal

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1070	0.46	0.00	-0.00	0.93	0.96	2.000	2.000	0.46	CODETI	
1070	0.46	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1090	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1090	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1100 (CT_ASP_Reg)	0.46	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	1.05	0.95	0.22	1.02	2.05	1.000	1.000	1.56	CODETI	
1120	1.05	0.95	-0.22	1.02	2.05	1.000	1.000	1.56	CODETI	
1120	1.05	0.95	0.22	1.02	2.05	1.000	1.000	1.56	CODETI	
1128	1.06	0.95	-0.22	1.02	2.06	1.000	1.000	1.55	CODETI	
1128	1.06	5.22	0.22	1.02	6.29	5.493	4.577	6.26	CODETI	
1129	0.94	1.60	-0.17	1.02	2.54	5.493	4.577	3.12	CODETI	
1129	0.94	1.60	0.17	1.02	2.56	5.493	4.577	3.12	CODETI	
1130	0.49	17.07	-0.02	1.02	17.60	5.493	4.577	17.63	CODETI	
1130	0.49	3.12	0.02	1.02	3.61	1.000	1.000	3.62	CODETI	
1132	0.49	5.41	-0.02	1.02	5.93	1.000	1.000	5.92	CODETI	
1132	0.49	5.41	0.02	1.02	5.90	1.000	1.000	5.92	CODETI	
1135 (SR_18)	0.49	10.18	-0.02	1.02	10.70	1.000	1.000	10.69	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

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1135 (SR_18)	0.51	10.18	0.02	1.02	10.69	1.000	1.000	10.69	CODETI	
1138	0.50	2.75	-0.02	1.02	3.26	1.000	1.000	3.26	CODETI	
1138	0.50	15.04	0.02	1.02	15.54	5.493	4.577	15.60	CODETI	
1139	0.87	2.31	0.14	1.02	3.16	5.493	4.577	3.47	CODETI	
1139	0.87	2.31	-0.14	1.02	3.19	5.493	4.577	3.47	CODETI	
1140	0.95	3.31	0.22	1.02	4.24	5.493	4.577	4.61	CODETI	
1140	0.95	0.60	-0.22	1.02	1.62	1.000	1.000	1.25	CODETI	
1148	0.66	0.76	0.22	1.02	1.52	1.000	1.000	1.39	CODETI	
1148	0.66	4.19	-0.22	1.02	4.86	5.493	4.577	5.34	CODETI	
1149	0.55	5.59	0.14	1.02	6.06	5.493	4.577	6.40	CODETI	
1149	0.55	5.59	-0.14	1.02	6.15	5.493	4.577	6.40	CODETI	
1150	0.50	6.64	-0.02	1.02	7.16	5.493	4.577	7.29	CODETI	
1150	0.50	1.23	0.02	1.02	1.75	1.000	1.000	1.74	CODETI	
1158	0.50	0.62	-0.02	1.02	1.15	1.000	1.000	1.13	CODETI	
1158	0.50	3.15	0.02	1.02	3.65	5.493	4.577	3.94	CODETI	
1159	0.50	3.17	-0.02	1.02	3.68	5.493	4.577	3.98	CODETI	
1159	0.50	3.17	0.02	1.02	3.67	5.493	4.577	3.98	CODETI	
1160	0.51	6.93	-0.40	1.02	7.48	5.493	4.577	9.81	CODETI	
1160	0.51	1.49	0.40	1.02	2.15	1.000	1.000	2.20	CODETI	
1165 (SR_19)	0.51	1.55	-0.40	1.02	2.21	1.000	1.000	2.25	CODETI	

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1165 (SR_19)	0.51	1.56	0.40	1.02	2.22	1.000	1.000	2.25	CODETI	
1170 (Té_ATRE)	0.51	29.71	-0.40	1.02	30.23	4.398	4.398	30.42	CODETI	
1170 (Té_ATRE)	0.50	29.71	0.40	1.02	30.22	4.398	4.398	30.42	CODETI	
1175	0.50	4.04	-0.40	1.02	4.62	1.000	1.000	4.63	CODETI	
1175	0.50	4.04	0.40	1.02	4.61	1.000	1.000	4.63	CODETI	
1178	0.50	2.84	-0.40	1.02	3.45	1.000	1.000	3.46	CODETI	
1178	0.50	15.61	0.40	1.02	16.13	5.493	4.577	16.72	CODETI	
1179	0.16	5.63	-0.27	1.02	6.51	5.493	4.577	7.10	CODETI	
1179	0.16	5.63	0.27	1.02	6.41	5.493	4.577	7.10	CODETI	
1180	-0.06	3.41	0.00	1.02	4.48	5.493	4.577	4.60	CODETI	
1180	-0.06	0.74	-0.00	1.02	1.82	1.000	1.000	1.25	CODETI	
1185	-0.08	0.73	0.00	1.02	1.83	1.000	1.000	1.24	CODETI	
1185	0.82	0.02	-0.00	1.02	1.05	1.000	1.000	0.53	CODETI	
1186 (SG_20)	0.78	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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1186 (SG_20)	0.78	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1190	0.59	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1190	0.59	0.00	-0.00	1.02	1.05	2.500	2.500	0.51	CODETI	
1195	0.47	0.00	0.00	0.93	0.96	2.500	2.500	0.46	CODETI	
1195	0.47	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1200	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1200	0.46	0.00	-0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1210 (CT_REF_Reg)	0.46	0.00	0.00	0.93	0.96	1.000	1.000	0.46	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.81	0.00	0.00	1.02	1.05	4.398	4.398	0.51	CODETI	
1211	0.51	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1211	0.51	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1212 (CT_03)	0.51	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.44	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1216	0.44	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	

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1216	0.44	0.00	-0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1218	0.35	0.00	0.00	1.02	1.05	1.000	1.000	0.51	CODETI	
1218	0.35	0.00	-0.00	1.02	1.05	7.242	6.035	0.51	CODETI	
1219	0.36	1.63	0.00	1.02	2.28	7.242	6.035	2.14	CODETI	
1219	0.36	1.63	-0.00	1.02	2.27	7.242	6.035	2.14	CODETI	
1220	0.51	6.47	0.00	1.02	6.98	7.242	6.035	6.98	CODETI	
1220	0.51	0.89	-0.00	1.02	1.40	1.000	1.000	1.40	CODETI	
1230	0.51	1.07	0.00	1.02	1.58	1.000	1.000	1.58	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1268	1.27	0.04	-0.00	2.56	2.63	1.000	1.000	1.30	CODETI	
1268	1.27	0.19	0.00	2.56	2.63	5.380	4.483	1.46	CODETI	
1269	1.25	0.59	-0.00	2.56	2.63	5.380	4.483	1.86	CODETI	
1269	1.25	0.59	0.00	2.56	2.63	5.380	4.483	1.86	CODETI	
1270	1.23	1.11	-0.00	2.56	2.63	5.380	4.483	2.37	CODETI	
1270	1.23	0.21	0.00	2.56	2.63	1.000	1.000	1.47	CODETI	
1279	1.22	3.03	0.17	2.56	4.35	5.380	4.483	5.32	CODETI	
1279	1.22	3.03	-0.17	2.56	4.35	5.380	4.483	5.32	CODETI	
1280	1.27	5.28	0.51	2.56	6.63	5.380	4.483	9.47	CODETI	
1280	1.27	1.13	-0.51	2.56	3.04	1.000	1.000	2.79	CODETI	
1285	1.27	10.72	0.51	2.56	12.03	4.398	4.398	12.89	CODETI	
1285	1.26	30.51	0.17	2.56	31.77	4.398	4.398	31.82	CODETI	
1286	1.26	3.00	-0.17	2.56	4.29	1.000	1.000	4.29	CODETI	
1286	1.26	3.00	0.17	2.56	4.28	1.000	1.000	4.29	CODETI	
1291	1.26	1.46	-0.17	2.56	2.87	1.000	1.000	2.77	CODETI	

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1291	1.26	6.55	0.17	2.56	7.82	5.380	4.483	9.35	CODETI	
1292	1.26	5.91	-0.08	2.56	7.18	5.380	4.483	8.42	CODETI	
1292	1.26	5.91	0.08	2.56	7.18	5.380	4.483	8.42	CODETI	
1290	1.26	5.22	-0.00	2.56	6.49	5.380	4.483	7.53	CODETI	
1290	1.26	1.16	0.00	2.56	2.63	1.000	1.000	2.43	CODETI	
1300	1.26	0.41	-0.00	2.56	2.63	1.000	1.000	1.68	CODETI	
1300	1.26	0.41	0.00	2.56	2.63	1.000	1.000	1.68	CODETI	
1310	1.27	0.01	-0.00	2.56	2.63	1.000	1.000	1.28	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	1.27	6.01	2.25	2.56	8.56	4.398	4.398	21.95	CODETI	
1320	1.27	4.21	-2.25	2.56	7.08	1.000	1.000	7.43	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-0.45	40.20	15.11	2.56	50.65	1.000	1.000	51.56	CODETI	
1328	-0.45	24.00	-15.11	2.56	40.51	1.000	1.000	39.86	CODETI	
1328	-0.45	113.01	15.11	2.56	117.42	5.380	4.483	208.87	CODETI	
1329	-0.57	67.91	-19.24	2.56	80.78	5.380	4.483	219.18	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1329	-1.44	67.86	18.48	2.56	78.54	5.380	4.483	211.38	CODETI	
1330	-0.79	94.45	-14.89	2.56	102.21	5.380	4.483	194.91	CODETI	
1330	-0.79	20.21	14.89	2.56	36.44	1.000	1.000	37.26	CODETI	
1338	-0.54	20.15	-14.89	2.56	37.77	1.000	1.000	37.23	CODETI	
1338	-0.54	94.42	14.89	2.56	99.52	5.380	4.483	194.72	CODETI	
1339	-1.18	73.30	-18.38	2.56	85.34	5.380	4.483	212.22	CODETI	
1339	-1.18	73.30	18.38	2.56	83.06	5.380	4.483	212.22	CODETI	
1340	-0.48	100.08	-14.24	2.56	106.96	5.380	4.483	193.02	CODETI	
1340	-0.48	21.42	14.24	2.56	35.93	1.000	1.000	36.91	CODETI	
1343	-0.48	15.19	-14.24	2.56	33.81	1.000	1.000	33.55	CODETI	
1343	-0.48	15.19	14.24	2.56	32.51	1.000	1.000	33.55	CODETI	
1348	-0.48	19.08	-14.24	2.56	36.05	1.000	1.000	35.56	CODETI	
1348	-0.48	90.65	14.24	2.56	95.48	5.380	4.483	185.74	CODETI	
1349	-1.18	78.46	-16.99	2.56	88.93	5.380	4.483	200.44	CODETI	
1349	-1.18	78.46	16.99	2.56	86.59	5.380	4.483	200.44	CODETI	
1345	-0.45	107.25	-12.09	2.56	112.85	5.380	4.483	180.81	CODETI	
1345	-0.45	23.00	12.09	2.56	33.68	1.000	1.000	34.64	CODETI	
1350 (SP_23)	-0.45	12.70	-12.09	2.56	28.82	1.000	1.000	28.58	CODETI	
1350 (SP_23)	-0.45	12.70	12.09	2.56	27.52	1.000	1.000	28.58	CODETI	
1355	-0.45	12.08	-12.09	2.56	28.49	1.000	1.000	28.29	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1355	-0.45	12.08	12.09	2.56	27.23	1.000	1.000	28.29	CODETI	
1360	-0.45	12.51	-12.09	2.56	28.71	1.000	1.000	28.49	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.57	14.11	12.09	4.60	28.29	1.000	1.000	30.27	CODETI	
514 (Té_VS_011)	0.57	83.97	-7.39	4.60	89.19	5.836	5.836	122.62	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.18	34.90	1.64	0.00	35.24	7.388	7.388	42.46	CODETI	
1417	-0.46	43.96	-1.58	0.00	44.53	7.388	7.388	49.74	CODETI	
1417	-0.46	43.96	1.58	0.00	44.53	7.388	7.388	49.74	CODETI	
1418	-0.89	59.30	-1.16	0.00	60.24	7.388	7.388	61.73	CODETI	
1418	-0.89	59.30	1.16	0.00	60.24	7.388	7.388	61.73	CODETI	
1419	-1.06	66.68	-0.46	0.00	67.75	7.388	7.388	67.02	CODETI	
1419	-1.06	66.68	0.46	0.00	67.75	7.388	7.388	67.02	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-1.03	66.59	-0.06	0.00	67.62	7.388	7.388	66.60	CODETI	
1410	-1.03	9.01	0.06	0.00	10.05	1.000	1.000	9.01	CODETI	
1415 (SP_26)	-0.40	1.66	-0.06	0.00	2.06	1.000	1.000	1.66	CODETI	
1415 (SP_26)	-0.40	1.66	0.06	0.00	2.06	1.000	1.000	1.66	CODETI	
1422	-0.36	1.32	-0.06	0.00	1.68	1.000	1.000	1.32	CODETI	
1422	-0.36	7.20	0.06	0.00	7.55	5.640	4.700	7.45	CODETI	
1421	-0.17	3.25	-0.08	0.00	3.42	5.640	4.700	3.67	CODETI	
1421	-0.17	3.25	0.08	0.00	3.42	5.640	4.700	3.67	CODETI	
1420	0.05	6.95	0.26	0.00	7.02	5.640	4.700	8.47	CODETI	
1420	0.05	1.41	-0.26	0.00	1.54	1.000	1.000	1.50	CODETI	
1425	0.05	2.50	0.26	0.00	2.60	1.000	1.000	2.55	CODETI	
1425	0.05	2.50	-0.26	0.00	2.60	1.000	1.000	2.55	CODETI	
1428	0.07	32.33	0.13	0.00	32.40	7.391	7.391	32.39	CODETI	
1428	0.07	32.33	-0.13	0.00	32.40	7.391	7.391	32.39	CODETI	
1429	0.11	33.35	-0.14	0.00	33.46	7.391	7.391	33.41	CODETI	
1429	0.11	33.35	0.14	0.00	33.46	7.391	7.391	33.41	CODETI	
1430	0.13	33.60	-0.27	0.00	33.73	7.391	7.391	33.84	CODETI	
1430	0.13	4.55	0.27	0.00	4.71	1.000	1.000	4.58	CODETI	
1440	0.13	5.63	-0.27	0.00	5.78	1.000	1.000	5.65	CODETI	
1440	0.13	5.63	0.27	0.00	5.78	1.000	1.000	5.65	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.12	6.99	-0.27	0.00	7.13	1.000	1.000	7.01	CODETI	
1445 (SP_31)	0.13	6.99	0.27	0.00	7.14	1.000	1.000	7.01	CODETI	
1450	0.13	39.58	-0.27	0.00	39.71	5.231	5.231	39.68	CODETI	
1450	0.00	15.13	1.35	0.00	15.37	5.231	5.231	20.71	CODETI	
1451 (SP_27)	-0.00	0.76	-1.35	0.00	2.81	1.000	1.000	2.81	CODETI	
1451 (SP_27)	0.00	0.76	1.35	0.00	2.81	1.000	1.000	2.81	CODETI	
1452	0.00	0.96	-1.35	0.00	2.87	1.000	1.000	2.87	CODETI	
1452	0.00	0.96	1.35	0.00	2.87	1.000	1.000	2.87	CODETI	
1455 (SP_28)	-0.00	3.34	-1.35	0.00	4.30	1.000	1.000	4.30	CODETI	
1455 (SP_28)	0.00	3.34	1.35	0.00	4.30	1.000	1.000	4.30	CODETI	
1458	0.00	0.21	-1.35	0.00	2.71	1.000	1.000	2.71	CODETI	
1458	0.00	1.14	1.35	0.00	2.94	5.640	4.700	15.30	CODETI	
1459	0.01	12.02	-0.80	0.00	12.14	5.640	4.700	17.00	CODETI	
1459	0.01	12.02	0.80	0.00	12.14	5.640	4.700	17.00	CODETI	
1460	0.01	15.10	0.41	0.00	15.14	5.640	4.700	18.69	CODETI	
1460	0.01	3.21	-0.41	0.00	3.33	1.000	1.000	3.31	CODETI	
1468	0.01	1.68	0.41	0.00	1.87	1.000	1.000	1.86	CODETI	
1468	0.01	7.89	-0.41	0.00	7.94	5.640	4.700	10.52	CODETI	
1469	0.01	3.02	-0.09	0.00	3.04	5.640	4.700	3.75	CODETI	
1469	0.01	3.02	0.09	0.00	3.04	5.640	4.700	3.75	CODETI	



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Stresses on Elements

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1470	0.00	5.23	0.00	0.00	5.23	5.640	4.700	6.27	CODETI	
1470	0.00	1.11	-0.00	0.00	1.12	1.000	1.000	1.11	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	4.26	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.06	-0.00	0.00	0.09	1.000	1.000	0.06	CODETI	
1518	0.04	0.14	0.00	0.00	0.18	1.000	1.000	0.14	CODETI	
1518	0.04	0.88	-0.00	0.00	0.92	7.391	6.159	1.05	CODETI	
1519	0.08	3.10	-0.08	0.00	3.19	7.391	6.159	3.88	CODETI	
1519	0.08	3.10	0.08	0.00	3.19	7.391	6.159	3.88	CODETI	

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Stresses on Elements

CASE 4 Poids + PMS + TS en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1520	0.09	4.47	-0.24	0.00	4.59	7.391	6.159	6.40	CODETI	
1520	0.09	0.73	0.24	0.00	0.94	1.000	1.000	0.87	CODETI	
1523	0.19	3.39	-0.24	0.00	3.62	1.000	1.000	3.43	CODETI	
1523	0.19	16.74	0.24	0.00	16.94	5.640	4.700	19.33	CODETI	
1524	0.13	18.50	-0.67	0.00	18.68	5.640	4.700	22.13	CODETI	
1524	0.13	18.50	0.67	0.00	18.68	5.640	4.700	22.13	CODETI	
1525	0.04	20.05	-1.09	0.00	20.22	5.640	4.700	25.20	CODETI	
1525	0.04	3.89	1.09	0.00	4.51	1.000	1.000	4.47	CODETI	
1530	0.04	4.13	-1.09	0.00	4.72	1.000	1.000	4.68	CODETI	
1530	0.04	4.12	1.11	0.00	4.71	1.000	1.000	4.68	CODETI	
1540 (SR_30)	0.04	5.70	-1.11	0.00	6.15	1.000	1.000	6.11	CODETI	
1540 (SR_30)	0.05	5.70	1.11	0.00	6.16	1.000	1.000	6.11	CODETI	
1450	0.05	33.92	-1.11	0.00	34.04	5.231	5.231	35.86	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.21	0.19	0.00	0.00	7.40	1.000	1.000	0.19	CODETI	
20	-6.92	0.20	-0.00	0.00	7.11	1.000	1.000	0.20	CODETI	
20	-0.18	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
25	-1.24	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
20	-7.22	0.20	0.01	-3.81	7.43	1.000	1.000	2.10	CODETI	
30	-6.90	0.20	-0.01	-3.81	7.11	1.000	1.000	2.10	CODETI	
30	-6.86	0.19	0.01	-3.81	7.06	1.000	1.000	2.09	CODETI	
40	-6.50	0.19	-0.01	-3.81	6.70	1.000	1.000	2.10	CODETI	
40	-6.46	0.05	0.00	-3.81	6.52	1.000	1.000	1.95	CODETI	
45 (Weld_CW2)	-4.79	0.05	-0.00	-3.81	4.85	1.000	1.000	1.95	CODETI	
45 (Weld_CW2)	-4.79	0.05	0.00	-3.81	4.85	1.000	1.000	1.95	CODETI	
50	-3.57	0.05	-0.00	-3.81	3.83	1.000	1.000	1.95	CODETI	
50	-2.34	0.03	0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.55	0.03	-0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
55	-1.53	0.03	0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
56	-1.47	0.03	-0.00	-2.50	2.51	1.000	1.000	1.28	CODETI	
56	-1.49	0.00	-0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	
60	-1.28	0.00	0.00	-2.50	2.51	1.000	1.000	1.25	CODETI	

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CASE 5 Poids + PS Mini + TS Mini en Normal

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65 (Piquage_N1)	-0.65	0.00	0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	
70	-0.58	0.00	-0.00	-0.70	0.71	1.000	1.000	0.34	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	-0.34	1.48	3.10	-0.70	6.45	1.000	1.000	6.71	CODETI	
110	-0.34	1.90	-3.10	-0.70	6.58	1.000	1.000	6.82	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	-0.03	0.73	-0.00	-0.56	1.25	1.000	1.000	1.01	CODETI	
129	-0.15	3.48	0.00	-0.56	3.89	7.124	5.937	3.76	CODETI	
129	-0.15	3.48	-0.00	-0.56	3.84	7.124	5.937	3.76	CODETI	
130	-0.28	0.26	0.00	-0.56	0.58	7.124	5.937	0.54	CODETI	
130	-0.28	0.04	-0.00	-0.56	0.58	1.000	1.000	0.31	CODETI	
134 (Jupe_N3)	-0.28	0.13	0.00	-0.56	0.58	1.000	1.000	0.41	CODETI	
134 (Jupe_N3)	-0.28	0.13	-0.00	-0.56	0.58	1.000	1.000	0.41	CODETI	
135 (SR_N3)	-0.28	0.38	0.00	-0.56	0.67	1.000	1.000	0.66	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

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135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	-0.66	0.00	0.00	-0.56	0.67	1.000	1.000	0.28	CODETI	
160	-0.54	0.00	-0.00	-0.56	0.58	1.000	1.000	0.28	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	0.15	4.59	0.31	-0.56	5.24	1.000	1.000	4.91	CODETI	
190	0.25	4.51	-0.31	-0.56	5.35	1.000	1.000	4.83	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	-0.28	2.88	0.38	-0.56	3.25	1.000	1.000	3.26	CODETI	
220	-0.28	0.23	-0.38	-0.56	0.92	1.000	1.000	1.07	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	-0.32	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
250	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
251 (CT_N1)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
260	-0.13	0.00	-0.00	-0.63	0.65	10.614	10.614	0.31	CODETI	
260	-0.20	23.34	-0.97	-0.41	23.63	10.614	10.614	31.37	CODETI	
262	-0.20	1.69	0.97	-0.41	2.72	1.000	1.000	2.78	CODETI	
262	-0.31	2.60	-1.49	-0.63	4.17	1.000	1.000	4.27	CODETI	
265 (SG_5)	-0.31	2.19	1.49	-0.63	3.90	1.000	1.000	4.02	CODETI	
265 (SG_5)	-0.31	2.19	-1.49	-0.63	3.90	1.000	1.000	4.02	CODETI	
267	-0.31	6.34	1.41	-0.63	7.24	8.376	8.376	24.78	CODETI	
267	-0.31	6.34	-1.41	-0.63	7.23	8.376	8.376	24.78	CODETI	
268	-0.31	8.68	1.17	-0.63	9.30	8.376	8.376	21.75	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
268	-0.31	8.68	-1.17	-0.63	9.28	8.376	8.376	21.75	CODETI	
269	-0.31	7.70	0.91	-0.63	8.22	8.376	8.376	17.36	CODETI	
269	-0.31	7.70	-0.91	-0.63	8.21	8.376	8.376	17.36	CODETI	
270	-0.31	6.02	0.80	-0.63	6.54	8.376	8.376	15.03	CODETI	
270	-0.31	0.72	-0.80	-0.63	1.90	1.000	1.000	2.07	CODETI	
271	-0.31	4.94	0.80	-0.63	5.50	1.000	1.000	5.51	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	-0.32	4.82	-0.00	-0.63	5.14	1.000	1.000	5.13	CODETI	
277	-0.07	22.89	0.02	-0.63	23.45	8.141	8.141	23.21	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
277	-0.07	22.89	-0.02	-0.63	23.10	8.141	8.141	23.21	CODETI	
278	0.33	8.79	0.04	-0.63	9.74	8.141	8.141	9.13	CODETI	
278	0.33	8.79	-0.04	-0.63	9.61	8.141	8.141	9.13	CODETI	
279	0.51	1.03	0.06	-0.63	2.17	8.141	8.141	1.71	CODETI	
279	0.51	1.03	-0.06	-0.63	2.16	8.141	8.141	1.71	CODETI	
280	0.51	0.06	0.06	-0.63	1.22	8.141	8.141	1.28	CODETI	
280	0.51	0.01	-0.06	-0.63	1.16	1.000	1.000	0.43	CODETI	
284	0.47	0.01	0.06	-0.63	1.12	1.000	1.000	0.43	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.31	0.01	-0.06	-0.63	0.96	1.000	1.000	0.43	CODETI	
290	0.13	0.00	0.06	-0.63	0.78	1.000	1.000	0.43	CODETI	
290	0.13	0.00	-0.06	-0.63	0.79	1.000	1.000	0.43	CODETI	
299	-0.05	0.00	0.06	-0.63	0.65	1.000	1.000	0.43	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	-0.22	0.01	-0.06	-0.63	0.66	1.000	1.000	0.43	CODETI	
306	-0.26	0.29	0.06	-0.63	0.67	9.368	9.368	1.42	CODETI	
306	-0.26	0.29	-0.06	-0.63	0.71	9.368	9.368	1.42	CODETI	
307	-0.31	0.81	0.04	-0.63	1.13	9.368	9.368	1.44	CODETI	
307	-0.31	0.81	-0.04	-0.63	1.13	9.368	9.368	1.44	CODETI	
308	-0.32	1.07	0.02	-0.63	1.39	9.368	9.368	1.42	CODETI	
308	-0.32	1.07	-0.02	-0.63	1.40	9.368	9.368	1.42	CODETI	
305	-0.31	1.22	0.00	-0.63	1.54	9.368	9.368	1.54	CODETI	
305	-0.31	0.13	-0.00	-0.63	0.65	1.000	1.000	0.44	CODETI	
435 (SR_07)	-0.31	0.47	0.00	-0.63	0.79	1.000	1.000	0.78	CODETI	
435 (SR_07)	-0.30	0.47	-0.00	-0.63	0.80	1.000	1.000	0.78	CODETI	
440	-0.30	72.49	0.00	-0.63	72.82	10.614	10.614	72.80	CODETI	
440	-0.20	4.50	-0.21	-0.41	4.72	10.614	10.614	6.52	CODETI	
445	-0.20	0.15	0.21	-0.41	0.60	1.000	1.000	0.65	CODETI	
445	-0.31	2.17	-0.32	-0.63	2.56	9.368	9.368	6.68	CODETI	
311	-0.29	1.52	0.32	-0.63	1.97	9.368	9.368	6.52	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
311	-0.29	1.52	-0.32	-0.63	1.93	9.368	9.368	6.52	CODETI	
312	-0.28	5.61	0.22	-0.63	5.98	9.368	9.368	7.30	CODETI	
312	-0.28	5.61	-0.22	-0.63	5.90	9.368	9.368	7.30	CODETI	
313	-0.30	7.93	0.03	-0.63	8.26	9.368	9.368	8.26	CODETI	
313	-0.30	7.93	-0.03	-0.63	8.22	9.368	9.368	8.26	CODETI	
310	-0.31	8.09	-0.08	-0.63	8.40	9.368	9.368	8.55	CODETI	
310	-0.31	0.86	0.08	-0.63	1.19	1.000	1.000	1.19	CODETI	
315	-0.33	0.88	-0.08	-0.63	1.21	1.000	1.000	1.21	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	-0.38	0.87	0.08	-0.63	1.26	1.000	1.000	1.20	CODETI	
330	-0.44	0.62	-0.08	-0.63	1.07	1.000	1.000	0.95	CODETI	
330	-0.44	0.62	0.08	-0.63	1.07	1.000	1.000	0.95	CODETI	
335	-0.49	0.19	-0.08	-0.63	0.75	1.000	1.000	0.56	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	-0.55	0.12	0.08	-0.63	0.70	1.000	1.000	0.52	CODETI	
337	-0.57	2.24	-0.10	-0.63	2.79	9.368	9.368	3.24	CODETI	
337	-0.57	2.24	0.10	-0.63	2.81	9.368	9.368	3.24	CODETI	
338	-0.52	6.25	-0.21	-0.63	6.69	9.368	9.368	7.70	CODETI	
338	-0.52	6.25	0.21	-0.63	6.78	9.368	9.368	7.70	CODETI	
339	-0.40	10.83	-0.40	-0.63	11.09	9.368	9.368	13.52	CODETI	
339	-0.40	10.83	0.40	-0.63	11.26	9.368	9.368	13.52	CODETI	
350	-0.31	13.20	-0.52	-0.63	13.55	9.368	9.368	16.70	CODETI	
350	-0.20	0.92	0.34	-0.41	1.31	1.000	1.000	1.35	CODETI	
355 (SR_8)	-0.21	1.39	-0.34	-0.41	1.73	1.000	1.000	1.75	CODETI	
355 (SR_8)	-0.20	1.39	0.34	-0.41	1.72	1.000	1.000	1.75	CODETI	
360 (Té_TH_700)	-0.20	0.54	-0.34	-0.41	1.01	1.000	1.000	1.07	CODETI	
360 (Té_TH_700)	-0.20	0.54	0.01	-0.41	0.74	1.000	1.000	0.74	CODETI	
365	-0.20	14.71	-0.01	-0.41	14.92	10.614	10.614	14.92	CODETI	
365	-0.18	9.86	-0.18	-0.41	10.05	10.614	10.614	10.76	CODETI	

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
366	-0.19	0.40	0.18	-0.41	0.72	1.000	1.000	0.74	CODETI	
366	-0.28	4.97	-0.27	-0.63	5.29	8.141	8.141	6.98	CODETI	
368	-0.35	2.59	0.27	-0.63	2.94	8.141	8.141	5.46	CODETI	
368	-0.35	2.59	-0.27	-0.63	2.99	8.141	8.141	5.46	CODETI	
369	-0.46	2.53	0.24	-0.63	2.99	8.141	8.141	5.03	CODETI	
369	-0.46	2.53	-0.24	-0.63	3.04	8.141	8.141	5.03	CODETI	
370	-0.50	4.26	0.21	-0.63	4.72	8.141	8.141	5.82	CODETI	
370	-0.50	0.52	-0.21	-0.63	1.11	1.000	1.000	0.99	CODETI	
378	-0.39	9.85	0.24	-0.63	10.10	8.141	8.141	10.92	CODETI	
378	-0.39	9.85	-0.24	-0.63	10.25	8.141	8.141	10.92	CODETI	
379	-0.31	11.56	0.26	-0.63	11.89	8.141	8.141	12.65	CODETI	
379	-0.31	11.56	-0.26	-0.63	11.89	8.141	8.141	12.65	CODETI	
380	-0.29	12.30	0.26	-0.63	12.65	8.141	8.141	13.32	CODETI	
380	-0.29	1.51	-0.26	-0.63	1.89	1.000	1.000	1.91	CODETI	
385	-0.29	1.54	0.26	-0.63	1.95	1.000	1.000	1.94	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	-2.95	1.44	-0.26	-6.01	6.19	1.000	1.000	4.51	CODETI	
410	-2.95	0.95	0.26	-6.01	6.18	1.000	1.000	4.06	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	-2.95	0.85	-0.26	-6.01	6.18	1.000	1.000	3.97	CODETI	
430 (PF4_CPO)	-2.95	0.78	0.26	-6.01	6.18	1.000	1.000	3.92	CODETI	
440	-0.21	4.51	2.02	-0.41	6.21	10.614	10.614	43.30	CODETI	
450	-0.21	1.05	-2.02	-0.41	4.23	1.000	1.000	4.38	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	0.89	10.75	-0.18	-0.47	11.90	10.614	10.614	11.68	CODETI	
500	0.99	1.71	0.28	-0.47	3.22	1.000	1.000	2.04	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
500	0.99	1.71	-0.28	-0.47	3.17	1.000	1.000	2.04	CODETI	
503	1.05	11.84	0.39	-0.47	13.39	7.049	7.049	13.29	CODETI	
503	1.05	11.84	-0.39	-0.47	13.14	7.049	7.049	13.29	CODETI	
504	0.90	6.25	0.56	-0.47	7.70	7.049	7.049	10.29	CODETI	
504	0.90	6.25	-0.56	-0.47	7.54	7.049	7.049	10.29	CODETI	
505	0.75	3.22	0.61	-0.47	4.60	7.049	7.049	9.47	CODETI	
505	0.75	0.46	-0.61	-0.47	1.92	1.000	1.000	1.54	CODETI	
508	1.00	34.81	0.55	-0.47	36.30	7.049	7.049	35.90	CODETI	
508	1.00	34.81	-0.55	-0.47	35.83	7.049	7.049	35.90	CODETI	
509	1.24	41.13	0.36	-0.47	42.84	7.049	7.049	41.68	CODETI	
509	1.24	41.13	-0.36	-0.47	42.37	7.049	7.049	41.68	CODETI	
510	1.28	41.96	0.24	-0.47	43.71	7.049	7.049	42.33	CODETI	
510	1.28	5.95	-0.24	-0.47	7.59	1.000	1.000	6.21	CODETI	
514 (Té_VS_011)	1.33	34.42	0.24	-0.47	36.21	5.836	5.836	34.76	CODETI	
514 (Té_VS_011)	1.70	20.85	0.00	-0.47	22.60	5.836	5.836	21.08	CODETI	
515	1.79	3.57	-0.00	-0.47	5.83	1.000	1.000	3.81	CODETI	
515	0.86	1.72	0.00	-0.23	2.75	1.000	1.000	1.83	CODETI	
520	0.93	12.52	-0.00	-0.23	13.68	7.279	7.279	12.64	CODETI	
520	0.06	29.30	-0.28	-0.23	29.37	7.279	7.279	29.69	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
525	0.06	1.63	0.28	-0.23	2.00	1.000	1.000	1.84	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.36	1.92	-0.58	0.00	2.56	1.000	1.000	2.24	CODETI	
547	0.78	1.15	0.61	0.00	2.29	6.943	6.943	8.59	CODETI	
547	0.78	1.15	-0.61	0.00	2.29	6.943	6.943	8.59	CODETI	
548	1.48	20.21	0.56	0.00	21.71	6.943	6.943	21.64	CODETI	
548	-0.33	20.21	-0.56	0.00	20.57	6.943	6.943	21.64	CODETI	
549	-0.64	11.96	0.36	0.00	12.62	6.943	6.943	12.97	CODETI	
549	-0.64	11.96	-0.36	0.00	12.62	6.943	6.943	12.97	CODETI	
550	-0.73	10.23	0.23	0.00	10.97	6.943	6.943	10.72	CODETI	
550	-0.73	1.47	-0.23	0.00	2.25	1.000	1.000	1.54	CODETI	
557	-0.65	12.12	0.09	0.00	12.78	6.943	6.943	12.19	CODETI	
557	-0.65	12.12	-0.09	0.00	12.78	6.943	6.943	12.19	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
558	-0.62	12.03	-0.19	0.00	12.66	6.943	6.943	12.31	CODETI	
558	-0.62	12.03	0.19	0.00	12.66	6.943	6.943	12.31	CODETI	
559	-0.46	7.37	-0.41	0.00	7.87	6.943	6.943	9.34	CODETI	
559	-0.46	7.37	0.41	0.00	7.87	6.943	6.943	9.34	CODETI	
560	-0.34	3.69	-0.49	0.00	4.15	6.943	6.943	7.68	CODETI	
560	-0.34	0.53	0.49	0.00	1.30	1.000	1.000	1.11	CODETI	
570	-0.34	1.49	-0.49	0.00	2.08	1.000	1.000	1.78	CODETI	
570	-0.34	3.74	0.49	0.00	4.19	2.500	2.500	4.45	CODETI	
580	-0.26	4.48	-0.27	0.00	4.77	2.500	2.500	4.69	CODETI	
580	-0.26	1.79	0.27	0.00	2.12	1.000	1.000	1.87	CODETI	
585	-0.26	1.95	-0.27	0.00	2.27	1.000	1.000	2.02	CODETI	
585	-0.26	1.95	0.27	0.00	2.27	1.000	1.000	2.02	CODETI	
590	-0.26	15.91	-0.27	0.00	16.18	7.057	7.057	16.38	CODETI	
590	-0.01	26.73	0.92	0.00	26.80	7.057	7.057	29.72	CODETI	
595 (SR_11)	-0.01	1.08	-0.92	0.00	2.14	1.000	1.000	2.14	CODETI	
595 (SR_11)	0.00	1.08	0.92	0.00	2.14	1.000	1.000	2.14	CODETI	
596 (SP_13)	-0.00	4.58	-0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
596 (SP_13)	0.01	4.58	0.92	0.00	4.94	1.000	1.000	4.93	CODETI	
598	0.00	32.38	-0.66	0.00	32.41	8.236	8.236	34.16	CODETI	
598	0.00	32.38	0.66	0.00	32.41	8.236	8.236	34.16	CODETI	



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CASE 5 Poids + PS Mini + TS Mini en Normal

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599	0.00	30.10	-0.16	0.00	30.11	8.236	8.236	30.22	CODETI	
599	0.00	30.10	0.16	0.00	30.11	8.236	8.236	30.22	CODETI	
600	0.00	28.27	0.07	0.00	28.28	8.236	8.236	28.30	CODETI	
600	0.00	3.43	-0.07	0.00	3.44	1.000	1.000	3.44	CODETI	
608	0.00	2.69	0.05	0.00	2.69	8.236	8.236	2.80	CODETI	
608	0.00	2.69	-0.05	0.00	2.69	8.236	8.236	2.80	CODETI	
609	0.00	1.75	0.01	0.00	1.75	8.236	8.236	1.76	CODETI	
609	0.00	1.75	-0.01	0.00	1.75	8.236	8.236	1.76	CODETI	
610	0.00	1.32	0.00	0.00	1.32	8.236	8.236	1.32	CODETI	
610	0.00	0.16	-0.00	0.00	0.16	1.000	1.000	0.16	CODETI	
615	0.00	0.04	0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
615	0.00	0.04	-0.00	0.00	0.04	1.000	1.000	0.04	CODETI	
620	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
520	0.06	24.18	0.51	-0.23	24.26	7.279	7.279	25.39	CODETI	
625	0.06	2.00	-0.51	-0.23	2.50	1.000	1.000	2.36	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.36	3.28	1.05	0.00	4.20	1.000	1.000	3.90	CODETI	
642	0.61	8.38	-1.05	0.00	9.23	6.943	6.943	16.79	CODETI	
642	0.61	8.38	1.05	0.00	9.23	6.943	6.943	16.79	CODETI	
643	1.02	9.77	-0.82	0.00	10.91	6.943	6.943	15.05	CODETI	
643	1.02	9.77	0.82	0.00	10.91	6.943	6.943	15.05	CODETI	
644	1.18	15.38	-0.37	0.00	16.57	6.943	6.943	16.23	CODETI	
644	1.18	15.38	0.37	0.00	16.57	6.943	6.943	16.23	CODETI	
645	1.15	15.75	-0.11	0.00	16.90	6.943	6.943	15.82	CODETI	
645	1.15	2.27	0.11	0.00	3.43	1.000	1.000	2.28	CODETI	
590	1.36	24.88	-0.11	0.00	26.24	7.057	7.057	24.92	CODETI	
360 (Té_TH_700)	-0.31	1.36	-0.00	-0.63	1.67	1.000	1.000	1.67	CODETI	
660	-0.31	0.10	0.00	-0.63	0.65	1.000	1.000	0.42	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	-0.23	1.31	-0.00	-0.47	1.54	1.000	1.000	1.54	CODETI	
690	-0.23	0.05	0.00	-0.47	0.48	1.000	1.000	0.28	CODETI	

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690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	-0.21	23.34	-0.97	-0.41	23.63	10.614	10.614	31.37	CODETI	
720 (Té_VS_008)	-0.21	18.27	0.97	-0.41	18.57	10.614	10.614	27.77	CODETI	
720 (Té_VS_008)	-0.21	28.93	-0.14	-0.41	29.14	10.614	10.614	29.28	CODETI	
725	-0.21	0.47	0.14	-0.41	0.74	1.000	1.000	0.75	CODETI	
725	-0.32	0.72	-0.21	-0.63	1.13	1.000	1.000	1.15	CODETI	
730	-0.32	5.14	0.21	-0.63	5.46	1.000	1.000	5.47	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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760	-0.19	3.16	-0.14	-0.41	3.37	1.000	1.000	3.38	CODETI	
770 (Té_Gavage)	-0.19	10.95	0.14	-0.41	11.17	10.614	10.614	11.55	CODETI	
770 (Té_Gavage)	-0.20	3.17	-0.00	-0.41	3.37	10.614	10.614	3.37	CODETI	
780	-0.20	0.00	0.00	-0.41	0.43	1.000	1.000	0.21	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
795	-0.31	0.00	-0.00	-0.63	0.65	2.000	2.000	0.31	CODETI	
800 (SB_02)	-0.67	0.88	0.00	-1.18	1.55	2.000	2.000	1.47	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	-0.59	0.46	0.00	-1.18	1.19	1.000	1.000	1.05	CODETI	
820	-0.59	0.00	0.00	-1.18	1.19	1.000	1.000	0.59	CODETI	
720 (Té_VS_008)	-0.32	31.53	-0.13	-0.63	31.85	10.614	10.614	31.95	CODETI	
830	-0.32	0.29	0.13	-0.63	0.76	1.000	1.000	0.70	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	-0.33	0.10	-0.13	-0.63	0.70	1.000	1.000	0.58	CODETI	
865 (SP_14)	-0.33	0.11	0.13	-0.63	0.71	1.000	1.000	0.59	CODETI	
865 (SP_14)	-0.33	0.11	-0.13	-0.63	0.70	1.000	1.000	0.59	CODETI	
867	-0.35	1.46	0.12	-0.63	1.81	8.376	8.376	2.76	CODETI	
867	-0.35	1.46	-0.12	-0.63	1.82	8.376	8.376	2.76	CODETI	
868	-0.42	1.52	0.08	-0.63	1.94	8.376	8.376	2.36	CODETI	
868	-0.42	1.52	-0.08	-0.63	1.95	8.376	8.376	2.36	CODETI	
869	-0.51	2.39	0.03	-0.63	2.87	8.376	8.376	2.75	CODETI	
869	-0.51	2.39	-0.03	-0.63	2.90	8.376	8.376	2.75	CODETI	
870	-0.54	2.46	0.00	-0.63	2.97	8.376	8.376	2.77	CODETI	
870	-0.54	0.29	-0.00	-0.63	0.84	1.000	1.000	0.61	CODETI	
872	-0.79	0.17	0.00	-0.63	0.97	1.000	1.000	0.49	CODETI	
872	-0.79	0.17	0.00	-0.63	0.97	1.000	1.000	0.49	CODETI	
875 (SG_15)	-1.07	0.10	-0.00	-0.63	1.18	1.000	1.000	0.41	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	-0.16	0.00	0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
880	-0.18	0.00	-0.00	-0.63	0.65	1.000	1.000	0.31	CODETI	
880	-0.18	0.00	0.00	-0.63	0.65	2.500	2.500	0.31	CODETI	
890	-0.24	0.00	-0.00	-0.52	0.53	2.500	2.500	0.26	CODETI	
890	-0.24	0.00	0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	-0.25	0.00	-0.00	-0.52	0.53	1.000	1.000	0.26	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	1.10	22.12	-0.00	-0.63	23.51	10.614	10.614	22.43	CODETI	
772 (SG_16_1)	0.99	2.20	0.00	-0.63	3.82	1.000	1.000	2.52	CODETI	
772 (SG_16_1)	0.99	2.20	-0.00	-0.63	3.80	1.000	1.000	2.52	CODETI	
775	0.81	14.01	0.00	-0.63	15.45	7.057	7.057	14.33	CODETI	
775	0.65	14.29	-0.00	-0.63	15.35	7.057	7.057	14.60	CODETI	
910 (Té_VS_007)	0.26	1.85	0.00	-0.63	2.74	1.000	1.000	2.16	CODETI	
910 (Té_VS_007)	0.30	1.82	-0.00	-0.63	2.73	1.000	1.000	2.14	CODETI	
915 (SG_16_2)	0.24	2.05	0.00	-0.63	2.91	1.000	1.000	2.36	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
915 (SG_16_2)	0.24	2.05	-0.00	-0.63	2.89	1.000	1.000	2.36	CODETI	
920	0.21	2.05	0.00	-0.63	2.88	1.000	1.000	2.36	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.11	2.05	-0.00	-0.63	2.76	1.000	1.000	2.36	CODETI	
957	0.04	16.89	0.00	-0.63	17.56	8.472	8.472	17.21	CODETI	
957	0.04	16.89	-0.00	-0.63	17.31	8.472	8.472	17.21	CODETI	
958	-0.09	13.96	-0.00	-0.63	14.50	8.472	8.472	14.28	CODETI	
958	-0.09	13.96	0.00	-0.63	14.29	8.472	8.472	14.28	CODETI	
959	-0.25	9.73	-0.00	-0.63	10.11	8.472	8.472	10.04	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
959	-0.25	9.73	0.00	-0.63	9.98	8.472	8.472	10.04	CODETI	
960	-0.31	7.66	-0.00	-0.63	7.97	8.472	8.472	7.97	CODETI	
960	-0.31	0.90	0.00	-0.63	1.22	1.000	1.000	1.22	CODETI	
965	-0.31	0.32	-0.00	-0.63	0.65	1.000	1.000	0.64	CODETI	
965	-0.31	0.81	0.00	-0.63	1.12	2.500	2.500	1.12	CODETI	
970	-0.26	0.02	-0.00	-0.53	0.54	2.500	2.500	0.28	CODETI	
970	-0.26	0.01	0.00	-0.53	0.54	1.000	1.000	0.27	CODETI	
980	-0.26	0.00	-0.00	-0.53	0.54	1.000	1.000	0.26	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	-0.25	38.41	0.00	-0.51	38.66	7.057	7.057	38.67	CODETI	
995	-0.25	6.14	-0.00	-0.51	6.40	1.000	1.000	6.40	CODETI	
995	-0.25	6.14	0.00	-0.51	6.39	1.000	1.000	6.40	CODETI	
998	-0.25	0.95	-0.00	-0.51	1.20	1.000	1.000	1.20	CODETI	
998	-0.25	5.22	0.00	-0.51	5.47	5.493	4.577	5.47	CODETI	
999	-0.26	4.37	-0.00	-0.51	4.61	5.493	4.577	4.62	CODETI	
999	-0.26	4.37	0.00	-0.51	4.63	5.493	4.577	4.62	CODETI	
1000	-0.33	4.63	0.00	-0.51	4.88	5.493	4.577	4.88	CODETI	
1000	-0.33	0.84	-0.00	-0.51	1.17	1.000	1.000	1.10	CODETI	
1002	-0.63	0.84	0.00	-0.51	1.47	1.000	1.000	1.10	CODETI	



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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	-0.63	0.84	-0.00	-0.51	1.47	1.000	1.000	1.10	CODETI	
1008	-0.93	0.84	0.00	-0.51	1.77	1.000	1.000	1.10	CODETI	
1008	-0.93	4.63	-0.00	-0.51	5.56	5.493	4.577	4.88	CODETI	
1009	-0.81	10.71	-0.00	-0.51	11.33	5.493	4.577	10.96	CODETI	
1009	0.02	10.71	0.00	-0.51	11.04	5.493	4.577	10.96	CODETI	
1010	-0.25	2.78	-0.00	-0.51	3.03	5.493	4.577	3.03	CODETI	
1010	-0.25	0.51	0.00	-0.51	0.76	1.000	1.000	0.76	CODETI	
1020	-0.25	0.31	-0.00	-0.51	0.56	1.000	1.000	0.56	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	-0.25	0.10	0.00	-0.51	0.53	1.000	1.000	0.35	CODETI	
1060	-0.25	0.07	-0.00	-0.51	0.53	1.000	1.000	0.33	CODETI	
1060	-0.25	0.15	0.00	-0.51	0.53	2.000	2.000	0.40	CODETI	
1070	-0.23	0.00	-0.00	-0.46	0.48	2.000	2.000	0.23	CODETI	

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CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1070	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1090	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1100 (CT_ASP_Reg)	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.46	4.50	0.31	-0.51	5.40	1.000	1.000	4.79	CODETI	
1120	0.46	4.49	-0.31	-0.51	5.50	1.000	1.000	4.79	CODETI	
1120	0.46	4.49	0.31	-0.51	5.40	1.000	1.000	4.79	CODETI	
1128	0.47	4.49	-0.31	-0.51	5.50	1.000	1.000	4.79	CODETI	
1128	0.47	24.60	0.31	-0.51	25.11	5.493	4.577	25.16	CODETI	
1129	0.30	16.51	-0.44	-0.51	17.33	5.493	4.577	17.45	CODETI	
1129	0.30	16.51	0.44	-0.51	17.02	5.493	4.577	17.45	CODETI	
1130	-0.27	4.59	-0.30	-0.51	4.86	5.493	4.577	6.25	CODETI	
1130	-0.27	0.91	0.30	-0.51	1.33	1.000	1.000	1.35	CODETI	
1132	-0.27	3.55	-0.30	-0.51	3.83	1.000	1.000	3.85	CODETI	
1132	-0.27	3.55	0.30	-0.51	3.87	1.000	1.000	3.85	CODETI	
1135 (SR_18)	-0.28	9.30	-0.30	-0.51	9.55	1.000	1.000	9.57	CODETI	
1135 (SR_18)	-0.26	9.30	0.30	-0.51	9.58	1.000	1.000	9.57	CODETI	

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CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1138	-0.26	2.22	-0.30	-0.51	2.54	1.000	1.000	2.56	CODETI	
1138	-0.26	12.05	0.30	-0.51	12.33	5.493	4.577	12.91	CODETI	
1139	0.09	4.12	0.01	-0.51	4.71	5.493	4.577	5.16	CODETI	
1139	0.09	4.12	-0.01	-0.51	4.64	5.493	4.577	5.16	CODETI	
1140	0.16	6.35	0.31	-0.51	7.04	5.493	4.577	7.71	CODETI	
1140	0.16	1.20	-0.31	-0.51	1.93	1.000	1.000	1.61	CODETI	
1148	-0.13	1.40	0.31	-0.51	1.89	1.000	1.000	1.79	CODETI	
1148	-0.13	7.48	-0.31	-0.51	7.74	5.493	4.577	8.70	CODETI	
1149	-0.23	8.89	0.01	-0.51	9.17	5.493	4.577	9.53	CODETI	
1149	-0.23	8.89	-0.01	-0.51	9.11	5.493	4.577	9.53	CODETI	
1150	-0.27	8.75	-0.30	-0.51	9.02	5.493	4.577	9.82	CODETI	
1150	-0.27	1.63	0.30	-0.51	1.99	1.000	1.000	2.00	CODETI	
1158	-0.27	0.82	-0.30	-0.51	1.22	1.000	1.000	1.27	CODETI	
1158	-0.27	4.21	0.30	-0.51	4.52	5.493	4.577	5.85	CODETI	
1159	-0.26	3.40	-0.21	-0.51	3.67	5.493	4.577	4.41	CODETI	
1159	-0.26	3.40	0.21	-0.51	3.69	5.493	4.577	4.41	CODETI	
1160	-0.25	5.67	-0.45	-0.51	5.99	5.493	4.577	8.41	CODETI	
1160	-0.25	1.18	0.45	-0.51	1.69	1.000	1.000	1.74	CODETI	
1165 (SR_19)	-0.25	1.24	-0.45	-0.51	1.74	1.000	1.000	1.79	CODETI	
1165 (SR_19)	-0.25	1.25	0.44	-0.51	1.74	1.000	1.000	1.79	CODETI	

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CASE 5 Poids + PS Mini + TS Mini en Normal

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1170 (Té_ATRE)	-0.25	30.39	-0.44	-0.51	30.66	4.398	4.398	30.90	CODETI	
1170 (Té_ATRE)	-0.26	30.39	0.44	-0.51	30.66	4.398	4.398	30.90	CODETI	
1175	-0.26	4.12	-0.44	-0.51	4.46	1.000	1.000	4.47	CODETI	
1175	-0.26	4.12	0.44	-0.51	4.47	1.000	1.000	4.47	CODETI	
1178	-0.26	2.89	-0.44	-0.51	3.27	1.000	1.000	3.28	CODETI	
1178	-0.26	15.89	0.44	-0.51	16.18	5.493	4.577	16.88	CODETI	
1179	-0.61	5.85	-0.30	-0.51	6.37	5.493	4.577	7.23	CODETI	
1179	-0.61	5.85	0.30	-0.51	6.49	5.493	4.577	7.23	CODETI	
1180	-0.83	3.74	0.00	-0.51	4.51	5.493	4.577	4.74	CODETI	
1180	-0.83	0.82	-0.00	-0.51	1.64	1.000	1.000	1.07	CODETI	
1185	-0.85	0.80	0.00	-0.51	1.64	1.000	1.000	1.06	CODETI	
1185	0.06	0.03	-0.00	-0.51	0.61	1.000	1.000	0.29	CODETI	
1186 (SG_20)	0.02	0.00	0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1186 (SG_20)	0.02	0.00	-0.00	-0.51	0.54	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1190	-0.17	0.00	-0.00	-0.51	0.53	2.500	2.500	0.25	CODETI	
1195	-0.22	0.00	0.00	-0.46	0.48	2.500	2.500	0.23	CODETI	
1195	-0.22	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1200	-0.23	0.00	-0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1210 (CT_REF_Reg)	-0.23	0.00	0.00	-0.46	0.48	1.000	1.000	0.23	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	0.05	0.00	0.00	-0.51	0.57	4.398	4.398	0.25	CODETI	
1211	-0.25	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1211	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1212 (CT_03)	-0.25	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1216	-0.32	0.00	-0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1218	-0.41	0.00	0.00	-0.51	0.53	1.000	1.000	0.25	CODETI	
1218	-0.41	0.00	-0.00	-0.51	0.53	7.242	6.035	0.25	CODETI	
1219	-0.40	1.63	0.00	-0.51	2.01	7.242	6.035	1.89	CODETI	
1219	-0.38	1.63	-0.00	-0.51	2.01	7.242	6.035	1.89	CODETI	
1220	-0.25	5.85	0.00	-0.51	6.11	7.242	6.035	6.11	CODETI	
1220	-0.25	0.81	-0.00	-0.51	1.06	1.000	1.000	1.06	CODETI	
1230	-0.25	0.96	0.00	-0.51	1.22	1.000	1.000	1.22	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	-0.28	0.00	0.00	-0.56	0.58	1.000	1.000	0.28	CODETI	
1268	-0.28	0.04	-0.00	-0.56	0.58	1.000	1.000	0.31	CODETI	
1268	-0.28	0.19	0.00	-0.56	0.58	5.380	4.483	0.47	CODETI	
1269	-0.29	0.59	-0.00	-0.56	0.88	5.380	4.483	0.87	CODETI	
1269	-0.29	0.59	0.00	-0.56	0.88	5.380	4.483	0.87	CODETI	
1270	-0.32	1.11	-0.00	-0.56	1.41	5.380	4.483	1.39	CODETI	
1270	-0.32	0.21	0.00	-0.56	0.58	1.000	1.000	0.48	CODETI	
1279	-0.33	3.03	0.17	-0.56	3.32	5.380	4.483	4.33	CODETI	
1279	-0.33	3.03	-0.17	-0.56	3.37	5.380	4.483	4.33	CODETI	
1280	-0.28	5.28	0.51	-0.56	5.66	5.380	4.483	8.48	CODETI	
1280	-0.28	1.13	-0.51	-0.56	1.74	1.000	1.000	1.80	CODETI	
1285	-0.28	10.72	0.51	-0.56	11.05	4.398	4.398	11.90	CODETI	
1285	-0.28	30.51	0.17	-0.56	30.80	4.398	4.398	30.83	CODETI	
1286	-0.28	3.00	-0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1286	-0.28	3.00	0.17	-0.56	3.30	1.000	1.000	3.30	CODETI	
1291	-0.28	1.46	-0.17	-0.56	1.77	1.000	1.000	1.78	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1291	-0.28	6.55	0.17	-0.56	6.84	5.380	4.483	8.36	CODETI	
1292	-0.28	5.91	-0.08	-0.56	6.19	5.380	4.483	7.43	CODETI	
1292	-0.28	5.91	0.08	-0.56	6.20	5.380	4.483	7.43	CODETI	
1290	-0.28	5.22	-0.00	-0.56	5.49	5.380	4.483	6.54	CODETI	
1290	-0.28	1.16	0.00	-0.56	1.44	1.000	1.000	1.44	CODETI	
1300	-0.28	0.41	-0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1300	-0.28	0.41	0.00	-0.56	0.69	1.000	1.000	0.69	CODETI	
1310	-0.28	0.01	-0.00	-0.56	0.58	1.000	1.000	0.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	-0.27	6.01	2.25	-0.56	7.73	4.398	4.398	20.96	CODETI	
1320	-0.27	4.21	-2.25	-0.56	6.36	1.000	1.000	6.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	-0.21	2.39	0.02	-0.56	2.70	1.000	1.000	2.67	CODETI	
1328	-0.21	1.12	-0.02	-0.56	1.47	1.000	1.000	1.40	CODETI	
1328	-0.21	5.11	0.02	-0.56	5.37	5.380	4.483	6.32	CODETI	
1329	-0.02	8.11	0.41	-0.56	8.68	5.380	4.483	10.00	CODETI	



Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1329	-0.70	7.44	-0.56	-0.56	8.22	5.380	4.483	10.09	CODETI	
1330	-0.87	2.24	0.61	-0.56	3.22	5.380	4.483	7.39	CODETI	
1330	-0.87	0.49	-0.61	-0.56	1.83	1.000	1.000	1.60	CODETI	
1338	-0.62	1.66	0.61	-0.56	2.46	1.000	1.000	2.34	CODETI	
1338	-0.62	8.11	-0.61	-0.56	8.82	5.380	4.483	11.39	CODETI	
1339	-0.50	4.18	0.94	-0.56	4.81	5.380	4.483	11.27	CODETI	
1339	-0.50	4.18	-0.94	-0.56	5.04	5.380	4.483	11.27	CODETI	
1340	-0.32	3.73	0.84	-0.56	4.31	5.380	4.483	10.37	CODETI	
1340	-0.32	0.82	-0.84	-0.56	2.04	1.000	1.000	2.15	CODETI	
1343	-0.32	1.41	0.84	-0.56	2.36	1.000	1.000	2.48	CODETI	
1343	-0.32	1.41	-0.84	-0.56	2.41	1.000	1.000	2.48	CODETI	
1348	-0.32	1.34	0.84	-0.56	2.31	1.000	1.000	2.43	CODETI	
1348	-0.32	6.10	-0.84	-0.56	6.64	5.380	4.483	11.87	CODETI	
1349	-0.26	8.34	0.22	-0.56	8.65	5.380	4.483	10.24	CODETI	
1349	-0.26	8.34	-0.22	-0.56	8.61	5.380	4.483	10.24	CODETI	
1345	-0.21	6.30	-0.27	-0.56	6.68	5.380	4.483	7.53	CODETI	
1345	-0.21	1.23	0.27	-0.56	1.64	1.000	1.000	1.63	CODETI	
1350 (SP_23)	-0.21	1.83	-0.27	-0.56	2.24	1.000	1.000	2.18	CODETI	
1350 (SP_23)	-0.21	1.83	0.27	-0.56	2.20	1.000	1.000	2.18	CODETI	
1355	-0.21	2.65	-0.27	-0.56	3.05	1.000	1.000	2.98	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1355	-0.21	2.65	0.27	-0.56	2.99	1.000	1.000	2.98	CODETI	
1360	-0.21	2.99	-0.27	-0.56	3.39	1.000	1.000	3.32	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	-0.18	3.96	0.27	-0.51	4.24	1.000	1.000	4.25	CODETI	
514 (Té_VS_011)	-0.18	33.30	-0.17	-0.51	33.63	5.836	5.836	33.61	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.00	6.08	0.38	0.00	6.13	7.388	7.388	8.29	CODETI	
1417	-0.07	8.43	-0.36	0.00	8.52	7.388	7.388	9.93	CODETI	
1417	-0.07	8.43	0.36	0.00	8.52	7.388	7.388	9.93	CODETI	
1418	-0.16	12.33	-0.24	0.00	12.50	7.388	7.388	12.81	CODETI	
1418	-0.16	12.33	0.24	0.00	12.50	7.388	7.388	12.81	CODETI	
1419	-0.19	14.31	-0.05	0.00	14.50	7.388	7.388	14.34	CODETI	
1419	-0.19	14.31	0.05	0.00	14.50	7.388	7.388	14.34	CODETI	
1410	-0.18	14.50	0.05	0.00	14.68	7.388	7.388	14.51	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1410	-0.18	1.96	-0.05	0.00	2.14	1.000	1.000	1.96	CODETI	
1415 (SP_26)	0.46	1.94	0.05	0.00	2.40	1.000	1.000	1.95	CODETI	
1415 (SP_26)	-0.29	1.94	-0.05	0.00	2.24	1.000	1.000	1.95	CODETI	
1422	-0.26	1.94	0.05	0.00	2.20	1.000	1.000	1.94	CODETI	
1422	-0.26	9.45	-0.05	0.00	9.70	5.640	4.700	10.96	CODETI	
1421	-0.13	6.60	-0.60	0.00	6.83	5.640	4.700	10.29	CODETI	
1421	-0.13	6.60	0.60	0.00	6.83	5.640	4.700	10.29	CODETI	
1420	0.00	1.19	-0.89	0.00	2.14	5.640	4.700	10.08	CODETI	
1420	0.00	0.21	0.89	0.00	1.79	1.000	1.000	1.79	CODETI	
1425	-0.00	0.52	-0.89	0.00	1.85	1.000	1.000	1.85	CODETI	
1425	-0.00	0.52	0.89	0.00	1.85	1.000	1.000	1.85	CODETI	
1428	-0.00	1.18	-0.89	0.00	2.13	7.391	7.391	13.17	CODETI	
1428	-0.00	1.18	0.89	0.00	2.13	7.391	7.391	13.17	CODETI	
1429	-0.00	5.47	-0.83	0.00	5.71	7.391	7.391	13.42	CODETI	
1429	-0.00	5.47	0.83	0.00	5.71	7.391	7.391	13.42	CODETI	
1430	-0.00	7.57	-0.77	0.00	7.73	7.391	7.391	13.69	CODETI	
1430	-0.00	1.02	0.77	0.00	1.85	1.000	1.000	1.85	CODETI	
1440	-0.00	3.63	-0.77	0.00	3.95	1.000	1.000	3.95	CODETI	
1440	-0.00	3.63	0.77	0.00	3.95	1.000	1.000	3.95	CODETI	
1445 (SP_31)	-0.00	6.83	-0.77	0.00	7.00	1.000	1.000	7.00	CODETI	

Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1445 (SP_31)	0.00	6.83	0.77	0.00	7.00	1.000	1.000	7.00	CODETI	
1450	0.00	30.87	-0.77	0.00	30.91	5.231	5.231	31.91	CODETI	
1450	0.00	28.57	1.08	0.00	28.66	5.231	5.231	30.71	CODETI	
1451 (SP_27)	0.00	0.11	-1.08	0.00	2.16	1.000	1.000	2.16	CODETI	
1451 (SP_27)	0.00	0.11	1.08	0.00	2.16	1.000	1.000	2.16	CODETI	
1452	0.00	0.41	-1.08	0.00	2.19	1.000	1.000	2.19	CODETI	
1452	0.00	0.41	1.08	0.00	2.19	1.000	1.000	2.19	CODETI	
1455 (SP_28)	-0.00	3.82	-1.08	0.00	4.39	1.000	1.000	4.39	CODETI	
1455 (SP_28)	0.00	3.82	1.08	0.00	4.39	1.000	1.000	4.39	CODETI	
1458	0.00	0.20	-1.08	0.00	2.16	1.000	1.000	2.16	CODETI	
1458	0.00	0.96	1.08	0.00	2.36	5.640	4.700	12.20	CODETI	
1459	0.00	9.68	-0.68	0.00	9.78	5.640	4.700	13.92	CODETI	
1459	0.00	9.68	0.68	0.00	9.78	5.640	4.700	13.92	CODETI	
1460	-0.00	13.06	0.33	0.00	13.08	5.640	4.700	16.12	CODETI	
1460	-0.00	2.78	-0.33	0.00	2.86	1.000	1.000	2.86	CODETI	
1468	-0.00	1.56	0.33	0.00	1.70	1.000	1.000	1.69	CODETI	
1468	-0.00	7.32	-0.33	0.00	7.35	5.640	4.700	9.56	CODETI	
1469	-0.00	2.53	-0.11	0.00	2.54	5.640	4.700	3.28	CODETI	
1469	-0.00	2.53	0.11	0.00	2.54	5.640	4.700	3.28	CODETI	
1470	0.00	5.34	0.00	0.00	5.34	5.640	4.700	6.41	CODETI	

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1470	0.00	1.14	-0.00	0.00	1.14	1.000	1.000	1.14	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	4.26	CODETI	
1479	-0.07	0.79	-0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1518	0.04	0.00	-0.00	0.00	0.04	1.000	1.000	0.00	CODETI	
1518	0.04	0.00	0.00	0.00	0.04	7.391	6.159	0.00	CODETI	
1519	0.06	0.22	-0.00	0.00	0.28	7.391	6.159	0.22	CODETI	
1519	0.06	0.22	0.00	0.00	0.28	7.391	6.159	0.22	CODETI	
1520	0.06	1.12	-0.00	0.00	1.17	7.391	6.159	1.12	CODETI	

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Stresses on Elements

CASE 5 Poids + PS Mini + TS Mini en Normal

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1520	0.06	0.15	0.00	0.00	0.21	1.000	1.000	0.15	CODETI	
1523	0.16	2.10	-0.00	0.00	2.25	1.000	1.000	2.10	CODETI	
1523	0.16	11.83	-0.00	0.00	11.98	5.640	4.700	11.83	CODETI	
1524	0.09	14.51	-0.00	0.00	14.59	5.640	4.700	14.51	CODETI	
1524	0.09	14.51	0.00	0.00	14.59	5.640	4.700	14.51	CODETI	
1525	0.00	17.68	-0.00	0.00	17.68	5.640	4.700	17.68	CODETI	
1525	0.00	3.13	0.00	0.00	3.14	1.000	1.000	3.13	CODETI	
1530	0.00	3.35	-0.00	0.00	3.35	1.000	1.000	3.35	CODETI	
1530	-0.00	3.35	-0.00	0.00	3.36	1.000	1.000	3.35	CODETI	
1540 (SR_30)	-0.00	4.83	0.00	0.00	4.84	1.000	1.000	4.83	CODETI	
1540 (SR_30)	0.01	4.83	0.00	0.00	4.84	1.000	1.000	4.83	CODETI	
1450	0.00	3.93	-0.00	0.00	3.94	5.231	5.231	3.93	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
10 (GC_Jupe)	-7.51	1.10	0.16	0.00	8.61	1.000	1.000	1.14	CODETI	
20	-7.21	0.99	-0.16	0.00	8.21	1.000	1.000	1.04	CODETI	
20	11.26	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
25	10.20	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
20	9.95	0.99	0.16	31.19	31.33	1.000	1.000	16.62	CODETI	
30	10.28	0.99	-0.16	31.19	31.33	1.000	1.000	16.61	CODETI	
30	10.36	0.78	0.18	31.19	31.33	1.000	1.000	16.43	CODETI	
40	10.72	0.77	-0.18	31.19	31.33	1.000	1.000	16.42	CODETI	
40	11.00	0.07	0.01	31.19	31.33	1.000	1.000	15.64	CODETI	
45 (Weld_CW2)	12.68	0.05	-0.01	31.19	31.33	1.000	1.000	15.63	CODETI	
45 (Weld_CW2)	12.68	0.05	0.01	31.19	31.33	1.000	1.000	15.63	CODETI	
50	13.89	0.04	-0.01	31.19	31.33	1.000	1.000	15.62	CODETI	
50	9.10	0.03	0.01	20.44	20.57	1.000	1.000	10.22	CODETI	
55	9.89	0.02	-0.01	20.44	20.57	1.000	1.000	10.22	CODETI	
55	9.90	0.01	0.00	20.44	20.57	1.000	1.000	10.21	CODETI	
56	9.96	0.01	-0.00	20.44	20.57	1.000	1.000	10.21	CODETI	
56	9.95	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
60	10.16	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
65	2.52	0.00	0.00	5.69	5.82	1.000	1.000	2.82	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
(Piquage_N1)										
70	2.59	0.00	-0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	2.68	3.79	-3.26	5.69	9.56	1.000	1.000	10.37	CODETI	
110	2.68	1.04	3.26	5.69	8.17	1.000	1.000	9.43	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	2.48	0.42	-0.00	4.60	4.74	1.000	1.000	2.70	CODETI	
129	2.38	4.27	0.00	4.60	6.65	7.124	5.937	6.55	CODETI	
129	2.38	4.27	-0.00	4.60	6.65	7.124	5.937	6.55	CODETI	
130	2.28	6.51	0.00	4.60	8.79	7.124	5.937	8.79	CODETI	
130	2.28	0.91	-0.00	4.60	4.74	1.000	1.000	3.19	CODETI	
134 (Jupe_N3)	2.28	0.05	0.00	4.60	4.74	1.000	1.000	2.33	CODETI	
134 (Jupe_N3)	2.28	0.05	-0.00	4.60	4.74	1.000	1.000	2.33	CODETI	
135 (SR_N3)	2.28	0.38	0.00	4.60	4.74	1.000	1.000	2.66	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	1.90	2.44	0.00	4.60	5.14	1.000	1.000	4.72	CODETI	
160	2.02	0.38	-0.00	4.60	4.74	1.000	1.000	2.66	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	2.53	1.02	0.22	4.60	4.77	1.000	1.000	3.39	CODETI	
190	2.64	0.96	-0.22	4.60	4.78	1.000	1.000	3.34	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215	2.12	4.85	5.56	4.60	13.12	1.000	1.000	14.41	CODETI	

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(Piquage_N6)										
220	2.12	2.77	-5.56	4.60	12.27	1.000	1.000	13.73	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	1.56	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
250	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
251 (CT_N1)	1.57	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
260	1.75	0.00	0.00	3.16	3.24	10.614	10.614	1.57	CODETI	
260	1.03	120.60	-7.27	2.07	122.50	10.614	10.614	196.94	CODETI	
262	1.03	8.68	7.27	2.07	17.48	1.000	1.000	17.96	CODETI	
262	1.58	13.30	-11.15	3.16	26.81	1.000	1.000	27.53	CODETI	
265 (SG_5)	1.58	11.72	11.15	3.16	25.95	1.000	1.000	26.76	CODETI	
265 (SG_5)	1.58	11.72	-11.15	3.16	25.96	1.000	1.000	26.76	CODETI	
267	1.58	83.98	10.24	3.16	87.95	8.376	8.376	192.53	CODETI	
267	1.58	83.98	-10.24	3.16	87.97	8.376	8.376	192.53	CODETI	
268	1.58	131.41	7.02	3.16	133.70	8.376	8.376	177.89	CODETI	
268	1.58	131.41	-7.02	3.16	133.73	8.376	8.376	177.89	CODETI	
269	1.58	146.80	2.73	3.16	148.45	8.376	8.376	155.32	CODETI	
269	1.58	146.80	-2.73	3.16	148.47	8.376	8.376	155.32	CODETI	

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270	1.57	140.21	0.55	3.16	141.78	8.376	8.376	142.08	CODETI	
270	1.57	16.74	-0.55	3.16	18.35	1.000	1.000	18.34	CODETI	
271	1.58	5.33	0.55	3.16	6.98	1.000	1.000	7.01	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.82	4.66	-0.01	5.69	7.51	1.000	1.000	7.48	CODETI	
277	2.72	34.90	0.57	5.69	37.84	8.141	8.141	38.92	CODETI	
277	2.72	34.90	-0.57	5.69	37.63	8.141	8.141	38.92	CODETI	
278	2.51	24.78	1.52	5.69	28.08	8.141	8.141	37.90	CODETI	
278	2.51	24.78	-1.52	5.69	27.72	8.141	8.141	37.90	CODETI	
279	2.34	8.92	2.08	5.69	12.91	8.141	8.141	37.77	CODETI	

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279	2.34	8.92	-2.08	5.69	12.78	8.141	8.141	37.77	CODETI	
280	2.29	1.25	2.15	5.69	7.10	8.141	8.141	37.79	CODETI	
280	2.29	0.15	-2.15	5.69	7.10	1.000	1.000	7.12	CODETI	
284	2.25	0.14	2.15	5.69	6.85	1.000	1.000	7.12	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	2.09	0.12	-2.15	5.69	7.14	1.000	1.000	7.12	CODETI	
290	1.91	0.05	2.15	5.69	6.77	1.000	1.000	7.11	CODETI	
290	1.91	0.05	-2.15	5.69	7.18	1.000	1.000	7.11	CODETI	
299	1.73	0.03	2.15	5.69	6.74	1.000	1.000	7.11	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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302	1.57	0.05	-2.15	5.69	7.28	1.000	1.000	7.11	CODETI	
306	1.57	11.04	2.07	5.69	15.67	9.368	9.368	43.07	CODETI	
306	1.57	11.04	-2.07	5.69	15.46	9.368	9.368	43.07	CODETI	
307	1.87	31.40	1.49	5.69	35.30	9.368	9.368	44.88	CODETI	
307	1.87	31.40	-1.49	5.69	34.85	9.368	9.368	44.88	CODETI	
308	2.46	50.19	0.52	5.69	53.39	9.368	9.368	53.94	CODETI	
308	2.46	50.19	-0.52	5.69	52.69	9.368	9.368	53.94	CODETI	
305	2.81	58.51	-0.02	5.69	61.34	9.368	9.368	61.33	CODETI	
305	2.81	6.25	0.02	5.69	9.07	1.000	1.000	9.07	CODETI	
435 (SR_07)	2.81	10.54	-0.02	5.69	13.37	1.000	1.000	13.36	CODETI	
435 (SR_07)	2.82	10.54	0.02	5.69	13.36	1.000	1.000	13.36	CODETI	
440	2.82	138.13	-0.02	5.69	140.96	10.614	10.614	140.96	CODETI	
440	1.74	26.01	1.85	3.73	27.99	10.614	10.614	49.02	CODETI	
445	1.74	2.87	-1.85	3.73	6.10	1.000	1.000	6.53	CODETI	
445	2.67	41.16	2.84	5.69	44.19	9.368	9.368	70.13	CODETI	
311	2.51	29.77	-3.33	5.69	33.58	9.368	9.368	71.98	CODETI	
311	2.51	29.77	3.33	5.69	32.96	9.368	9.368	71.98	CODETI	
312	2.25	4.06	-3.79	5.69	10.63	9.368	9.368	73.94	CODETI	
312	2.25	4.06	3.79	5.69	10.48	9.368	9.368	73.94	CODETI	
313	2.12	26.45	-3.46	5.69	30.76	9.368	9.368	72.84	CODETI	
313	2.12	26.45	3.46	5.69	30.13	9.368	9.368	72.84	CODETI	

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310	2.12	38.00	-3.03	5.69	41.97	9.368	9.368	71.10	CODETI	
310	2.12	4.06	3.03	5.69	9.83	1.000	1.000	10.11	CODETI	
315	2.11	3.76	-3.03	5.69	9.48	1.000	1.000	9.95	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	2.05	3.62	3.03	5.69	9.60	1.000	1.000	9.87	CODETI	
330	2.00	2.58	-3.03	5.69	8.68	1.000	1.000	9.40	CODETI	
330	2.00	2.58	3.03	5.69	9.04	1.000	1.000	9.40	CODETI	
335	1.94	1.80	-3.03	5.69	8.18	1.000	1.000	9.14	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	1.88	1.75	3.03	5.69	8.68	1.000	1.000	9.12	CODETI	
337	1.85	6.00	-3.12	5.69	11.62	9.368	9.368	61.54	CODETI	

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337	1.85	6.00	3.12	5.69	11.47	9.368	9.368	61.54	CODETI	
338	2.00	32.82	-2.62	5.69	36.83	9.368	9.368	61.88	CODETI	
338	2.00	32.82	2.62	5.69	36.25	9.368	9.368	61.88	CODETI	
339	2.40	55.98	-1.37	5.69	59.29	9.368	9.368	64.42	CODETI	
339	2.40	55.98	1.37	5.69	58.47	9.368	9.368	64.42	CODETI	
350	2.66	63.30	-0.59	5.69	66.30	9.368	9.368	67.08	CODETI	
350	1.73	4.41	0.38	3.73	6.40	1.000	1.000	6.32	CODETI	
355 (SR_8)	1.73	4.83	-0.38	3.73	6.82	1.000	1.000	6.73	CODETI	
355 (SR_8)	1.74	4.83	0.38	3.73	6.80	1.000	1.000	6.73	CODETI	
360 (Té_TH_700)	1.74	6.87	-0.38	3.73	8.85	1.000	1.000	8.76	CODETI	
360 (Té_TH_700)	1.74	6.88	0.06	3.73	8.75	1.000	1.000	8.72	CODETI	
365	1.74	94.97	-0.06	3.73	96.91	10.614	10.614	96.81	CODETI	
365	1.31	62.96	1.21	3.73	64.32	10.614	10.614	69.86	CODETI	
366	1.31	4.66	-1.21	3.73	7.44	1.000	1.000	7.10	CODETI	
366	2.01	58.19	1.86	5.69	61.07	8.141	8.141	68.41	CODETI	
368	2.21	52.16	-1.72	5.69	55.69	8.141	8.141	62.00	CODETI	
368	2.21	52.16	1.72	5.69	54.92	8.141	8.141	62.00	CODETI	
369	2.71	38.26	-1.36	5.69	41.29	8.141	8.141	47.05	CODETI	
369	2.71	38.26	1.36	5.69	41.06	8.141	8.141	47.05	CODETI	

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370	2.99	30.80	-1.15	5.69	33.53	8.141	8.141	38.89	CODETI	
370	2.99	3.78	1.15	5.69	7.32	1.000	1.000	7.25	CODETI	
378	2.80	22.34	-1.14	5.69	25.28	8.141	8.141	31.83	CODETI	
378	2.80	22.34	1.14	5.69	25.24	8.141	8.141	31.83	CODETI	
379	2.27	43.83	-0.86	5.69	47.24	8.141	8.141	48.82	CODETI	
379	2.27	43.83	0.86	5.69	46.63	8.141	8.141	48.82	CODETI	
380	2.03	53.36	-0.62	5.69	56.99	8.141	8.141	57.13	CODETI	
380	2.03	6.56	0.62	5.69	10.24	1.000	1.000	9.49	CODETI	
385	2.03	6.95	-0.62	5.69	10.63	1.000	1.000	9.88	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	11.72	7.34	0.62	25.28	25.96	1.000	1.000	19.98	CODETI	
410	11.72	6.04	-0.62	25.28	25.93	1.000	1.000	18.71	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	11.74	6.04	0.59	25.28	25.94	1.000	1.000	18.70	CODETI	
430 (PF4_CPO)	11.74	7.76	-0.59	25.28	25.94	1.000	1.000	20.39	CODETI	
440	1.75	42.56	-2.12	3.73	44.51	10.614	10.614	63.80	CODETI	
450	1.75	1.68	2.12	3.73	5.75	1.000	1.000	6.40	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
365	1.42	86.61	-6.39	4.27	88.95	10.614	10.614	163.12	CODETI	
500	1.51	7.00	9.85	4.27	21.96	1.000	1.000	23.02	CODETI	
500	1.51	7.00	-9.85	4.27	21.46	1.000	1.000	23.02	CODETI	
503	1.44	42.98	10.48	4.27	50.34	7.049	7.049	156.05	CODETI	
503	1.44	42.98	-10.48	4.27	49.12	7.049	7.049	156.05	CODETI	
504	1.23	16.68	10.94	4.27	29.43	7.049	7.049	157.31	CODETI	
504	1.23	16.68	-10.94	4.27	28.29	7.049	7.049	157.31	CODETI	
505	1.18	27.92	10.75	4.27	37.70	7.049	7.049	156.22	CODETI	
505	1.18	3.96	-10.75	4.27	22.11	1.000	1.000	23.97	CODETI	
508	1.34	67.85	10.07	4.27	73.55	7.049	7.049	159.51	CODETI	

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508	1.34	67.85	-10.07	4.27	72.06	7.049	7.049	159.51	CODETI	
509	1.63	136.27	7.20	4.27	139.61	7.049	7.049	172.00	CODETI	
509	1.63	136.27	-7.20	4.27	138.65	7.049	7.049	172.00	CODETI	
510	1.80	163.42	5.10	4.27	166.15	7.049	7.049	180.67	CODETI	
510	1.80	23.18	-5.10	4.27	26.99	1.000	1.000	27.44	CODETI	
514 (Té_VS_011)	1.85	160.58	5.10	4.27	163.27	5.836	5.836	173.39	CODETI	
514 (Té_VS_011)	1.48	212.37	-2.42	4.27	213.90	5.836	5.836	216.34	CODETI	
515	1.56	40.52	2.42	4.27	43.45	1.000	1.000	42.92	CODETI	
515	0.75	19.51	-1.16	2.08	20.40	1.000	1.000	20.67	CODETI	
520	0.82	154.89	1.16	2.08	156.12	7.279	7.279	156.83	CODETI	
520	0.61	69.16	0.04	2.08	69.77	7.279	7.279	70.18	CODETI	
525	0.61	4.20	-0.04	2.08	5.62	1.000	1.000	5.22	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	4.86	5.59	0.08	4.27	10.45	1.000	1.000	7.70	CODETI	
547	5.65	12.56	0.04	4.27	18.04	6.943	6.943	14.68	CODETI	
547	5.65	12.56	-0.04	4.27	18.21	6.943	6.943	14.68	CODETI	
548	6.51	12.14	0.15	4.27	18.49	6.943	6.943	14.43	CODETI	
548	5.03	12.14	-0.15	4.27	17.17	6.943	6.943	14.43	CODETI	
549	4.21	12.70	0.09	4.27	16.74	6.943	6.943	14.88	CODETI	
549	4.21	12.70	-0.09	4.27	16.91	6.943	6.943	14.88	CODETI	
550	3.60	30.50	0.01	4.27	33.57	6.943	6.943	32.62	CODETI	
550	3.60	4.39	-0.01	4.27	8.00	1.000	1.000	6.51	CODETI	
557	3.92	19.88	-0.30	4.27	23.49	6.943	6.943	22.41	CODETI	
557	3.92	19.88	0.30	4.27	23.81	6.943	6.943	22.41	CODETI	
558	3.92	18.49	-0.92	4.27	22.16	6.943	6.943	24.59	CODETI	
558	3.92	18.49	0.92	4.27	22.48	6.943	6.943	24.59	CODETI	
559	3.40	12.00	-1.43	4.27	15.42	6.943	6.943	25.31	CODETI	
559	3.40	12.00	1.43	4.27	15.67	6.943	6.943	25.31	CODETI	
560	2.96	19.25	-1.60	4.27	22.05	6.943	6.943	31.51	CODETI	
560	3.42	2.77	1.60	4.27	6.97	1.000	1.000	6.35	CODETI	
570	3.42	10.46	-1.60	4.27	14.01	1.000	1.000	13.05	CODETI	
570	3.42	26.16	1.60	4.27	29.75	2.500	2.500	29.46	CODETI	
580	3.80	29.25	-0.90	5.69	32.72	2.500	2.500	32.42	CODETI	

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580	3.80	11.70	0.90	5.69	15.61	1.000	1.000	14.66	CODETI	
585	3.80	13.02	-0.90	5.69	16.78	1.000	1.000	15.96	CODETI	
585	3.80	13.02	0.90	5.69	16.91	1.000	1.000	15.96	CODETI	
590	3.80	117.47	-0.90	5.69	119.54	7.057	7.057	120.99	CODETI	
590	2.39	194.49	0.93	5.69	196.89	7.057	7.057	197.76	CODETI	
595 (SR_11)	2.39	24.62	-0.93	5.69	27.93	1.000	1.000	27.51	CODETI	
595 (SR_11)	2.40	24.62	0.93	5.69	27.61	1.000	1.000	27.51	CODETI	
596 (SP_13)	2.39	5.39	-0.93	5.69	8.84	1.000	1.000	8.53	CODETI	
596 (SP_13)	2.39	5.39	0.93	5.69	8.92	1.000	1.000	8.53	CODETI	
598	2.39	39.79	-0.67	5.69	43.06	8.236	8.236	44.11	CODETI	
598	2.39	39.79	0.67	5.69	42.52	8.236	8.236	44.11	CODETI	
599	2.42	37.34	-0.16	5.69	40.56	8.236	8.236	40.26	CODETI	
599	2.42	37.34	0.16	5.69	40.07	8.236	8.236	40.26	CODETI	
600	2.45	35.35	0.08	5.69	38.54	8.236	8.236	38.19	CODETI	
600	2.45	4.29	-0.08	5.69	7.52	1.000	1.000	7.12	CODETI	
608	2.42	3.06	0.05	5.69	6.33	8.236	8.236	6.00	CODETI	
608	2.42	3.06	-0.05	5.69	6.34	8.236	8.236	6.00	CODETI	
609	2.39	1.89	0.01	5.69	5.82	8.236	8.236	4.73	CODETI	
609	2.39	1.89	-0.01	5.69	5.82	8.236	8.236	4.73	CODETI	
610	2.38	1.44	0.00	5.69	5.82	8.236	8.236	4.26	CODETI	

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610	2.38	0.18	-0.00	5.69	5.82	1.000	1.000	3.00	CODETI	
615	2.38	0.04	0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
615	2.38	0.04	-0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
620	2.38	0.00	-0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
520	0.08	86.26	0.82	2.08	86.35	7.279	7.279	88.10	CODETI	
625	0.08	6.16	-0.82	2.08	8.28	1.000	1.000	7.39	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.17	9.65	1.70	4.27	13.89	1.000	1.000	12.35	CODETI	
642	-0.61	24.05	-1.46	4.27	29.03	6.943	6.943	33.60	CODETI	
642	-0.61	24.05	1.46	4.27	28.56	6.943	6.943	33.60	CODETI	
643	-1.54	21.18	-0.80	4.27	27.00	6.943	6.943	26.04	CODETI	
643	-1.54	21.18	0.80	4.27	26.63	6.943	6.943	26.04	CODETI	
644	-1.47	20.39	-0.05	4.27	26.08	6.943	6.943	22.52	CODETI	
644	-1.47	20.39	0.05	4.27	25.75	6.943	6.943	22.52	CODETI	
645	-1.07	17.42	0.28	4.27	22.72	6.943	6.943	19.94	CODETI	
645	-1.07	2.51	-0.28	4.27	7.86	1.000	1.000	4.68	CODETI	

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590	-0.86	135.73	0.27	4.27	140.82	7.057	7.057	137.89	CODETI	
360 (Té_TH_700)	2.82	1.36	-0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	-0.00	4.21	4.34	1.000	1.000	3.39	CODETI	
690	2.08	0.05	0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	1.03	120.60	-7.27	2.07	122.50	10.614	10.614	196.94	CODETI	
720 (Té_VS_008)	1.03	148.24	7.27	2.07	149.97	10.614	10.614	215.07	CODETI	
720 (Té_VS_008)	0.88	118.55	-4.92	2.07	119.84	10.614	10.614	158.98	CODETI	
725	0.88	11.36	4.92	2.07	15.93	1.000	1.000	16.05	CODETI	
725	1.35	17.42	-7.54	3.16	24.07	1.000	1.000	24.61	CODETI	

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730	1.35	17.04	7.54	3.16	24.12	1.000	1.000	24.32	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.89	11.57	-4.92	2.07	15.87	1.000	1.000	16.20	CODETI	
770 (Té_Gavage)	0.89	164.79	4.92	2.07	166.23	10.614	10.614	196.09	CODETI	
770 (Té_Gavage)	1.02	3.17	-0.00	2.07	4.19	10.614	10.614	4.19	CODETI	
780	1.02	0.00	0.00	2.07	2.15	1.000	1.000	1.03	CODETI	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	-0.00	3.16	3.24	2.000	2.000	1.57	CODETI	
800 (SB_02)	2.86	0.88	0.00	5.90	5.97	2.000	2.000	3.82	CODETI	

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800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	2.94	0.46	0.00	5.90	5.97	1.000	1.000	3.40	CODETI	
820	2.94	0.00	0.00	5.90	5.97	1.000	1.000	2.94	CODETI	
720 (Té_VS_008)	1.52	71.20	-3.60	3.16	73.08	10.614	10.614	106.08	CODETI	
830	1.51	3.91	3.60	3.16	9.08	1.000	1.000	9.77	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	1.51	3.58	-3.60	3.16	8.82	1.000	1.000	9.62	CODETI	
865 (SP_14)	1.51	3.06	3.60	3.16	8.60	1.000	1.000	9.40	CODETI	
865 (SP_14)	1.51	3.06	-3.60	3.16	8.53	1.000	1.000	9.40	CODETI	
867	1.48	24.41	3.33	3.16	26.91	8.376	8.376	62.50	CODETI	
867	1.48	24.41	-3.33	3.16	26.74	8.376	8.376	62.50	CODETI	
868	1.40	43.82	2.27	3.16	45.78	8.376	8.376	59.56	CODETI	
868	1.40	43.82	-2.27	3.16	45.45	8.376	8.376	59.56	CODETI	
869	1.33	51.83	0.76	3.16	53.66	8.376	8.376	54.95	CODETI	



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869	1.33	51.83	-0.76	3.16	53.17	8.376	8.376	54.95	CODETI	
870	1.30	50.77	0.00	3.16	52.60	8.376	8.376	52.33	CODETI	
870	1.30	6.06	-0.00	3.16	7.85	1.000	1.000	7.63	CODETI	
872	1.06	3.30	0.00	3.16	5.38	1.000	1.000	4.87	CODETI	
872	1.06	3.30	0.00	3.16	5.38	1.000	1.000	4.87	CODETI	
875 (SG_15)	0.77	0.10	-0.00	3.16	3.24	1.000	1.000	1.67	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	1.72	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
880	1.70	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
880	1.70	0.00	0.00	3.16	3.24	2.500	2.500	1.57	CODETI	
890	1.30	0.00	-0.00	2.58	2.66	2.500	2.500	1.28	CODETI	
890	1.30	0.00	0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	1.29	0.00	-0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	2.92	303.12	0.00	3.16	306.04	10.614	10.614	304.69	CODETI	
772 (SG_16_1)	2.81	28.37	-0.00	3.16	30.79	1.000	1.000	29.94	CODETI	

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772 (SG_16_1)	2.81	28.37	0.00	3.16	31.18	1.000	1.000	29.94	CODETI	
775	2.62	144.17	-0.00	3.16	144.68	7.057	7.057	145.73	CODETI	
775	2.53	144.30	-0.00	3.16	146.82	7.057	7.057	145.86	CODETI	
910 (Té_VS_007)	2.14	4.15	0.00	3.16	6.28	1.000	1.000	5.72	CODETI	
910 (Té_VS_007)	2.18	4.06	-0.00	3.16	6.24	1.000	1.000	5.63	CODETI	
915 (SG_16_2)	2.12	2.05	0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
915 (SG_16_2)	2.12	2.05	-0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
920	2.09	2.05	0.00	3.16	4.15	1.000	1.000	3.61	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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950	1.99	2.05	-0.00	3.16	4.06	1.000	1.000	3.61	CODETI	
957	1.92	16.89	0.00	3.16	18.60	8.472	8.472	18.46	CODETI	
957	1.92	16.89	-0.00	3.16	18.82	8.472	8.472	18.46	CODETI	
958	1.79	13.96	0.00	3.16	15.58	8.472	8.472	15.53	CODETI	
958	1.79	13.96	-0.00	3.16	15.75	8.472	8.472	15.53	CODETI	
959	1.63	9.73	-0.00	3.16	11.26	8.472	8.472	11.30	CODETI	
959	1.63	9.73	0.00	3.16	11.36	8.472	8.472	11.30	CODETI	
960	1.57	7.66	-0.00	3.16	9.23	8.472	8.472	9.23	CODETI	
960	1.57	0.90	0.00	3.16	3.24	1.000	1.000	2.47	CODETI	
965	1.57	0.32	-0.00	3.16	3.24	1.000	1.000	1.89	CODETI	
965	1.57	0.81	0.00	3.16	3.24	2.500	2.500	2.37	CODETI	
970	1.30	0.02	-0.00	2.63	2.71	2.500	2.500	1.32	CODETI	
970	1.30	0.01	0.00	2.63	2.71	1.000	1.000	1.31	CODETI	
980	1.30	0.00	-0.00	2.63	2.71	1.000	1.000	1.30	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	1.27	9.50	0.00	2.56	10.77	7.057	7.057	10.76	CODETI	
995	1.27	0.59	-0.00	2.56	2.63	1.000	1.000	1.86	CODETI	
995	1.27	0.59	0.00	2.56	2.63	1.000	1.000	1.86	CODETI	
998	1.26	0.49	-0.00	2.56	2.63	1.000	1.000	1.76	CODETI	

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998	1.26	2.69	0.00	2.56	3.95	5.493	4.577	3.95	CODETI	
999	1.12	1.22	-0.00	2.56	2.66	5.493	4.577	2.49	CODETI	
999	1.12	1.22	0.00	2.56	2.66	5.493	4.577	2.49	CODETI	
1000	1.00	3.03	-0.00	2.56	4.57	5.493	4.577	4.30	CODETI	
1000	1.00	0.55	0.00	2.56	2.63	1.000	1.000	1.82	CODETI	
1002	0.70	0.55	-0.00	2.56	2.63	1.000	1.000	1.82	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	0.70	0.55	0.00	2.56	2.63	1.000	1.000	1.82	CODETI	
1008	0.40	0.55	-0.00	2.56	2.73	1.000	1.000	1.82	CODETI	
1008	0.40	3.03	0.00	2.56	5.16	5.493	4.577	4.30	CODETI	
1009	0.56	10.71	-0.00	2.56	12.68	5.493	4.577	11.98	CODETI	
1009	1.53	10.71	0.00	2.56	12.24	5.493	4.577	11.98	CODETI	
1010	1.27	2.78	-0.00	2.56	4.05	5.493	4.577	4.05	CODETI	
1010	1.27	0.51	0.00	2.56	2.63	1.000	1.000	1.77	CODETI	
1020	1.27	0.31	-0.00	2.56	2.63	1.000	1.000	1.57	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	1.27	0.10	0.00	2.56	2.63	1.000	1.000	1.37	CODETI	
1060	1.27	0.07	-0.00	2.56	2.63	1.000	1.000	1.34	CODETI	
1060	1.27	0.15	0.00	2.56	2.63	2.000	2.000	1.41	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	2.000	2.000	1.15	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1100 (CT_ASP_Reg)	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	1.81	0.95	0.22	2.56	2.83	1.000	1.000	2.32	CODETI	
1120	1.81	0.95	-0.22	2.56	2.95	1.000	1.000	2.31	CODETI	
1120	1.81	0.95	0.22	2.56	2.83	1.000	1.000	2.31	CODETI	
1128	1.82	0.95	-0.22	2.56	2.95	1.000	1.000	2.31	CODETI	
1128	1.82	5.22	0.22	2.56	7.05	5.493	4.577	7.02	CODETI	
1129	1.70	1.59	-0.17	2.56	3.35	5.493	4.577	3.88	CODETI	
1129	1.70	1.59	0.17	2.56	3.33	5.493	4.577	3.88	CODETI	
1130	1.25	17.07	-0.02	2.56	18.35	5.493	4.577	18.39	CODETI	

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1130	1.25	3.12	0.02	2.56	4.39	1.000	1.000	4.38	CODETI	
1132	1.25	5.41	-0.02	2.56	6.69	1.000	1.000	6.68	CODETI	
1132	1.25	5.41	0.02	2.56	6.66	1.000	1.000	6.68	CODETI	
1135 (SR_18)	1.25	10.18	-0.02	2.56	11.46	1.000	1.000	11.45	CODETI	
1135 (SR_18)	1.27	10.18	0.02	2.56	11.45	1.000	1.000	11.45	CODETI	
1138	1.26	2.75	-0.02	2.56	4.02	1.000	1.000	4.01	CODETI	
1138	1.26	15.03	0.02	2.56	16.30	5.493	4.577	16.36	CODETI	
1139	1.63	2.30	0.14	2.56	3.95	5.493	4.577	4.22	CODETI	
1139	1.63	2.30	-0.14	2.56	3.95	5.493	4.577	4.22	CODETI	
1140	1.71	3.32	0.22	2.56	5.03	5.493	4.577	5.37	CODETI	
1140	1.71	0.60	-0.22	2.56	2.67	1.000	1.000	2.01	CODETI	
1148	1.42	0.76	0.22	2.56	2.72	1.000	1.000	2.15	CODETI	
1148	1.42	4.19	-0.22	2.56	5.62	5.493	4.577	6.10	CODETI	
1149	1.31	5.59	0.14	2.56	6.85	5.493	4.577	7.16	CODETI	
1149	1.31	5.59	-0.14	2.56	6.91	5.493	4.577	7.16	CODETI	
1150	1.26	6.64	-0.02	2.56	7.92	5.493	4.577	8.05	CODETI	
1150	1.26	1.23	0.02	2.56	2.64	1.000	1.000	2.50	CODETI	
1158	1.26	0.62	-0.02	2.56	2.63	1.000	1.000	1.89	CODETI	
1158	1.26	3.15	0.02	2.56	4.41	5.493	4.577	4.69	CODETI	
1159	1.26	3.16	-0.02	2.56	4.44	5.493	4.577	4.74	CODETI	
1159	1.26	3.16	0.02	2.56	4.43	5.493	4.577	4.74	CODETI	

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1160	1.27	6.93	-0.40	2.56	8.23	5.493	4.577	10.57	CODETI	
1160	1.27	1.49	0.40	2.56	3.11	1.000	1.000	2.96	CODETI	
1165 (SR_19)	1.27	1.55	-0.40	2.56	3.14	1.000	1.000	3.01	CODETI	
1165 (SR_19)	1.27	1.56	0.40	2.56	3.14	1.000	1.000	3.01	CODETI	
1170 (Té_ATRE)	1.27	29.71	-0.40	2.56	30.99	4.398	4.398	31.18	CODETI	
1170 (Té_ATRE)	1.26	29.71	0.40	2.56	30.98	4.398	4.398	31.18	CODETI	
1175	1.26	4.04	-0.40	2.56	5.37	1.000	1.000	5.39	CODETI	
1175	1.26	4.04	0.40	2.56	5.36	1.000	1.000	5.39	CODETI	
1178	1.26	2.84	-0.40	2.56	4.20	1.000	1.000	4.22	CODETI	
1178	1.26	15.61	0.40	2.56	16.89	5.493	4.577	17.48	CODETI	
1179	0.92	5.63	-0.27	2.56	7.27	5.493	4.577	7.86	CODETI	
1179	0.92	5.63	0.27	2.56	7.21	5.493	4.577	7.86	CODETI	
1180	0.70	3.41	0.00	2.56	5.24	5.493	4.577	5.36	CODETI	
1180	0.70	0.74	-0.00	2.56	2.63	1.000	1.000	2.01	CODETI	
1185	0.68	0.73	0.00	2.56	2.63	1.000	1.000	2.00	CODETI	
1185	1.58	0.02	-0.00	2.56	2.63	1.000	1.000	1.29	CODETI	
1186 (SG_20)	1.54	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	1.54	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	-0.00	2.56	2.63	2.500	2.500	1.27	CODETI	
1195	1.16	0.00	0.00	2.32	2.40	2.500	2.500	1.15	CODETI	
1195	1.16	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1210 (CT_REF_Reg)	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	1.57	0.00	0.00	2.56	2.63	4.398	4.398	1.27	CODETI	
1211	1.27	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1211	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1212 (CT_03)	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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1215	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	-0.00	2.56	2.63	7.242	6.035	1.27	CODETI	
1219	1.12	1.63	0.00	2.56	3.06	7.242	6.035	2.90	CODETI	
1219	1.12	1.63	-0.00	2.56	3.06	7.242	6.035	2.90	CODETI	
1220	1.27	6.47	0.00	2.56	7.74	7.242	6.035	7.74	CODETI	
1220	1.27	0.89	-0.00	2.56	2.63	1.000	1.000	2.16	CODETI	
1230	1.27	1.07	0.00	2.56	2.63	1.000	1.000	2.33	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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(PG_ATRE)										
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	2.28	0.00	0.00	4.60	4.74	1.000	1.000	2.28	CODETI	
1268	2.28	0.04	-0.00	4.60	4.74	1.000	1.000	2.31	CODETI	
1268	2.28	0.19	0.00	4.60	4.74	5.380	4.483	2.47	CODETI	
1269	2.26	0.59	-0.00	4.60	4.74	5.380	4.483	2.87	CODETI	
1269	2.26	0.59	0.00	4.60	4.74	5.380	4.483	2.87	CODETI	
1270	2.24	1.11	-0.00	4.60	4.74	5.380	4.483	3.39	CODETI	
1270	2.24	0.21	0.00	4.60	4.74	1.000	1.000	2.48	CODETI	
1279	2.23	3.03	0.17	4.60	5.40	5.380	4.483	6.33	CODETI	
1279	2.23	3.03	-0.17	4.60	5.43	5.380	4.483	6.33	CODETI	
1280	2.28	5.28	0.51	4.60	7.64	5.380	4.483	10.48	CODETI	
1280	2.28	1.13	-0.51	4.60	4.91	1.000	1.000	3.80	CODETI	
1285	2.28	10.72	0.51	4.60	13.04	4.398	4.398	13.90	CODETI	
1285	2.27	30.51	0.17	4.60	32.79	4.398	4.398	32.83	CODETI	
1286	2.28	3.00	-0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1286	2.28	3.00	0.17	4.60	5.36	1.000	1.000	5.30	CODETI	

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1291	2.28	1.46	-0.17	4.60	4.77	1.000	1.000	3.78	CODETI	
1291	2.28	6.55	0.17	4.60	8.84	5.380	4.483	10.36	CODETI	
1292	2.28	5.91	-0.08	4.60	8.20	5.380	4.483	9.43	CODETI	
1292	2.28	5.91	0.08	4.60	8.19	5.380	4.483	9.43	CODETI	
1290	2.28	5.22	-0.00	4.60	7.50	5.380	4.483	8.54	CODETI	
1290	2.28	1.16	0.00	4.60	4.74	1.000	1.000	3.44	CODETI	
1300	2.28	0.41	-0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1300	2.28	0.41	0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1310	2.28	0.01	-0.00	4.60	4.74	1.000	1.000	2.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	2.29	6.01	2.25	4.60	9.44	4.398	4.398	22.96	CODETI	
1320	2.29	4.21	-2.25	4.60	8.00	1.000	1.000	8.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	0.15	45.06	15.29	4.60	54.59	1.000	1.000	56.74	CODETI	
1328	0.16	29.92	-15.29	4.60	45.98	1.000	1.000	45.07	CODETI	
1328	0.16	141.64	15.29	4.60	145.06	5.380	4.483	232.49	CODETI	
1329	0.00	89.34	-21.24	4.60	103.06	5.380	4.483	247.88	CODETI	

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1329	-0.98	90.26	20.70	4.60	100.19	5.380	4.483	242.98	CODETI	
1330	-0.14	103.22	-17.83	4.60	113.66	5.380	4.483	226.81	CODETI	
1330	-0.14	21.68	17.83	4.60	41.81	1.000	1.000	44.01	CODETI	
1338	0.10	24.02	-17.83	4.60	45.64	1.000	1.000	45.28	CODETI	
1338	0.10	112.15	17.83	4.60	117.78	5.380	4.483	233.62	CODETI	
1339	-0.50	78.53	-22.14	4.60	94.58	5.380	4.483	253.07	CODETI	
1339	-0.50	78.53	22.14	4.60	90.58	5.380	4.483	253.07	CODETI	
1340	0.44	112.25	-17.36	4.60	121.44	5.380	4.483	230.27	CODETI	
1340	0.44	24.31	17.36	4.60	42.63	1.000	1.000	44.66	CODETI	
1343	0.44	21.85	-17.36	4.60	43.35	1.000	1.000	43.30	CODETI	
1343	0.44	21.85	17.36	4.60	41.25	1.000	1.000	43.30	CODETI	
1348	0.44	26.71	-17.36	4.60	46.43	1.000	1.000	46.08	CODETI	
1348	0.44	126.52	17.36	4.60	131.62	5.380	4.483	237.92	CODETI	
1349	-0.52	105.68	-21.89	4.60	119.10	5.380	4.483	260.49	CODETI	
1349	-0.52	105.68	21.89	4.60	114.88	5.380	4.483	260.49	CODETI	
1345	0.15	138.79	-16.56	4.60	146.97	5.380	4.483	239.81	CODETI	
1345	0.15	29.20	16.56	4.60	44.25	1.000	1.000	46.43	CODETI	
1350 (SP_23)	0.16	13.91	-16.56	4.60	37.84	1.000	1.000	38.20	CODETI	
1350 (SP_23)	0.16	13.91	16.56	4.60	35.98	1.000	1.000	38.20	CODETI	
1355	0.16	10.22	-16.56	4.60	36.20	1.000	1.000	36.93	CODETI	

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1355	0.16	10.22	16.56	4.60	34.70	1.000	1.000	36.93	CODETI	
1360	0.16	9.63	-16.56	4.60	35.96	1.000	1.000	36.76	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.16	10.11	16.56	4.60	34.67	1.000	1.000	36.90	CODETI	
514 (Té_VS_011)	0.16	69.50	-10.12	4.60	76.62	5.836	5.836	139.28	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.16	34.07	5.56	0.00	35.98	7.388	7.388	88.89	CODETI	
1417	-0.45	44.15	-5.50	0.00	45.94	7.388	7.388	92.51	CODETI	
1417	-0.45	44.15	5.50	0.00	45.94	7.388	7.388	92.51	CODETI	
1418	-0.90	74.17	-4.39	0.00	75.58	7.388	7.388	98.53	CODETI	
1418	-0.90	74.17	4.39	0.00	75.58	7.388	7.388	98.53	CODETI	
1419	-1.08	94.57	-2.23	0.00	95.76	7.388	7.388	100.13	CODETI	
1419	-1.08	94.57	2.23	0.00	95.76	7.388	7.388	100.13	CODETI	
1410	-1.06	97.75	-0.92	0.00	98.83	7.388	7.388	98.70	CODETI	

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1410	-1.06	13.23	0.92	0.00	14.41	1.000	1.000	13.36	CODETI	
1415 (SP_26)	-0.42	2.01	-0.92	0.00	3.06	1.000	1.000	2.73	CODETI	
1415 (SP_26)	-0.42	2.01	0.92	0.00	3.06	1.000	1.000	2.73	CODETI	
1422	-0.38	1.48	-0.92	0.00	2.62	1.000	1.000	2.37	CODETI	
1422	-0.38	6.96	0.92	0.00	7.57	5.640	4.700	13.35	CODETI	
1421	-0.05	9.42	-1.03	0.00	9.70	5.640	4.700	15.25	CODETI	
1421	-0.05	9.42	1.03	0.00	9.70	5.640	4.700	15.25	CODETI	
1420	0.23	21.70	-0.23	0.00	21.94	5.640	4.700	23.58	CODETI	
1420	0.23	4.16	0.23	0.00	4.41	1.000	1.000	4.18	CODETI	
1425	0.23	5.28	-0.23	0.00	5.53	1.000	1.000	5.30	CODETI	
1425	0.23	5.28	0.23	0.00	5.53	1.000	1.000	5.30	CODETI	
1428	0.25	51.23	-0.54	0.00	51.49	7.391	7.391	51.85	CODETI	
1428	0.25	51.23	0.54	0.00	51.49	7.391	7.391	51.85	CODETI	
1429	0.27	49.70	-1.12	0.00	50.02	7.391	7.391	52.38	CODETI	
1429	0.27	49.70	1.12	0.00	50.02	7.391	7.391	52.38	CODETI	
1430	0.28	48.32	-1.38	0.00	48.68	7.391	7.391	52.46	CODETI	
1430	0.28	6.54	1.38	0.00	7.36	1.000	1.000	7.10	CODETI	
1440	0.28	6.15	-1.38	0.00	6.99	1.000	1.000	6.74	CODETI	
1440	0.28	6.15	1.38	0.00	6.99	1.000	1.000	6.74	CODETI	
1445 (SP_31)	0.28	5.78	-1.38	0.00	6.65	1.000	1.000	6.40	CODETI	
1445 (SP_31)	0.28	5.78	1.38	0.00	6.66	1.000	1.000	6.40	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1450	0.28	30.96	-1.38	0.00	31.36	5.231	5.231	34.17	CODETI	
1450	0.00	15.00	1.58	0.00	15.33	5.231	5.231	22.29	CODETI	
1451 (SP_27)	-0.00	1.31	-1.58	0.00	3.41	1.000	1.000	3.41	CODETI	
1451 (SP_27)	0.00	1.31	1.58	0.00	3.41	1.000	1.000	3.41	CODETI	
1452	0.00	1.34	-1.58	0.00	3.42	1.000	1.000	3.42	CODETI	
1452	0.00	1.34	1.58	0.00	3.42	1.000	1.000	3.42	CODETI	
1455 (SP_28)	-0.00	2.97	-1.58	0.00	4.33	1.000	1.000	4.33	CODETI	
1455 (SP_28)	0.00	2.97	1.58	0.00	4.33	1.000	1.000	4.33	CODETI	
1458	0.00	0.39	-1.58	0.00	3.18	1.000	1.000	3.18	CODETI	
1458	0.00	2.06	1.58	0.00	3.76	5.640	4.700	17.91	CODETI	
1459	-0.02	13.90	-0.90	0.00	14.03	5.640	4.700	19.49	CODETI	
1459	-0.02	13.90	0.90	0.00	14.03	5.640	4.700	19.49	CODETI	
1460	-0.02	16.76	0.46	0.00	16.81	5.640	4.700	20.77	CODETI	
1460	-0.02	3.56	-0.46	0.00	3.71	1.000	1.000	3.68	CODETI	
1468	-0.03	1.78	0.46	0.00	2.03	1.000	1.000	2.01	CODETI	
1468	-0.03	8.40	-0.46	0.00	8.48	5.640	4.700	11.34	CODETI	
1469	-0.02	3.48	-0.06	0.00	3.50	5.640	4.700	4.20	CODETI	
1469	-0.02	3.48	0.06	0.00	3.50	5.640	4.700	4.20	CODETI	
1470	0.00	5.14	0.00	0.00	5.14	5.640	4.700	6.16	CODETI	
1470	0.00	1.09	-0.00	0.00	1.10	1.000	1.000	1.09	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	

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1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	4.26	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.09	-0.00	0.00	0.12	1.000	1.000	0.09	CODETI	
1518	0.04	0.20	0.00	0.00	0.24	1.000	1.000	0.20	CODETI	
1518	0.04	1.34	-0.00	0.00	1.38	7.391	6.159	1.50	CODETI	
1519	-0.02	4.99	-0.10	0.00	5.01	7.391	6.159	5.72	CODETI	
1519	-0.02	4.99	0.10	0.00	5.01	7.391	6.159	5.72	CODETI	
1520	-0.08	8.11	-0.28	0.00	8.21	7.391	6.159	9.77	CODETI	
1520	-0.08	1.20	0.28	0.00	1.40	1.000	1.000	1.32	CODETI	
1523	0.02	5.21	-0.28	0.00	5.26	1.000	1.000	5.24	CODETI	



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1523	0.02	27.24	0.28	0.00	27.26	5.640	4.700	29.57	CODETI	
1524	-0.07	30.19	-0.80	0.00	30.30	5.640	4.700	33.47	CODETI	
1524	-0.07	30.19	0.80	0.00	30.30	5.640	4.700	33.47	CODETI	
1525	-0.16	32.56	-1.30	0.00	32.83	5.640	4.700	37.28	CODETI	
1525	-0.16	6.08	1.30	0.00	6.76	1.000	1.000	6.61	CODETI	
1530	-0.16	6.34	-1.30	0.00	7.00	1.000	1.000	6.85	CODETI	
1530	-0.17	6.32	1.32	0.00	7.01	1.000	1.000	6.85	CODETI	
1540 (SR_30)	-0.17	8.03	-1.32	0.00	8.61	1.000	1.000	8.45	CODETI	
1540 (SR_30)	-0.16	8.03	1.32	0.00	8.60	1.000	1.000	8.45	CODETI	
1450	-0.16	40.62	-1.32	0.00	40.86	5.231	5.231	42.91	CODETI	

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10 (GC_Jupe)	-7.48	1.03	0.16	0.00	8.52	1.000	1.000	1.08	CODETI	
20	-7.19	0.91	-0.16	0.00	8.10	1.000	1.000	0.96	CODETI	
20	11.26	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
25	10.20	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
20	9.98	0.91	0.16	31.19	31.33	1.000	1.000	16.54	CODETI	
30	10.31	0.90	-0.16	31.19	31.33	1.000	1.000	16.53	CODETI	
30	10.39	0.70	0.17	31.19	31.33	1.000	1.000	16.36	CODETI	
40	10.75	0.69	-0.17	31.19	31.33	1.000	1.000	16.34	CODETI	
40	11.00	0.07	0.01	31.19	31.33	1.000	1.000	15.64	CODETI	
45 (Weld_CW2)	12.68	0.05	-0.01	31.19	31.33	1.000	1.000	15.63	CODETI	
45 (Weld_CW2)	12.68	0.05	0.01	31.19	31.33	1.000	1.000	15.63	CODETI	
50	13.89	0.04	-0.01	31.19	31.33	1.000	1.000	15.62	CODETI	
50	9.10	0.03	0.01	20.44	20.57	1.000	1.000	10.22	CODETI	
55	9.89	0.02	-0.01	20.44	20.57	1.000	1.000	10.22	CODETI	
55	9.90	0.01	0.00	20.44	20.57	1.000	1.000	10.21	CODETI	
56	9.96	0.01	-0.00	20.44	20.57	1.000	1.000	10.21	CODETI	
56	9.95	0.00	-0.00	20.44	20.57	1.000	1.000	10.20	CODETI	
60	10.16	0.00	0.00	20.44	20.57	1.000	1.000	10.20	CODETI	

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65 (Piquage_N1)	2.52	0.00	0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
70	2.59	0.00	-0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
70	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
40	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
100	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
105 (Piquage_N2)	2.67	2.38	-3.86	5.69	9.42	1.000	1.000	10.90	CODETI	
110	2.67	1.50	3.86	5.69	8.92	1.000	1.000	10.69	CODETI	
110	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
125 (Piquage_N3)	2.48	0.42	-0.00	4.60	4.74	1.000	1.000	2.70	CODETI	
129	2.38	4.27	0.00	4.60	6.65	7.124	5.937	6.54	CODETI	
129	2.38	4.27	-0.00	4.60	6.65	7.124	5.937	6.54	CODETI	
130	2.28	6.51	0.00	4.60	8.79	7.124	5.937	8.79	CODETI	
130	2.28	0.91	-0.00	4.60	4.74	1.000	1.000	3.19	CODETI	
134 (Jupe_N3)	2.28	0.05	0.00	4.60	4.74	1.000	1.000	2.33	CODETI	

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134 (Jupe_N3)	2.28	0.05	-0.00	4.60	4.74	1.000	1.000	2.33	CODETI	
135 (SR_N3)	2.28	0.38	0.00	4.60	4.74	1.000	1.000	2.66	CODETI	
135 (SR_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
140 (Bride_N3)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
145	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
146	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
55	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
150 (Piquage_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
155	1.90	2.44	0.00	4.60	5.14	1.000	1.000	4.72	CODETI	
160	2.02	0.38	-0.00	4.60	4.74	1.000	1.000	2.66	CODETI	
160	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
56	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
180 (Piquage_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
185	2.53	1.02	0.22	4.60	4.77	1.000	1.000	3.39	CODETI	

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190	2.64	0.96	-0.22	4.60	4.78	1.000	1.000	3.34	CODETI	
190	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
30	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
210	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
215 (Piquage_N6)	2.12	4.85	5.56	4.60	13.12	1.000	1.000	14.41	CODETI	
220	2.12	2.77	-5.56	4.60	12.27	1.000	1.000	13.73	CODETI	
220	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
80 (Bride_N1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
240 (VS_001)	1.56	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
250	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
251 (CT_N1)	1.57	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
260	1.75	0.00	0.00	3.16	3.24	10.614	10.614	1.57	CODETI	
260	1.03	120.40	-7.27	2.07	122.30	10.614	10.614	196.72	CODETI	
262	1.03	8.65	7.27	2.07	17.46	1.000	1.000	17.94	CODETI	

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262	1.58	13.27	-11.14	3.16	26.77	1.000	1.000	27.50	CODETI	
265 (SG_5)	1.58	11.68	11.14	3.16	25.92	1.000	1.000	26.73	CODETI	
265 (SG_5)	1.58	11.68	-11.14	3.16	25.93	1.000	1.000	26.73	CODETI	
267	1.58	83.63	10.23	3.16	87.61	8.376	8.376	192.26	CODETI	
267	1.58	83.63	-10.23	3.16	87.63	8.376	8.376	192.26	CODETI	
268	1.58	131.12	7.01	3.16	133.42	8.376	8.376	177.62	CODETI	
268	1.58	131.12	-7.01	3.16	133.44	8.376	8.376	177.62	CODETI	
269	1.58	146.52	2.73	3.16	148.18	8.376	8.376	155.04	CODETI	
269	1.58	146.52	-2.73	3.16	148.19	8.376	8.376	155.04	CODETI	
270	1.57	139.93	0.55	3.16	141.50	8.376	8.376	141.80	CODETI	
270	1.57	16.71	-0.55	3.16	18.31	1.000	1.000	18.31	CODETI	
271	1.58	5.27	0.55	3.16	6.92	1.000	1.000	6.95	CODETI	
271	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
272	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
275 (SR06_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
276 (SR_06)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
281 (SR06_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
273	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
274	2.82	4.59	-0.01	5.69	7.43	1.000	1.000	7.41	CODETI	
277	2.72	34.30	0.56	5.69	37.24	8.141	8.141	38.30	CODETI	
277	2.72	34.30	-0.56	5.69	37.03	8.141	8.141	38.30	CODETI	
278	2.51	24.34	1.50	5.69	27.63	8.141	8.141	37.27	CODETI	
278	2.51	24.34	-1.50	5.69	27.28	8.141	8.141	37.27	CODETI	
279	2.34	8.76	2.04	5.69	12.73	8.141	8.141	37.14	CODETI	
279	2.34	8.76	-2.04	5.69	12.61	8.141	8.141	37.14	CODETI	
280	2.29	1.24	2.11	5.69	7.07	8.141	8.141	37.15	CODETI	
280	2.29	0.15	-2.11	5.69	7.06	1.000	1.000	7.04	CODETI	
284	2.26	0.14	2.11	5.69	6.82	1.000	1.000	7.04	CODETI	
284	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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285 (CP01_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
286 (CP01_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
287	2.09	0.12	-2.11	5.69	7.11	1.000	1.000	7.04	CODETI	
290	1.91	0.05	2.11	5.69	6.74	1.000	1.000	7.04	CODETI	
290	1.91	0.05	-2.11	5.69	7.14	1.000	1.000	7.04	CODETI	
299	1.73	0.03	2.11	5.69	6.71	1.000	1.000	7.04	CODETI	
299	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
300 (CP03_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
301 (CP03_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
302	1.57	0.05	-2.11	5.69	7.24	1.000	1.000	7.04	CODETI	
306	1.57	10.85	2.03	5.69	15.47	9.368	9.368	42.34	CODETI	
306	1.57	10.85	-2.03	5.69	15.27	9.368	9.368	42.34	CODETI	
307	1.87	30.91	1.47	5.69	34.81	9.368	9.368	44.18	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
307	1.87	30.91	-1.47	5.69	34.36	9.368	9.368	44.18	CODETI	
308	2.46	49.62	0.51	5.69	52.81	9.368	9.368	53.34	CODETI	
308	2.46	49.62	-0.51	5.69	52.12	9.368	9.368	53.34	CODETI	
305	2.81	57.97	-0.02	5.69	60.80	9.368	9.368	60.79	CODETI	
305	2.81	6.19	0.02	5.69	9.02	1.000	1.000	9.01	CODETI	
435 (SR_07)	2.81	10.50	-0.02	5.69	13.33	1.000	1.000	13.32	CODETI	
435 (SR_07)	2.82	10.50	0.02	5.69	13.32	1.000	1.000	13.32	CODETI	
440	2.82	137.67	-0.02	5.69	140.49	10.614	10.614	140.49	CODETI	
440	1.74	28.71	1.46	3.73	30.59	10.614	10.614	44.08	CODETI	
445	1.74	2.86	-1.46	3.73	5.71	1.000	1.000	5.93	CODETI	
445	2.66	41.05	2.24	5.69	43.94	9.368	9.368	61.49	CODETI	
311	2.49	31.21	-2.73	5.69	34.79	9.368	9.368	62.73	CODETI	
311	2.49	31.21	2.73	5.69	34.22	9.368	9.368	62.73	CODETI	
312	2.19	7.53	-3.27	5.69	12.78	9.368	9.368	64.54	CODETI	
312	2.19	7.53	3.27	5.69	12.50	9.368	9.368	64.54	CODETI	
313	2.05	20.08	-3.10	5.69	24.48	9.368	9.368	64.27	CODETI	
313	2.05	20.08	3.10	5.69	23.97	9.368	9.368	64.27	CODETI	
310	2.05	31.09	-2.76	5.69	35.12	9.368	9.368	63.16	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
310	2.05	3.32	2.76	5.69	9.16	1.000	1.000	9.26	CODETI	
315	2.04	3.11	-2.76	5.69	8.69	1.000	1.000	9.16	CODETI	
315	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
320 (CP02_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
321 (CP02_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
325	1.98	3.01	2.76	5.69	9.03	1.000	1.000	9.11	CODETI	
330	1.92	2.37	-2.76	5.69	8.22	1.000	1.000	8.83	CODETI	
330	1.92	2.37	2.76	5.69	8.70	1.000	1.000	8.83	CODETI	
335	1.87	2.00	-2.76	5.69	7.99	1.000	1.000	8.69	CODETI	
335	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
340 (CP04_T)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
341 (CP04_C)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
345	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
345	1.81	1.98	2.76	5.69	8.57	1.000	1.000	8.69	CODETI	
337	1.78	6.84	-2.91	5.69	12.19	9.368	9.368	57.78	CODETI	
337	1.78	6.84	2.91	5.69	12.02	9.368	9.368	57.78	CODETI	
338	1.95	24.04	-2.62	5.69	28.23	9.368	9.368	57.42	CODETI	
338	1.95	24.04	2.62	5.69	27.76	9.368	9.368	57.42	CODETI	
339	2.38	46.94	-1.63	5.69	50.31	9.368	9.368	58.85	CODETI	
339	2.38	46.94	1.63	5.69	49.62	9.368	9.368	58.85	CODETI	
350	2.66	55.40	-0.98	5.69	58.43	9.368	9.368	61.20	CODETI	
350	1.73	3.86	0.64	3.73	5.99	1.000	1.000	5.91	CODETI	
355 (SR_8)	1.73	4.30	-0.64	3.73	6.38	1.000	1.000	6.33	CODETI	
355 (SR_8)	1.74	4.30	0.64	3.73	6.39	1.000	1.000	6.33	CODETI	
360 (Té_TH_700)	1.74	6.13	-0.64	3.73	8.18	1.000	1.000	8.11	CODETI	
360 (Té_TH_700)	1.74	6.14	0.31	3.73	8.06	1.000	1.000	8.01	CODETI	
365	1.73	87.47	-0.31	3.73	89.42	10.614	10.614	89.56	CODETI	
365	1.31	55.09	0.89	3.73	56.43	10.614	10.614	60.08	CODETI	
366	1.31	4.23	-0.89	3.73	6.83	1.000	1.000	6.43	CODETI	
366	2.01	52.73	1.36	5.69	55.67	8.141	8.141	60.03	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
368	2.17	47.92	-1.23	5.69	51.45	8.141	8.141	54.77	CODETI	
368	2.17	47.92	1.23	5.69	50.77	8.141	8.141	54.77	CODETI	
369	2.59	35.92	-0.92	5.69	39.01	8.141	8.141	41.75	CODETI	
369	2.59	35.92	0.92	5.69	38.55	8.141	8.141	41.75	CODETI	
370	2.84	28.96	-0.75	5.69	31.80	8.141	8.141	34.24	CODETI	
370	2.84	3.56	0.75	5.69	6.90	1.000	1.000	6.68	CODETI	
378	2.68	16.74	-0.75	5.69	19.76	8.141	8.141	23.56	CODETI	
378	2.68	16.74	0.75	5.69	19.57	8.141	8.141	23.56	CODETI	
379	2.23	34.16	-0.58	5.69	37.59	8.141	8.141	38.28	CODETI	
379	2.23	34.16	0.58	5.69	37.14	8.141	8.141	38.28	CODETI	
380	2.03	41.77	-0.43	5.69	45.39	8.141	8.141	45.17	CODETI	
380	2.03	5.13	0.43	5.69	8.82	1.000	1.000	8.02	CODETI	
385	2.03	5.45	-0.43	5.69	9.11	1.000	1.000	8.34	CODETI	
385	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
395 (SP_9)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
400	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
405	11.73	5.58	0.43	25.28	25.91	1.000	1.000	18.19	CODETI	
410	11.73	4.25	-0.43	25.28	25.90	1.000	1.000	16.87	CODETI	
410	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
415	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
420	11.74	4.23	0.41	25.28	25.91	1.000	1.000	16.85	CODETI	
430 (PF4_CPO)	11.74	5.77	-0.41	25.28	25.91	1.000	1.000	18.37	CODETI	
440	1.75	43.11	-2.51	3.73	45.13	10.614	10.614	70.39	CODETI	
450	1.75	2.03	2.51	3.73	6.40	1.000	1.000	7.26	CODETI	
450	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
460	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
120 (Bride_N2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
365	1.92	92.76	-6.11	4.27	95.47	10.614	10.614	161.57	CODETI	
500	2.02	9.88	9.41	4.27	22.37	1.000	1.000	23.37	CODETI	
500	2.02	9.88	-9.41	4.27	22.27	1.000	1.000	23.37	CODETI	
503	1.94	60.41	10.19	4.27	65.92	7.049	7.049	157.92	CODETI	
503	1.94	60.41	-10.19	4.27	65.59	7.049	7.049	157.92	CODETI	
504	1.66	30.47	10.90	4.27	39.58	7.049	7.049	158.83	CODETI	
504	1.66	30.47	-10.90	4.27	38.83	7.049	7.049	158.83	CODETI	
505	1.54	31.27	10.82	4.27	40.27	7.049	7.049	157.81	CODETI	
505	1.54	4.44	-10.82	4.27	22.45	1.000	1.000	24.20	CODETI	
508	1.76	67.53	10.14	4.27	72.87	7.049	7.049	160.21	CODETI	
508	1.76	67.53	-10.14	4.27	72.20	7.049	7.049	160.21	CODETI	
509	2.12	134.12	7.30	4.27	136.99	7.049	7.049	171.14	CODETI	
509	2.12	134.12	-7.30	4.27	137.02	7.049	7.049	171.14	CODETI	
510	2.31	160.47	5.24	4.27	162.72	7.049	7.049	178.79	CODETI	
510	2.31	22.76	-5.24	4.27	27.18	1.000	1.000	27.18	CODETI	
514 (Té_VS_011)	2.36	155.36	5.24	4.27	157.57	5.836	5.836	169.10	CODETI	
514 (Té_VS_011)	2.01	205.13	-2.42	4.27	207.19	5.836	5.836	209.17	CODETI	

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515	2.09	38.38	2.42	4.27	40.79	1.000	1.000	40.79	CODETI	
515	1.01	18.48	-1.16	2.08	19.63	1.000	1.000	19.64	CODETI	
520	1.08	144.57	1.16	2.08	145.55	7.279	7.279	146.58	CODETI	
520	0.55	63.10	0.04	2.08	63.65	7.279	7.279	64.12	CODETI	
525	0.55	4.01	-0.04	2.08	5.49	1.000	1.000	5.03	CODETI	
525	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
530 (DR_001)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
535	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
548	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
545 (SR_10)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
540	4.73	5.55	0.08	4.27	10.28	1.000	1.000	7.67	CODETI	
547	5.42	15.36	0.03	4.27	20.55	6.943	6.943	17.48	CODETI	
547	5.42	15.36	-0.03	4.27	20.78	6.943	6.943	17.48	CODETI	
548	6.13	5.13	0.15	4.27	11.25	6.943	6.943	7.63	CODETI	
548	4.67	5.13	-0.15	4.27	9.80	6.943	6.943	7.63	CODETI	

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549	3.82	20.57	0.09	4.27	24.05	6.943	6.943	22.72	CODETI	
549	3.82	20.57	-0.09	4.27	24.39	6.943	6.943	22.72	CODETI	
550	3.23	37.91	0.01	4.27	40.45	6.943	6.943	40.02	CODETI	
550	3.23	5.46	-0.01	4.27	8.69	1.000	1.000	7.57	CODETI	
557	3.59	19.43	-0.30	4.27	22.72	6.943	6.943	21.98	CODETI	
557	3.59	19.43	0.30	4.27	23.03	6.943	6.943	21.98	CODETI	
558	3.75	20.54	-0.92	4.27	24.00	6.943	6.943	26.32	CODETI	
558	3.75	20.54	0.92	4.27	24.36	6.943	6.943	26.32	CODETI	
559	3.43	11.18	-1.43	4.27	14.66	6.943	6.943	24.91	CODETI	
559	3.43	11.18	1.43	4.27	14.89	6.943	6.943	24.91	CODETI	
560	3.10	8.92	-1.60	4.27	12.24	6.943	6.943	26.07	CODETI	
560	3.32	1.28	1.60	4.27	5.63	1.000	1.000	5.56	CODETI	
570	3.32	7.22	-1.60	4.27	10.86	1.000	1.000	10.01	CODETI	
570	3.32	18.05	1.60	4.27	21.61	2.500	2.500	21.86	CODETI	
580	3.73	21.87	-0.90	5.69	25.40	2.500	2.500	25.16	CODETI	
580	3.73	8.75	0.90	5.69	12.61	1.000	1.000	11.76	CODETI	
585	3.73	9.82	-0.90	5.69	13.59	1.000	1.000	12.81	CODETI	
585	3.73	9.82	0.90	5.69	13.67	1.000	1.000	12.81	CODETI	



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590	3.73	90.35	-0.90	5.69	92.77	7.057	7.057	94.07	CODETI	
590	2.39	133.40	0.93	5.69	135.80	7.057	7.057	136.87	CODETI	
595 (SR_11)	2.38	18.00	-0.93	5.69	21.34	1.000	1.000	20.91	CODETI	
595 (SR_11)	2.39	18.00	0.93	5.69	21.11	1.000	1.000	20.91	CODETI	
596 (SP_13)	2.39	5.39	-0.93	5.69	8.85	1.000	1.000	8.53	CODETI	
596 (SP_13)	2.39	5.39	0.93	5.69	8.92	1.000	1.000	8.53	CODETI	
598	2.39	39.79	-0.67	5.69	43.06	8.236	8.236	44.11	CODETI	
598	2.39	39.79	0.67	5.69	42.52	8.236	8.236	44.11	CODETI	
599	2.42	37.34	-0.16	5.69	40.56	8.236	8.236	40.26	CODETI	
599	2.42	37.34	0.16	5.69	40.07	8.236	8.236	40.26	CODETI	
600	2.45	35.35	0.08	5.69	38.54	8.236	8.236	38.19	CODETI	
600	2.45	4.29	-0.08	5.69	7.52	1.000	1.000	7.12	CODETI	
608	2.42	3.06	0.05	5.69	6.33	8.236	8.236	6.00	CODETI	
608	2.42	3.06	-0.05	5.69	6.34	8.236	8.236	6.00	CODETI	
609	2.39	1.89	0.01	5.69	5.82	8.236	8.236	4.73	CODETI	
609	2.39	1.89	-0.01	5.69	5.82	8.236	8.236	4.73	CODETI	
610	2.38	1.44	0.00	5.69	5.82	8.236	8.236	4.26	CODETI	
610	2.38	0.18	0.00	5.69	5.82	1.000	1.000	3.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
615	2.38	0.04	-0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
615	2.38	0.04	0.00	5.69	5.82	1.000	1.000	2.86	CODETI	
620	2.38	0.00	0.00	5.69	5.82	1.000	1.000	2.82	CODETI	
520	0.13	82.03	0.82	2.08	82.18	7.279	7.279	83.92	CODETI	
625	0.13	7.07	-0.82	2.08	9.12	1.000	1.000	8.27	CODETI	
625	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
630	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
635	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
640	3.86	12.37	1.71	4.27	16.59	1.000	1.000	14.94	CODETI	
642	3.18	49.92	-1.46	4.27	52.20	6.943	6.943	56.01	CODETI	
642	3.18	49.92	1.46	4.27	53.18	6.943	6.943	56.01	CODETI	
643	1.69	20.13	-0.80	4.27	22.72	6.943	6.943	25.13	CODETI	
643	1.69	20.13	0.80	4.27	22.37	6.943	6.943	25.13	CODETI	
644	0.34	39.47	-0.06	4.27	43.34	6.943	6.943	41.59	CODETI	
644	0.34	39.47	0.06	4.27	42.62	6.943	6.943	41.59	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
645	-0.15	51.95	0.27	4.27	56.32	6.943	6.943	54.20	CODETI	
645	-0.15	7.48	-0.27	4.27	11.80	1.000	1.000	9.61	CODETI	
590	0.06	75.98	0.27	4.27	80.15	7.057	7.057	78.19	CODETI	
360 (Té_TH_700)	2.82	1.36	-0.00	5.69	5.82	1.000	1.000	4.18	CODETI	
660	2.82	0.10	0.00	5.69	5.82	1.000	1.000	2.93	CODETI	
660	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
670	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
680	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
360 (Té_TH_700)	2.08	1.31	-0.00	4.21	4.34	1.000	1.000	3.39	CODETI	
690	2.08	0.05	0.00	4.21	4.34	1.000	1.000	2.13	CODETI	
690	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
700	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
710	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
260	1.03	120.40	-7.27	2.07	122.30	10.614	10.614	196.72	CODETI	
720 (Té_VS_008)	1.03	148.06	7.27	2.07	149.79	10.614	10.614	214.85	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
720 (Té_VS_008)	0.88	118.47	-4.91	2.07	119.75	10.614	10.614	158.85	CODETI	
725	0.88	11.35	4.91	2.07	15.91	1.000	1.000	16.04	CODETI	
725	1.35	17.40	-7.53	3.16	24.05	1.000	1.000	24.58	CODETI	
730	1.35	17.02	7.53	3.16	24.10	1.000	1.000	24.30	CODETI	
730	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
740	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
745 (SG_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
750	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
760	0.89	11.55	-4.91	2.07	15.85	1.000	1.000	16.19	CODETI	
770 (Té_Gavage)	0.89	164.63	4.91	2.07	166.08	10.614	10.614	195.91	CODETI	
770 (Té_Gavage)	1.02	3.17	-0.00	2.07	4.19	10.614	10.614	4.19	CODETI	
780	1.02	0.00	0.00	2.07	2.15	1.000	1.000	1.03	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
780	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
790 (CT_BF)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
791 (SP_03)	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
795	1.57	0.00	-0.00	3.16	3.24	2.000	2.000	1.57	CODETI	
800 (SB_02)	2.86	0.88	0.00	5.90	5.97	2.000	2.000	3.82	CODETI	
800 (SB_02)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
810 (SG_01)	2.94	0.46	0.00	5.90	5.97	1.000	1.000	3.40	CODETI	
820	2.94	0.00	0.00	5.90	5.97	1.000	1.000	2.94	CODETI	
720 (Té_VS_008)	1.52	71.16	-3.60	3.16	73.03	10.614	10.614	106.00	CODETI	
830	1.51	3.90	3.60	3.16	9.08	1.000	1.000	9.76	CODETI	
830	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
840	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
850	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
860	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
860	1.51	3.58	-3.60	3.16	8.82	1.000	1.000	9.61	CODETI	
865 (SP_14)	1.51	3.06	3.60	3.16	8.59	1.000	1.000	9.39	CODETI	
865 (SP_14)	1.51	3.06	-3.60	3.16	8.53	1.000	1.000	9.39	CODETI	
867	1.48	24.40	3.33	3.16	26.89	8.376	8.376	62.45	CODETI	
867	1.48	24.40	-3.33	3.16	26.72	8.376	8.376	62.45	CODETI	
868	1.40	43.78	2.27	3.16	45.74	8.376	8.376	59.52	CODETI	
868	1.40	43.78	-2.27	3.16	45.41	8.376	8.376	59.52	CODETI	
869	1.33	51.79	0.76	3.16	53.62	8.376	8.376	54.91	CODETI	
869	1.33	51.79	-0.76	3.16	53.13	8.376	8.376	54.91	CODETI	
870	1.30	50.73	0.00	3.16	52.56	8.376	8.376	52.29	CODETI	
870	1.30	6.06	-0.00	3.16	7.84	1.000	1.000	7.62	CODETI	
872	1.06	3.30	0.00	3.16	5.38	1.000	1.000	4.87	CODETI	
872	1.06	3.30	0.00	3.16	5.38	1.000	1.000	4.87	CODETI	
875 (SG_15)	0.77	0.10	-0.00	3.16	3.24	1.000	1.000	1.67	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
876 (SR_15_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
875 (SG_15)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
877 (SR_15_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
875 (SG_15)	1.72	0.00	0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
880	1.70	0.00	-0.00	3.16	3.24	1.000	1.000	1.57	CODETI	
880	1.70	0.00	0.00	3.16	3.24	2.500	2.500	1.57	CODETI	
890	1.30	0.00	-0.00	2.58	2.66	2.500	2.500	1.28	CODETI	
890	1.30	0.00	0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	1.29	0.00	-0.00	2.58	2.66	1.000	1.000	1.28	CODETI	
895	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
900 (CT_REF_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
770 (Té_Gavage)	2.92	302.84	0.00	3.16	305.76	10.614	10.614	304.41	CODETI	
772 (SG_16_1)	2.81	28.35	-0.00	3.16	30.76	1.000	1.000	29.92	CODETI	
772 (SG_16_1)	2.81	28.35	0.00	3.16	31.16	1.000	1.000	29.92	CODETI	
775	2.62	144.04	-0.00	3.16	144.55	7.057	7.057	145.60	CODETI	
775	2.53	144.17	-0.00	3.16	146.69	7.057	7.057	145.73	CODETI	
910 (Té_VS_007)	2.14	4.15	0.00	3.16	6.27	1.000	1.000	5.72	CODETI	
910 (Té_VS_007)	2.18	4.06	-0.00	3.16	6.24	1.000	1.000	5.63	CODETI	
915 (SG_16_2)	2.12	2.05	0.00	3.16	4.18	1.000	1.000	3.61	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
915 (SG_16_2)	2.12	2.05	-0.00	3.16	4.18	1.000	1.000	3.61	CODETI	
920	2.09	2.05	0.00	3.16	4.15	1.000	1.000	3.61	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
916 (SR_16_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
910 (Té_VS_007)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
917 (SR_16_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
920	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
930	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
958	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
955	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
950	1.99	2.05	-0.00	3.16	4.06	1.000	1.000	3.61	CODETI	
957	1.92	16.89	0.00	3.16	18.60	8.472	8.472	18.46	CODETI	
957	1.92	16.89	-0.00	3.16	18.82	8.472	8.472	18.46	CODETI	
958	1.79	13.96	0.00	3.16	15.58	8.472	8.472	15.53	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
958	1.79	13.96	-0.00	3.16	15.75	8.472	8.472	15.53	CODETI	
959	1.63	9.73	-0.00	3.16	11.26	8.472	8.472	11.30	CODETI	
959	1.63	9.73	0.00	3.16	11.36	8.472	8.472	11.30	CODETI	
960	1.57	7.66	-0.00	3.16	9.23	8.472	8.472	9.23	CODETI	
960	1.57	0.90	0.00	3.16	3.24	1.000	1.000	2.47	CODETI	
965	1.57	0.32	-0.00	3.16	3.24	1.000	1.000	1.89	CODETI	
965	1.57	0.81	0.00	3.16	3.24	2.500	2.500	2.37	CODETI	
970	1.30	0.02	-0.00	2.63	2.71	2.500	2.500	1.32	CODETI	
970	1.30	0.01	0.00	2.63	2.71	1.000	1.000	1.31	CODETI	
980	1.30	0.00	-0.00	2.63	2.71	1.000	1.000	1.30	CODETI	
980	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
990 (CT_ASP_Gav)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
775	1.27	9.50	0.00	2.56	10.77	7.057	7.057	10.77	CODETI	
995	1.27	0.59	-0.00	2.56	2.63	1.000	1.000	1.86	CODETI	
995	1.27	0.59	0.00	2.56	2.63	1.000	1.000	1.86	CODETI	
998	1.26	0.49	-0.00	2.56	2.63	1.000	1.000	1.75	CODETI	
998	1.26	2.69	0.00	2.56	3.95	5.493	4.577	3.95	CODETI	
999	1.12	1.22	-0.00	2.56	2.66	5.493	4.577	2.49	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
999	1.12	1.22	0.00	2.56	2.66	5.493	4.577	2.49	CODETI	
1000	1.00	3.03	-0.00	2.56	4.57	5.493	4.577	4.30	CODETI	
1000	1.00	0.55	0.00	2.56	2.63	1.000	1.000	1.82	CODETI	
1002	0.70	0.55	-0.00	2.56	2.63	1.000	1.000	1.82	CODETI	
1009	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1005 (SR_17)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1002	0.70	0.55	0.00	2.56	2.63	1.000	1.000	1.82	CODETI	
1008	0.40	0.55	-0.00	2.56	2.73	1.000	1.000	1.82	CODETI	
1008	0.40	3.03	0.00	2.56	5.16	5.493	4.577	4.30	CODETI	
1009	0.56	10.71	-0.00	2.56	12.68	5.493	4.577	11.98	CODETI	
1009	1.53	10.71	0.00	2.56	12.24	5.493	4.577	11.98	CODETI	
1010	1.27	2.78	-0.00	2.56	4.05	5.493	4.577	4.05	CODETI	
1010	1.27	0.51	0.00	2.56	2.63	1.000	1.000	1.77	CODETI	
1020	1.27	0.31	-0.00	2.56	2.63	1.000	1.000	1.57	CODETI	
1020	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1030	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1040	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1050	1.27	0.10	0.00	2.56	2.63	1.000	1.000	1.37	CODETI	
1060	1.27	0.07	-0.00	2.56	2.63	1.000	1.000	1.34	CODETI	
1060	1.27	0.15	0.00	2.56	2.63	2.000	2.000	1.41	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	2.000	2.000	1.15	CODETI	
1070	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1090	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1100 (CT_ASP_Reg)	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
200 (Bride_N5)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1110 (VS_005)	1.81	0.95	0.22	2.56	2.83	1.000	1.000	2.32	CODETI	
1120	1.81	0.95	-0.22	2.56	2.94	1.000	1.000	2.31	CODETI	
1120	1.81	0.95	0.22	2.56	2.83	1.000	1.000	2.31	CODETI	
1128	1.82	0.95	-0.22	2.56	2.95	1.000	1.000	2.31	CODETI	
1128	1.82	5.22	0.22	2.56	7.05	5.493	4.577	7.02	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1129	1.70	1.59	-0.17	2.56	3.35	5.493	4.577	3.88	CODETI	
1129	1.70	1.59	0.17	2.56	3.33	5.493	4.577	3.88	CODETI	
1130	1.25	17.07	-0.02	2.56	18.35	5.493	4.577	18.39	CODETI	
1130	1.25	3.12	0.02	2.56	4.39	1.000	1.000	4.38	CODETI	
1132	1.25	5.41	-0.02	2.56	6.69	1.000	1.000	6.68	CODETI	
1132	1.25	5.41	0.02	2.56	6.66	1.000	1.000	6.68	CODETI	
1135 (SR_18)	1.25	10.18	-0.02	2.56	11.46	1.000	1.000	11.45	CODETI	
1135 (SR_18)	1.27	10.18	0.02	2.56	11.45	1.000	1.000	11.45	CODETI	
1138	1.26	2.75	-0.02	2.56	4.02	1.000	1.000	4.01	CODETI	
1138	1.26	15.03	0.02	2.56	16.30	5.493	4.577	16.36	CODETI	
1139	1.63	2.30	0.14	2.56	3.95	5.493	4.577	4.22	CODETI	
1139	1.63	2.30	-0.14	2.56	3.95	5.493	4.577	4.22	CODETI	
1140	1.71	3.32	0.22	2.56	5.03	5.493	4.577	5.37	CODETI	
1140	1.71	0.60	-0.22	2.56	2.67	1.000	1.000	2.01	CODETI	
1148	1.42	0.76	0.22	2.56	2.72	1.000	1.000	2.15	CODETI	
1148	1.42	4.19	-0.22	2.56	5.62	5.493	4.577	6.10	CODETI	
1149	1.31	5.59	0.14	2.56	6.85	5.493	4.577	7.16	CODETI	
1149	1.31	5.59	-0.14	2.56	6.91	5.493	4.577	7.16	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1150	1.26	6.64	-0.02	2.56	7.92	5.493	4.577	8.05	CODETI	
1150	1.26	1.23	0.02	2.56	2.64	1.000	1.000	2.50	CODETI	
1158	1.26	0.62	-0.02	2.56	2.63	1.000	1.000	1.89	CODETI	
1158	1.26	3.15	0.02	2.56	4.41	5.493	4.577	4.69	CODETI	
1159	1.26	3.16	-0.02	2.56	4.44	5.493	4.577	4.74	CODETI	
1159	1.26	3.16	0.02	2.56	4.43	5.493	4.577	4.74	CODETI	
1160	1.27	6.93	-0.40	2.56	8.23	5.493	4.577	10.57	CODETI	
1160	1.27	1.49	0.40	2.56	3.11	1.000	1.000	2.96	CODETI	
1165 (SR_19)	1.27	1.55	-0.40	2.56	3.14	1.000	1.000	3.01	CODETI	
1165 (SR_19)	1.27	1.56	0.40	2.56	3.14	1.000	1.000	3.01	CODETI	
1170 (Té_ATRE)	1.27	29.71	-0.40	2.56	30.98	4.398	4.398	31.18	CODETI	
1170 (Té_ATRE)	1.26	29.71	0.40	2.56	30.98	4.398	4.398	31.18	CODETI	
1175	1.26	4.04	-0.40	2.56	5.37	1.000	1.000	5.39	CODETI	
1175	1.26	4.04	0.40	2.56	5.36	1.000	1.000	5.39	CODETI	
1178	1.26	2.84	-0.40	2.56	4.20	1.000	1.000	4.22	CODETI	
1178	1.26	15.61	0.40	2.56	16.89	5.493	4.577	17.48	CODETI	
1179	0.92	5.63	-0.27	2.56	7.27	5.493	4.577	7.86	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1179	0.92	5.63	0.27	2.56	7.21	5.493	4.577	7.86	CODETI	
1180	0.70	3.41	0.00	2.56	5.24	5.493	4.577	5.36	CODETI	
1180	0.70	0.74	-0.00	2.56	2.63	1.000	1.000	2.01	CODETI	
1185	0.68	0.73	0.00	2.56	2.63	1.000	1.000	2.00	CODETI	
1185	1.58	0.02	-0.00	2.56	2.63	1.000	1.000	1.29	CODETI	
1186 (SG_20)	1.54	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1184 (SR_20_2)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1185	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1183 (SR_20_1)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1186 (SG_20)	1.54	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1190	1.35	0.00	-0.00	2.56	2.63	2.500	2.500	1.27	CODETI	
1195	1.16	0.00	0.00	2.32	2.40	2.500	2.500	1.15	CODETI	
1195	1.16	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1200	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1200	1.15	0.00	-0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1210 (CT_REF_Reg)	1.15	0.00	0.00	2.32	2.40	1.000	1.000	1.15	CODETI	
1219	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1225 (SP_24)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1170 (Té_ATRE)	1.57	0.00	0.00	2.56	2.63	4.398	4.398	1.27	CODETI	
1211	1.27	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1211	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1212 (CT_03)	1.27	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1213	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1215	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1216	1.20	0.00	-0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	0.00	2.56	2.63	1.000	1.000	1.27	CODETI	
1218	1.11	0.00	-0.00	2.56	2.63	7.242	6.035	1.27	CODETI	
1219	1.12	1.63	0.00	2.56	3.06	7.242	6.035	2.90	CODETI	
1219	1.12	1.63	-0.00	2.56	3.06	7.242	6.035	2.90	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1220	1.27	6.47	0.00	2.56	7.74	7.242	6.035	7.74	CODETI	
1220	1.27	0.89	-0.00	2.56	2.63	1.000	1.000	2.16	CODETI	
1230	1.27	1.07	0.00	2.56	2.63	1.000	1.000	2.33	CODETI	
1230	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1240 (Réchauffer)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1251	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1242	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1245 (PG_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1252	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1255 (PF_ATRE)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1250 (CT_04)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1260	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1260	2.28	0.00	0.00	4.60	4.74	1.000	1.000	2.28	CODETI	
1268	2.28	0.04	-0.00	4.60	4.74	1.000	1.000	2.31	CODETI	
1268	2.28	0.19	0.00	4.60	4.74	5.380	4.483	2.47	CODETI	
1269	2.26	0.59	-0.00	4.60	4.74	5.380	4.483	2.87	CODETI	
1269	2.26	0.59	0.00	4.60	4.74	5.380	4.483	2.87	CODETI	
1270	2.24	1.11	-0.00	4.60	4.74	5.380	4.483	3.39	CODETI	
1270	2.24	0.21	0.00	4.60	4.74	1.000	1.000	2.48	CODETI	
1279	2.23	3.03	0.17	4.60	5.40	5.380	4.483	6.33	CODETI	
1279	2.23	3.03	-0.17	4.60	5.43	5.380	4.483	6.33	CODETI	
1280	2.28	5.28	0.51	4.60	7.64	5.380	4.483	10.48	CODETI	
1280	2.28	1.13	-0.51	4.60	4.91	1.000	1.000	3.80	CODETI	
1285	2.28	10.72	0.51	4.60	13.04	4.398	4.398	13.90	CODETI	
1285	2.27	30.51	0.17	4.60	32.79	4.398	4.398	32.83	CODETI	
1286	2.28	3.00	-0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1286	2.28	3.00	0.17	4.60	5.36	1.000	1.000	5.30	CODETI	
1291	2.28	1.46	-0.17	4.60	4.77	1.000	1.000	3.78	CODETI	
1291	2.28	6.55	0.17	4.60	8.84	5.380	4.483	10.36	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1292	2.28	5.91	-0.08	4.60	8.20	5.380	4.483	9.43	CODETI	
1292	2.28	5.91	0.08	4.60	8.19	5.380	4.483	9.43	CODETI	
1290	2.28	5.22	-0.00	4.60	7.50	5.380	4.483	8.54	CODETI	
1290	2.28	1.16	0.00	4.60	4.74	1.000	1.000	3.44	CODETI	
1300	2.28	0.41	-0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1300	2.28	0.41	0.00	4.60	4.74	1.000	1.000	2.69	CODETI	
1310	2.28	0.01	-0.00	4.60	4.74	1.000	1.000	2.29	CODETI	
1310	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1315 (CT_05)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1285	2.29	6.01	2.25	4.60	9.44	4.398	4.398	22.96	CODETI	
1320	2.29	4.21	-2.25	4.60	8.00	1.000	1.000	8.44	CODETI	
1320	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1325 (PF_21)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1329	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1335 (SG_22)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1320	0.16	45.15	15.84	4.60	55.29	1.000	1.000	57.43	CODETI	
1328	0.17	29.86	-15.84	4.60	46.66	1.000	1.000	45.82	CODETI	
1328	0.17	141.18	15.84	4.60	144.86	5.380	4.483	236.51	CODETI	

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1329	0.02	87.62	-21.66	4.60	101.84	5.380	4.483	251.39	CODETI	
1329	-0.94	88.42	21.10	4.60	98.82	5.380	4.483	246.19	CODETI	
1330	-0.09	105.57	-17.91	4.60	115.90	5.380	4.483	229.30	CODETI	
1330	-0.09	22.30	17.91	4.60	42.25	1.000	1.000	44.48	CODETI	
1338	0.15	23.94	-17.91	4.60	45.68	1.000	1.000	45.36	CODETI	
1338	0.15	111.34	17.91	4.60	117.11	5.380	4.483	234.07	CODETI	
1339	-0.48	76.73	-22.24	4.60	93.08	5.380	4.483	253.57	CODETI	
1339	-0.48	76.73	22.24	4.60	89.10	5.380	4.483	253.57	CODETI	
1340	0.41	112.93	-17.41	4.60	122.14	5.380	4.483	231.24	CODETI	
1340	0.41	24.48	17.41	4.60	42.80	1.000	1.000	44.84	CODETI	
1343	0.42	21.08	-17.41	4.60	42.99	1.000	1.000	42.98	CODETI	
1343	0.42	21.08	17.41	4.60	40.92	1.000	1.000	42.98	CODETI	
1348	0.42	25.86	-17.41	4.60	45.96	1.000	1.000	45.65	CODETI	
1348	0.42	122.54	17.41	4.60	127.79	5.380	4.483	235.59	CODETI	
1349	-0.53	103.49	-21.61	4.60	116.87	5.380	4.483	256.86	CODETI	
1349	-0.53	103.49	21.61	4.60	112.65	5.380	4.483	256.86	CODETI	
1345	0.16	138.44	-16.02	4.60	146.39	5.380	4.483	235.67	CODETI	
1345	0.16	29.25	16.02	4.60	43.49	1.000	1.000	45.66	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1350 (SP_23)	0.16	14.58	-16.02	4.60	37.23	1.000	1.000	37.48	CODETI	
1350 (SP_23)	0.16	14.58	16.02	4.60	35.27	1.000	1.000	37.48	CODETI	
1355	0.17	11.33	-16.02	4.60	35.68	1.000	1.000	36.26	CODETI	
1355	0.17	11.33	16.02	4.60	34.03	1.000	1.000	36.26	CODETI	
1360	0.17	10.87	-16.02	4.60	35.49	1.000	1.000	36.11	CODETI	
1360	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1370	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1380 (VS_011)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1390	0.17	11.44	16.02	4.60	34.08	1.000	1.000	36.30	CODETI	
514 (Té_VS_011)	0.17	73.44	-9.79	4.60	80.25	5.836	5.836	138.07	CODETI	
230 (Bride_N6)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1400 (VS_006)	-0.16	34.07	5.56	0.00	35.98	7.388	7.388	88.90	CODETI	
1417	-0.45	44.15	-5.50	0.00	45.94	7.388	7.388	92.52	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1417	-0.45	44.15	5.50	0.00	45.94	7.388	7.388	92.52	CODETI	
1418	-0.90	74.18	-4.39	0.00	75.59	7.388	7.388	98.53	CODETI	
1418	-0.90	74.18	4.39	0.00	75.59	7.388	7.388	98.53	CODETI	
1419	-1.08	94.58	-2.23	0.00	95.76	7.388	7.388	100.14	CODETI	
1419	-1.08	94.58	2.23	0.00	95.76	7.388	7.388	100.14	CODETI	
1410	-1.06	97.76	-0.92	0.00	98.84	7.388	7.388	98.71	CODETI	
1410	-1.06	13.23	0.92	0.00	14.41	1.000	1.000	13.36	CODETI	
1415 (SP_26)	-0.42	2.01	-0.92	0.00	3.06	1.000	1.000	2.73	CODETI	
1415 (SP_26)	-0.42	2.01	0.92	0.00	3.06	1.000	1.000	2.73	CODETI	
1422	-0.38	1.48	-0.92	0.00	2.62	1.000	1.000	2.37	CODETI	
1422	-0.38	6.96	0.92	0.00	7.57	5.640	4.700	13.35	CODETI	
1421	-0.05	9.42	-1.03	0.00	9.69	5.640	4.700	15.25	CODETI	
1421	-0.05	9.42	1.03	0.00	9.69	5.640	4.700	15.25	CODETI	
1420	0.23	21.70	-0.23	0.00	21.94	5.640	4.700	23.58	CODETI	
1420	0.23	4.15	0.23	0.00	4.41	1.000	1.000	4.18	CODETI	
1425	0.23	5.28	-0.23	0.00	5.53	1.000	1.000	5.30	CODETI	
1425	0.23	5.28	0.23	0.00	5.53	1.000	1.000	5.30	CODETI	
1428	0.25	51.24	-0.54	0.00	51.50	7.391	7.391	51.86	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1428	0.25	51.24	0.54	0.00	51.50	7.391	7.391	51.86	CODETI	
1429	0.27	49.71	-1.12	0.00	50.03	7.391	7.391	52.39	CODETI	
1429	0.27	49.71	1.12	0.00	50.03	7.391	7.391	52.39	CODETI	
1430	0.28	48.33	-1.38	0.00	48.69	7.391	7.391	52.47	CODETI	
1430	0.28	6.54	1.38	0.00	7.36	1.000	1.000	7.10	CODETI	
1440	0.28	6.15	-1.38	0.00	6.99	1.000	1.000	6.74	CODETI	
1440	0.28	6.15	1.38	0.00	6.99	1.000	1.000	6.74	CODETI	
1445 (SP_31)	0.28	5.78	-1.38	0.00	6.65	1.000	1.000	6.40	CODETI	
1445 (SP_31)	0.28	5.78	1.38	0.00	6.66	1.000	1.000	6.40	CODETI	
1450	0.28	30.96	-1.38	0.00	31.36	5.231	5.231	34.17	CODETI	
1450	0.00	15.00	1.58	0.00	15.33	5.231	5.231	22.28	CODETI	
1451 (SP_27)	-0.00	1.31	-1.58	0.00	3.41	1.000	1.000	3.41	CODETI	
1451 (SP_27)	0.00	1.31	1.58	0.00	3.41	1.000	1.000	3.41	CODETI	
1452	0.00	1.34	-1.58	0.00	3.43	1.000	1.000	3.42	CODETI	
1452	0.00	1.34	1.58	0.00	3.43	1.000	1.000	3.42	CODETI	
1455 (SP_28)	-0.00	2.96	-1.58	0.00	4.33	1.000	1.000	4.33	CODETI	
1455 (SP_28)	0.00	2.96	1.58	0.00	4.33	1.000	1.000	4.33	CODETI	
1458	0.00	0.39	-1.58	0.00	3.18	1.000	1.000	3.18	CODETI	

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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1458	0.00	2.06	1.58	0.00	3.76	5.640	4.700	17.91	CODETI	
1459	-0.02	13.90	-0.90	0.00	14.03	5.640	4.700	19.49	CODETI	
1459	-0.02	13.90	0.90	0.00	14.03	5.640	4.700	19.49	CODETI	
1460	-0.02	16.76	0.46	0.00	16.81	5.640	4.700	20.77	CODETI	
1460	-0.02	3.56	-0.46	0.00	3.71	1.000	1.000	3.68	CODETI	
1468	-0.03	1.78	0.46	0.00	2.03	1.000	1.000	2.01	CODETI	
1468	-0.03	8.40	-0.46	0.00	8.48	5.640	4.700	11.34	CODETI	
1469	-0.02	3.48	-0.06	0.00	3.50	5.640	4.700	4.20	CODETI	
1469	-0.02	3.48	0.06	0.00	3.50	5.640	4.700	4.20	CODETI	
1470	0.00	5.14	0.00	0.00	5.14	5.640	4.700	6.16	CODETI	
1470	0.00	1.09	-0.00	0.00	1.10	1.000	1.000	1.09	CODETI	
1475 (SG_29)	0.00	1.58	0.00	0.00	1.59	1.000	1.000	1.58	CODETI	
1475 (SG_29)	-0.00	1.58	-0.00	0.00	1.58	1.000	1.000	1.58	CODETI	
1478	-0.00	0.76	0.00	0.00	0.76	1.000	1.000	0.76	CODETI	
1478	-0.00	4.26	-0.00	0.00	4.26	5.640	4.700	4.26	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1479	-0.07	0.79	0.00	0.00	0.87	5.640	4.700	0.79	CODETI	
1480	-0.03	0.00	-0.00	0.00	0.03	5.640	4.700	0.00	CODETI	

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Données Diverses et Listings CAESAR

NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1480	-0.03	0.00	0.00	0.00	0.03	1.000	1.000	0.00	CODETI	
1490	-0.00	0.00	-0.00	0.00	0.00	1.000	1.000	0.00	CODETI	
170 (Bride_N4)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1500 (VS_004)	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1501	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	CODETI	
1510	0.03	0.09	-0.00	0.00	0.12	1.000	1.000	0.09	CODETI	
1518	0.04	0.20	0.00	0.00	0.24	1.000	1.000	0.20	CODETI	
1518	0.04	1.34	-0.00	0.00	1.38	7.391	6.159	1.50	CODETI	
1519	-0.02	4.99	-0.10	0.00	5.01	7.391	6.159	5.72	CODETI	
1519	-0.02	4.99	0.10	0.00	5.01	7.391	6.159	5.72	CODETI	
1520	-0.08	8.11	-0.28	0.00	8.21	7.391	6.159	9.77	CODETI	
1520	-0.08	1.20	0.28	0.00	1.40	1.000	1.000	1.32	CODETI	
1523	0.02	5.21	-0.28	0.00	5.26	1.000	1.000	5.24	CODETI	
1523	0.02	27.24	0.28	0.00	27.27	5.640	4.700	29.57	CODETI	
1524	-0.07	30.19	-0.80	0.00	30.30	5.640	4.700	33.47	CODETI	
1524	-0.07	30.19	0.80	0.00	30.30	5.640	4.700	33.47	CODETI	
1525	-0.16	32.56	-1.30	0.00	32.83	5.640	4.700	37.28	CODETI	



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NODE	Axial Stress N./sq.mm.	Bending Stress N./sq.mm.	Torsion Stress N./sq.mm.	Hoop Stress N./sq.mm.	Max Stress Intensity N./sq.mm.	SIF In Plane	SIF Out Plane	Code Stress N./sq.mm.	Piping Code	
1525	-0.16	6.08	1.30	0.00	6.76	1.000	1.000	6.61	CODETI	
1530	-0.16	6.34	-1.30	0.00	7.00	1.000	1.000	6.85	CODETI	
1530	-0.17	6.32	1.32	0.00	7.01	1.000	1.000	6.85	CODETI	
1540 (SR_30)	-0.17	8.03	-1.32	0.00	8.61	1.000	1.000	8.45	CODETI	
1540 (SR_30)	-0.16	8.03	1.32	0.00	8.60	1.000	1.000	8.45	CODETI	
1450	-0.16	40.62	-1.32	0.00	40.87	5.231	5.231	42.91	CODETI	

## **ANNEXE 3**

### **Listings CAESAR**

<b>DONNEES D'ENTREE ET LISTING CAESAR .....</b>	<b>766</b>
<b>DONNÉES DIVERSES .....</b>	<b>830</b>

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

Téléphone 02.33.08.81.00

Télécopie : 02.33.03.25.02

Date : 29 Avril 2013

Tuyaeries Alimentation Air Sécheur CHAUMECA  
DGA - Centre d'Essais Propulseurs  
Listing CAESAR

## Description Projet:

PROJET:

CLIENT :

ANALYSTE:

NOTES :

Projet: C:\HERVE\AFFAIRES\_ACE\CEPR\_ENDEL\CE...\TUYAUTERIES\_SÉCHEUR\_CHAUMECA\_V3

## PIPE DATA

-----  
From 10 GC\_Jupe To 20 DZ= 3,188.000 mm.

## PIPE

Dia= 6,634.000 mm. Wall= 10.000 mm. Cor= .5000 mm. Mill%(-)=10.00

## GENERAL

T1= 80 C T2= 80 C T3= 20 C T4= 80 C P1= .0000 bars P2= .0000 bars

P3= .0000 bars P4= .0000 bars Mat= (457)EN 10028-7 304L

E= 197,000 N./sq.mm. EH1= 191,250 N./sq.mm. EH2= 191,250 N./sq.mm.

EH3= 195,000 N./sq.mm. EH4= 191,250 N./sq.mm. EH5= 197,000 N./sq.mm.

EH6= 197,000 N./sq.mm. EH7= 197,000 N./sq.mm. EH8= 197,000 N./sq.mm.

EH9= 197,000 N./sq.mm. v = .300 Pipe Den=7900.0000000 kg/cu.m.

Insul Thk= 100.000 mm. Insul Den= 100.0000000 kg/cu.m.

## RESTRAINTS

Node 10 ANC

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 131 N./sq.mm.

Sh2= 131 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 131 N./sq.mm.

Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.

Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

-----  
From 20 To 25 DZ= -1,333.000 mm.

## PIPE

Dia= 6,614.000 mm. Wall= 15.000 mm.

## GENERAL

T1= 200 C T2= 200 C T3= -5 C T4= 200 C P1= -.1100 bars

P2= .5000 bars P3= -.1100 bars P4= .9000 bars

Pipe Den=\*\*\*\*\* kg/cu.m. Insul Thk= 100.000 mm.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 160 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 160 N./sq.mm.

Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.

Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

-----  
From 20 To 30 DZ= 397.000 mm.

## PIPE

Dia= 6,604.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 200 C P1= -.1100 bars Insul Thk= 100.000 mm.

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## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 160 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 160 N./sq.mm.  
Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.  
Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.-----  
From 30 To 40 DZ= 443.000 mm.-----  
From 40 To 45 Weld\_CW2 DZ= 2,060.000 mm.-----  
From 45 To 50 DZ= 1,500.000 mm.-----  
From 50 To 55 DZ= 996.922 mm.

## PIPE

Dia= 6,614.000 mm. Wall= 15.000 mm.  
Insul Thk= 100.000 mm.-----  
From 55 To 56 DZ= 73.684 mm.-----  
From 56 To 60 DZ= 262.394 mm.-----  
From 65 Piquage\_N1 To 70 DZ= 740.000 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

## GENERAL

Pipe Den=7900.0000000 kg/cu.m. Insul Thk= 100.000 mm.

## RESTRAINTS

Node 65 ANC Cnode 60

-----  
From 70 To 80 Bride\_N1 DZ= 60.000 mm.

RIGID Weight= 1,720.00 N.

## FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3  
G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars-----  
From 40 To 100 DY= 3,300.000 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.  
Insul Thk= 100.000 mm.

RIGID Weight= .00 N.

## WRC 297 NOZZLES

Nozzle Node = 105 Nozzle Connecting Node = 100 Nozzle OD = 1,220.000 mm.  
Nozzle Thk = 10.000 mm. Vessel OD = 6,604.000 mm.  
Vessel Thk = 10.000 mm. Vessel Pad Thk = 10.000 mm.  
Distance to Support = 840.000 mm.  
Distance to Opposite Support = 3,560.000 mm. Vessel Temp = 200.00 C  
Vessel Mat = 453 Vessel Dir Vec = .0000 .0000 1.0000

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From 105 Piquage\_N2 To 110 DY= 740.000 mm.  
PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.  
Insul Thk= 100.000 mm.

From 110 To 120 Bride\_N2 DY= 60.000 mm.  
RIGID Weight= 3,130.00 N.

FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3  
G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars

From 125 Piquage\_N3 To 130 DZ= -719.000 mm.  
PIPE

Dia= 610.000 mm. Wall= 6.350 mm.  
Insul Thk= 100.000 mm.

BEND at "TO" end

Radius= 610.000 mm. (user) Bend Angle= 89.427 Angle/Node @1= 44.71 129

RESTRAINTS

Node 125 ANC Cnode 25

From 130 To 134 DX= -3,199.146 mm. DY= -857.209 mm. DZ= -33.120 mm.

From 134 Jupe\_N3 To 135 DX= -232.788 mm. DY= -62.375 mm. DZ= -2.410 mm.  
RESTRAINTS

Node 134 Y Gap= 5.000 mm. Dir Vec= -.2588 .9659 .0000  
Node 134 Z Gap= 8.667 mm.

From 135 SR\_N3 To 140 Bride\_N3 DX= -45.398 mm. DY= -12.165 mm.  
DZ= -.470 mm.

RIGID Weight= 735.00 N.

HANGERS

Hanger Node = 135 Available Space = .0000 mm.  
Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0 Free Node = 0  
Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3  
G/C= 670.200 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars

From 140 To 145 DX= -152.617 mm. DY= -40.891 mm. DZ= -1.580 mm.  
RIGID Weight= 3,500.00 N.

From 145 To 146 DX= -45.398 mm. DY= -12.165 mm. DZ= -.470 mm.  
RIGID Weight= 735.00 N.

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From 55 To 150 Piquage\_N4 DX= -1,200.000 mm. DY= 1,700.000 mm.

RIGID Weight= .00 N.

RESTRAINTS

Node 150 ANC Cnode 155  
-----From 155 To 160 DZ= 1,104.079 mm.  
-----

From 160 To 170 Bride\_N4 DZ= 47.000 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3

G/C= 670.200 mm. T/P table ( 1)= 37.8 C -&gt; 15.9 bars ( 2)= 93.3 C

-&gt; 13.4 bars ( 3)= 148.9 C -&gt; 12.1 bars ( 4)= 204.5 C -&gt; 11.0 bars

( 5)= 260.0 C -&gt; 10.3 bars ( 6)= 315.6 C -&gt; 9.7 bars

( 7)= 343.4 C -&gt; 8.6 bars ( 8)= 371.1 C -&gt; 7.6 bars ( 9)= 398.9 C

-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars  
-----

From 56 To 180 Piquage\_N5 DX= -1,200.000 mm. DY= -1,400.000 mm.

RIGID Weight= .00 N.

RESTRAINTS

Node 180 ANC Cnode 185  
-----From 185 To 190 DZ= 1,030.396 mm.  
-----

From 190 To 200 Bride\_N5 DZ= 47.000 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= To Method= Peq G/C= 670.200 mm.  
-----

From 30 To 210 DX= 1,650.000 mm. DY= 2,857.884 mm.

RIGID Weight= .00 N.

WRC 297 NOZZLES

Nozzle Node = 215 Nozzle Connecting Node = 210 Nozzle OD = 610.000 mm.

Nozzle Thk = 6.350 mm. Vessel OD = 6,604.000 mm. Vessel Thk = 10.000 mm.

Distance to Support = 397.000 mm.

Distance to Opposite Support = 4,003.000 mm. Vessel Temp = 200.00 C

Vessel Mat = 453 Vessel Dir Vec = .0000 .0000 1.0000  
-----From 215 Piquage\_N6 To 220 DX= 376.500 mm. DY= 652.117 mm.  
-----

From 220 To 230 Bride\_N6 DX= 23.500 mm. DY= 40.703 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3

G/C= 670.200 mm. T/P table ( 1)= 37.8 C -&gt; 15.9 bars ( 2)= 93.3 C

-&gt; 13.4 bars ( 3)= 148.9 C -&gt; 12.1 bars ( 4)= 204.5 C -&gt; 11.0 bars

( 5)= 260.0 C -&gt; 10.3 bars ( 6)= 315.6 C -&gt; 9.7 bars

( 7)= 343.4 C -&gt; 8.6 bars ( 8)= 371.1 C -&gt; 7.6 bars ( 9)= 398.9 C

-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars  
-----From 80 To 240 VS\_001 DZ= 154.000 mm.  
-----

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## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 40 C T2= 40 C T3= -5 C T4= 40 C P1= -.1000 bars P2= .2000 bars  
P3= -.1000 bars P4= .5000 bars Insul Thk= 100.000 mm.

RIGID Weight= 6,300.00 N.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 150 N./sq.mm.  
Sh2= 150 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 150 N./sq.mm.  
Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.  
Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.-----  
From 240 To 250 DZ= 60.000 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 40 C P1= -.1000 bars Insul Thk= 100.000 mm.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 150 N./sq.mm.  
Sh2= 150 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 150 N./sq.mm.  
Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.  
Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

## FLANGES

Location= From Method= Peq G/C= 1,273.620 mm.

-----  
From 251 CT\_N1 To 260 DZ= 1,974.000 mm.

## RESTRAINTS

Node 251 X Cnode 250 Gap= 15.000 mm.  
Node 251 Y Cnode 250 Gap= 15.000 mm.

## SIF's &amp; TEE's

Node 260 Unreinforced Tee Pad= 10.000 mm.

-----  
From 260 To 262 DX= 1,099.945 mm. DZ= 11.000 mm.

## PIPE

Dia= 1,230.000 mm. Wall= 15.000 mm.  
Insul Thk= 100.000 mm.-----  
From 262 To 265 SG\_5 DX= 399.975 mm. DZ= 4.000 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.  
Insul Thk= 100.000 mm.

## RESTRAINTS

Node 265 Y  
Node 265 +Z-----  
From 265 To 270 DX= 2,559.872 mm. DZ= 25.600 mm.

## BEND at "TO" end

Radius= 1,220.000 mm. (SHORT Bend Angle= 89.994 Angle/Node @1= 15.00 267  
Angle/Node @2= 45.00 268 Angle/Node @3= 75.00 269 Mitters= 3-----  
From 270 To 271 DY= 3,535.823 mm. DZ= 35.360 mm.

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From 271 To 272 DY= 59.997 mm. DZ= .600 mm.

RIGID Weight= 3,130.00 N.

## FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3

G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars

From 272 To 276 SR\_06 DY= 128.994 mm. DZ= 1.290 mm.

## GENERAL

T1= 200 C T2= 200 C T3= -5 C T4= 250 C P1= .9000 bars

P2= .9000 bars P3= -.1000 bars P4= .9000 bars

RIGID Weight= 1,000.00 N.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.

Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.

Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

From 276 To 273 DY= 128.994 mm. DZ= 1.290 mm.

RIGID Weight= 1,000.00 N.

From 276 To 275 SR06\_1 DX= -1,000.000 mm.

RIGID Weight= .00 N.

## HANGERS

Hanger Node = 275 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

From 276 To 281 SR06\_2 DX= 1,000.000 mm.

RIGID Weight= .00 N.

## HANGERS

Hanger Node = 281 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

From 273 To 274 DY= 60.000 mm. DZ= .600 mm.

RIGID Weight= 3,130.00 N.

## FLANGES

Location= From Method= Peq

From 274 To 280 DY= 1,517.000 mm. DZ= 15.170 mm.

## BEND at "TO" end

Radius= 1,220.000 mm. (SHORT Bend Angle= 90.573 Angle/Node @1= 15.00 277

Angle/Node @2= 45.00 278 Angle/Node @3= 75.00 279 Mitters= 3

From 280 To 284 DZ= -1,650.000 mm.



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From 284 To 285 CP01\_T DZ= -300.000 mm.

RIGID Weight= 2,750.00 N.

## RESTRAINTS

Node 285 X Cnode 286

Node 285 Y Cnode 286

Node 285 Z Cnode 286

-----  
From 285 To 286

## EXPANSION JOINT

Axial K= 690 N./mm. Trans K= 160,389 N./mm. Bend K= 2,427 N.m./deg

Tors K= 1,000,000 N.m./deg Eff Dia=1,270.000 mm.

-----  
From 286 CP01\_C To 287 DZ= -300.000 mm.

RIGID Weight= 2,750.00 N.

## RESTRAINTS

Node 286 RZ Cnode 285

-----  
From 287 To 290 DZ= -1,948.000 mm.-----  
From 290 To 299 DZ= -1,948.000 mm.-----  
From 299 To 300 CP03\_T DZ= -300.000 mm.

RIGID Weight= 2,750.00 N.

## RESTRAINTS

Node 300 X Cnode 301

Node 300 Y Cnode 301

Node 300 Z Cnode 301

-----  
From 300 To 301 CP03\_C

## EXPANSION JOINT

Axial K= 690 N./mm. Trans K= 160,389 N./mm. Bend K= 2,427 N.m./deg

Tors K= 1,000,000 N.m./deg Eff Dia=1,270.000 mm.

-----  
From 301 CP03\_C To 302 DZ= -300.000 mm.

RIGID Weight= 2,750.00 N.

## RESTRAINTS

Node 301 RZ Cnode 300

-----  
From 302 To 305 DZ= -1,200.000 mm.

## BEND at "TO" end

Radius= 1,000.000 mm. (user) Bend Angle= 89.427 Angle/Node @1= 15.00 306

Angle/Node @2= 45.00 307 Angle/Node @3= 75.00 308 Miters= 3

-----  
From 305 To 435 SR\_07 DX= -2,030.000 mm. DZ= -20.300 mm.

## HANGERS

Hanger Node = 435 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 435 To 440 DX= -2,030.000 mm. DZ= -20.300 mm.

SIF's &amp; TEE's

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Node 440 Unreinforced Tee

-----  
From 440 To 445 DY= 609.969 mm. DZ= -6.100 mm.

PIPE

Dia= 1,230.000 mm. Wall= 15.000 mm.

Insul Thk= 100.000 mm.  
-----

From 445 To 310 DY= 1,000.031 mm. DZ= -10.000 mm.

PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

BEND at "TO" end

Radius= 1,000.000 mm. (user) Bend Angle= 89.623 Angle/Node @1= 15.00 311

Angle/Node @2= 45.00 312 Angle/Node @3= 75.00 313 Miters= 3  
-----From 310 To 315 DX= -892.400 mm. DY= .000 mm. DZ= -778.124 mm.  
-----

From 315 To 320 CP02\_T DX= -38.440 mm. DY= .000 mm. DZ= -33.517 mm.

RIGID Weight= 1,600.00 N.

RESTRAINTS

Node 320 X Cnode 321 Dir Vec= -.7537 .0000 -.6572

Node 320 Y Cnode 321

Node 320 Z Cnode 321 Dir Vec= -.6572 .0000 .7537  
-----

From 320 To 321

EXPANSION JOINT

Axial K= 690 N./mm. Trans K= 160,389 N./mm. Bend K= 2,427 N.m./deg

Tors K= 1,000,000 N.m./deg Eff Dia=1,270.000 mm.  
-----

From 321 CP02\_C To 325 DX= -38.440 mm. DY= .000 mm. DZ= -33.517 mm.

RIGID Weight= 1,600.00 N.

RESTRAINTS

Node 321 RX Cnode 320 Dir Vec= -.7537 .0000 -.6572

Node 321 RY Cnode 320  
-----From 325 To 330 DX= -666.663 mm. DY= .000 mm. DZ= -581.293 mm.  
-----From 330 To 335 DX= -666.663 mm. DY= .000 mm. DZ= -581.293 mm.  
-----

From 335 To 340 CP04\_T DX= -38.440 mm. DY= .000 mm. DZ= -33.517 mm.

RIGID Weight= 1,600.00 N.

RESTRAINTS

Node 340 X Cnode 341 Dir Vec= -.7428 .0000 -.6695

Node 340 Y Cnode 341

Node 340 Z Cnode 341 Dir Vec= -.6695 .0000 .7428  
-----

From 340 To 341

EXPANSION JOINT

Axial K= 690 N./mm. Trans K= 160,389 N./mm. Bend K= 2,427 N.m./deg

Tors K= 1,000,000 N.m./deg Eff Dia=1,270.000 mm.  
-----

From 341 CP04\_C To 345 DX= -38.440 mm. DZ= -33.517 mm.

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RIGID Weight= 1,600.00 N.

## RESTRAINTS

Node 341 RX Cnode 340 Dir Vec= -.7428 .0000 -.6695  
Node 341 RY Cnode 340-----  
From 345 To 350 DX= -892.401 mm. DZ= -778.124 mm.

BEND at "TO" end

Radius= 1,000.000 mm. (user) Bend Angle= 89.623 Angle/Node @1= 15.00 337  
Angle/Node @2= 45.00 338 Angle/Node @3= 75.00 339 Miters= 3-----  
From 350 To 355 SR\_8 DY= 1,400.000 mm. DZ= -14.000 mm.

## PIPE

Dia= 1,230.000 mm. Wall= 15.000 mm.

## GENERAL

T1= 200 C P1= .9000 bars Insul Thk= 100.000 mm.

## HANGERS

Hanger Node = 355 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.  
Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.  
Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.-----  
From 355 To 360 Té\_TH\_700 DY= 1,014.000 mm. DZ= -10.140 mm.-----  
From 360 To 365 DY= 1,320.000 mm. DZ= -13.200 mm.-----  
From 365 To 366 DY= 585.000 mm. DZ= -5.850 mm.-----  
From 366 To 370 DY= 505.000 mm. DZ= -5.050 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

BEND at "TO" end

Radius= 1,220.000 mm. (user) Bend Angle= 45.573 Angle/Node @1= 11.25 368  
Angle/Node @2= 33.75 369 Miters= 2-----  
From 370 To 380 DY= 1,462.000 mm. DZ= 1,462.000 mm.

BEND at "TO" end

Radius= 1,220.000 mm. (user) Bend Angle= 44.427 Angle/Node @1= 11.25 378  
Angle/Node @2= 33.75 379 Miters= 2-----  
From 380 To 385 DY= 586.000 mm. DZ= 5.860 mm.-----  
From 385 To 390 DY= 50.000 mm. DZ= .500 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 200 C Insul Thk= 100.000 mm. Insul Den= 100.0000000 kg/cu.m.

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RIGID Weight= 2,950.00 N.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.  
Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.  
Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

## FLANGES

Location= To Method= Peq Class/Grade= EN-1092-10EO-PN25

G/C= 1,359.000 mm. T/P table ( 1)= 50.0 C -> 25.0 bars ( 2)= 100.0 C  
-> 21.5 bars ( 3)= 150.0 C -> 19.2 bars ( 4)= 200.0 C -> 17.5 bars  
( 5)= 250.0 C -> 16.3 bars ( 6)= 300.0 C -> 15.1 bars  
( 7)= 350.0 C -> 14.4 bars ( 8)= 400.0 C -> 13.8 bars  
( 9)= 450.0 C -> 13.3 bars (10)= 500.0 C -> 12.9 bars-----  
From 390 To 395 SP\_9 DY= 317.000 mm. DZ= 3.170 mm.

## GENERAL

T1= 250 C T2= 50 C T3= -75 C T4= 250 C P1= 4.0000 bars  
P2= 7.8000 bars P3= -.9500 bars P4= 4.0000 bars

RIGID Weight=17,500.00 N.

## RESTRAINTS

Node 395 +Z

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 91 N./sq.mm.  
Sh2= 145 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm.  
Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.  
Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.-----  
From 395 To 400 DY= 317.000 mm. DZ= 3.170 mm.

RIGID Weight=17,500.00 N.

-----  
From 400 To 405 DY= 50.000 mm. DZ= .500 mm.

RIGID Weight= 2,950.00 N.

## FLANGES

Location= From Method= Peq

-----  
From 405 To 410 DY= 700.000 mm. DZ= 7.000 mm.-----  
From 410 To 415 DY= 50.000 mm.

RIGID Weight= 2,950.00 N.

## FLANGES

Location= To Method= Peq

-----  
From 415 To 420 DY= 50.000 mm.

RIGID Weight= 2,950.00 N.

## FLANGES

Location= From Method= Peq

-----  
From 420 To 430 PF4\_CPO DY= 1,050.000 mm.

## GENERAL

T1= 250 C T3= -75 C P3= -.9500 bars

## RESTRAINTS

Node 430 ANC

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## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 91 N./sq.mm.  
Sh2= 145 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm.  
Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.  
Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

From 440 To 450 DY= -1,013.000 mm. DZ= 10.730 mm.

## PIPE

Dia= 1,230.000 mm. Wall= 15.000 mm.

## GENERAL

T1= 200 C T2= 200 C T3= -5 C T4= 250 C P1= .9000 bars  
P2= .9000 bars P3= -.1000 bars P4= .9000 bars Insul Thk= 100.000 mm.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.  
Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.  
Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

From 450 To 460 DY= -60.000 mm.

RIGID Weight= 3,130.00 N.

## FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3  
G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars

From 460 To 120 DY= -258.000 mm.

RIGID Weight=20,000.00 N.

From 365 To 500 DZ= 1,050.000 mm.

## PIPE

Dia= 920.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 200 C T4= 250 C P4= .9000 bars Insul Thk= 100.000 mm.

## SIF's &amp; TEE's

Node 365 Unreinforced Tee

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.  
Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.  
Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

## FLANGES

Location= To Method= Peq Class/Grade= DIN-2003-PN10-9E0  
G/C= 982.000 mm. T/P table ( 1)= 50.0 C -> 10.0 bars ( 2)= 100.0 C  
-> 10.0 bars ( 3)= 150.0 C -> 10.0 bars ( 4)= 200.0 C -> 10.0 bars  
( 5)= 250.0 C -> 10.0 bars ( 6)= 300.0 C -> 10.0 bars  
( 7)= 350.0 C -> 10.0 bars ( 8)= 400.0 C -> 10.0 bars  
( 9)= 425.0 C -> 10.0 bars (10)= 450.0 C -> 10.0 bars  
(11)= 475.0 C -> 10.0 bars (12)= 500.0 C -> 10.0 bars  
(13)= 510.0 C -> 9.1 bars (14)= 520.0 C -> 8.3 bars (15)= 530.0 C

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-&gt; 7.4 bars (16)= 550.0 C -&gt; 5.7 bars

-----  
From 500 To 505 DZ= 1,124.000 mm.

BEND at "TO" end

Radius= 900.000 mm. (user) Bend Angle= 45.000 Angle/Node @1= 11.25 503  
Angle/Node @2= 33.75 504 Miters= 2-----  
From 505 To 510 DY= -1,200.000 mm. DZ= 1,200.000 mm.

BEND at "TO" end

Radius= 900.000 mm. (user) Bend Angle= 45.000 Angle/Node @1= 11.25 508  
Angle/Node @2= 33.75 509 Miters= 2-----  
From 510 To 514 DZ= 900.000 mm.

PIPE

Dia= 920.000 mm. Wall= 10.000 mm.  
Insul Thk= 100.000 mm.-----  
From 514 To 515 DZ= 900.000 mm.

FLANGES

Location= To Method= Peq Class/Grade= DIN-2003-PN10-9E0

G/C= 982.000 mm. T/P table ( 1)= 50.0 C -&gt; 10.0 bars ( 2)= 100.0 C

-&gt; 10.0 bars ( 3)= 150.0 C -&gt; 10.0 bars ( 4)= 200.0 C -&gt; 10.0 bars

( 5)= 250.0 C -&gt; 10.0 bars ( 6)= 300.0 C -&gt; 10.0 bars

( 7)= 350.0 C -&gt; 10.0 bars ( 8)= 400.0 C -&gt; 10.0 bars

( 9)= 425.0 C -&gt; 10.0 bars (10)= 450.0 C -&gt; 10.0 bars

(11)= 475.0 C -&gt; 10.0 bars (12)= 500.0 C -&gt; 10.0 bars

(13)= 510.0 C -&gt; 9.1 bars (14)= 520.0 C -&gt; 8.3 bars (15)= 530.0 C

-&gt; 7.4 bars (16)= 550.0 C -&gt; 5.7 bars

-----  
From 515 To 520 DZ= 800.000 mm.

PIPE

Dia= 940.000 mm. Wall= 20.000 mm.  
Insul Thk= 100.000 mm.

SIF's &amp; TEE's

Node 520 Unreinforced Tee Pad= 10.000 mm.

-----  
From 520 To 525 DX= 761.000 mm. DZ= 7.610 mm.

PIPE

Dia= 940.000 mm. Wall= 20.000 mm.  
Insul Thk= 100.000 mm.-----  
From 525 To 530 DX= 62.000 mm. DZ= .620 mm.

RIGID Weight= 1,420.00 N.

FLANGES

Location= To Method= Peq G/C= 987.630 mm.

-----  
From 530 DR\_001 To 535 DX= 86.000 mm. DZ= .860 mm.

PIPE

Dia= 920.000 mm. Wall= 10.000 mm.  
Insul Thk= 100.000 mm.

RIGID Weight= 50.00 N.

FORCES &amp; MOMENTS

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Node 535 FX1= -97,360.00 N. FX2= -97,360.00 N.

-----  
From 535 To 540 DX= 62.000 mm. DZ= .620 mm.

PIPE

Dia= 920.000 mm. Wall= 10.000 mm.

GENERAL

T1= 20 C T2= 20 C T3= 20 C P1= .0000 bars P2= .0000 bars

P3= .0000 bars Insul Thk= 100.000 mm.

RIGID Weight= 1,420.00 N.

ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 160 N./sq.mm.

Sh2= 160 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm.

Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.

Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

FLANGES

Location= To Method= Peq

-----  
From 548 To 545 SR\_10 DZ= -778.052 mm.

GENERAL

FoffX= 269.46 mm. FoffZ= -378.05 mm.

RIGID Weight= .00 N.

HANGERS

Hanger Node = 545 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 540 To 550 DX= 952.000 mm. DZ= 9.520 mm.

BEND at "TO" end

Radius= 920.000 mm. (SHORT Bend Angle= 89.427 Angle/Node @1= 15.00 547

Angle/Node @2= 45.00 548 Angle/Node @3= 75.00 549 Mitters= 3

FORCES &amp; MOMENTS

Node 550 FX1= 97,360.00 N. FX2= 97,360.00 N.

-----  
From 550 To 560 DZ= 3,183.000 mm.

BEND at "TO" end

Radius= 920.000 mm. (SHORT Bend Angle= 90.573 Angle/Node @1= 15.00 557

Angle/Node @2= 45.00 558 Angle/Node @3= 75.00 559 Mitters= 3

FORCES &amp; MOMENTS

Node 560 FX1= 12,330.00 N. FX2= 6,180.00 N.

-----  
From 560 To 570 DX= -1,884.906 mm. DZ= -18.850 mm.-----  
From 570 To 580 DX= -1,199.940 mm. DZ= -12.000 mm.

SIF's &amp; TEE's

Node 570 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

Node 580 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

REDUCER

Diam2= 1,220.000 mm. Wall2= 10.000 mm.

-----  
From 580 To 585 DX= -260.985 mm. DZ= -2.610 mm.

PIPE

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Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

## FLANGES

Location= To Method= Peq

-----  
From 585 To 590 DX= -699.965 mm. DZ= -7.000 mm.-----  
From 590 To 595 SR\_11 DX= -1,475.000 mm. DZ= -14.750 mm.

## HANGERS

Hanger Node = 595 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 595 To 596 SP\_13 DX= -4,819.759 mm. DZ= -48.198 mm.

## RESTRAINTS

Node 596 Z

-----  
From 596 To 600 DX= -670.241 mm. DZ= -6.702 mm.

## BEND at "TO" end

Radius= 1,200.000 mm. (user) Bend Angle= 29.999 Angle/Node @1= 7.50 598

Angle/Node @2= 22.50 599 Miters= 2

-----  
From 600 To 610 DX= -3,232.000 mm. DY= -1,866.000 mm. DZ= -37.320 mm.

## BEND at "TO" end

Radius= 1,200.000 mm. (user) Bend Angle= 29.999 Angle/Node @1= 7.50 608

Angle/Node @2= 22.50 609 Miters= 2

-----  
From 610 To 615 DX= -863.000 mm. DZ= -8.630 mm.-----  
From 615 To 620 DX= -477.000 mm. DZ= -4.770 mm.

## FORCES &amp; MOMENTS

Node 620 FX1= 15,850.00 N. FX2= 15,850.00 N.

-----  
From 520 To 625 DX= -761.000 mm. DZ= 7.610 mm.

## PIPE

Dia= 940.000 mm. Wall= 20.000 mm.

## GENERAL

T1= 200 C T2= 200 C T3= -5 C P1= .9000 bars P2= .9000 bars

P3= -.1000 bars Insul Thk= 100.000 mm.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.

Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.

Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

-----  
From 625 To 630 DX= -62.000 mm. DZ= .620 mm.

RIGID Weight= 1,420.00 N.

## FLANGES

Location= To Method= Peq G/C= 987.630 mm.

-----  
From 630 To 635 DX= -86.000 mm. DZ= .860 mm.



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## PIPE

Dia= 920.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

RIGID Weight= 50.00 N.

## FORCES &amp; MOMENTS

Node 635 FX2= 97,360.00 N.

-----  
From 635 To 640 DX= -62.000 mm. DZ= .620 mm.

## PIPE

Dia= 920.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 20 C T2= 20 C T3= 20 C P1= .0000 bars P2= .0000 bars

P3= .0000 bars Insul Thk= 100.000 mm.

RIGID Weight= 1,420.00 N.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 160 N./sq.mm.

Sh2= 160 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm.

Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.

Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

## FLANGES

Location= To Method= Peq

-----  
From 640 To 645 DX= -1,152.000 mm. DZ= 11.520 mm.

## BEND at "TO" end

Radius= 920.000 mm. (SHORT Bend Angle= 89.427 Angle/Node @1= 15.00 642

Angle/Node @2= 45.00 643 Angle/Node @3= 75.00 644 Miters= 3

## FORCES &amp; MOMENTS

Node 645 FX2= -97,360.00 N.

-----  
From 645 To 590 DZ= 3,143.000 mm.

## SIF's &amp; TEE's

Node 590 Reinforced Tee Pad= 10.000 mm.

-----  
From 360 To 660 DX= -1,017.000 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

## GENERAL

T1= 200 C T2= 200 C T3= -5 C P1= .9000 bars P2= .9000 bars

P3= -.1000 bars Insul Thk= 100.000 mm.

## SIF's &amp; TEE's

Node 360 Unreinforced Tee

## ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 160 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 160 N./sq.mm.

Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm.

Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

-----  
From 660 To 670 DX= -83.000 mm.

RIGID Weight= 3,130.00 N.

## FLANGES

Location= To Method= Peq G/C= 1,282.000 mm.

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From 670 To 680 DX= -66.000 mm.

RIGID Weight= 8,470.00 N.

FLANGES

Location= From Method= Peq

-----  
From 360 To 690 DX= 1,050.000 mm.

PIPE

Dia= 716.000 mm. Wall= 8.000 mm.

Insul Thk= 100.000 mm.

SIF's &amp; TEE's

Node 360 Unreinforced Tee

-----  
From 690 To 700 DX= 50.000 mm.

RIGID Weight= 770.00 N.

FLANGES

Location= To Method= Peq Class/Grade= DIN-2003-PN6-9E0

G/C= 775.000 mm. T/P table ( 1)= 50.0 C -&gt; 6.0 bars ( 2)= 100.0 C

-&gt; 6.0 bars ( 3)= 150.0 C -&gt; 6.0 bars ( 4)= 200.0 C -&gt; 6.0 bars

( 5)= 250.0 C -&gt; 6.0 bars ( 6)= 300.0 C -&gt; 6.0 bars ( 7)= 350.0 C

-&gt; 6.0 bars ( 8)= 400.0 C -&gt; 6.0 bars ( 9)= 425.0 C -&gt; 6.0 bars

(10)= 450.0 C -&gt; 6.0 bars (11)= 475.0 C -&gt; 6.0 bars (12)= 500.0 C

-&gt; 6.0 bars (13)= 510.0 C -&gt; 5.5 bars (14)= 520.0 C -&gt; 5.0 bars

(15)= 530.0 C -&gt; 4.4 bars (16)= 550.0 C -&gt; 3.4 bars

-----  
From 700 To 710 DX= 38.000 mm.

RIGID Weight= 1,840.00 N.

FLANGES

Location= From Method= Peq

-----  
From 260 To 720 Té\_VS\_008 DX= -1,510.000 mm. DZ= -15.100 mm.

PIPE

Dia= 1,230.000 mm. Wall= 15.000 mm.

GENERAL

T1= 40 C T2= 40 C T4= 40 C P1= -.1000 bars P2= .2000 bars

P4= .5000 bars Insul Thk= 100.000 mm.

ALLOWABLE STRESSES

CODETI (2004) Sc= 160 N./sq.mm. Sh1= 150 N./sq.mm.

Sh2= 150 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 150 N./sq.mm.

Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm.

Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.

-----  
From 720 To 725 DX= -1,599.920 mm. DZ= -15.999 mm.-----  
From 725 To 730 DX= -1,272.080 mm. DZ= -12.721 mm.

PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

-----  
From 730 To 740 DX= -60.000 mm. DZ= -.600 mm.

RIGID Weight= 1,720.00 N.

FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3

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---

G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars

---

From 740 To 745 SG\_04 DX= -76.996 mm. DZ= -.770 mm.

RIGID Weight= 3,150.00 N.

RESTRAINTS

Node 745 Y

Node 745 +Z

---

From 745 To 750 DX= -77.004 mm. DZ= -.770 mm.

RIGID Weight= 3,150.00 N.

---

From 750 To 760 DX= -60.000 mm. DZ= -.600 mm.

RIGID Weight= 1,720.00 N.

FLANGES

Location= From Method= Peq

---

From 760 To 770 Té\_Gavage DX= -1,140.000 mm. DZ= -11.400 mm.

PIPE

Dia= 1,230.000 mm. Wall= 15.000 mm.

Insul Thk= 100.000 mm.

---

From 770 To 780 DX= -1,105.000 mm. DZ= -11.050 mm.

---

From 780 To 790 CT\_BF DX= -60.000 mm. DZ= -.600 mm.

PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

RIGID Weight= 1,720.00 N.

RESTRAINTS

Node 790 X Cnode 791 Gap= 100.000 mm.

Node 790 Y Cnode 791 Gap= 35.000 mm.

Node 790 Z Cnode 791 Gap= 35.000 mm.

FLANGES

Location= To Method= Peq

---

From 791 SP\_03 To 795 DX= -44.000 mm.

RESTRAINTS

Node 791 +Z

---

From 795 To 800 DX= -4,200.000 mm. DZ= -1,541.000 mm.

PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

REDUCER

Diam2= 3,450.000 mm. Wall2= 15.000 mm.

---

From 800 SB\_02 To 810 DX= -2,000.000 mm.PIPE

---

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Dia= 3,450.000 mm. Wall= 15.000 mm.

Insul Thk= 100.000 mm.

RIGID Weight=120000.00 N.

## RESTRAINTS

Node 800 X  
Node 800 Y  
Node 800 Z  
Node 800 RX-----  
From 810 SG\_01 To 820 DX= -3,000.000 mm.

## RESTRAINTS

Node 810 Y  
Node 810 Z-----  
From 720 To 830 DX= -1,024.760 mm. DY= 1,419.820 mm. DZ= -17.510 mm.

## PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

## SIF's &amp; TEE's

Node 720 Unreinforced Tee Pad= 10.000 mm.

-----  
From 830 To 840 DX= -35.110 mm. DY= 48.650 mm. DZ= -.600 mm.

RIGID Weight= 1,720.00 N.

## FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3

G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars-----  
From 840 To 850 DX= -90.124 mm. DY= 124.875 mm. DZ= -1.540 mm.

RIGID Weight= 6,300.00 N.

-----  
From 850 To 860 DX= -35.110 mm. DY= 48.650 mm. DZ= -.600 mm.

RIGID Weight= 1,720.00 N.

## FLANGES

Location= To Method= Peq Class/Grade= ASME-2003-150-2.3

G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars-----  
From 860 To 865 SP\_14 DX= -286.742 mm. DY= 397.310 mm. DZ= -4.900 mm.

## RESTRAINTS

Node 865 +Z

-----  
From 865 To 870 DX= -1,666.180 mm. DY= 2,308.520 mm. DZ= -28.470 mm.

## BEND at "TO" end

Radius= 1,220.000 mm. (SHORT Bend Angle= 89.427 Angle/Node @1= 15.00 867  
Angle/Node @2= 45.00 868 Angle/Node @3= 75.00 869 Miters= 3

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From 870 To 872 DZ= -3,850.000 mm.-----  
From 872 To 875 SG\_15 DZ= -3,099.390 mm.

RESTRAINTS

Node 875 Guide

-----  
From 875 To 876 SR\_15\_1 DX= 1,000.000 mm.

RIGID Weight= .00 N.

HANGERS

Hanger Node = 876 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 875 To 877 SR\_15\_2 DX= -1,000.000 mm.

RIGID Weight= .00 N.

HANGERS

Hanger Node = 877 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 875 To 880 DZ= -232.000 mm.-----  
From 880 To 890 DZ= -1,350.000 mm.

SIF's &amp; TEE's

Node 880 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

Node 890 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

REDUCER

Diam2= 1,000.000 mm. Wall2= 10.000 mm.

-----  
From 890 To 895 DZ= -140.000 mm.

PIPE

Dia= 1,000.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

-----  
From 895 To 900 CT\_REF\_Gav DZ= -10.000 mm.

RIGID Weight= 200.00 N.

FLANGES

Location= To Method= Peq

-----  
From 770 To 772 SG\_16\_1 DZ= -1,200.000 mm.

PIPE

Dia= 1,220.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

RESTRAINTS

Node 772 X

SIF's &amp; TEE's

Node 770 Unreinforced Tee Pad= 10.000 mm.

-----  
From 772 To 775 DZ= -2,000.000 mm.

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From 775 To 910 Té\_VS\_007 DZ= -4,172.000 mm.-----  
From 910 To 915 SG\_16\_2 DZ= -700.000 mm.

RESTRAINTS

Node 915 Guide

-----  
From 915 To 920 DZ= -278.000 mm.-----  
From 910 To 916 SR\_16\_1 DX= 1,000.000 mm.

RIGID Weight= .00 N.

HANGERS

Hanger Node = 916 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 910 To 917 SR\_16\_2 DX= -1,000.000 mm.

RIGID Weight= .00 N.

HANGERS

Hanger Node = 917 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 920 To 930 DZ= -22.000 mm.

RIGID Weight= 1,720.00 N.

FLANGES

Location= To Method= Peq

-----  
From 930 To 950 DZ= -22.000 mm.

RIGID Weight= 1,720.00 N.

FLANGES

Location= From Method= Peq

-----  
From 958 To 955 DZ= -1,131.419 mm.

GENERAL

FoffY= -322.18 mm. FoffZ= -531.42 mm.

RIGID Weight= .00 N.

-----  
From 950 To 960 DZ= -1,524.000 mm.

BEND at "TO" end

Radius= 1,200.000 mm. (user) Bend Angle= 90.000 Angle/Node @1= 15.00 957

Angle/Node @2= 45.00 958 Angle/Node @3= 75.00 959 Miters= 3

-----  
From 960 To 965 DY= 2,192.000 mm.-----  
From 965 To 970 DY= 1,350.000 mm.

SIF's &amp; TEE's

Node 965 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

Node 970 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

REDUCER

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Diam2= 1,020.000 mm. Wall2= 10.000 mm.

-----  
From 970 To 980 DY= 138.000 mm.

PIPE

Dia= 1,020.000 mm. Wall= 10.000 mm.

Insul Thk= 100.000 mm.

-----  
From 980 To 990 CT\_ASP\_Gav DY= 12.000 mm.

RIGID Weight= 150.00 N.

FLANGES

Location= To Method= Peq

-----  
From 775 To 995 DX= -482.227 mm. DY= 771.724 mm. DZ= -9.100 mm.

PIPE

Dia= 610.000 mm. Wall= 6.350 mm.

GENERAL

Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. EH1= 193,750 N./sq.mm.

EH2= 193,750 N./sq.mm. EH3= 196,875 N./sq.mm. EH4= 193,750 N./sq.mm.

EH5= 197,000 N./sq.mm. EH6= 197,000 N./sq.mm. EH7= 197,000 N./sq.mm.

EH8= 197,000 N./sq.mm. EH9= 197,000 N./sq.mm. v = .300

Pipe Den=7900.0000000 kg/cu.m. Insul Thk= 100.000 mm.

SIF's &amp; TEE's

Node 775 Reinforced Tee Pad= 10.000 mm.

ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 137 N./sq.mm.

Sh2= 137 N./sq.mm. Sh3= 143 N./sq.mm. Sh4= 137 N./sq.mm.

Sh5= 143 N./sq.mm. Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm.

Sh8= 143 N./sq.mm. Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

FLANGES

Location= To Method= Peq G/C= 674.000 mm.

-----  
From 995 To 1000 DX= -2,198.105 mm. DY= 3,517.703 mm. DZ= -41.480 mm.

BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 48.57 999

Angle/Node @2= .00 998

FLANGES

Location= From Method= Peq

-----  
From 1000 To 1002 DZ= -3,815.000 mm.-----  
From 1009 To 1005 SR\_17 DZ= -610.000 mm.

GENERAL

FoffX= 114.37 mm. FoffY= -198.10 mm. FoffZ= -201.74 mm.

RIGID Weight= .00 N.

HANGERS

Hanger Node = 1005 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

-----  
From 1002 To 1010 DZ= -3,815.000 mm.

BEND at "TO" end

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Listing CAESARRadius= 914.400 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= .00 1008  
Angle/Node @2= 41.41 1009-----  
From 1010 To 1020 DX= -542.640 mm. DY= 868.400 mm.-----  
From 1020 To 1030 DX= -23.850 mm. DY= 38.160 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= From Method= Peq G/C= 670.200 mm.

-----  
From 1030 To 1040 DX= -55.110 mm. DY= 88.200 mm.

RIGID Weight= 1,600.00 N.

-----  
From 1040 To 1050 DX= -23.850 mm. DY= 38.160 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= From Method= Peq

-----  
From 1050 To 1060 DX= -46.100 mm. DY= 73.780 mm.-----  
From 1060 To 1070 DX= -269.200 mm. DY= 430.810 mm.

REDUCER

Diam2= 406.400 mm. Wall2= 4.780 mm.

-----  
From 1070 To 1090 DX= -26.500 mm. DY= 42.400 mm.

PIPE

Dia= 406.400 mm. Wall= 4.780 mm.

Insul Thk= 100.000 mm.

-----  
From 1090 To 1100 CT\_ASP\_Reg DX= -5.300 mm. DY= 8.500 mm.

FLANGES

Location= From Method= Peq

-----  
From 200 To 1110 VS\_005 DZ= 104.000 mm.

PIPE

Dia= 610.000 mm. Wall= 6.350 mm.

Insul Thk= 100.000 mm.

RIGID Weight= 1,600.00 N.

-----  
From 1110 To 1120 DZ= 32.000 mm.

FLANGES

Location= From Method= Peq G/C= 670.200 mm.

-----  
From 1120 To 1130 DZ= 958.000 mm.

GENERAL

Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. EH1= 193,750 N./sq.mm.

EH2= 193,750 N./sq.mm. EH3= 196,875 N./sq.mm. EH4= 193,750 N./sq.mm.

EH5= 197,000 N./sq.mm. EH6= 197,000 N./sq.mm. EH7= 197,000 N./sq.mm.

EH8= 197,000 N./sq.mm. EH9= 197,000 N./sq.mm. v = .300

Pipe Den=7900.0000000 kg/cu.m.

BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 90.573 Angle/Node @1= 45.29 1129



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Angle/Node @2= .00 1128

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 137 N./sq.mm.  
Sh2= 137 N./sq.mm. Sh3= 143 N./sq.mm. Sh4= 137 N./sq.mm.  
Sh5= 143 N./sq.mm. Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm.  
Sh8= 143 N./sq.mm. Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.-----  
From 1130 To 1132 DX= -1,399.930 mm. DZ= -14.000 mm.

## FLANGES

Location= To Method= Peq  
-----

From 1132 To 1135 SR\_18 DX= -898.000 mm. DZ= -8.980 mm.

## HANGERS

Hanger Node = 1135 Available Space = .0000 mm.  
Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0 Free Node = 0  
Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.  
-----

From 1135 To 1140 DX= -2,550.000 mm. DZ= -25.500 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 44.71 1139  
Angle/Node @2= .00 1138  
-----

From 1140 To 1150 DZ= -4,650.000 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 44.71 1149  
Angle/Node @2= .00 1148  
-----

From 1150 To 1160 DX= -3,278.000 mm. DZ= -32.780 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.999 Angle/Node @1= 45.00 1159  
Angle/Node @2= .00 1158  
-----

From 1160 To 1165 SR\_19 DY= 946.000 mm. DZ= -.946 mm.

## HANGERS

Hanger Node = 1165 Available Space = .0000 mm.  
Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0 Free Node = 0  
Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.  
-----

From 1165 To 1170 Té\_ATRE DY= 4,200.000 mm. DZ= -42.000 mm.

-----  
From 1170 To 1175 DY= 1,362.000 mm. DZ= -13.620 mm.-----  
From 1175 To 1180 DY= 1,363.000 mm. DZ= -13.630 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 44.71 1179  
Angle/Node @2= .00 1178  
-----

From 1180 To 1185 DZ= -1,100.000 mm.

-----  
From 1185 To 1186 SG\_20 DZ= -400.000 mm.

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## RESTRAINTS

Node 1186 X

-----  
From 1185 To 1184 SR\_20\_2 DX= 600.000 mm.

RIGID Weight= .00 N.

## HANGERS

Hanger Node = 1184 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.  
-----

From 1185 To 1183 SR\_20\_1 DX= -600.000 mm.

RIGID Weight= .00 N.

## HANGERS

Hanger Node = 1183 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.  
-----From 1186 To 1190 DZ= -1,800.000 mm.  
-----

From 1190 To 1195 DZ= -1,008.000 mm.

## SIF's &amp; TEE's

Node 1190 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

Node 1195 &lt;No Type Specified&gt; Sif(in)= 2.500 Sif(out)= 2.500

## REDUCER

Diam2= 406.400 mm. Wall2= 4.780 mm.  
-----

From 1195 To 1200 DZ= -100.000 mm.

## PIPE

Dia= 406.400 mm. Wall= 4.780 mm.

Insul Thk= 100.000 mm.  
-----

From 1200 To 1210 CT\_REF\_Reg DZ= -10.000 mm.

## PIPE

Dia= 406.400 mm. Wall= 4.780 mm.

Insul Thk= 100.000 mm.

## FLANGES

Location= To Method= Peq  
-----

From 1219 To 1225 SP\_24 DZ= -600.000 mm.

## GENERAL

FoffY= 357.33 mm. FoffZ= -501.33 mm.

RIGID Weight= .00 N.

## RESTRAINTS

Node 1225 +Z  
-----

From 1170 To 1211 DZ= -2,894.000 mm.

## PIPE

Dia= 610.000 mm. Wall= 6.350 mm.

Insul Thk= 100.000 mm.

## SIF's &amp; TEE's

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Node 1170 Welding Tee

FLANGES

Location= To Method= Peq

-----  
From 1211 To 1212 CT\_03 DZ= -32.000 mm.

RESTRAINTS

Node 1212 X Cnode 1213 Gap= 15.000 mm.

Node 1212 Y Cnode 1213 Gap= 15.000 mm.

Node 1212 Z Cnode 1213 Gap= 100.000 mm.

FLANGES

Location= To Method= Peq

-----  
From 1213 To 1215 DZ= -100.000 mm.

RIGID Weight= 696.00 N.

-----  
From 1215 To 1216 DZ= -32.000 mm.

FLANGES

Location= From Method= Peq

-----  
From 1216 To 1220 DZ= -1,445.000 mm.

BEND at "TO" end

Radius= 609.600 mm. (SHORT Bend Angle= 90.000 Angle/Node @1= 45.00 1219

Angle/Node @2= .00 1218

-----  
From 1220 To 1230 DY= -710.000 mm.-----  
From 1230 To 1240 DY= -32.000 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= To Method= Peq Class/Grade= DIN-2003-PN10-9E0

G/C= 674.000 mm. T/P table ( 1)= 50.0 C -&gt; 10.0 bars ( 2)= 100.0 C

-&gt; 10.0 bars ( 3)= 150.0 C -&gt; 10.0 bars ( 4)= 200.0 C -&gt; 10.0 bars

( 5)= 250.0 C -&gt; 10.0 bars ( 6)= 300.0 C -&gt; 10.0 bars

( 7)= 350.0 C -&gt; 10.0 bars ( 8)= 400.0 C -&gt; 10.0 bars

( 9)= 425.0 C -&gt; 10.0 bars (10)= 450.0 C -&gt; 10.0 bars

(11)= 475.0 C -&gt; 10.0 bars (12)= 500.0 C -&gt; 10.0 bars

(13)= 510.0 C -&gt; 9.1 bars (14)= 520.0 C -&gt; 8.3 bars (15)= 530.0 C

-&gt; 7.4 bars (16)= 550.0 C -&gt; 5.7 bars

-----  
From 1240 Réchauffer To 1242 DY= -902.000 mm.

RIGID Weight= .00 N.

-----  
From 1242 To 1252 DY= -1,550.000 mm.

RIGID Weight= 8,500.00 N.

-----  
From 1252 To 1251 DY= -552.000 mm.

RIGID Weight= .00 N.

-----  
From 1242 To 1245 PG\_ATRE DZ= -1,527.000 mm.

GENERAL

P1= .0000 bars P2= .0000 bars P3= .0000 bars P4= .0000 bars

RIGID Weight= .00 N.

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## RESTRAINTS

Node 1245 X  
Node 1245 Z  
Node 1245 RY

---

From 1252 To 1255 PF\_ATRE DZ= -1,527.000 mm.  
RIGID Weight= .00 N.

## RESTRAINTS

Node 1255 X  
Node 1255 Y  
Node 1255 Z  
Node 1255 RY

---

From 1250 CT\_04 To 1260 DY= -32.000 mm.

## GENERAL

T1= 200 C T2= 200 C T4= 200 C P1= -.1100 bars P2= .5000 bars  
P3= -.1100 bars P4= .9000 bars

RIGID Weight= 348.00 N.

## RESTRAINTS

Node 1250 X Gap= 15.000 mm.  
Node 1250 Y Gap= 100.000 mm.  
Node 1250 Z Gap= 15.000 mm.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 143 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 143 N./sq.mm.  
Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.  
Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

## FLANGES

Location= From Method= Peq

---

From 1260 To 1270 DY= -328.000 mm.

## GENERAL

T1= 200 C P1= -.1100 bars

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 25.002 Angle/Node @1= 12.50 1269  
Angle/Node @2= .00 1268

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 143 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 143 N./sq.mm.  
Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.  
Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

---

From 1270 To 1280 DY= -1,040.000 mm. DZ= -485.000 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 90.242 Angle/Node @1= 45.12 1279

---

From 1280 To 1285 DX= 1,626.000 mm. DZ= 16.260 mm.

---

From 1285 To 1286 DX= 1,500.000 mm. DZ= 15.000 mm.

---

From 1286 To 1290 DX= 974.950 mm. DZ= 9.750 mm.BEND at "TO" end

---

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Listing CAESARRadius= 914.400 mm. (LONG) Bend Angle= 14.999 Angle/Node @1= 7.50 1292  
Angle/Node @2= .00 1291-----  
From 1290 To 1300 DX= 774.673 mm. DY= 207.573 mm. DZ= 8.020 mm.-----  
From 1300 To 1310 DX= 581.487 mm. DY= 155.810 mm. DZ= 6.020 mm.-----  
From 1310 To 1315 CT\_05 DX= 45.398 mm. DY= 12.165 mm. DZ= .470 mm.

RIGID Weight= 735.00 N.

RESTRAINTS

Node 1315 X Gap= 100.000 mm. Dir Vec= .9659 .2588 .0000

Node 1315 Y Gap= 15.000 mm. Dir Vec= -.2588 .9659 .0000

Node 1315 Z Gap= 15.000 mm.

FLANGES

Location= To Method= Peq

-----  
From 1285 To 1320 DY= 1,000.000 mm. DZ= 10.000 mm.

SIF's &amp; TEE's

Node 1285 Welding Tee

-----  
From 1320 To 1325 PF\_21 DZ= -1,078.000 mm.

RIGID Weight= .00 N.

RESTRAINTS

Node 1325 ANC

-----  
From 1329 To 1335 SG\_22 DZ= -701.781 mm.

GENERAL

FoffY= 228.71 mm. FoffZ= -201.78 mm.

RIGID Weight= .00 N.

RESTRAINTS

Node 1335 +Z

Node 1335 X

-----  
From 1320 To 1330 DY= 6,209.000 mm. DZ= 62.090 mm.

BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 44.71 1329

Angle/Node @2= .00 1328

-----  
From 1330 To 1340 DZ= 4,173.000 mm.

BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 44.71 1339

Angle/Node @2= .00 1338

-----  
From 1340 To 1343 DX= 3,178.000 mm. DZ= 31.780 mm.-----  
From 1343 To 1345 DX= 1,200.000 mm. DZ= 12.000 mm.

BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.994 Angle/Node @1= 45.00 1349

Angle/Node @2= .00 1348

-----  
From 1345 To 1350 SP\_23 DY= 2,000.000 mm. DZ= 20.000 mm.

RESTRAINTS

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Node 1350 +Z

-----  
From 1350 To 1355 DY= 409.000 mm. DZ= 4.090 mm.-----  
From 1355 To 1360 DY= 149.000 mm. DZ= 1.490 mm.-----  
From 1360 To 1370 DY= 50.000 mm. DZ= .500 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= To Method= Peq G/C= 670.200 mm.

-----  
From 1370 To 1380 VS\_011 DY= 158.000 mm. DZ= 1.580 mm.

GENERAL

T1= 200 C T4= 250 C P1= .9000 bars P2= .9000 bars P3= -.1000 bars

P4= .9000 bars

RIGID Weight= 4,000.00 N.

ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 143 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 143 N./sq.mm.

Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.

Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

-----  
From 1380 To 1390 DY= 50.000 mm. DZ= .500 mm.

RIGID Weight= 348.00 N.

FLANGES

Location= From Method= Peq

-----  
From 1390 To 514 Té\_VS\_011 DY= 950.000 mm. DZ= 9.500 mm.

GENERAL

T1= 200 C T4= 250 C P1= .9000 bars P4= .9000 bars

Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. EH1= 183,000 N./sq.mm.

EH2= 183,000 N./sq.mm. EH3= 196,875 N./sq.mm. EH4= 179,000 N./sq.mm.

EH5= 197,000 N./sq.mm. EH6= 197,000 N./sq.mm. EH7= 197,000 N./sq.mm.

EH8= 197,000 N./sq.mm. EH9= 197,000 N./sq.mm. v = .300

Pipe Den=7900.0000000 kg/cu.m.

SIF's &amp; TEE's

Node 514 Reinforced Tee Pad= 10.000 mm.

ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 143 N./sq.mm. Sh4= 91 N./sq.mm. Sh5= 143 N./sq.mm.

Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.

Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

-----  
From 230 To 1400 VS\_006 DX= 79.000 mm. DY= 136.832 mm.

GENERAL

T1= 200 C T2= 200 C T3= -5 C T4= 200 C P1= -.1100 bars

P2= .5000 bars P3= -.1100 bars P4= .9000 bars

RIGID Weight= 2,850.00 N.

ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.

Sh3= 143 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 143 N./sq.mm.

Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.

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Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

## FLANGES

Location= To Method= Peq

-----  
From 1400 To 1410 DX= 305.000 mm. DY= 528.276 mm.

## GENERAL

T1= 40 C T2= 20 C T3= 20 C T4= 40 C P1= .0000 bars P2= .0000 bars  
P3= .0000 bars P4= .0000 bars Mat= (455)EN 10217-7 304L  
E= 197,000 N./sq.mm. EH1= 193,750 N./sq.mm. EH2= 195,000 N./sq.mm.  
EH3= 195,000 N./sq.mm. EH4= 193,750 N./sq.mm. EH5= 197,000 N./sq.mm.  
EH6= 197,000 N./sq.mm. EH7= 197,000 N./sq.mm. EH8= 197,000 N./sq.mm.  
EH9= 197,000 N./sq.mm. v = .300 Pipe Den=7900.0000000 kg/cu.m.

## BEND at "TO" end

Radius= 610.000 mm. (user) Bend Angle= 90.000 Angle/Node @1= 15.00 1417  
Angle/Node @2= 45.00 1418 Angle/Node @3= 75.00 1419 Mitters= 3

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 137 N./sq.mm.  
Sh2= 143 N./sq.mm. Sh3= 143 N./sq.mm. Sh4= 137 N./sq.mm.  
Sh5= 143 N./sq.mm. Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm.  
Sh8= 143 N./sq.mm. Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.-----  
From 1410 To 1415 SP\_26 DZ= 6,774.000 mm.

## RESTRAINTS

Node 1415 +Z

-----  
From 1415 To 1420 DZ= 1,306.000 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 90.573 Angle/Node @1= 45.29 1421  
Angle/Node @2= .00 1422-----  
From 1420 To 1425 DX= -1,379.578 mm. DY= 796.500 mm. DZ= -15.930 mm.-----  
From 1425 To 1430 DX= -1,379.578 mm. DY= 796.500 mm. DZ= -15.930 mm.

## BEND at "TO" end

Radius= 609.600 mm. (SHORT) Bend Angle= 29.998 Angle/Node @1= 7.50 1428  
Angle/Node @2= 22.50 1429 Mitters= 2-----  
From 1430 To 1440 DX= -1,841.000 mm. DZ= -18.410 mm.

## FLANGES

Location= To Method= Peq Class/Grade= DIN-2003-PN10-9E0  
G/C= 674.000 mm. T/P table ( 1)= 50.0 C -> 10.0 bars ( 2)= 100.0 C  
-> 10.0 bars ( 3)= 150.0 C -> 10.0 bars ( 4)= 200.0 C -> 10.0 bars  
( 5)= 250.0 C -> 10.0 bars ( 6)= 300.0 C -> 10.0 bars  
( 7)= 350.0 C -> 10.0 bars ( 8)= 400.0 C -> 10.0 bars  
( 9)= 425.0 C -> 10.0 bars (10)= 450.0 C -> 10.0 bars  
(11)= 475.0 C -> 10.0 bars (12)= 500.0 C -> 10.0 bars  
(13)= 510.0 C -> 9.1 bars (14)= 520.0 C -> 8.3 bars (15)= 530.0 C  
-> 7.4 bars (16)= 550.0 C -> 5.7 bars-----  
From 1440 To 1445 SP\_31 DX= -1,244.000 mm. DZ= -12.440 mm.

## RESTRAINTS

Node 1445 +Z

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## FLANGES

Location= From Method= Peq

-----  
From 1445 To 1450 DX= -756.000 mm. DZ= -7.560 mm.-----  
From 1450 To 1451 SP\_27 DX= -2,893.855 mm. DZ= -28.940 mm.

## GENERAL

T1= 220 C T2= 20 C T4= 220 C

## RESTRAINTS

Node 1451 +Z

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 95 N./sq.mm.

Sh2= 143 N./sq.mm. Sh3= 143 N./sq.mm. Sh4= 95 N./sq.mm.

Sh5= 143 N./sq.mm. Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm.

Sh8= 143 N./sq.mm. Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

-----  
From 1451 To 1452 DX= -1,105.944 mm. DZ= -11.060 mm.

## FLANGES

Location= To Method= Peq

-----  
From 1452 To 1455 SP\_28 DX= -3,613.000 mm. DZ= -36.130 mm.

## RESTRAINTS

Node 1455 +Z

## FLANGES

Location= From Method= Peq

-----  
From 1455 To 1460 DX= -2,762.000 mm. DZ= -27.620 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.994 Angle/Node @1= 45.00 1459

Angle/Node @2= .00 1458

-----  
From 1460 To 1470 DY= 4,227.000 mm. DZ= -42.270 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 90.006 Angle/Node @1= 45.00 1469

Angle/Node @2= .00 1468

-----  
From 1470 To 1475 SG\_29 DX= -1,099.945 mm. DZ= 11.000 mm.

## RESTRAINTS

Node 1475 Y

Node 1475 Z

-----  
From 1475 To 1480 DX= -1,495.925 mm. DZ= 14.960 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG) Bend Angle= 89.427 Angle/Node @1= 44.71 1479

Angle/Node @2= .00 1478

-----  
From 1480 To 1490 DZ= 1,200.000 mm.-----  
From 170 To 1500 VS\_004 DZ= 158.000 mm.

## GENERAL

T1= 200 C T2= 200 C T3= -5 C T4= 200 C P1= -.1100 bars

P2= .5000 bars P3= -.1100 bars P4= .9000 bars



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RIGID Weight= 2,500.00 N.

## RESTRAINTS

Node 1500 Guide Cnode 1501 Gap= 10.000 mm.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm.  
Sh3= 143 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 143 N./sq.mm.  
Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.  
Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.-----  
From 1501 To 1510 DZ= 47.000 mm.

## GENERAL

T1= 220 C T2= 20 C T3= 20 C T4= 220 C P1= .0000 bars  
P2= .0000 bars P3= .0000 bars P4= .0000 bars

RIGID Weight= 348.00 N.

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 95 N./sq.mm.  
Sh2= 143 N./sq.mm. Sh3= 143 N./sq.mm. Sh4= 95 N./sq.mm.  
Sh5= 143 N./sq.mm. Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm.  
Sh8= 143 N./sq.mm. Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

## FLANGES

Location= From Method= Peq Class/Grade= ASME-2003-150-2.3  
G/C= 670.200 mm. T/P table ( 1)= 37.8 C -> 15.9 bars ( 2)= 93.3 C  
-> 13.4 bars ( 3)= 148.9 C -> 12.1 bars ( 4)= 204.5 C -> 11.0 bars  
( 5)= 260.0 C -> 10.3 bars ( 6)= 315.6 C -> 9.7 bars  
( 7)= 343.4 C -> 8.6 bars ( 8)= 371.1 C -> 7.6 bars ( 9)= 398.9 C  
-> 6.5 bars (10)= 426.7 C -> 5.5 bars (11)= 454.5 C -> 4.5 bars  
-----

From 1510 To 1520 DZ= 395.000 mm.

## GENERAL

Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. EH1= 181,400 N./sq.mm.  
EH2= 195,000 N./sq.mm. EH3= 195,000 N./sq.mm. EH4= 181,400 N./sq.mm.  
EH5= 197,000 N./sq.mm. EH6= 197,000 N./sq.mm. EH7= 197,000 N./sq.mm.  
EH8= 197,000 N./sq.mm. EH9= 197,000 N./sq.mm. v = .300  
Pipe Den=7900.0000000 kg/cu.m.

## BEND at "TO" end

Radius= 609.600 mm. (SHORT Bend Angle= 57.271 Angle/Node @1= 28.64 1519  
Angle/Node @2= .00 1518

## ALLOWABLE STRESSES

CODETI (2004) Sc= 143 N./sq.mm. Sh1= 95 N./sq.mm.  
Sh2= 143 N./sq.mm. Sh3= 143 N./sq.mm. Sh4= 95 N./sq.mm.  
Sh5= 143 N./sq.mm. Sh6= 143 N./sq.mm. Sh7= 143 N./sq.mm.  
Sh8= 143 N./sq.mm. Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.-----  
From 1520 To 1525 DX= -1,170.563 mm. DY= 1,621.660 mm. DZ= 1,285.415 mm.

## BEND at "TO" end

Radius= 914.400 mm. (LONG Bend Angle= 32.672 Angle/Node @1= 16.34 1524  
Angle/Node @2= .00 1523  
-----

From 1525 To 1530 DX= -212.457 mm. DY= 294.331 mm. DZ= .363 mm.

## FLANGES

Location= To Method= Peq Class/Grade= DIN-2003-PN10-9E0  
G/C= 674.000 mm. T/P table ( 1)= 50.0 C -> 10.0 bars ( 2)= 100.0 C

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```
-> 10.0 bars    ( 3)= 150.0 C    -> 10.0 bars    ( 4)= 200.0 C    -> 10.0 bars
( 5)= 250.0 C    -> 10.0 bars    ( 6)= 300.0 C    -> 10.0 bars
( 7)= 350.0 C    -> 10.0 bars    ( 8)= 400.0 C    -> 10.0 bars
( 9)= 425.0 C    -> 10.0 bars    (10)= 450.0 C    -> 10.0 bars
(11)= 475.0 C    -> 10.0 bars    (12)= 500.0 C    -> 10.0 bars
(13)= 510.0 C    -> 9.1 bars     (14)= 520.0 C    -> 8.3 bars    (15)= 530.0 C
-> 7.4 bars     (16)= 550.0 C    -> 5.7 bars
```

-----  
From 1530 To 1540 SR\_30 DX= -339.463 mm. DY= 470.281 mm. DZ= -5.800 mm.  
HANGERS

Hanger Node = 1540 Available Space = .0000 mm.

Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1

User Operating Load = .00 N. Free Node = 0 Free Node = 0

Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.

FLANGES

Location= From Method= Peq

-----  
From 1540 To 1450 DX= -1,243.723 mm. DY= 1,723.014 mm. DZ= -21.250 mm.  
SIF's & TEE's

Node 1450 Reinforced Tee Pad= 8.000 mm.

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## NODENAMES

10	20	De=	GC_Jupe	A=
40	45	De=	A=	Weld_CW2
65	70	De=	Piquage_N1	A=
70	80	De=	A=	Bride_N1
105	110	De=	Piquage_N2	A=
110	120	De=	A=	Bride_N2
125	130	De=	Piquage_N3	A=
134	135	De=	Jupe_N3	A=
135	140	De=	SR_N3	A= Bride_N3
55	150	De=	A=	Piquage_N4
160	170	De=	A=	Bride_N4
56	180	De=	A=	Piquage_N5
190	200	De=	A=	Bride_N5
215	220	De=	Piquage_N6	A=
220	230	De=	A=	Bride_N6
80	240	De=	A=	VS_001
251	260	De=	CT_N1	A=
262	265	De=	A=	SG_5
272	276	De=	A=	SR_06
276	275	De=	A=	SR06_1
276	281	De=	A=	SR06_2
284	285	De=	A=	CP01_T
286	287	De=	CP01_C	A=
299	300	De=	A=	CP03_T
300	301	De=	A=	CP03_C
301	302	De=	CP03_C	A=
305	435	De=	A=	SR_07

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315	320	De=	A=	CP02_T
321	325	De=	CP02_C	A=
335	340	De=	A=	CP04_T
341	345	De=	CP04_C	A=
350	355	De=	A=	SR_8
355	360	De=	A=	Té_TH_700
390	395	De=	A=	SP_9
420	430	De=	A=	PF4_CPO
530	535	De=	DR_001	A=
548	545	De=	A=	SR_10
590	595	De=	A=	SR_11
595	596	De=	A=	SP_13
260	720	De=	A=	Té_VS_008
740	745	De=	A=	SG_04
760	770	De=	A=	Té_Gavage
780	790	De=	A=	CT_BF
791	795	De=	SP_03	A=
800	810	De=	SB_02	A=
810	820	De=	SG_01	A=
860	865	De=	A=	SP_14
872	875	De=	A=	SG_15
875	876	De=	A=	SR_15_1
875	877	De=	A=	SR_15_2
895	900	De=	A=	CT_REF_Gav
770	772	De=	A=	SG_16_1
775	910	De=	A=	Té_VS_007
910	915	De=	A=	SG_16_2
910	916	De=	A=	SR_16_1
910	917	De=	A=	SR_16_2
980	990	De=	A=	CT_ASP_Gav
1009	1005	De=	A=	SR_17
1090	1100	De=	A=	CT_ASP_Reg
200	1110	De=	A=	VS_005
1132	1135	De=	A=	SR_18
1160	1165	De=	A=	SR_19
1165	1170	De=	A=	Té_ATRE
1185	1186	De=	A=	SG_20
1185	1184	De=	A=	SR_20_2
1185	1183	De=	A=	SR_20_1
1200	1210	De=	A=	CT_REF_Reg
1219	1225	De=	A=	SP_24
1211	1212	De=	A=	CT_03
1240	1242	De=	Réchauffer	A=
1242	1245	De=	A=	PG_ATRE
1252	1255	De=	A=	PF_ATRE
1250	1260	De=	CT_04	A=
1310	1315	De=	A=	CT_05
1320	1325	De=	A=	PF_21
1329	1335	De=	A=	SG_22
1345	1350	De=	A=	SP_23
1370	1380	De=	A=	VS_011
1390	514	De=	A=	Té_VS_011

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230	1400	De=	A=	VS_006
1410	1415	De=	A=	SP_26
1440	1445	De=	A=	SP_31
1450	1451	De=	A=	SP_27
1452	1455	De=	A=	SP_28
1470	1475	De=	A=	SG_29
170	1500	De=	A=	VS_004
1530	1540	De=	A=	SR_30

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## Changement de MATERIAUX:

10 GC_Jupe	20	Mat= (457)EN 10028-7 304L E= 197,000 N./sq.mm. v = .300 Density= 7,900.0000 kg/cu.m.
20	25	Density=77,625.0000 kg/cu.m.
65 Piquage_N1	70	Density= 7,900.0000 kg/cu.m.
775	995	Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. v = .300 Density= 7,900.0000 kg/cu.m.
1120	1130	Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. v = .300 Density= 7,900.0000 kg/cu.m.
1390	514 Té_VS_011	Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. v = .300 Density= 7,900.0000 kg/cu.m.
1400	1410	Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. v = .300 Density= 7,900.0000 kg/cu.m.
1510	1520	Mat= (455)EN 10217-7 304L E= 197,000 N./sq.mm. v = .300 Density= 7,900.0000 kg/cu.m.

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## Changement Contraintes Admissibles

10 GC_Jupe	20	CODETI (2004) Sc= 160 N./sq.mm. Sh1= 131 N./sq.mm. Sh2= 131 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 131 N./sq.mm. Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.
20	25	CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm. Sh7= 160 N./sq.mm. Sh8= 160 N./sq.mm. Sh9= 160 N./sq.mm. Sy= 200 N./sq.mm.
20	30	CODETI (2004) Sc= 160 N./sq.mm. Sh1= 98 N./sq.mm. Sh2= 98 N./sq.mm. Sh3= 160 N./sq.mm. Sh4= 98 N./sq.mm. Sh5= 160 N./sq.mm. Sh6= 160 N./sq.mm.

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		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
80	240 VS_001	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 150 N./sq.mm.	Sh2= 150 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 150 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
240	250	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 150 N./sq.mm.	Sh2= 150 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 150 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
272	276 SR_06	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
350	355 SR_8	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
385	390	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
390	395 SP_9	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 91 N./sq.mm.	Sh2= 145 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
420	430 PF4_CPO	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 91 N./sq.mm.	Sh2= 145 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
440	450	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
365	500	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.

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		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
535	540	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 160 N./sq.mm.	Sh2= 160 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
520	625	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
635	640	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 160 N./sq.mm.	Sh2= 160 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
360	660	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
260	720 Té_VS_008	CODETI (2004)	Sc= 160 N./sq.mm.
		Sh1= 150 N./sq.mm.	Sh2= 150 N./sq.mm.
		Sh3= 160 N./sq.mm.	Sh4= 150 N./sq.mm.
		Sh5= 160 N./sq.mm.	Sh6= 160 N./sq.mm.
		Sh7= 160 N./sq.mm.	Sh8= 160 N./sq.mm.
		Sh9= 160 N./sq.mm.	Sy= 200 N./sq.mm.
775	995	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 137 N./sq.mm.	Sh2= 137 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 137 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1120	1130	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 137 N./sq.mm.	Sh2= 137 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 137 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1250 CT_04	1260	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 98 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.

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1260	1270	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 98 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1370	1380 VS_011	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1390	514 Té_VS_011	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 91 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
230	1400 VS_006	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 98 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1400	1410	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 137 N./sq.mm.	Sh2= 143 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 137 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1450	1451 SP_27	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 95 N./sq.mm.	Sh2= 143 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 95 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
170	1500 VS_004	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 98 N./sq.mm.	Sh2= 98 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 98 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1501	1510	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 95 N./sq.mm.	Sh2= 143 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 95 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.
		Sh7= 143 N./sq.mm.	Sh8= 143 N./sq.mm.
		Sh9= 143 N./sq.mm.	Sy= 180 N./sq.mm.
1510	1520	CODETI (2004)	Sc= 143 N./sq.mm.
		Sh1= 95 N./sq.mm.	Sh2= 143 N./sq.mm.
		Sh3= 143 N./sq.mm.	Sh4= 95 N./sq.mm.
		Sh5= 143 N./sq.mm.	Sh6= 143 N./sq.mm.

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Sh7= 143 N./sq.mm. Sh8= 143 N./sq.mm.

Sh9= 143 N./sq.mm. Sy= 180 N./sq.mm.

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## COUDES

125	Piquage_N3	130	Rayon= 610.000 mm. (user)
			Angle Coude= 89.427 Angle/Noeud @1= 44.71
129			
265		270	Rayon= 1,220.000 mm. (SHORT
			Angle Coude= 89.994 Angle/Noeud @1= 15.00
267			Angle/Noeud @2= 45.00 268
			Angle/Noeud @3= 75.00 269 Secteur= 3
274		280	Rayon= 1,220.000 mm. (SHORT
			Angle Coude= 90.573 Angle/Noeud @1= 15.00
277			Angle/Noeud @2= 45.00 278
			Angle/Noeud @3= 75.00 279 Secteur= 3
302		305	Rayon= 1,000.000 mm. (user)
			Angle Coude= 89.427 Angle/Noeud @1= 15.00
306			Angle/Noeud @2= 45.00 307
			Angle/Noeud @3= 75.00 308 Secteur= 3
445		310	Rayon= 1,000.000 mm. (user)
			Angle Coude= 89.623 Angle/Noeud @1= 15.00
311			Angle/Noeud @2= 45.00 312
			Angle/Noeud @3= 75.00 313 Secteur= 3
345		350	Rayon= 1,000.000 mm. (user)
			Angle Coude= 89.623 Angle/Noeud @1= 15.00
337			Angle/Noeud @2= 45.00 338
			Angle/Noeud @3= 75.00 339 Secteur= 3
366		370	Rayon= 1,220.000 mm. (user)
			Angle Coude= 45.573 Angle/Noeud @1= 11.25
368			Angle/Noeud @2= 33.75 369 Secteur= 2
370		380	Rayon= 1,220.000 mm. (user)
			Angle Coude= 44.427 Angle/Noeud @1= 11.25
378			Angle/Noeud @2= 33.75 379 Secteur= 2
500		505	Rayon= 900.000 mm. (user)
			Angle Coude= 45.000 Angle/Noeud @1= 11.25
503			Angle/Noeud @2= 33.75 504 Secteur= 2
505		510	Rayon= 900.000 mm. (user)
			Angle Coude= 45.000 Angle/Noeud @1= 11.25
508			Angle/Noeud @2= 33.75 509 Secteur= 2
540		550	Rayon= 920.000 mm. (SHORT
			Angle Coude= 89.427 Angle/Noeud @1= 15.00
547			Angle/Noeud @2= 45.00 548
			Angle/Noeud @3= 75.00 549 Secteur= 3
550		560	Rayon= 920.000 mm. (SHORT
			Angle Coude= 90.573 Angle/Noeud @1= 15.00
557			Angle/Noeud @2= 45.00 558
			Angle/Noeud @3= 75.00 559 Secteur= 3
596		600	Rayon= 1,200.000 mm. (user)
			Angle Coude= 29.999 Angle/Noeud @1= 7.50



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600	610	598 Angle/Noeud @2= 22.50 599 Secteur= 2 Rayon= 1,200.000 mm. (user) Angle Coude= 29.999 Angle/Noeud @1= 7.50
640	645	608 Angle/Noeud @2= 22.50 609 Secteur= 2 Rayon= 920.000 mm. (SHORT Angle Coude= 89.427 Angle/Noeud @1= 15.00
865	870	642 Angle/Noeud @2= 45.00 643 Angle/Noeud @3= 75.00 644 Secteur= 3 Rayon= 1,220.000 mm. (SHORT Angle Coude= 89.427 Angle/Noeud @1= 15.00
950	960	867 Angle/Noeud @2= 45.00 868 Angle/Noeud @3= 75.00 869 Secteur= 3 Rayon= 1,200.000 mm. (user) Angle Coude= 90.000 Angle/Noeud @1= 15.00
995	1000	957 Angle/Noeud @2= 45.00 958 Angle/Noeud @3= 75.00 959 Secteur= 3 Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 48.57
1002	1010	999 Angle/Noeud @2= .00 998 Rayon= 914.400 mm. (LONG) Angle Coude= 90.000 Angle/Noeud @1= .00
1120	1130	1008 Angle/Noeud @2= 41.41 1009 Rayon= 914.400 mm. (LONG) Angle Coude= 90.573 Angle/Noeud @1= 45.29
1135	1140	1129 Angle/Noeud @2= .00 1128 Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 44.71
1140	1150	1139 Angle/Noeud @2= .00 1138 Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 44.71
1150	1160	1149 Angle/Noeud @2= .00 1148 Rayon= 914.400 mm. (LONG) Angle Coude= 89.999 Angle/Noeud @1= 45.00
1175	1180	1159 Angle/Noeud @2= .00 1158 Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 44.71
1216	1220	1179 Angle/Noeud @2= .00 1178 Rayon= 609.600 mm. (SHORT Angle Coude= 90.000 Angle/Noeud @1= 45.00
1260	1270	1219 Angle/Noeud @2= .00 1218 Rayon= 914.400 mm. (LONG) Angle Coude= 25.002 Angle/Noeud @1= 12.50
1270	1280	1269 Angle/Noeud @2= .00 1268 Rayon= 914.400 mm. (LONG) Angle Coude= 90.242 Angle/Noeud @1= 45.12
1286	1290	1279 Rayon= 914.400 mm. (LONG) Angle Coude= 14.999 Angle/Noeud @1= 7.50
1320	1330	1292 Angle/Noeud @2= .00 1291 Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 44.71
		1329 Angle/Noeud @2= .00 1328

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1330	1340	Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 44.71 1339 Angle/Noeud @2= .00 1338
1343	1345	Rayon= 914.400 mm. (LONG) Angle Coude= 89.994 Angle/Noeud @1= 45.00 1349 Angle/Noeud @2= .00 1348
1400	1410	Rayon= 610.000 mm. (user) Angle Coude= 90.000 Angle/Noeud @1= 15.00 1417 Angle/Noeud @2= 45.00 1418
1415	1420	Angle/Noeud @3= 75.00 1419 Secteur= 3 Rayon= 914.400 mm. (LONG) Angle Coude= 90.573 Angle/Noeud @1= 45.29 1421 Angle/Noeud @2= .00 1422
1425	1430	Rayon= 609.600 mm. (SHORT) Angle Coude= 29.998 Angle/Noeud @1= 7.50 1428 Angle/Noeud @2= 22.50 1429 Secteur= 2
1455	1460	Rayon= 914.400 mm. (LONG) Angle Coude= 89.994 Angle/Noeud @1= 45.00 1459 Angle/Noeud @2= .00 1458
1460	1470	Rayon= 914.400 mm. (LONG) Angle Coude= 90.006 Angle/Noeud @1= 45.00 1469 Angle/Noeud @2= .00 1468
1475	1480	Rayon= 914.400 mm. (LONG) Angle Coude= 89.427 Angle/Noeud @1= 44.71 1479 Angle/Noeud @2= .00 1478
1510	1520	Rayon= 609.600 mm. (SHORT) Angle Coude= 57.271 Angle/Noeud @1= 28.64 1519 Angle/Noeud @2= .00 1518
1520	1525	Rayon= 914.400 mm. (LONG) Angle Coude= 32.672 Angle/Noeud @1= 16.34 1524 Angle/Noeud @2= .00 1523

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- - - - - P o i d s   E l ,   m e n t s   R i g i d e s - - -

NOEUD RIGIDES	POIDS EL. RIGIDES	
De      A	pounds	
70	80 Bride_N1	RIGID Weight= 1,720.00 N.
40	100	RIGID Weight= .00 N.
110	120 Bride_N2	RIGID Weight= 3,130.00 N.
135 SR_N3	140 Bride_N3	RIGID Weight= 735.00 N.
140	145	RIGID Weight= 3,500.00 N.
145	146	RIGID Weight= 735.00 N.
55	150 Piquage_N4	RIGID Weight= .00 N.
160	170 Bride_N4	RIGID Weight= 348.00 N.
56	180 Piquage_N5	RIGID Weight= .00 N.

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190	200	Bride_N5	RIGID	Weight=	348.00 N.
30	210		RIGID	Weight=	.00 N.
220	230	Bride_N6	RIGID	Weight=	348.00 N.
80	240	VS_001	RIGID	Weight=	6,300.00 N.
271	272		RIGID	Weight=	3,130.00 N.
272	276	SR_06	RIGID	Weight=	1,000.00 N.
276	273		RIGID	Weight=	1,000.00 N.
276	275	SR06_1	RIGID	Weight=	.00 N.
276	281	SR06_2	RIGID	Weight=	.00 N.
273	274		RIGID	Weight=	3,130.00 N.
284	285	CP01_T	RIGID	Weight=	2,750.00 N.
286 CP01_C	287		RIGID	Weight=	2,750.00 N.
299	300	CP03_T	RIGID	Weight=	2,750.00 N.
301 CP03_C	302		RIGID	Weight=	2,750.00 N.
315	320	CP02_T	RIGID	Weight=	1,600.00 N.
321 CP02_C	325		RIGID	Weight=	1,600.00 N.
335	340	CP04_T	RIGID	Weight=	1,600.00 N.
341 CP04_C	345		RIGID	Weight=	1,600.00 N.
385	390		RIGID	Weight=	2,950.00 N.
390	395	SP_9	RIGID	Weight=	17,500.00 N.
395	400		RIGID	Weight=	17,500.00 N.
400	405		RIGID	Weight=	2,950.00 N.
410	415		RIGID	Weight=	2,950.00 N.
415	420		RIGID	Weight=	2,950.00 N.
450	460		RIGID	Weight=	3,130.00 N.
460	120		RIGID	Weight=	20,000.00 N.
525	530		RIGID	Weight=	1,420.00 N.
530 DR_001	535		RIGID	Weight=	50.00 N.
535	540		RIGID	Weight=	1,420.00 N.
548	545	SR_10	RIGID	Weight=	.00 N.
625	630		RIGID	Weight=	1,420.00 N.
630	635		RIGID	Weight=	50.00 N.
635	640		RIGID	Weight=	1,420.00 N.
660	670		RIGID	Weight=	3,130.00 N.
670	680		RIGID	Weight=	8,470.00 N.
690	700		RIGID	Weight=	770.00 N.
700	710		RIGID	Weight=	1,840.00 N.
730	740		RIGID	Weight=	1,720.00 N.
740	745	SG_04	RIGID	Weight=	3,150.00 N.
745	750		RIGID	Weight=	3,150.00 N.
750	760		RIGID	Weight=	1,720.00 N.
780	790	CT_BF	RIGID	Weight=	1,720.00 N.
800 SB_02	810		RIGID	Weight=	120000.00 N.
830	840		RIGID	Weight=	1,720.00 N.
840	850		RIGID	Weight=	6,300.00 N.
850	860		RIGID	Weight=	1,720.00 N.
875	876	SR_15_1	RIGID	Weight=	.00 N.
875	877	SR_15_2	RIGID	Weight=	.00 N.
895	900	CT_REF_Gav	RIGID	Weight=	200.00 N.
910	916	SR_16_1	RIGID	Weight=	.00 N.
910	917	SR_16_2	RIGID	Weight=	.00 N.
920	930		RIGID	Weight=	1,720.00 N.

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930	950	RIGID	Weight= 1,720.00 N.
958	955	RIGID	Weight= .00 N.
980	990 CT_ASP_Gav	RIGID	Weight= 150.00 N.
1009	1005 SR_17	RIGID	Weight= .00 N.
1020	1030	RIGID	Weight= 348.00 N.
1030	1040	RIGID	Weight= 1,600.00 N.
1040	1050	RIGID	Weight= 348.00 N.
200	1110 VS_005	RIGID	Weight= 1,600.00 N.
1185	1184 SR_20_2	RIGID	Weight= .00 N.
1185	1183 SR_20_1	RIGID	Weight= .00 N.
1219	1225 SP_24	RIGID	Weight= .00 N.
1213	1215	RIGID	Weight= 696.00 N.
1230	1240	RIGID	Weight= 348.00 N.
1240 Réchauffer	1242	RIGID	Weight= .00 N.
1242	1252	RIGID	Weight= 8,500.00 N.
1252	1251	RIGID	Weight= .00 N.
1242	1245 PG_ATRE	RIGID	Weight= .00 N.
1252	1255 PF_ATRE	RIGID	Weight= .00 N.
1250 CT_04	1260	RIGID	Weight= 348.00 N.
1310	1315 CT_05	RIGID	Weight= 735.00 N.
1320	1325 PF_21	RIGID	Weight= .00 N.
1329	1335 SG_22	RIGID	Weight= .00 N.
1360	1370	RIGID	Weight= 348.00 N.
1370	1380 VS_011	RIGID	Weight= 4,000.00 N.
1380	1390	RIGID	Weight= 348.00 N.
230	1400 VS_006	RIGID	Weight= 2,850.00 N.
170	1500 VS_004	RIGID	Weight= 2,500.00 N.
1501	1510	RIGID	Weight= 348.00 N.

#### SIF's & TEE's

251 CT_N1	260	Node 260	Unreinforced Tee
		Pad= 10.000 mm.	
435	440	Node 440	Unreinforced Tee
365	500	Node 365	Unreinforced Tee
515	520	Node 520	Unreinforced Tee
		Pad= 10.000 mm.	
570	580	Node 570	<No Type Specified>
		Sif(in)= 2.500	Sif(out)= 2.500
		Node 580	<No Type Specified>
		Sif(in)= 2.500	Sif(out)= 2.500
645	590	Node 590	Reinforced Tee Pad= 10.000 mm.
360	660	Node 360	Unreinforced Tee
360	690	Node 360	Unreinforced Tee
720	830	Node 720	Unreinforced Tee
		Pad= 10.000 mm.	
880	890	Node 880	<No Type Specified>
		Sif(in)= 2.500	Sif(out)= 2.500
		Node 890	<No Type Specified>
		Sif(in)= 2.500	Sif(out)= 2.500
770	772 SG_16_1	Node 770	Unreinforced Tee

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965	970	Pad= 10.000 mm. Node 965 <No Type Specified> Sif(in)= 2.500 Sif(out)= 2.500 Node 970 <No Type Specified> Sif(in)= 2.500 Sif(out)= 2.500
775	995	Node 775 Reinforced Tee Pad= 10.000 mm.
1190	1195	Node 1190 <No Type Specified> Sif(in)= 2.500 Sif(out)= 2.500 Node 1195 <No Type Specified> Sif(in)= 2.500 Sif(out)= 2.500
1170	1211	Node 1170 Welding Tee
1285	1320	Node 1285 Welding Tee
1390	514 Té_VS_011	Node 514 Reinforced Tee Pad= 10.000 mm.
1540	1450	Node 1450 Reinforced Tee Pad= 8.000 mm.

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## RIGIDITE ET DIAMETRE EFFECTIF SOUFFLET DE DILATATION

285	286	Axial K= 690 N./mm. Trans K= 160,389 N./mm. Flex K= 2,427 N.m./deg Tors K= 1,000,000 N.m./deg Dia Eff=1,270.000 mm.
300	301 CP03_C	Axial K= 690 N./mm. Trans K= 160,389 N./mm. Flex K= 2,427 N.m./deg Tors K= 1,000,000 N.m./deg Dia Eff=1,270.000 mm.
320	321	Axial K= 690 N./mm. Trans K= 160,389 N./mm. Flex K= 2,427 N.m./deg Tors K= 1,000,000 N.m./deg Dia Eff=1,270.000 mm.
340	341	Axial K= 690 N./mm. Trans K= 160,389 N./mm. Flex K= 2,427 N.m./deg Tors K= 1,000,000 N.m./deg Dia Eff=1,270.000 mm.

## REDUCERS

570	580	Diam2= 1,220.000 mm. Wall2= 10.000 mm.
795	800	Diam2= 3,450.000 mm. Wall2= 15.000 mm.
880	890	Diam2= 1,000.000 mm. Wall2= 10.000 mm.
965	970	Diam2= 1,020.000 mm. Wall2= 10.000 mm.
1060	1070	Diam2= 406.400 mm. Wall2= 4.780 mm.
1190	1195	Diam2= 406.400 mm. Wall2= 4.780 mm.

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RESTRICTIONS

Len

MU

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Listing CAESAR

NOEUD	TYPE	CNOEUD	STIF1	JEU STIF2	FORCE FROTTEMENT	Dir Vecteurs
10	ANC				.000	.000 .000
65	ANC	60			.000	.000 .000
125	ANC	25			.000	.000 .000
134	Y			5.00	-.259	.966 .000
134	Z			8.67	.000	.000 1.000
150	ANC	155			.000	.000 .000
180	ANC	185			.000	.000 .000
251	X	250		15.00	1.000	.000 .000
251	Y	250		15.00	.000	-1.000 .000
265	Y				.000	-1.000 .000
265	+Z				.000	.000 1.000
285	X	286			1.000	.000 .000
285	Y	286			.000	-1.000 .000
285	Z	286			.000	.000 1.000
286	RZ	285			.000	.000 1.000
300	X	301			1.000	.000 .000
300	Y	301			.000	-1.000 .000
300	Z	301			.000	.000 1.000
301	RZ	300			.000	.000 1.000
320	X	321			-.754	.000 -.657
320	Y	321			.000	-1.000 .000
320	Z	321			-.657	.000 .754
321	RX	320			-.754	.000 -.657
321	RY	320			.000	-1.000 .000
340	X	341			-.743	.000 -.669
340	Y	341			.000	-1.000 .000
340	Z	341			-.669	.000 .743
341	RX	340			-.743	.000 -.669
341	RY	340			.000	-1.000 .000
395	+Z				.000	.000 1.000
430	ANC				.000	.000 .000
596	Z				.000	.000 1.000
745	Y				.000	-1.000 .000
745	+Z				.000	.000 1.000
790	X	791		100.00	1.000	.000 .000
790	Y	791		35.00	.000	-1.000 .000
790	Z	791		35.00	.000	.000 1.000
791	+Z				.000	.000 1.000
800	X				1.000	.000 .000
800	Y				.000	-1.000 .000
800	Z				.000	.000 1.000
800	RX				1.000	.000 .000
810	Y				.000	-1.000 .000
810	Z				.000	.000 1.000
865	+Z				.000	.000 1.000
875	Guide				.000	.000 .000
772	X				1.000	.000 .000
915	Guide				.000	.000 .000
1186	X				1.000	.000 .000

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Tuyauteries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Listing CAESAR

1225	+Z			.000	.000	1.000
1212	X	1213	15.00	1.000	.000	.000
1212	Y	1213	15.00	.000	-1.000	.000
1212	Z	1213	100.00	.000	.000	1.000
1245	X			1.000	.000	.000
1245	Z			.000	.000	1.000
1245	RY			.000	-1.000	.000
1255	X			1.000	.000	.000
1255	Y			.000	-1.000	.000
1255	Z			.000	.000	1.000
1255	RY			.000	-1.000	.000
1250	X		15.00	1.000	.000	.000
1250	Y		100.00	.000	-1.000	.000
1250	Z		15.00	.000	.000	1.000
1315	X		100.00	.966	.259	.000
1315	Y		15.00	-.259	.966	.000
1315	Z		15.00	.000	.000	1.000
1325	ANC			.000	.000	.000
1335	+Z			.000	.000	1.000
1335	X			1.000	.000	.000
1350	+Z			.000	.000	1.000
1415	+Z			.000	.000	1.000
1445	+Z			.000	.000	1.000
1451	+Z			.000	.000	1.000
1455	+Z			.000	.000	1.000
1475	Y			.000	-1.000	.000
1475	Z			.000	.000	1.000
1500	Guide	1501	10.00	.000	.000	.000

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# DONNEES DE CONTROLE & POSITION BOITE A RESSORT

No. of Hanger Design Load Cases = 1  
Actual Cold Load Flag = 0.0  
Short Range Spring Flag = 1  
Allowed Load Variation (%) = 25.0000  
Default Hanger Table = 5

135 SR_N3	140 Bride_N3	Hanger Node = 135 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.
-----------	--------------	--

276	275 SR06_1	Hanger Node = 275 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0
-----	------------	---

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Listing CAESARFree Node = 0 Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

276	281 SR06_2	Hanger Node = 281 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.
305	435 SR_07	Hanger Node = 435 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.
350	355 SR_8	Hanger Node = 355 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 1 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.
548	545 SR_10	Hanger Node = 545 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.
590	595 SR_11	Hanger Node = 595 Available Space = .0000 mm. Allowed Load Variation = 25.0000 No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N. Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./mm. Theoretical Cold Load = .00 N.
875	876 SR_15_1	Hanger Node = 876 Available Space = .0000 mm. Allowed Load Variation = 25.0000



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Listing CAESAR

No. Hangers = 1    Short Range Flag = -1  
User Operating Load = .00 N.    Free Node = 0  
Free Node = 0    Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

875                    877 SR\_15\_2

Hanger Node = 877  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 1    Short Range Flag = -1  
User Operating Load = .00 N.    Free Node = 0  
Free Node = 0    Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

910                    916 SR\_16\_1

Hanger Node = 916  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 1    Short Range Flag = -1  
User Operating Load = .00 N.    Free Node = 0  
Free Node = 0    Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

910                    917 SR\_16\_2

Hanger Node = 917  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 1    Short Range Flag = -1  
User Operating Load = .00 N.    Free Node = 0  
Free Node = 0    Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

1009                    1005 SR\_17

Hanger Node = 1005  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 1    Short Range Flag = -1  
User Operating Load = .00 N.    Free Node = 0  
Free Node = 0    Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

1132                    1135 SR\_18

Hanger Node = 1135  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 0.0    Short Range Flag = -1  
User Operating Load = .00 N.    Free Node = 0  
Free Node = 0    Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

1160                    1165 SR\_19

Hanger Node = 1165

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Listing CAESAR

Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 0.0 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0  
Free Node = 0 Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

1185 1184 SR\_20\_2

Hanger Node = 1184  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 0.0 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0  
Free Node = 0 Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

1185 1183 SR\_20\_1

Hanger Node = 1183  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 0.0 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0  
Free Node = 0 Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

1530 1540 SR\_30

Hanger Node = 1540  
Available Space = .0000 mm.  
Allowed Load Variation = 25.0000  
No. Hangers = 0.0 Short Range Flag = -1  
User Operating Load = .00 N. Free Node = 0  
Free Node = 0 Free Code = 0.0  
Spring Rate = .00 N./mm.  
Theoretical Cold Load = .00 N.

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WRC 297 FLEXIBILITE DES TUBULURES

40

100

Tubulure Noeud = 105  
Tubulure Noeud Connexion = 100  
Tubulure DE = 1,220.000 mm.  
Tubulure Ep = 10.000 mm.  
Appareil DE = 6,604.000 mm.  
Appareil Ep = 10.000 mm.  
Appareil Ep Renf = 10.000 mm.  
Distance Support = 840.000 mm.  
Distance Support Oppos, = 3,560.000 mm.  
Appareil Temp = 200.00 C  
Vessel Mat = 453  
Appareil Orientation = .0000 .0000  
1.0000

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Listing CAESAR

30                      210                      Tubulure Noeud        = 215  
Tubulure Noeud Connexion = 210  
Tubulure DE                = 610.000 mm.  
Tubulure Ep = 6.350 mm.  
Appareil DE                = 6,604.000 mm.  
Appareil Ep = 10.000 mm.  
Distance Support = 397.000 mm.  
Distance Support Oppos, = 4,003.000 mm.  
Appareil Temp            = 200.00 C  
Vessel Mat = 453  
Appareil Orientation = .0000            .0000  
1.0000

**FLANGES**

70                      80 Bride\_N1                      Location= To        Method= Peq  
Class/Grade= ASME-2003-150-2.3  
G/C= 1,273.620 mm.        T/P table ( 1)= 37.8 C  
-> 15.9 bars        ( 2)= 93.3 C        -> 13.4 bars  
( 3)= 148.9 C        -> 12.1 bars  
( 4)= 204.5 C        -> 11.0 bars  
( 5)= 260.0 C        -> 10.3 bars  
( 6)= 315.6 C        -> 9.7 bars  
( 7)= 343.4 C        -> 8.6 bars  
( 8)= 371.1 C        -> 7.6 bars  
( 9)= 398.9 C        -> 6.5 bars  
(10)= 426.7 C        -> 5.5 bars  
(11)= 454.5 C        -> 4.5 bars

110                      120 Bride\_N2                      Location= To        Method= Peq  
Class/Grade= ASME-2003-150-2.3  
G/C= 1,273.620 mm.        T/P table ( 1)= 37.8 C  
-> 15.9 bars        ( 2)= 93.3 C        -> 13.4 bars  
( 3)= 148.9 C        -> 12.1 bars  
( 4)= 204.5 C        -> 11.0 bars  
( 5)= 260.0 C        -> 10.3 bars  
( 6)= 315.6 C        -> 9.7 bars  
( 7)= 343.4 C        -> 8.6 bars  
( 8)= 371.1 C        -> 7.6 bars  
( 9)= 398.9 C        -> 6.5 bars  
(10)= 426.7 C        -> 5.5 bars  
(11)= 454.5 C        -> 4.5 bars

135 SR\_N3                      140 Bride\_N3                      Location= To        Method= Peq  
Class/Grade= ASME-2003-150-2.3  
G/C= 670.200 mm.        T/P table ( 1)= 37.8 C  
-> 15.9 bars        ( 2)= 93.3 C        -> 13.4 bars  
( 3)= 148.9 C        -> 12.1 bars  
( 4)= 204.5 C        -> 11.0 bars  
( 5)= 260.0 C        -> 10.3 bars  
( 6)= 315.6 C        -> 9.7 bars  
( 7)= 343.4 C        -> 8.6 bars  
( 8)= 371.1 C        -> 7.6 bars

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Listing CAESAR

		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
160	170 Bride_N4	Location= To Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 670.200 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
190	200 Bride_N5	Location= To Method= Peq
		G/C= 670.200 mm.
220	230 Bride_N6	Location= To Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 670.200 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
240	250	Location= From Method= Peq
		G/C= 1,273.620 mm.
271	272	Location= To Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
273	274	Location= From Method= Peq
385	390	Location= To Method= Peq
		Class/Grade= EN-1092-10EO-PN25
		G/C= 1,359.000 mm. T/P table ( 1)= 50.0 C
		-> 25.0 bars ( 2)= 100.0 C -> 21.5 bars
		( 3)= 150.0 C -> 19.2 bars

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Listing CAESAR

		( 4)= 200.0 C -> 17.5 bars
		( 5)= 250.0 C -> 16.3 bars
		( 6)= 300.0 C -> 15.1 bars
		( 7)= 350.0 C -> 14.4 bars
		( 8)= 400.0 C -> 13.8 bars
		( 9)= 450.0 C -> 13.3 bars
		(10)= 500.0 C -> 12.9 bars
400	405	Location= From Method= Peq
410	415	Location= To Method= Peq
415	420	Location= From Method= Peq
450	460	Location= To Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
365	500	Location= To Method= Peq
		Class/Grade= DIN-2003-PN10-9E0
		G/C= 982.000 mm. T/P table ( 1)= 50.0 C
		-> 10.0 bars ( 2)= 100.0 C -> 10.0 bars
		( 3)= 150.0 C -> 10.0 bars
		( 4)= 200.0 C -> 10.0 bars
		( 5)= 250.0 C -> 10.0 bars
		( 6)= 300.0 C -> 10.0 bars
		( 7)= 350.0 C -> 10.0 bars
		( 8)= 400.0 C -> 10.0 bars
		( 9)= 425.0 C -> 10.0 bars
		(10)= 450.0 C -> 10.0 bars
		(11)= 475.0 C -> 10.0 bars
		(12)= 500.0 C -> 10.0 bars
		(13)= 510.0 C -> 9.1 bars
		(14)= 520.0 C -> 8.3 bars
		(15)= 530.0 C -> 7.4 bars
		(16)= 550.0 C -> 5.7 bars
514	515	Location= To Method= Peq
		Class/Grade= DIN-2003-PN10-9E0
		G/C= 982.000 mm. T/P table ( 1)= 50.0 C
		-> 10.0 bars ( 2)= 100.0 C -> 10.0 bars
		( 3)= 150.0 C -> 10.0 bars
		( 4)= 200.0 C -> 10.0 bars
		( 5)= 250.0 C -> 10.0 bars
		( 6)= 300.0 C -> 10.0 bars
		( 7)= 350.0 C -> 10.0 bars
		( 8)= 400.0 C -> 10.0 bars
		( 9)= 425.0 C -> 10.0 bars

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Listing CAESAR

		(10)= 450.0 C -> 10.0 bars
		(11)= 475.0 C -> 10.0 bars
		(12)= 500.0 C -> 10.0 bars
		(13)= 510.0 C -> 9.1 bars
		(14)= 520.0 C -> 8.3 bars
		(15)= 530.0 C -> 7.4 bars
		(16)= 550.0 C -> 5.7 bars
525	530	Location= To Method= Peq
		G/C= 987.630 mm.
535	540	Location= To Method= Peq
580	585	Location= To Method= Peq
625	630	Location= To Method= Peq
		G/C= 987.630 mm.
635	640	Location= To Method= Peq
660	670	Location= To Method= Peq
		G/C= 1,282.000 mm.
670	680	Location= From Method= Peq
690	700	Location= To Method= Peq
		Class/Grade= DIN-2003-PN6-9E0
		G/C= 775.000 mm. T/P table ( 1)= 50.0 C
		-> 6.0 bars ( 2)= 100.0 C -> 6.0 bars
		( 3)= 150.0 C -> 6.0 bars
		( 4)= 200.0 C -> 6.0 bars
		( 5)= 250.0 C -> 6.0 bars
		( 6)= 300.0 C -> 6.0 bars
		( 7)= 350.0 C -> 6.0 bars
		( 8)= 400.0 C -> 6.0 bars
		( 9)= 425.0 C -> 6.0 bars
		(10)= 450.0 C -> 6.0 bars
		(11)= 475.0 C -> 6.0 bars
		(12)= 500.0 C -> 6.0 bars
		(13)= 510.0 C -> 5.5 bars
		(14)= 520.0 C -> 5.0 bars
		(15)= 530.0 C -> 4.4 bars
		(16)= 550.0 C -> 3.4 bars
700	710	Location= From Method= Peq
730	740	Location= To Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
750	760	Location= From Method= Peq
780	790 CT_BF	Location= To Method= Peq
830	840	Location= To Method= Peq

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		Class/Grade= ASME-2003-150-2.3
		G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
850	860	Location= To Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 1,273.620 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
895	900 CT_REF_Gav	Location= To Method= Peq
920	930	Location= To Method= Peq
930	950	Location= From Method= Peq
980	990 CT_ASP_Gav	Location= To Method= Peq
775	995	Location= To Method= Peq
		G/C= 674.000 mm.
995	1000	Location= From Method= Peq
1020	1030	Location= From Method= Peq
		G/C= 670.200 mm.
1040	1050	Location= From Method= Peq
1090	1100 CT_ASP_Reg	Location= From Method= Peq
1110	1120	Location= From Method= Peq
		G/C= 670.200 mm.
1130	1132	Location= To Method= Peq
1200	1210 CT_REF_Reg	Location= To Method= Peq
1170	1211	Location= To Method= Peq
1211	1212 CT_03	Location= To Method= Peq
1215	1216	Location= From Method= Peq
1230	1240	Location= To Method= Peq
		Class/Grade= DIN-2003-PN10-9E0
		G/C= 674.000 mm. T/P table ( 1)= 50.0 C
		-> 10.0 bars ( 2)= 100.0 C -> 10.0 bars
		( 3)= 150.0 C -> 10.0 bars
		( 4)= 200.0 C -> 10.0 bars
		( 5)= 250.0 C -> 10.0 bars
		( 6)= 300.0 C -> 10.0 bars
		( 7)= 350.0 C -> 10.0 bars

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		( 8)= 400.0 C -> 10.0 bars
		( 9)= 425.0 C -> 10.0 bars
		(10)= 450.0 C -> 10.0 bars
		(11)= 475.0 C -> 10.0 bars
		(12)= 500.0 C -> 10.0 bars
		(13)= 510.0 C -> 9.1 bars
		(14)= 520.0 C -> 8.3 bars
		(15)= 530.0 C -> 7.4 bars
		(16)= 550.0 C -> 5.7 bars
1250 CT_04	1260	Location= From Method= Peq
1310	1315 CT_05	Location= To Method= Peq
1360	1370	Location= To Method= Peq
		G/C= 670.200 mm.
1380	1390	Location= From Method= Peq
230	1400 VS_006	Location= To Method= Peq
1430	1440	Location= To Method= Peq
		Class/Grade= DIN-2003-PN10-9E0
		G/C= 674.000 mm. T/P table ( 1)= 50.0 C
		-> 10.0 bars ( 2)= 100.0 C -> 10.0 bars
		( 3)= 150.0 C -> 10.0 bars
		( 4)= 200.0 C -> 10.0 bars
		( 5)= 250.0 C -> 10.0 bars
		( 6)= 300.0 C -> 10.0 bars
		( 7)= 350.0 C -> 10.0 bars
		( 8)= 400.0 C -> 10.0 bars
		( 9)= 425.0 C -> 10.0 bars
		(10)= 450.0 C -> 10.0 bars
		(11)= 475.0 C -> 10.0 bars
		(12)= 500.0 C -> 10.0 bars
		(13)= 510.0 C -> 9.1 bars
		(14)= 520.0 C -> 8.3 bars
		(15)= 530.0 C -> 7.4 bars
		(16)= 550.0 C -> 5.7 bars
1440	1445 SP_31	Location= From Method= Peq
1451	1452	Location= To Method= Peq
1452	1455 SP_28	Location= From Method= Peq
1501	1510	Location= From Method= Peq
		Class/Grade= ASME-2003-150-2.3
		G/C= 670.200 mm. T/P table ( 1)= 37.8 C
		-> 15.9 bars ( 2)= 93.3 C -> 13.4 bars
		( 3)= 148.9 C -> 12.1 bars
		( 4)= 204.5 C -> 11.0 bars
		( 5)= 260.0 C -> 10.3 bars
		( 6)= 315.6 C -> 9.7 bars
		( 7)= 343.4 C -> 8.6 bars
		( 8)= 371.1 C -> 7.6 bars
		( 9)= 398.9 C -> 6.5 bars
		(10)= 426.7 C -> 5.5 bars
		(11)= 454.5 C -> 4.5 bars
1525	1530	Location= To Method= Peq
		Class/Grade= DIN-2003-PN10-9E0
		G/C= 674.000 mm. T/P table ( 1)= 50.0 C



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-> 10.0 bars ( 2)= 100.0 C -> 10.0 bars  
( 3)= 150.0 C -> 10.0 bars  
( 4)= 200.0 C -> 10.0 bars  
( 5)= 250.0 C -> 10.0 bars  
( 6)= 300.0 C -> 10.0 bars  
( 7)= 350.0 C -> 10.0 bars  
( 8)= 400.0 C -> 10.0 bars  
( 9)= 425.0 C -> 10.0 bars  
(10)= 450.0 C -> 10.0 bars  
(11)= 475.0 C -> 10.0 bars  
(12)= 500.0 C -> 10.0 bars  
(13)= 510.0 C -> 9.1 bars  
(14)= 520.0 C -> 8.3 bars  
(15)= 530.0 C -> 7.4 bars  
(16)= 550.0 C -> 5.7 bars

1530 1540 SR\_30 Location= From Method= Peq  
Projet: C:\HERVE\AFFAIRES\_ACE\CEPR\_ENDEL\CE...\TUYAUTERIES\_SÉCHEUR\_CHAUMECA\_V3

## FORCES ET MOMENTS

530 DR_001	535	Noeud 535	FX1= -97,360.00 N.
			FX2= -97,360.00 N.
540	550	Noeud 550	FX1= 97,360.00 N.
			FX2= 97,360.00 N.
550	560	Noeud 560	FX1= 12,330.00 N.
			FX2= 6,180.00 N.
615	620	Noeud 620	FX1= 15,850.00 N.
			FX2= 15,850.00 N.
630	635	Noeud 635	FX2= 97,360.00 N.
640	645	Noeud 645	FX2= -97,360.00 N.

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## ELEMENTS DECALES

548	545 SR_10	FoffX= 269.46 mm.	FoffZ= -378.05 mm.
958	955	FoffY= -322.18 mm.	FoffZ= -531.42 mm.
1009	1005 SR_17	FoffX= 114.37 mm.	FoffY= -198.10 mm.
		FoffZ= -201.74 mm.	
1219	1225 SP_24	FoffY= 357.33 mm.	FoffZ= -501.33 mm.
1329	1335 SG_22	FoffY= 228.71 mm.	FoffZ= -201.78 mm.

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DONNEES D'ENTREE UTILISEES...

UNITS= ACE-UNIT NOM/SCH INPUT= ON

LENGTH	inches	x	25.400	=	mm.
FORCE	pounds	x	4.448	=	N.
MASS (dynamics)	pounds	x	0.454	=	kg.
MOMENTS (INPUT)	inch-pounds	x	0.113	=	N.m.
MOMENTS (OUTPUT)	inch-pounds	x	0.113	=	N.m.

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STRESS	lbs./sq.in.	x	0.007	=	N./sq.mm.
TEMP. SCALE	degrees F.	x	0.556	=	C
PRESSURE	psig	x	0.069	=	bars
ELASTIC MODULUS	lbs./sq.in.	x	0.007	=	N./sq.mm.
PIPE DENSITY	lbs./cu.in.	x	27680.000	=	kg/cu.m.
INSULATION DENS.	lbs./cu.in.	x	27680.000	=	kg/cu.m.
FLUID DENSITY	lbs./cu.in.	x	27680.000	=	kg/cu.m.
TRANSL. STIF	lbs./in.	x	0.175	=	N./mm.
ROTATIONAL STIF	in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD	lb./in.	x	0.175	=	N./mm.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	6.895	=	KN./sq.m.
ELEVATION	inches	x	25.400	=	mm.
COMPOUND LENGTH	inches	x	25.400	=	mm.
DIAMETER	inches	x	25.400	=	mm.
WALL THICKNESS	inches	x	25.400	=	mm.

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## PARAMETRES FICHIER INITIALISATION

-----

CONNECT GEOMETRY THRU CNODES = YES  
MIN ALLOWED BEND ANGLE = 5.00000  
MAX ALLOWED BEND ANGLE = 95.0000  
BEND LENGTH ATTACHMENT PERCENT = 1.00000  
MIN ANGLE TO ADJACENT BEND PT = 5.00000  
LOOP CLOSURE TOLERANCE = 25.4000 mm.  
THERMAL BOWING HORZ TOLERANCE = 0.100000E-03  
AUTO NODE NUMBER INCREMENT= 10.0000  
Z AXIS UP= YES  
USE PRESSURE STIFFENING = DEFAULT  
ALPHA TOLERANCE = 0.500000E-01  
RESLD-FORCE = NO  
HGR DEF RESWGT STIF = 0.175120E+12 N./mm.  
DECOMP SNG TOL = 0.100000E+21  
BEND AXIAL SHAPE = YES  
FRICT STIF = 175120. N./mm.  
FRICT NORM FORCE VAR = 0.150000  
FRICT ANGLE VAR = 15.0000  
FRICT SLIDE MULT = 1.00000  
ROD TOLERANCE = 1.00000  
ROD INC = 2.00000  
INCORE NUMERICAL CHECK = NO  
OUTCORE NUMERICAL CHECK = NO  
DEFAULT TRANS RESTRAINT STIFF= 0.175120E+12 N./mm.  
DEFAULT ROT RESTRAINT STIFF= 0.112980E+12 N.m./deg  
IGNORE SPRING HANGER STIFFNESS = NO  
MISSING MASS ZPA = EXTRACTED  
MIN WALL MILL TOLERANCE = 12.5000  
WRC-107 VERSION = MAR 79 1B1/2B1  
WRC-107 INTERPOLATION = LAST VALUE  
DEFAULT AMBIENT TEMPERATURE= -6.66578 C  
BOURDON PRESSURE= NONE

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```
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = CODETI
B31.3 SUS CASE SIF FACTOR = 1.00000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= NO
B31.3 SEC 319.2.3C SAXIAL= NO
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 NO
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 22062.7 N./sq.mm.
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 21.5983 C
FRP Density = 1660.80 kg/cu.m.
EXCLUDE f2 FROM UKOOA BENDING = NO
```

## EXECUTION CONTROL PARAMETERS

```
Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... .000
Thermal Bowing Delta Temp .. .000 C
Liberal Allowable Flag ..... .000
Uniform Load Option ..... .000

Ambient Temperature ..... -6.666 C
Plastic (FRP) Alpha ..... 21.598
```

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Plastic (FRP) GMOD/EMODa ... .250  
Plastic (FRP) Laminate Type. 3.000  
Eqn Optimizer ..... .000  
Node Selection ..... .000  
Eqn Ordering ..... .000  
Collins ..... .000  
Degree Determination ..... .000  
User Eqn Control ..... .000

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## COORDONNEES

/----- (mm.) -----/

NOEUD	X	Y	Z
10	.000	.000	.000
20	.000	.000	3188.000
125	.000	.000	1855.000
20	.000	.000	3188.000
30	.000	.000	3585.000
40	.000	.000	4028.000
45	.000	.000	6088.000
50	.000	.000	7588.000
55	.000	.000	8584.922
56	.000	.000	8658.605
65	.000	.000	8921.000
70	.000	.000	9661.000
80	.000	.000	9721.000
40	.000	.000	4028.000
105	.000	3300.000	4028.000
110	.000	4040.000	4028.000
120	.000	4100.000	4028.000
125	.000	.000	1855.000
130	.000	.000	1136.000
134	-3199.146	-857.209	1102.880
135	-3431.935	-919.584	1100.470
140	-3477.333	-931.749	1100.000
145	-3629.950	-972.640	1098.420
146	-3675.348	-984.805	1097.950
55	.000	.000	8584.922
150	-1200.000	1700.000	8584.922
160	-1200.000	1700.000	9689.001
170	-1200.000	1700.000	9736.001
56	.000	.000	8658.605
180	-1200.000	-1400.000	8658.605
190	-1200.000	-1400.000	9689.002
200	-1200.000	-1400.000	9736.002
30	.000	.000	3585.000
215	1650.000	2857.884	3585.000
220	2026.500	3510.001	3585.000
230	2050.000	3550.704	3585.000
80	.000	.000	9721.000
240	.000	.000	9875.000
251	.000	.000	9935.000

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260	.000	.000	11909.000
262	1099.945	.000	11920.000
265	1499.920	.000	11924.000
270	4059.792	.000	11949.600
271	4059.792	3535.823	11984.960
272	4059.792	3595.820	11985.560
276	4059.792	3724.814	11986.850
273	4059.792	3853.808	11988.140
276	4059.792	3724.814	11986.850
275	3059.792	3724.814	11986.850
276	4059.792	3724.814	11986.850
281	5059.792	3724.814	11986.850
273	4059.792	3853.808	11988.140
274	4059.792	3913.808	11988.739
280	4059.792	5430.808	12003.909
284	4059.792	5430.808	10353.909
285	4059.792	5430.808	10053.909
286	4059.792	5430.808	10053.909
285	4059.792	5430.808	10053.909
287	4059.792	5430.808	9753.909
290	4059.792	5430.808	7805.909
299	4059.792	5430.808	5857.909
300	4059.792	5430.808	5557.909
301	4059.792	5430.808	5557.909
300	4059.792	5430.808	5557.909
302	4059.792	5430.808	5257.909
305	4059.792	5430.808	4057.909
435	2029.792	5430.808	4037.609
440	-.208	5430.808	4017.309
445	-.208	6040.777	4011.209
310	-.208	7040.808	4001.209
315	-892.608	7040.808	3223.085
320	-931.048	7040.808	3189.568
321	-931.048	7040.808	3189.568
320	-931.048	7040.808	3189.568
325	-969.488	7040.808	3156.051
330	-1636.150	7040.808	2574.759
335	-2302.813	7040.808	1993.466
340	-2341.253	7040.808	1959.949
341	-2341.253	7040.808	1959.949
340	-2341.253	7040.808	1959.949
345	-2379.692	7040.808	1926.432
350	-3272.093	7040.808	1148.308
355	-3272.093	8440.808	1134.308
360	-3272.093	9454.808	1124.168
365	-3272.093	10774.808	1110.968
366	-3272.093	11359.808	1105.118
370	-3272.093	11864.808	1100.068
380	-3272.093	13326.808	2562.068
385	-3272.093	13912.808	2567.928
390	-3272.093	13962.808	2568.428
395	-3272.093	14279.808	2571.598

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400	-3272.093	14596.808	2574.768
405	-3272.093	14646.808	2575.268
410	-3272.093	15346.808	2582.268
415	-3272.093	15396.808	2582.268
420	-3272.093	15446.808	2582.268
430	-3272.093	16496.809	2582.268
440	-.208	5430.808	4017.309
450	-.208	4417.808	4028.039
460	-.208	4357.808	4028.039
460	.000	4358.000	4028.000
120	.000	4100.000	4028.000
365	-3272.093	10774.808	1110.968
500	-3272.093	10774.808	2160.968
505	-3272.093	10774.808	3284.968
510	-3272.093	9574.808	4484.968
514	-3272.093	9574.808	5384.968
515	-3272.093	9574.808	6284.968
520	-3272.093	9574.808	7084.968
525	-2511.093	9574.808	7092.578
530	-2449.093	9574.808	7093.198
535	-2363.093	9574.808	7094.058
540	-2301.093	9574.808	7094.678
550	-1349.093	9574.808	7104.198
545	-1349.093	9574.808	6326.146
540	-2301.093	9574.808	7094.678
550	-1349.093	9574.808	7104.198
560	-1349.093	9574.808	10287.198
570	-3233.999	9574.808	10268.349
580	-4433.939	9574.808	10256.349
585	-4694.924	9574.808	10253.738
590	-5394.889	9574.808	10246.738
595	-6869.889	9574.808	10231.988
596	-11689.648	9574.808	10183.791
600	-12359.890	9574.808	10177.089
610	-15591.890	7708.808	10139.769
615	-16454.891	7708.808	10131.139
620	-16931.891	7708.808	10126.369
520	-3272.093	9574.808	7084.968
625	-4033.093	9574.808	7092.578
630	-4095.093	9574.808	7093.198
635	-4181.093	9574.808	7094.058
640	-4243.093	9574.808	7094.678
645	-5395.093	9574.808	7106.198
645	-5394.889	9574.808	7103.738
590	-5394.889	9574.808	10246.738
360	-3272.093	9454.808	1124.168
660	-4289.093	9454.808	1124.168
670	-4372.093	9454.808	1124.168
680	-4438.093	9454.808	1124.168
360	-3272.093	9454.808	1124.168
690	-2222.093	9454.808	1124.168
700	-2172.093	9454.808	1124.168

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710	-2134.093	9454.808	1124.168
260	.000	.000	11909.000
720	-1510.000	.000	11893.900
725	-3109.920	.000	11877.901
730	-4382.000	.000	11865.181
740	-4442.000	.000	11864.581
745	-4518.996	.000	11863.812
750	-4596.000	.000	11863.041
760	-4656.000	.000	11862.441
770	-5796.000	.000	11851.041
780	-6901.000	.000	11839.991
790	-6961.000	.000	11839.392
795	-7005.000	.000	11839.392
800	-11205.000	.000	10298.392
810	-13205.000	.000	10298.392
820	-16205.000	.000	10298.392
720	-1510.000	.000	11893.900
830	-2534.760	1419.820	11876.391
840	-2569.870	1468.470	11875.791
850	-2659.994	1593.345	11874.251
860	-2695.104	1641.995	11873.651
865	-2981.846	2039.305	11868.752
870	-4648.026	4347.825	11840.282
872	-4648.026	4347.825	7990.282
875	-4648.026	4347.825	4890.893
876	-3648.026	4347.825	4890.893
875	-4648.026	4347.825	4890.893
877	-5648.026	4347.825	4890.893
875	-4648.026	4347.825	4890.893
880	-4648.026	4347.825	4658.893
890	-4648.026	4347.825	3308.893
895	-4648.026	4347.825	3168.893
900	-4648.026	4347.825	3158.893
770	-5796.000	.000	11851.041
772	-5796.000	.000	10651.041
775	-5796.000	.000	8651.041
910	-5796.000	.000	4479.041
915	-5796.000	.000	3779.041
920	-5796.000	.000	3501.041
910	-5796.000	.000	4479.041
916	-4796.000	.000	4479.041
910	-5796.000	.000	4479.041
917	-6796.000	.000	4479.041
920	-5796.000	.000	3501.041
930	-5796.000	.000	3479.041
950	-5796.000	.000	3457.041
960	-5796.000	.000	1933.041
955	-5796.000	.000	801.622
950	-5796.000	.000	3457.041
960	-5796.000	.000	1933.041
965	-5796.000	2192.000	1933.041
970	-5796.000	3542.000	1933.041

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980	-5796.000	3680.000	1933.041
990	-5796.000	3692.000	1933.041
775	-5796.000	.000	8651.041
995	-6278.227	771.724	8641.941
1000	-8476.332	4289.427	8600.461
1002	-8476.332	4289.427	4785.461
1010	-8476.332	4289.427	970.461
1005	-8476.332	4289.427	360.461
1002	-8476.332	4289.427	4785.461
1010	-8476.332	4289.427	970.461
1020	-9018.972	5157.827	970.461
1030	-9042.821	5195.987	970.461
1040	-9097.932	5284.187	970.461
1050	-9121.781	5322.347	970.461
1060	-9167.881	5396.127	970.461
1070	-9437.081	5826.937	970.461
1090	-9463.581	5869.337	970.461
1100	-9468.881	5877.837	970.461
200	-1200.000	-1400.000	9736.002
1110	-1200.000	-1400.000	9840.002
1120	-1200.000	-1400.000	9872.002
1130	-1200.000	-1400.000	10830.002
1132	-2599.930	-1400.000	10816.002
1135	-3497.930	-1400.000	10807.021
1140	-6047.930	-1400.000	10781.521
1150	-6047.930	-1400.000	6131.521
1160	-9325.930	-1400.000	6098.742
1165	-9325.930	-454.000	6097.796
1170	-9325.930	3746.000	6055.796
1175	-9325.930	5108.000	6042.176
1180	-9325.930	6471.000	6028.546
1185	-9325.930	6471.000	4928.546
1186	-9325.930	6471.000	4528.546
1185	-9325.930	6471.000	4928.546
1184	-8725.930	6471.000	4928.546
1185	-9325.930	6471.000	4928.546
1183	-9925.930	6471.000	4928.546
1186	-9325.930	6471.000	4528.546
1190	-9325.930	6471.000	2728.546
1195	-9325.930	6471.000	1720.546
1200	-9325.930	6471.000	1620.546
1210	-9325.930	6471.000	1610.546
1220	-9325.930	3746.000	1552.796
1225	-9325.930	3746.000	952.796
1170	-9325.930	3746.000	6055.796
1211	-9325.930	3746.000	3161.796
1212	-9325.930	3746.000	3129.796
1215	-9325.930	3746.000	3029.796
1216	-9325.930	3746.000	2997.796
1220	-9325.930	3746.000	1552.796
1230	-9325.930	3036.000	1552.796
1240	-9325.930	3004.000	1552.796



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1242	-9325.930	2102.000	1552.796
1252	-9325.930	552.000	1552.796
1251	-9325.930	.000	1552.796
1242	-9325.930	2102.000	1552.796
1245	-9325.930	2102.000	25.796
1252	-9325.930	552.000	1552.796
1255	-9325.930	552.000	25.796
1250	-9276.094	-.192	1527.178
1260	-9276.094	-32.192	1527.178
1270	-9276.094	-360.192	1527.178
1280	-9276.094	-1400.192	1042.178
1285	-7650.093	-1400.192	1058.438
1286	-6150.093	-1400.192	1073.438
1290	-5175.143	-1400.192	1083.188
1300	-4400.470	-1192.619	1091.208
1310	-3818.983	-1036.809	1097.228
1315	-3773.585	-1024.644	1097.698
1285	-7650.093	-1400.192	1058.438
1320	-7650.093	-400.192	1068.438
1325	-7650.093	-400.192	-9.562
1330	-7650.093	5808.808	1130.528
1335	-7650.093	5808.808	428.747
1320	-7650.093	-400.192	1068.438
1330	-7650.093	5808.808	1130.528
1340	-7650.093	5808.808	5303.528
1343	-4472.093	5808.808	5335.308
1345	-3272.093	5808.808	5347.308
1350	-3272.093	7808.808	5367.308
1355	-3272.093	8217.808	5371.398
1360	-3272.093	8366.808	5372.888
1370	-3272.093	8416.808	5373.388
1380	-3272.093	8574.808	5374.968
1390	-3272.093	8624.808	5375.468
514	-3272.093	9574.808	5384.968
230	2050.000	3550.704	3585.000
1400	2129.000	3687.536	3585.000
1410	2434.000	4215.812	3585.000
1415	2434.000	4215.812	10359.000
1420	2434.000	4215.812	11665.000
1425	1054.422	5012.312	11649.070
1430	-325.157	5808.812	11633.141
1440	-2166.157	5808.812	11614.730
1445	-3410.157	5808.812	11602.290
1450	-4166.157	5808.812	11594.730
1451	-7060.013	5808.812	11565.790
1452	-8165.957	5808.812	11554.730
1455	-11778.957	5808.812	11518.601
1460	-14540.957	5808.812	11490.980
1470	-14540.957	10035.812	11448.711
1475	-15640.902	10035.812	11459.711
1480	-17136.828	10035.812	11474.671
1490	-17136.828	10035.812	12674.671

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Listing CAESAR

170	-1200.000	1700.000	9736.001
1500	-1200.000	1700.000	9894.001
1510	-1200.000	1700.000	9941.001
1520	-1200.000	1700.000	10336.001
1525	-2370.563	3321.660	11621.416
1530	-2583.021	3615.991	11621.779
1540	-2922.484	4086.273	11615.979
1540	-2922.434	4085.798	11615.980
1450	-4166.157	5808.812	11594.730

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Tuyaeries Alimentation Air Sécheur CHAUMECA  
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Données Diverses

## ----- BEND SIF &amp; FLEXIBILITY VALUES

## BEND DATA:

## SIFs IN/OUT of Plane

## Flexibilities IN/OUT of plane

BEND	TYPE	SIFi	SIFo	Ki	Ko
130	0 Flanges	7.105-> 7.388	5.921-> 6.156	37.656->38.805	37.656->38.805
270	0 Flanges	8.371-> 8.690	8.371-> 8.690	25.163->25.870	25.163->25.870
280	0 Flanges	8.089-> 8.690	8.089-> 8.690	24.527->25.870	24.527->25.870
305	0 Flanges	9.316-> 9.922	9.316-> 9.922	29.044->30.533	29.044->30.533
310	0 Flanges	9.316-> 9.922	9.316-> 9.922	29.044->30.533	29.044->30.533
350	0 Flanges	9.316-> 9.922	9.316-> 9.922	29.044->30.533	29.044->30.533
370	0 Flanges	8.089-> 8.690	8.089-> 8.690	24.527->25.870	24.527->25.870
380	0 Flanges	8.089-> 8.690	8.089-> 8.690	24.527->25.870	24.527->25.870
505	0 Flanges	7.027-> 7.279	7.027-> 7.279	20.168->20.733	20.168->20.733
510	0 Flanges	7.027-> 7.279	7.027-> 7.279	20.168->20.733	20.168->20.733
550	0 Flanges	6.921-> 7.174	6.921-> 7.174	19.798->20.357	19.798->20.357
560	0 Flanges	6.921-> 7.174	6.921-> 7.174	19.798->20.357	19.798->20.357
600	0 Flanges	8.185-> 8.786	8.185-> 8.786	24.874->26.229	24.874->26.229
610	0 Flanges	8.185-> 8.786	8.185-> 8.786	24.874->26.229	24.874->26.229
645	0 Flanges	6.921-> 7.174	6.921-> 7.174	19.798->20.357	19.798->20.357
870	0 Flanges	8.371-> 8.690	8.371-> 8.690	25.163->25.870	25.163->25.870
960	0 Flanges	8.467-> 8.786	8.467-> 8.786	25.516->26.229	25.516->26.229
1000	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1010	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1130	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1140	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1150	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1160	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1180	0 Flanges	5.490-> 5.640	4.575-> 4.700	25.421->25.887	25.421->25.887
1220	0 Flanges	7.240-> 7.391	6.033-> 6.159	38.219->38.831	38.219->38.831
1270	0 Flanges	5.361-> 5.640	4.467-> 4.700	25.013->25.887	25.013->25.887
1280	0 Flanges	5.361-> 5.640	4.467-> 4.700	25.013->25.887	25.013->25.887
1290	0 Flanges	5.361-> 5.640	4.467-> 4.700	1.000-> 1.000	1.000-> 1.000
1330	0 Flanges	5.361-> 5.640	4.467-> 4.700	25.013->25.887	25.013->25.887
1340	0 Flanges	5.361-> 5.640	4.467-> 4.700	25.013->25.887	25.013->25.887
1345	0 Flanges	5.361-> 5.640	4.467-> 4.700	25.013->25.887	25.013->25.887
1410	0 Flanges	7.388	7.388	21.119	21.119
1420	0 Flanges	5.640	4.700	25.887	25.887
1430	0 Flanges	7.391	7.391	21.131	21.131
1460	0 Flanges	5.640	4.700	25.887	25.887
1470	0 Flanges	5.640	4.700	25.887	25.887
1480	0 Flanges	5.640	4.700	25.887	25.887
1520	0 Flanges	7.391	6.159	38.831	38.831
1525	0 Flanges	5.640	4.700	25.887	25.887

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Tuyautes Alimentation Air Sécheur CHAUMECA  
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Données Diverses

----- MATERIAL ALLOWABLE VALUES

FROM	TO	SC	SH1 through SH9							
		( N./sq.mm.)	----->							
10	20	160.0	130.5	130.5	160.0	130.5	160.0	160.0	160.0	160.0
160.0										
20	25	160.0	98.0	98.0	160.0	98.0	160.0	160.0	160.0	160.0
160.0										
20	30	160.0	98.0	98.0	160.0	98.0	160.0	160.0	160.0	160.0
160.0										
80	240	160.0	150.2	150.2	160.0	150.2	160.0	160.0	160.0	160.0
160.0										
240	250	160.0	150.2	150.2	160.0	150.2	160.0	160.0	160.0	160.0
160.0										
272	276	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
350	355	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
385	390	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
390	395	160.0	91.3	145.3	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
420	430	160.0	91.3	145.3	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
440	450	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
365	500	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
535	540	160.0	160.0	160.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
520	625	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
635	640	160.0	160.0	160.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
360	660	160.0	98.0	98.0	160.0	91.3	160.0	160.0	160.0	160.0
160.0										
260	720	160.0	150.2	150.2	160.0	150.2	160.0	160.0	160.0	160.0
160.0										
775	995	143.3	136.7	136.7	143.3	136.7	143.3	143.3	143.3	143.3
143.3										
1120	1130	143.3	136.7	136.7	143.3	136.7	143.3	143.3	143.3	143.3
143.3										
1250	1260	143.3	98.0	98.0	143.3	98.0	143.3	143.3	143.3	143.3
143.3										
1260	1270	143.3	98.0	98.0	143.3	98.0	143.3	143.3	143.3	143.3
143.3										
1370	1380	143.3	98.0	98.0	143.3	91.3	143.3	143.3	143.3	143.3
143.3										
1390	514	143.3	98.0	98.0	143.3	91.3	143.3	143.3	143.3	143.3
143.3										

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230	1400	143.3	98.0	98.0	143.3	98.0	143.3	143.3	143.3	143.3
143.3										
1400	1410	143.3	136.7	143.3	143.3	136.7	143.3	143.3	143.3	143.3
143.3										
1450	1451	143.3	95.3	143.3	143.3	95.3	143.3	143.3	143.3	143.3
143.3										
170	1500	143.3	98.0	98.0	143.3	98.0	143.3	143.3	143.3	143.3
143.3										
1501	1510	143.3	95.3	143.3	143.3	95.3	143.3	143.3	143.3	143.3
143.3										
1510	1520	143.3	95.3	143.3	143.3	95.3	143.3	143.3	143.3	143.3
143.3										

CAESAR II 2011 Ver.5.30.0, (Build 101122)

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----- INTERSECTION SIF VALUES

TYPE KEY:

- 1 - Reinforced Fabricated Tee
- 2 - Unreinforced Fabricated Tee
- 3 - Welding Tee
- 4 - Sweepolet
- 5 - Weldolet
- 6 - Extruded Welding Tee

		HEADER	HEADER	Eff	BRANCH	BRANCH
TEE	TYPE	SIFo	SIFi	THICK	SIFo	SIFi
(these values per Code)				(mm.)		
260	2	10.61400	10.61400	0.00000	10.61400	10.61400
440	2	10.61400	10.61400	0.00000	10.61400	10.61400
365	2	10.61400	10.61400	15.00000	10.61400	10.61400
514	1	5.83577	5.83577	10.00000	5.83577	5.83577
520	2	7.27882	7.27882	0.00000	7.27882	7.27882
590	1	7.05658	7.05658	10.00000	7.05658	7.05658
720	2	10.61400	10.61400	0.00000	10.61400	10.61400
770	2	10.61400	10.61400	0.00000	10.61400	10.61400
775	1	7.05658	7.05658	10.00000	7.05658	7.05658
1170	3	4.39807	4.39807	0.00000	4.39807	4.39807
1285	3	4.39807	4.39807	0.00000	4.39807	4.39807
1450	1	5.23141	5.23141	0.00000	5.23141	5.23141

CAESAR II 2011 Ver.5.30.0, (Build 101122)

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CAESAR II REDUCER REPORT

FROM	TO	D1	T1	D2	T2	ALPHA	SIFo	SIFi
------	----	----	----	----	----	-------	------	------

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570	580	920.000	10.000	1220.000	10.000	11.77	1.629	1.629
795	800	1220.000	10.000	3450.000	15.000	22.56	2.000	2.000
880	890	1220.000	10.000	1000.000	10.000	7.73	1.273	1.273
965	970	1220.000	10.000	1020.000	10.000	7.04	1.211	1.211
1060	1070	610.000	6.350	406.400	4.780	18.47	2.000	2.000
1190	1195	610.000	6.350	406.400	4.780	9.55	1.381	1.381

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date:MAY 11,2013 @15:33 Pg: 25

----- WRC 297, API-650, &amp; PD 5500 NOZZLES

WRC NOZZLE NODE = 105  
VESSEL Dmean(mm.)= 6584.000 VESSEL THK. (mm.)= 20.000  
NOZZLE O.D. (mm.)= 1220.000 NOZZLE THK. (mm.)= 10.000  
AXIAL TRANSLATIONAL STIFFNESS ( N./mm. )= 175119990784.  
LONGITUDINAL BENDING STIFFNESS (N.m./deg )= 112980000768.  
CIRCUMFERENTIAL BENDING STIFFNESS (N.m./deg )= 49994.  
ANGLE BETWEEN NOZZLE & VESSEL CENTERLINES(deg)= 90.0000  
LENGTH (L) (mm.) = 3044.224 THICKNESS RATIO = 2.000  
CAPITAL LAMBDA = 8.389 SMALL LAMBDA = 3.362

WRC NOZZLE NODE = 215  
VESSEL Dmean(mm.)= 6594.000 VESSEL THK. (mm.)= 10.000  
NOZZLE O.D. (mm.)= 610.000 NOZZLE THK. (mm.)= 6.350  
AXIAL TRANSLATIONAL STIFFNESS ( N./mm. )= 175119990784.  
LONGITUDINAL BENDING STIFFNESS (N.m./deg )= 31939.  
CIRCUMFERENTIAL BENDING STIFFNESS (N.m./deg )= 4439.  
ANGLE BETWEEN NOZZLE & VESSEL CENTERLINES(deg)= 90.0000  
LENGTH (L) (mm.) = 1836.880 THICKNESS RATIO = 1.575  
CAPITAL LAMBDA = 7.153 SMALL LAMBDA = 2.376

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date:MAY 11,2013 @15:33 Pg: 26

----- PIPE PROPERTIES #1

FROM	TO	PIPE WT	INSUL WT	FLUID WT	REFCTY WT	y	minT
		TB ALPHA1	TB ALPHA2	TB ALPHA3			
/-----WEIGHTS (N. /mm.) -----/ mm.							

10.	20.	16.121	2.075	0.000	0.000	.000	.556
10.	20.	16.121	2.075	0.000	0.000	.000	.556
20.	25.	236.709	2.068	0.000	0.000	.000	3.9
20.	25.	236.709	2.068	0.000	0.000	.000	3.9
20.	30.	157.690	2.065	0.000	0.000	.000	3.9
20.	30.	157.690	2.065	0.000	0.000	.000	3.9
30.	40.	157.690	2.065	0.000	0.000	.000	3.9
30.	40.	157.690	2.065	0.000	0.000	.000	3.9
40.	45.	157.690	2.065	0.000	0.000	.000	3.9
40.	45.	157.690	2.065	0.000	0.000	.000	3.9
45.	50.	157.690	2.065	0.000	0.000	.000	3.9
45.	50.	157.690	2.065	0.000	0.000	.000	3.9
50.	55.	236.709	2.068	0.000	0.000	.000	3.9
50.	55.	236.709	2.068	0.000	0.000	.000	3.9
55.	56.	236.709	2.068	0.000	0.000	.000	3.9

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55.	56.	236.709	2.068	0.000	0.000.000	3.9
56.	60.	236.709	2.068	0.000	0.000.000	3.9
56.	60.	236.709	2.068	0.000	0.000.000	3.9
65.	70.	2.945	0.407	0.000	0.000.000	1.2
65.	70.	2.945	0.407	0.000	0.000.000	1.2
70.	80.	28.667	0.712	0.000	0.000 NA	NA
70.	80.	28.667	0.712	0.000	0.000 NA	NA
40.	100.	0.000	0.000	0.000	0.000 NA	NA
40.	100.	0.000	0.000	0.000	0.000 NA	NA
105.	110.	2.945	0.407	0.000	0.000.000	1.2
105.	110.	2.945	0.407	0.000	0.000.000	1.2
110.	120.	52.167	0.712	0.000	0.000 NA	NA
110.	120.	52.167	0.712	0.000	0.000 NA	NA
125.	130.	0.933	0.219	0.000	0.000 .000	.867
125.	130.	0.933	0.219	0.000	0.000 .000	.867
130.	134.	0.933	0.219	0.000	0.000 .000	.867
130.	134.	0.933	0.219	0.000	0.000 .000	.867
134.	135.	0.933	0.219	0.000	0.000 .000	.867
134.	135.	0.933	0.219	0.000	0.000 .000	.867
135.	140.	15.638	0.383	0.000	0.000 NA	NA
135.	140.	15.638	0.383	0.000	0.000 NA	NA
140.	145.	22.151	0.383	0.000	0.000 NA	NA
140.	145.	22.151	0.383	0.000	0.000 NA	NA
145.	146.	15.638	0.383	0.000	0.000 NA	NA
145.	146.	15.638	0.383	0.000	0.000 NA	NA
55.	150.	0.000	0.000	0.000	0.000 NA	NA
55.	150.	0.000	0.000	0.000	0.000 NA	NA
155.	160.	0.933	0.219	0.000	0.000 .000	.867
155.	160.	0.933	0.219	0.000	0.000 .000	.867
160.	170.	7.404	0.383	0.000	0.000 NA	NA
160.	170.	7.404	0.383	0.000	0.000 NA	NA
56.	180.	0.000	0.000	0.000	0.000 NA	NA
56.	180.	0.000	0.000	0.000	0.000 NA	NA
185.	190.	0.933	0.219	0.000	0.000 .000	.867
185.	190.	0.933	0.219	0.000	0.000 .000	.867
190.	200.	7.404	0.383	0.000	0.000 NA	NA
190.	200.	7.404	0.383	0.000	0.000 NA	NA
30.	210.	0.000	0.000	0.000	0.000 NA	NA
30.	210.	0.000	0.000	0.000	0.000 NA	NA
215.	220.	0.933	0.219	0.000	0.000 .000	.867
215.	220.	0.933	0.219	0.000	0.000 .000	.867
220.	230.	7.404	0.383	0.000	0.000 NA	NA
220.	230.	7.404	0.383	0.000	0.000 NA	NA
80.	240.	40.909	0.712	0.000	0.000 NA	NA
80.	240.	40.909	0.712	0.000	0.000 NA	NA
240.	250.	2.945	0.407	0.000	0.000 .000	.781
240.	250.	2.945	0.407	0.000	0.000 .000	.781
251.	260.	2.945	0.407	0.000	0.000 .000	.781
251.	260.	2.945	0.407	0.000	0.000 .000	.781
260.	262.	4.435	0.410	0.000	0.000 .000	.783
260.	262.	4.435	0.410	0.000	0.000 .000	.783
262.	265.	2.945	0.407	0.000	0.000 .000	.781

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

Téléphone 02.33.08.81.00

Télécopie : 02.33.03.25.02

Date : 29 Avril 2013

Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

262.	265.	2.945	0.407	0.000	0.000	.000	.781
265.	270.	2.945	0.407	0.000	0.000	.000	.781
265.	270.	2.945	0.407	0.000	0.000	.000	.781
270.	271.	2.945	0.407	0.000	0.000	.000	.781
270.	271.	2.945	0.407	0.000	0.000	.000	.781
271.	272.	52.167	0.712	0.000	0.000	NA	NA
271.	272.	52.167	0.712	0.000	0.000	NA	NA
272.	276.	7.752	0.712	0.000	0.000	NA	NA
272.	276.	7.752	0.712	0.000	0.000	NA	NA
276.	273.	7.752	0.712	0.000	0.000	NA	NA
276.	273.	7.752	0.712	0.000	0.000	NA	NA
276.	275.	0.000	0.000	0.000	0.000	NA	NA
276.	275.	0.000	0.000	0.000	0.000	NA	NA
276.	281.	0.000	0.000	0.000	0.000	NA	NA
276.	281.	0.000	0.000	0.000	0.000	NA	NA
273.	274.	52.164	0.712	0.000	0.000	NA	NA
273.	274.	52.164	0.712	0.000	0.000	NA	NA
274.	280.	2.945	0.407	0.000	0.000.000		1.2
274.	280.	2.945	0.407	0.000	0.000.000		1.2
280.	284.	2.945	0.407	0.000	0.000.000		1.2
280.	284.	2.945	0.407	0.000	0.000.000		1.2
284.	285.	9.167	0.712	0.000	0.000	NA	NA
284.	285.	9.167	0.712	0.000	0.000	NA	NA
285.	286.	0.000	0.407	0.000	0.000.000		1.2
285.	286.	0.000	0.407	0.000	0.000.000		1.2
286.	287.	9.167	0.712	0.000	0.000	NA	NA
286.	287.	9.167	0.712	0.000	0.000	NA	NA
287.	290.	2.945	0.407	0.000	0.000.000		1.2
287.	290.	2.945	0.407	0.000	0.000.000		1.2
290.	299.	2.945	0.407	0.000	0.000.000		1.2
290.	299.	2.945	0.407	0.000	0.000.000		1.2
299.	300.	9.167	0.712	0.000	0.000	NA	NA
299.	300.	9.167	0.712	0.000	0.000	NA	NA
300.	301.	0.000	0.407	0.000	0.000.000		1.2
300.	301.	0.000	0.407	0.000	0.000.000		1.2
301.	302.	9.167	0.712	0.000	0.000	NA	NA
301.	302.	9.167	0.712	0.000	0.000	NA	NA
302.	305.	2.945	0.407	0.000	0.000.000		1.2
302.	305.	2.945	0.407	0.000	0.000.000		1.2
305.	435.	2.945	0.407	0.000	0.000.000		1.2
305.	435.	2.945	0.407	0.000	0.000.000		1.2
435.	440.	2.945	0.407	0.000	0.000.000		1.2
435.	440.	2.945	0.407	0.000	0.000.000		1.2
440.	445.	4.435	0.410	0.000	0.000.000		1.2
440.	445.	4.435	0.410	0.000	0.000.000		1.2
445.	310.	2.945	0.407	0.000	0.000.000		1.2
445.	310.	2.945	0.407	0.000	0.000.000		1.2
310.	315.	2.945	0.407	0.000	0.000.000		1.2
310.	315.	2.945	0.407	0.000	0.000.000		1.2
315.	320.	31.372	0.712	0.000	0.000	NA	NA
315.	320.	31.372	0.712	0.000	0.000	NA	NA
320.	321.	0.000	0.407	0.000	0.000.000		1.2



7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

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Télécopie : 02.33.03.25.02

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Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

320.	321.	0.000	0.407	0.000	0.000.000	1.2
321.	325.	31.373	0.712	0.000	0.000 NA	NA
321.	325.	31.373	0.712	0.000	0.000 NA	NA
325.	330.	2.945	0.407	0.000	0.000.000	1.2
325.	330.	2.945	0.407	0.000	0.000.000	1.2
330.	335.	2.945	0.407	0.000	0.000.000	1.2
330.	335.	2.945	0.407	0.000	0.000.000	1.2
335.	340.	31.373	0.712	0.000	0.000 NA	NA
335.	340.	31.373	0.712	0.000	0.000 NA	NA
340.	341.	0.000	0.407	0.000	0.000.000	1.2
340.	341.	0.000	0.407	0.000	0.000.000	1.2
341.	345.	31.373	0.712	0.000	0.000 NA	NA
341.	345.	31.373	0.712	0.000	0.000 NA	NA
345.	350.	2.945	0.407	0.000	0.000.000	1.2
345.	350.	2.945	0.407	0.000	0.000.000	1.2
350.	355.	4.435	0.410	0.000	0.000.000	1.2
350.	355.	4.435	0.410	0.000	0.000.000	1.2
355.	360.	4.435	0.410	0.000	0.000.000	1.2
355.	360.	4.435	0.410	0.000	0.000.000	1.2
360.	365.	4.435	0.410	0.000	0.000.000	1.2
360.	365.	4.435	0.410	0.000	0.000.000	1.2
365.	366.	4.435	0.410	0.000	0.000.000	1.2
365.	366.	4.435	0.410	0.000	0.000.000	1.2
366.	370.	2.945	0.407	0.000	0.000.000	1.2
366.	370.	2.945	0.407	0.000	0.000.000	1.2
370.	380.	2.945	0.407	0.000	0.000.000	1.2
370.	380.	2.945	0.407	0.000	0.000.000	1.2
380.	385.	2.945	0.407	0.000	0.000.000	1.2
380.	385.	2.945	0.407	0.000	0.000.000	1.2
385.	390.	58.997	0.712	0.000	0.000 NA	NA
385.	390.	58.997	0.712	0.000	0.000 NA	NA
390.	395.	55.202	0.712	0.000	0.000 NA	NA
390.	395.	55.202	0.712	0.000	0.000 NA	NA
395.	400.	55.202	0.712	0.000	0.000 NA	NA
395.	400.	55.202	0.712	0.000	0.000 NA	NA
400.	405.	58.997	0.712	0.000	0.000 NA	NA
400.	405.	58.997	0.712	0.000	0.000 NA	NA
405.	410.	2.945	0.407	0.000	0.000.000	6.3
405.	410.	2.945	0.407	0.000	0.000.000	6.3
410.	415.	59.000	0.712	0.000	0.000 NA	NA
410.	415.	59.000	0.712	0.000	0.000 NA	NA
415.	420.	59.000	0.712	0.000	0.000 NA	NA
415.	420.	59.000	0.712	0.000	0.000 NA	NA
420.	430.	2.945	0.407	0.000	0.000.000	6.3
420.	430.	2.945	0.407	0.000	0.000.000	6.3
440.	450.	4.435	0.410	0.000	0.000.000	1.2
440.	450.	4.435	0.410	0.000	0.000.000	1.2
450.	460.	52.167	0.717	0.000	0.000 NA	NA
450.	460.	52.167	0.717	0.000	0.000 NA	NA
460.	120.	77.519	0.717	0.000	0.000 NA	NA
460.	120.	77.519	0.717	0.000	0.000 NA	NA
365.	500.	2.215	0.314	0.000	0.000.000	1.1

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

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Télécopie : 02.33.03.25.02

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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

365.	500.	2.215	0.314	0.000	0.000.000	1.1
500.	505.	2.215	0.314	0.000	0.000.000	1.1
500.	505.	2.215	0.314	0.000	0.000.000	1.1
505.	510.	2.215	0.314	0.000	0.000.000	1.1
505.	510.	2.215	0.314	0.000	0.000.000	1.1
510.	514.	2.215	0.314	0.000	0.000.000	1.1
510.	514.	2.215	0.314	0.000	0.000.000	1.1
514.	515.	2.215	0.314	0.000	0.000.000	1.1
514.	515.	2.215	0.314	0.000	0.000.000	1.1
515.	520.	4.478	0.320	0.000	0.000.000	1.1
515.	520.	4.478	0.320	0.000	0.000.000	1.1
520.	525.	4.478	0.320	0.000	0.000.000	1.1
520.	525.	4.478	0.320	0.000	0.000.000	1.1
525.	530.	22.902	0.561	0.000	0.000 NA	NA
525.	530.	22.902	0.561	0.000	0.000 NA	NA
530.	535.	0.581	0.550	0.000	0.000 NA	NA
530.	535.	0.581	0.550	0.000	0.000 NA	NA
535.	540.	22.902	0.550	0.000	0.000 NA	NA
535.	540.	22.902	0.550	0.000	0.000 NA	NA
548.	545.	0.000	0.000	0.000	0.000 NA	NA
548.	545.	0.000	0.000	0.000	0.000 NA	NA
540.	550.	2.215	0.314	0.000	0.000.000	1.1
540.	550.	2.215	0.314	0.000	0.000.000	1.1
550.	560.	2.215	0.314	0.000	0.000.000	1.1
550.	560.	2.215	0.314	0.000	0.000.000	1.1
560.	570.	2.215	0.314	0.000	0.000.000	1.1
560.	570.	2.215	0.314	0.000	0.000.000	1.1
570.	580.	2.215	0.314	0.000	0.000.000	1.1
570.	580.	2.215	0.314	0.000	0.000.000	1.1
580.	585.	2.945	0.407	0.000	0.000.000	1.2
580.	585.	2.945	0.407	0.000	0.000.000	1.2
585.	590.	2.945	0.407	0.000	0.000.000	1.2
585.	590.	2.945	0.407	0.000	0.000.000	1.2
590.	595.	2.945	0.407	0.000	0.000.000	1.2
590.	595.	2.945	0.407	0.000	0.000.000	1.2
595.	596.	2.945	0.407	0.000	0.000.000	1.2
595.	596.	2.945	0.407	0.000	0.000.000	1.2
596.	600.	2.945	0.407	0.000	0.000.000	1.2
596.	600.	2.945	0.407	0.000	0.000.000	1.2
600.	610.	2.945	0.407	0.000	0.000.000	1.2
600.	610.	2.945	0.407	0.000	0.000.000	1.2
610.	615.	2.945	0.407	0.000	0.000.000	1.2
610.	615.	2.945	0.407	0.000	0.000.000	1.2
615.	620.	2.945	0.407	0.000	0.000.000	1.2
615.	620.	2.945	0.407	0.000	0.000.000	1.2
520.	625.	4.478	0.320	0.000	0.000.000	1.1
520.	625.	4.478	0.320	0.000	0.000.000	1.1
625.	630.	22.902	0.561	0.000	0.000 NA	NA
625.	630.	22.902	0.561	0.000	0.000 NA	NA
630.	635.	0.581	0.550	0.000	0.000 NA	NA
630.	635.	0.581	0.550	0.000	0.000 NA	NA
635.	640.	22.902	0.550	0.000	0.000 NA	NA

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

635.	640.	22.902	0.550	0.000	0.000	NA	NA
640.	645.	2.215	0.314	0.000	0.000.000	1.1	
640.	645.	2.215	0.314	0.000	0.000.000	1.1	
645.	590.	2.215	0.314	0.000	0.000.000	1.1	
645.	590.	2.215	0.314	0.000	0.000.000	1.1	
360.	660.	2.945	0.407	0.000	0.000.000	1.2	
360.	660.	2.945	0.407	0.000	0.000.000	1.2	
660.	670.	37.711	0.712	0.000	0.000	NA	NA
660.	670.	37.711	0.712	0.000	0.000	NA	NA
670.	680.	128.333	0.712	0.000	0.000	NA	NA
670.	680.	128.333	0.712	0.000	0.000	NA	NA
360.	690.	1.378	0.251	0.000	0.000 .000	.947	
360.	690.	1.378	0.251	0.000	0.000 .000	.947	
690.	700.	15.400	0.440	0.000	0.000	NA	NA
690.	700.	15.400	0.440	0.000	0.000	NA	NA
700.	710.	48.421	0.440	0.000	0.000	NA	NA
700.	710.	48.421	0.440	0.000	0.000	NA	NA
260.	720.	4.435	0.410	0.000	0.000 .000	.783	
260.	720.	4.435	0.410	0.000	0.000 .000	.783	
720.	725.	4.435	0.410	0.000	0.000 .000	.783	
720.	725.	4.435	0.410	0.000	0.000 .000	.783	
725.	730.	2.945	0.407	0.000	0.000 .000	.781	
725.	730.	2.945	0.407	0.000	0.000 .000	.781	
730.	740.	28.665	0.712	0.000	0.000	NA	NA
730.	740.	28.665	0.712	0.000	0.000	NA	NA
740.	745.	40.909	0.712	0.000	0.000	NA	NA
740.	745.	40.909	0.712	0.000	0.000	NA	NA
745.	750.	40.905	0.712	0.000	0.000	NA	NA
745.	750.	40.905	0.712	0.000	0.000	NA	NA
750.	760.	28.665	0.712	0.000	0.000	NA	NA
750.	760.	28.665	0.712	0.000	0.000	NA	NA
760.	770.	4.435	0.410	0.000	0.000 .000	.783	
760.	770.	4.435	0.410	0.000	0.000 .000	.783	
770.	780.	4.435	0.410	0.000	0.000 .000	.783	
770.	780.	4.435	0.410	0.000	0.000 .000	.783	
780.	790.	28.665	0.712	0.000	0.000	NA	NA
780.	790.	28.665	0.712	0.000	0.000	NA	NA
791.	795.	2.945	0.407	0.000	0.000 .000	.781	
791.	795.	2.945	0.407	0.000	0.000 .000	.781	
795.	800.	2.945	0.407	0.000	0.000 .000	.781	
795.	800.	2.945	0.407	0.000	0.000 .000	.781	
800.	810.	60.000	1.914	0.000	0.000	NA	NA
800.	810.	60.000	1.914	0.000	0.000	NA	NA
810.	820.	12.540	1.094	0.000	0.000.000	1.2	
810.	820.	12.540	1.094	0.000	0.000.000	1.2	
720.	830.	2.945	0.407	0.000	0.000 .000	.781	
720.	830.	2.945	0.407	0.000	0.000 .000	.781	
830.	840.	28.667	0.712	0.000	0.000	NA	NA
830.	840.	28.667	0.712	0.000	0.000	NA	NA
840.	850.	40.907	0.712	0.000	0.000	NA	NA
840.	850.	40.907	0.712	0.000	0.000	NA	NA
850.	860.	28.667	0.712	0.000	0.000	NA	NA

7, Rue des Claires - BP 59  
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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

850.	860.	28.667	0.712	0.000	0.000	NA	NA
860.	865.	2.945	0.407	0.000	0.000	.000	.781
860.	865.	2.945	0.407	0.000	0.000	.000	.781
865.	870.	2.945	0.407	0.000	0.000	.000	.781
865.	870.	2.945	0.407	0.000	0.000	.000	.781
870.	872.	2.945	0.407	0.000	0.000	.000	.781
870.	872.	2.945	0.407	0.000	0.000	.000	.781
872.	875.	2.945	0.407	0.000	0.000	.000	.781
872.	875.	2.945	0.407	0.000	0.000	.000	.781
875.	876.	0.000	0.000	0.000	0.000	NA	NA
875.	876.	0.000	0.000	0.000	0.000	NA	NA
875.	877.	0.000	0.000	0.000	0.000	NA	NA
875.	877.	0.000	0.000	0.000	0.000	NA	NA
875.	880.	2.945	0.407	0.000	0.000	.000	.781
875.	880.	2.945	0.407	0.000	0.000	.000	.781
880.	890.	2.945	0.407	0.000	0.000	.000	.781
880.	890.	2.945	0.407	0.000	0.000	.000	.781
890.	895.	2.409	0.339	0.000	0.000	.000	.740
890.	895.	2.409	0.339	0.000	0.000	.000	.740
895.	900.	20.000	0.593	0.000	0.000	NA	NA
895.	900.	20.000	0.593	0.000	0.000	NA	NA
770.	772.	2.945	0.407	0.000	0.000	.000	.781
770.	772.	2.945	0.407	0.000	0.000	.000	.781
772.	775.	2.945	0.407	0.000	0.000	.000	.781
772.	775.	2.945	0.407	0.000	0.000	.000	.781
775.	910.	2.945	0.407	0.000	0.000	.000	.781
775.	910.	2.945	0.407	0.000	0.000	.000	.781
910.	915.	2.945	0.407	0.000	0.000	.000	.781
910.	915.	2.945	0.407	0.000	0.000	.000	.781
915.	920.	2.945	0.407	0.000	0.000	.000	.781
915.	920.	2.945	0.407	0.000	0.000	.000	.781
910.	916.	0.000	0.000	0.000	0.000	NA	NA
910.	916.	0.000	0.000	0.000	0.000	NA	NA
910.	917.	0.000	0.000	0.000	0.000	NA	NA
910.	917.	0.000	0.000	0.000	0.000	NA	NA
920.	930.	78.182	0.712	0.000	0.000	NA	NA
920.	930.	78.182	0.712	0.000	0.000	NA	NA
930.	950.	78.182	0.712	0.000	0.000	NA	NA
930.	950.	78.182	0.712	0.000	0.000	NA	NA
958.	955.	0.000	0.000	0.000	0.000	NA	NA
958.	955.	0.000	0.000	0.000	0.000	NA	NA
950.	960.	2.945	0.407	0.000	0.000	.000	.781
950.	960.	2.945	0.407	0.000	0.000	.000	.781
960.	965.	2.945	0.407	0.000	0.000	.000	.781
960.	965.	2.945	0.407	0.000	0.000	.000	.781
965.	970.	2.945	0.407	0.000	0.000	.000	.781
965.	970.	2.945	0.407	0.000	0.000	.000	.781
970.	980.	2.458	0.345	0.000	0.000	.000	.744
970.	980.	2.458	0.345	0.000	0.000	.000	.744
980.	990.	12.500	0.604	0.000	0.000	NA	NA
980.	990.	12.500	0.604	0.000	0.000	NA	NA
775.	995.	0.933	0.219	0.000	0.000	.000	.680

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

Téléphone 02.33.08.81.00

Télécopie : 02.33.03.25.02

Date : 29 Avril 2013

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

775.	995.	0.933	0.219	0.000	0.000	.000	.680
995.	1000.	0.933	0.219	0.000	0.000	.000	.680
995.	1000.	0.933	0.219	0.000	0.000	.000	.680
1000.	1002.	0.933	0.219	0.000	0.000	.000	.680
1000.	1002.	0.933	0.219	0.000	0.000	.000	.680
1009.	1005.	0.000	0.000	0.000	0.000	NA	NA
1009.	1005.	0.000	0.000	0.000	0.000	NA	NA
1002.	1010.	0.933	0.219	0.000	0.000	.000	.680
1002.	1010.	0.933	0.219	0.000	0.000	.000	.680
1010.	1020.	0.933	0.219	0.000	0.000	.000	.680
1010.	1020.	0.933	0.219	0.000	0.000	.000	.680
1020.	1030.	7.733	0.383	0.000	0.000	NA	NA
1020.	1030.	7.733	0.383	0.000	0.000	NA	NA
1030.	1040.	15.384	0.383	0.000	0.000	NA	NA
1030.	1040.	15.384	0.383	0.000	0.000	NA	NA
1040.	1050.	7.733	0.383	0.000	0.000	NA	NA
1040.	1050.	7.733	0.383	0.000	0.000	NA	NA
1050.	1060.	0.933	0.219	0.000	0.000	.000	.680
1050.	1060.	0.933	0.219	0.000	0.000	.000	.680
1060.	1070.	0.933	0.219	0.000	0.000	.000	.680
1060.	1070.	0.933	0.219	0.000	0.000	.000	.680
1070.	1090.	0.467	0.156	0.000	0.000	.000	.638
1070.	1090.	0.467	0.156	0.000	0.000	.000	.638
1090.	1100.	0.467	0.156	0.000	0.000	.000	.638
1090.	1100.	0.467	0.156	0.000	0.000	.000	.638
200.	1110.	15.385	0.383	0.000	0.000	NA	NA
200.	1110.	15.385	0.383	0.000	0.000	NA	NA
1110.	1120.	0.933	0.219	0.000	0.000	.000	.680
1110.	1120.	0.933	0.219	0.000	0.000	.000	.680
1120.	1130.	0.933	0.219	0.000	0.000	.000	.680
1120.	1130.	0.933	0.219	0.000	0.000	.000	.680
1130.	1132.	0.933	0.219	0.000	0.000	.000	.680
1130.	1132.	0.933	0.219	0.000	0.000	.000	.680
1132.	1135.	0.933	0.219	0.000	0.000	.000	.680
1132.	1135.	0.933	0.219	0.000	0.000	.000	.680
1135.	1140.	0.933	0.219	0.000	0.000	.000	.680
1135.	1140.	0.933	0.219	0.000	0.000	.000	.680
1140.	1150.	0.933	0.219	0.000	0.000	.000	.680
1140.	1150.	0.933	0.219	0.000	0.000	.000	.680
1150.	1160.	0.933	0.219	0.000	0.000	.000	.680
1150.	1160.	0.933	0.219	0.000	0.000	.000	.680
1160.	1165.	0.933	0.219	0.000	0.000	.000	.680
1160.	1165.	0.933	0.219	0.000	0.000	.000	.680
1165.	1170.	0.933	0.219	0.000	0.000	.000	.680
1165.	1170.	0.933	0.219	0.000	0.000	.000	.680
1170.	1175.	0.933	0.219	0.000	0.000	.000	.680
1170.	1175.	0.933	0.219	0.000	0.000	.000	.680
1175.	1180.	0.933	0.219	0.000	0.000	.000	.680
1175.	1180.	0.933	0.219	0.000	0.000	.000	.680
1180.	1185.	0.933	0.219	0.000	0.000	.000	.680
1180.	1185.	0.933	0.219	0.000	0.000	.000	.680
1185.	1186.	0.933	0.219	0.000	0.000	.000	.680

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

## Données Diverses

1185.	1186.	0.933	0.219	0.000	0.000	.000	.680
1185.	1184.	0.000	0.000	0.000	0.000	NA	NA
1185.	1184.	0.000	0.000	0.000	0.000	NA	NA
1185.	1183.	0.000	0.000	0.000	0.000	NA	NA
1185.	1183.	0.000	0.000	0.000	0.000	NA	NA
1186.	1190.	0.933	0.219	0.000	0.000	.000	.680
1186.	1190.	0.933	0.219	0.000	0.000	.000	.680
1190.	1195.	0.933	0.219	0.000	0.000	.000	.680
1190.	1195.	0.933	0.219	0.000	0.000	.000	.680
1195.	1200.	0.467	0.156	0.000	0.000	.000	.638
1195.	1200.	0.467	0.156	0.000	0.000	.000	.638
1200.	1210.	0.467	0.156	0.000	0.000	.000	.638
1200.	1210.	0.467	0.156	0.000	0.000	.000	.638
1219.	1225.	0.000	0.000	0.000	0.000	NA	NA
1219.	1225.	0.000	0.000	0.000	0.000	NA	NA
1170.	1211.	0.933	0.219	0.000	0.000	.000	.680
1170.	1211.	0.933	0.219	0.000	0.000	.000	.680
1211.	1212.	0.933	0.219	0.000	0.000	.000	.680
1211.	1212.	0.933	0.219	0.000	0.000	.000	.680
1213.	1215.	6.960	0.383	0.000	0.000	NA	NA
1213.	1215.	6.960	0.383	0.000	0.000	NA	NA
1215.	1216.	0.933	0.219	0.000	0.000	.000	.680
1215.	1216.	0.933	0.219	0.000	0.000	.000	.680
1216.	1220.	0.933	0.219	0.000	0.000	.000	.680
1216.	1220.	0.933	0.219	0.000	0.000	.000	.680
1220.	1230.	0.933	0.219	0.000	0.000	.000	.680
1220.	1230.	0.933	0.219	0.000	0.000	.000	.680
1230.	1240.	10.875	0.383	0.000	0.000	NA	NA
1230.	1240.	10.875	0.383	0.000	0.000	NA	NA
1240.	1242.	0.000	0.000	0.000	0.000	NA	NA
1240.	1242.	0.000	0.000	0.000	0.000	NA	NA
1242.	1252.	5.484	0.383	0.000	0.000	NA	NA
1242.	1252.	5.484	0.383	0.000	0.000	NA	NA
1252.	1251.	0.000	0.000	0.000	0.000	NA	NA
1252.	1251.	0.000	0.000	0.000	0.000	NA	NA
1242.	1245.	0.000	0.000	0.000	0.000	NA	NA
1242.	1245.	0.000	0.000	0.000	0.000	NA	NA
1252.	1255.	0.000	0.000	0.000	0.000	NA	NA
1252.	1255.	0.000	0.000	0.000	0.000	NA	NA
1250.	1260.	10.875	0.383	0.000	0.000	NA	NA
1250.	1260.	10.875	0.383	0.000	0.000	NA	NA
1260.	1270.	0.933	0.219	0.000	0.000	.000	.867
1260.	1270.	0.933	0.219	0.000	0.000	.000	.867
1270.	1280.	0.933	0.219	0.000	0.000	.000	.867
1270.	1280.	0.933	0.219	0.000	0.000	.000	.867
1280.	1285.	0.933	0.219	0.000	0.000	.000	.867
1280.	1285.	0.933	0.219	0.000	0.000	.000	.867
1285.	1286.	0.933	0.219	0.000	0.000	.000	.867
1285.	1286.	0.933	0.219	0.000	0.000	.000	.867
1286.	1290.	0.933	0.219	0.000	0.000	.000	.867
1286.	1290.	0.933	0.219	0.000	0.000	.000	.867
1290.	1300.	0.933	0.219	0.000	0.000	.000	.867

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

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Télécopie : 02.33.03.25.02

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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

1290.	1300.	0.933	0.219	0.000	0.000	.000	.867
1300.	1310.	0.933	0.219	0.000	0.000	.000	.867
1300.	1310.	0.933	0.219	0.000	0.000	.000	.867
1310.	1315.	15.638	0.383	0.000	0.000	NA	NA
1310.	1315.	15.638	0.383	0.000	0.000	NA	NA
1285.	1320.	0.933	0.219	0.000	0.000	.000	.867
1285.	1320.	0.933	0.219	0.000	0.000	.000	.867
1320.	1325.	0.000	0.000	0.000	0.000	NA	NA
1320.	1325.	0.000	0.000	0.000	0.000	NA	NA
1329.	1335.	0.000	0.000	0.000	0.000	NA	NA
1329.	1335.	0.000	0.000	0.000	0.000	NA	NA
1320.	1330.	0.933	0.219	0.000	0.000	.000	.867
1320.	1330.	0.933	0.219	0.000	0.000	.000	.867
1330.	1340.	0.933	0.219	0.000	0.000	.000	.867
1330.	1340.	0.933	0.219	0.000	0.000	.000	.867
1340.	1343.	0.933	0.219	0.000	0.000	.000	.867
1340.	1343.	0.933	0.219	0.000	0.000	.000	.867
1343.	1345.	0.933	0.219	0.000	0.000	.000	.867
1343.	1345.	0.933	0.219	0.000	0.000	.000	.867
1345.	1350.	0.933	0.219	0.000	0.000	.000	.867
1345.	1350.	0.933	0.219	0.000	0.000	.000	.867
1350.	1355.	0.933	0.219	0.000	0.000	.000	.867
1350.	1355.	0.933	0.219	0.000	0.000	.000	.867
1355.	1360.	0.933	0.219	0.000	0.000	.000	.867
1355.	1360.	0.933	0.219	0.000	0.000	.000	.867
1360.	1370.	6.960	0.383	0.000	0.000	NA	NA
1360.	1370.	6.960	0.383	0.000	0.000	NA	NA
1370.	1380.	25.315	0.383	0.000	0.000	NA	NA
1370.	1380.	25.315	0.383	0.000	0.000	NA	NA
1380.	1390.	6.960	0.383	0.000	0.000	NA	NA
1380.	1390.	6.960	0.383	0.000	0.000	NA	NA
1390.	514.	0.933	0.219	0.000	0.000	.000	.889
1390.	514.	0.933	0.219	0.000	0.000	.000	.889
230.	1400.	18.038	0.383	0.000	0.000	NA	NA
230.	1400.	18.038	0.383	0.000	0.000	NA	NA
1400.	1410.	0.933	0.219	0.000	0.000	.000	.556
1400.	1410.	0.933	0.219	0.000	0.000	.000	.556
1410.	1415.	0.933	0.219	0.000	0.000	.000	.556
1410.	1415.	0.933	0.219	0.000	0.000	.000	.556
1415.	1420.	0.933	0.219	0.000	0.000	.000	.556
1415.	1420.	0.933	0.219	0.000	0.000	.000	.556
1420.	1425.	0.933	0.219	0.000	0.000	.000	.556
1420.	1425.	0.933	0.219	0.000	0.000	.000	.556
1425.	1430.	0.933	0.219	0.000	0.000	.000	.556
1425.	1430.	0.933	0.219	0.000	0.000	.000	.556
1430.	1440.	0.933	0.219	0.000	0.000	.000	.556
1430.	1440.	0.933	0.219	0.000	0.000	.000	.556
1440.	1445.	0.933	0.219	0.000	0.000	.000	.556
1440.	1445.	0.933	0.219	0.000	0.000	.000	.556
1445.	1450.	0.933	0.219	0.000	0.000	.000	.556
1445.	1450.	0.933	0.219	0.000	0.000	.000	.556
1450.	1451.	0.933	0.219	0.000	0.000	.000	.556

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
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Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

## Données Diverses

1450.	1451.	0.933	0.219	0.000	0.000	.000	.556
1451.	1452.	0.933	0.219	0.000	0.000	.000	.556
1451.	1452.	0.933	0.219	0.000	0.000	.000	.556
1452.	1455.	0.933	0.219	0.000	0.000	.000	.556
1452.	1455.	0.933	0.219	0.000	0.000	.000	.556
1455.	1460.	0.933	0.219	0.000	0.000	.000	.556
1455.	1460.	0.933	0.219	0.000	0.000	.000	.556
1460.	1470.	0.933	0.219	0.000	0.000	.000	.556
1460.	1470.	0.933	0.219	0.000	0.000	.000	.556
1470.	1475.	0.933	0.219	0.000	0.000	.000	.556
1470.	1475.	0.933	0.219	0.000	0.000	.000	.556
1475.	1480.	0.933	0.219	0.000	0.000	.000	.556
1475.	1480.	0.933	0.219	0.000	0.000	.000	.556
1480.	1490.	0.933	0.219	0.000	0.000	.000	.556
1480.	1490.	0.933	0.219	0.000	0.000	.000	.556
170.	1500.	15.823	0.383	0.000	0.000	NA	NA
170.	1500.	15.823	0.383	0.000	0.000	NA	NA
1501.	1510.	7.404	0.383	0.000	0.000	NA	NA
1501.	1510.	7.404	0.383	0.000	0.000	NA	NA
1510.	1520.	0.933	0.219	0.000	0.000	.000	.556
1510.	1520.	0.933	0.219	0.000	0.000	.000	.556
1520.	1525.	0.933	0.219	0.000	0.000	.000	.556
1520.	1525.	0.933	0.219	0.000	0.000	.000	.556
1525.	1530.	0.933	0.219	0.000	0.000	.000	.556
1525.	1530.	0.933	0.219	0.000	0.000	.000	.556
1530.	1540.	0.933	0.219	0.000	0.000	.000	.556
1530.	1540.	0.933	0.219	0.000	0.000	.000	.556
1540.	1450.	0.933	0.219	0.000	0.000	.000	.556
1540.	1450.	0.933	0.219	0.000	0.000	.000	.556

CAESAR II 2011 Ver.5.30.0, (Build 101122)

Date:MAY 11,2013 @15:33 Pg: 27

----- PIPE PROPERTIES #2

FROM TO THERMAL EXPANSION COEFFICIENTS 1 THRU 9

/----- THERMAL EXPANSION (mm./mm.) -----/

10.	20.	0.0014	0.0014	0.0004	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
20.	25.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
20.	30.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
30.	40.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
40.	45.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
45.	50.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
50.	55.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
55.	56.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
56.	60.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
65.	70.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
70.	80.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
40.	100.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
105.	110.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
110.	120.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
125.	130.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000



Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

130.	134.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
134.	135.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
135.	140.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
140.	145.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
145.	146.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
55.	150.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
155.	160.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
160.	170.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
56.	180.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
185.	190.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
190.	200.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
30.	210.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
215.	220.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
220.	230.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
80.	240.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
240.	250.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
251.	260.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
260.	262.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
262.	265.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
265.	270.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
270.	271.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
271.	272.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
272.	276.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
276.	273.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
276.	275.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
276.	281.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
273.	274.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
274.	280.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
280.	284.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
284.	285.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
285.	286.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
286.	287.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
287.	290.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
290.	299.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
299.	300.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
300.	301.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
301.	302.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
302.	305.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
305.	435.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
435.	440.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
440.	445.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
445.	310.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
310.	315.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
315.	320.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
320.	321.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
321.	325.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
325.	330.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
330.	335.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
335.	340.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
340.	341.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
341.	345.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
345.	350.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000

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Télécopie : 02.33.03.25.02

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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

350.	355.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
355.	360.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
360.	365.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
365.	366.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
366.	370.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
370.	380.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
380.	385.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
385.	390.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
390.	395.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
395.	400.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
400.	405.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
405.	410.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
410.	415.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
415.	420.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
420.	430.	0.0044	0.0009	-0.0011	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
440.	450.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
450.	460.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
460.	120.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
365.	500.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
500.	505.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
505.	510.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
510.	514.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
514.	515.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
515.	520.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
520.	525.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
525.	530.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
530.	535.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
535.	540.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
548.	545.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
540.	550.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
550.	560.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
560.	570.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
570.	580.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
580.	585.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
585.	590.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
590.	595.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
595.	596.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
596.	600.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
600.	610.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
610.	615.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
615.	620.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
520.	625.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
625.	630.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
630.	635.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
635.	640.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
640.	645.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
645.	590.	0.0004	0.0004	0.0004	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
360.	660.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
660.	670.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
670.	680.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
360.	690.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
690.	700.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000

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700.	710.	0.0035	0.0035	0.0000	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
260.	720.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
720.	725.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
725.	730.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
730.	740.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
740.	745.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
745.	750.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
750.	760.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
760.	770.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
770.	780.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
780.	790.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
791.	795.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
795.	800.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
800.	810.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
810.	820.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
720.	830.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
830.	840.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
840.	850.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
850.	860.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
860.	865.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
865.	870.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
870.	872.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
872.	875.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
875.	876.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
875.	877.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
875.	880.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
880.	890.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
890.	895.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
895.	900.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
770.	772.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
772.	775.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
775.	910.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
910.	915.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
915.	920.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
910.	916.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
910.	917.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
920.	930.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
930.	950.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
958.	955.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
950.	960.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
960.	965.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
965.	970.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
970.	980.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
980.	990.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
775.	995.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
995.	1000.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1000.	1002.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1009.	1005.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1002.	1010.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1010.	1020.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1020.	1030.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1030.	1040.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000

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1040.	1050.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1050.	1060.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1060.	1070.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1070.	1090.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1090.	1100.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
200.	1110.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1110.	1120.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1120.	1130.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1130.	1132.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1132.	1135.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1135.	1140.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1140.	1150.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1150.	1160.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1160.	1165.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1165.	1170.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1170.	1175.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1175.	1180.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1180.	1185.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1185.	1186.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1185.	1184.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1185.	1183.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1186.	1190.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1190.	1195.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1195.	1200.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1200.	1210.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1219.	1225.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1170.	1211.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1211.	1212.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1213.	1215.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1215.	1216.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1216.	1220.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1220.	1230.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1230.	1240.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1240.	1242.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1242.	1252.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1252.	1251.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1242.	1245.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1252.	1255.	0.0008	0.0008	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
1250.	1260.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1260.	1270.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1270.	1280.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1280.	1285.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1285.	1286.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1286.	1290.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1290.	1300.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1300.	1310.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1310.	1315.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1285.	1320.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1320.	1325.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1329.	1335.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1320.	1330.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
1330.	1340.	0.0035	0.0035	0.0000	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

Téléphone 02.33.08.81.00

Télécopie : 02.33.03.25.02

Date : 29 Avril 2013

Tuyautes Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

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1340. 1343. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1343. 1345. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1345. 1350. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1350. 1355. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1355. 1360. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1360. 1370. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1370. 1380. 0.0035 0.0035 0.0000 0.0044 0.0000 0.0000 0.0000 0.0000 0.0000
1380. 1390. 0.0035 0.0035 0.0000 0.0044 0.0000 0.0000 0.0000 0.0000 0.0000
1390. 514. 0.0035 0.0035 0.0000 0.0044 0.0000 0.0000 0.0000 0.0000 0.0000
230. 1400. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1400. 1410. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1410. 1415. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1415. 1420. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1420. 1425. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1425. 1430. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1430. 1440. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1440. 1445. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1445. 1450. 0.0008 0.0004 0.0004 0.0008 0.0000 0.0000 0.0000 0.0000 0.0000
1450. 1451. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1451. 1452. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1452. 1455. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1455. 1460. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1460. 1470. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1470. 1475. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1475. 1480. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1480. 1490. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
170. 1500. 0.0035 0.0035 0.0000 0.0035 0.0000 0.0000 0.0000 0.0000 0.0000
1501. 1510. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1510. 1520. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1520. 1525. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1525. 1530. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1530. 1540. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000
1540. 1450. 0.0039 0.0004 0.0004 0.0039 0.0000 0.0000 0.0000 0.0000 0.0000

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# ----- CENTER OF GRAVITY REPORT

	Total Wght	X cg	Y cg	Z cg
	(N. )	(mm.)	(mm.)	(mm.)
Pipe :	2164358.8	-2030.4	1500.0	6090.5
Insulation :	100614.9	-4165.7	3249.2	6874.0
Refractory :	0.0	0.0	0.0	0.0
Fluid :	0.0	0.0	0.0	0.0
Pipe+Insl+Refrty :	2264975.0	-2125.3	1577.7	6125.3
Pipe+Fluid :	2164358.8	-2030.4	1500.0	6090.5
Pipe+Insl+Refrty+Fluid:	2264975.0	-2125.3	1577.7	6125.3

# ----- BILL OF MATERIALS REPORT

MATERIAL ID: 457.

PIPE DIAM (mm.) THCK (mm.) LENGTH (mm.)

7, Rue des Claires - BP 59  
50460 QUERQUEVILLE  
FRANCE

Téléphone 02.33.08.81.00

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Tuyaeries Alimentation Air Sécheur CHAUMECA

DGA - Centre d'Essais Propulseurs

Données Diverses

1	6634.000	10.000	3188.000
2	6614.000	15.000	2666.000
3	6604.000	10.000	4400.000
4	3450.000	15.000	5000.000
5	1230.000	15.000	12715.459
6	1220.000	10.000	79274.469
7	1020.000	10.000	150.000
8	1000.000	10.000	150.000
9	940.000	20.000	2446.083
10	920.000	10.000	12806.464
11	716.000	8.000	1138.000
12	610.000	6.350	14058.440

BEND	NUMBER	DIAM (mm.)	THCK (mm.)	RADIUS (mm.)	ANGLE (deg)
1	1	1220.000	10.000	1220.000	90.6
2	1	1220.000	10.000	1220.000	90.0
3	1	1220.000	10.000	1220.000	89.4
4	1	1220.000	10.000	1220.000	45.6
5	1	1220.000	10.000	1220.000	44.4
6	1	1220.000	10.000	1200.000	90.0
7	2	1220.000	10.000	1200.000	30.0
8	2	1220.000	10.000	1000.000	89.6
9	1	1220.000	10.000	1000.000	89.4
10	1	920.000	10.000	920.000	90.6
11	2	920.000	10.000	920.000	89.4
12	2	920.000	10.000	900.000	45.0
13	1	610.000	6.350	610.000	89.4

MATERIAL ID: 455.

PIPE	DIAM (mm.)	THCK (mm.)	LENGTH (mm.)
1	610.000	6.350	94855.219
2	406.400	4.780	770.017

BEND	NUMBER	DIAM (mm.)	THCK (mm.)	RADIUS (mm.)	ANGLE (deg)
1	2	610.000	6.350	914.400	90.6
2	1	610.000	6.350	914.400	90.2
3	5	610.000	6.350	914.400	90.0
4	7	610.000	6.350	914.400	89.4
5	1	610.000	6.350	914.400	32.7
6	1	610.000	6.350	914.400	25.0
7	1	610.000	6.350	914.400	15.0
8	1	610.000	6.350	610.000	90.0
9	1	610.000	6.350	609.600	90.0
10	1	610.000	6.350	609.600	57.3
11	1	610.000	6.350	609.600	30.0