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AutoPIPE 6.20 MODEL PAGE 1

[illegible]

Version: 6.20.09

Edition: Win

Developed and Maintained by

REBIS Industrial Workgroup Software
1600 Riviera Ave., Suite 300
Walnut Creek, CA 94596

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**
**
** AUTOPIPE SYSTEM INFORMATION **
**

SYSTEM NAME : 79319819_KOMPLETT

PROJECT ID : ASU KOSICE

DESCRIPTION :

PREPARED BY : _____
WEGSTEIN

CHECKED BY : _____
FRICKHOEFER

PIPING CODE : B31.3
VERTICAL AXIS : Z
AMBIENT TEMPERATURE : 20.0 deg C
COMPONENT LIBRARY : HANAU_AL
MATERIAL LIBRARY : AUTOB313
MODEL REVISION NUMBER : 2

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COMPONENT DATA LISTING

*** SEGMENT A , LINE # 79319819

From A00 to A01, DX= 500.86 mm, DY= -182.30 mm, L= 533.00 mm Run

PIPE DATA:

Pipe Id= 350MX6.0, Material= AL, Poisson= 0.300, Nom Size= 350 mm,
OD= 355.00 mm, Sch= 6.0, Wall Thk= 6.000 mm, Mill= 0.750 mm, Cor= 0 mm,
Pipe Density= 2707.12 kg/m3, Pipe Unit Wgt= 174.64 N/m, Insul Thk= 0 mm,
Lining Thk= 0 mm, Long Weld factor= 1.00, Circ Weld factor= 1.00,
Long Modulus= 0.06899 x10⁶ N/m, Hoop Modulus= 0.06899 x10⁶ N/m,
Shear Modulus= 0.02653 x10⁶ N/m, Sc= 103.4 N/mm2, Syc= 0 N/mm2

OPERATING DATA:

P1= 0 N/mm2, T1= -196.00 deg C, Exp1= -3.84587 mm/m,
E1= 0.07646 x10⁶ N/m, Sh1= 71.00 N/mm2

POINT DATA:

A00, Coordinates, X= 0.00 mm, Y= 0.00 mm, Z= 0.00 mm

From A01 to A08, DZ= -6082.96 mm

Bend

COMPONENT DATA (Bend, TIP= A01, Near= A01 N, Far= A01 F):
Elbow, Radius= 532.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 15.711, SIFI= 4.04, SIFO= 3.37

POINT DATA:

A01, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= 0.00 mm
A01 N, Coordinates, X= 0.01 mm, Y= -0.01 mm, Z= 0.00 mm
A01 F, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -532.99 mm

SUPPORT DATA:

A01 N, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

From A08 to A07, DZ= -100.00 mm

Tee

COMPONENT DATA (Tee Header, Center= A08):
B16.9 welding tee, SIFI= 3.25, SIFO= 4.00

POINT DATA:

A08, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6082.96 mm

From A07 to A02, DZ= -200.00 mm

Run

POINT DATA:

A07, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6182.96 mm

From A02 to A03, DZ= -50.00 mm

Tee

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COMPONENT DATA LISTING

COMPONENT DATA (Tee Header, Center= A02):
B16.9 welding tee, SIFI= 3.25, SIFO= 4.00

POINT DATA:
A02, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6382.96 mm

From A03 to A04, DZ= -350.00 mm

Redu

COMPONENT DATA (Reducer):
Length= 350.00 mm, SIF= 1.00

POINT DATA:
A03, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6432.96 mm

From A04 to A05, DZ= -610.00 mm

Run

PIPE DATA:
Pipe Id= 400MX6.0, Nom Size= 400 mm, OD= 406.00 mm

POINT DATA:
A04, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6782.96 mm

From A05 to A06, DX= -785.04 mm, DY= 285.73 mm, L= 835.42 mm

Bend

COMPONENT DATA (Bend, TIP= A05, Near= A05 N, Far= A05 F):
Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:
A05, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -7392.96 mm
A05 N, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6782.97 mm
A05 F, Coordinates, X= -72.34 mm, Y= 26.33 mm, Z= -7392.96 mm
A06, Coordinates, X= -284.18 mm, Y= 103.43 mm, Z= -7392.96 mm

SUPPORT DATA:
A06, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

*** SEGMENT B , LINE # 79319819

From A02 to B01, DY= -230.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= A02):
B16.9 welding tee, SIFI= 3.25, SIFO= 4.00

PIPE DATA:
Pipe Id= 50MMX3.9, Nom Size= 50 mm, OD= 60.300 mm, Sch= 3.9,
Wall Thk= 3.900 mm, Mill= 0.487 mm

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C O M P O N E N T D A T A L I S T I N G

POINT DATA:

A02, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6382.96 mm

*** SEGMENT C , LINE # 79319819

From B01 to C01, DY= -259.66 mm

Junc

PIPE DATA:

Pipe Id= 50MMX3.9, Nom Size= 50 mm

POINT DATA:

B01, Coordinates, X= 500.86 mm, Y= -412.30 mm, Z= -6382.96 mm

From C01 to C02, DX= 949.68 mm, DZ= 89.49 mm, L= 953.89 mm

Bend

COMPONENT DATA (Bend, TIP= C01, Near= C01 N, Far= C01 F):

Elbow, Radius= 120.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C01, Coordinates, X= 500.86 mm, Y= -671.96 mm, Z= -6382.96 mm
C01 N, Coordinates, X= 500.86 mm, Y= -550.97 mm, Z= -6382.96 mm
C01 F, Coordinates, X= 621.32 mm, Y= -671.96 mm, Z= -6371.61 mm

From C02 to C03, DY= 1035.00 mm

Bend

COMPONENT DATA (Bend, TIP= C02, Near= C02 N, Far= C02 F):

Elbow, Radius= 120.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C02, Coordinates, X= 1450.54 mm, Y= -671.96 mm, Z= -6293.47 mm
C02 N, Coordinates, X= 1330.08 mm, Y= -671.96 mm, Z= -6304.82 mm
C02 F, Coordinates, X= 1450.54 mm, Y= -550.97 mm, Z= -6293.47 mm

From C03 to C04, DX= 116.88 mm, DZ= 31.32 mm, L= 121.00 mm

Bend

COMPONENT DATA (Bend, TIP= C03, Near= C03 N, Far= C03 F):

Elbow, Radius= 120.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C03, Coordinates, X= 1450.54 mm, Y= 363.04 mm, Z= -6293.47 mm
C03 N, Coordinates, X= 1450.54 mm, Y= 242.05 mm, Z= -6293.47 mm
C03 F, Coordinates, X= 1567.41 mm, Y= 363.04 mm, Z= -6262.15 mm

From C04 to C05, DX= 120.74 mm, DZ= 32.35 mm, L= 125.00 mm

Valv

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C O M P O N E N T D A T A L I S T I N G

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 125.00 mm, Weight= 25 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

C04, Coordinates, X= 1567.42 mm, Y= 363.04 mm, Z= -6262.15 mm

From C05 to C06, DX= -23.29 mm, DZ= 86.93 mm, L= 90.00 mm Valv

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 90.00 mm, Weight= 25 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

C05, Coordinates, X= 1688.16 mm, Y= 363.04 mm, Z= -6229.80 mm

SUPPORT DATA:

C05, V-Stop, Support Id= C05 1, Connected to Ground, Mark= Undefined,
Tag#= Undefined, CompID= Undefined

From C06 to C07, DX= -139.60 mm, DZ= 521.02 mm, L= 539.40 mm Run

POINT DATA:

C06, Coordinates, X= 1664.87 mm, Y= 363.04 mm, Z= -6142.87 mm

From C07 to C08, DX= -65.40 mm, DY= 65.40 mm, DZ= 8.09 mm, L= 92.84 mm Bend

COMPONENT DATA (Bend, TIP= C07, Near= C07 N, Far= C07 F):

Elbow, Radius= 120.99 mm, Bend angle= 74.55 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C07, Coordinates, X= 1525.27 mm, Y= 363.04 mm, Z= -5621.85 mm
C07 N, Coordinates, X= 1549.10 mm, Y= 363.04 mm, Z= -5710.79 mm
C07 F, Coordinates, X= 1460.41 mm, Y= 427.90 mm, Z= -5613.83 mm

From C08 to C09, DX= -423.69 mm, DY= 423.69 mm, DZ= 52.42 mm, L= 601.48 mm Run

POINT DATA:

C08, Coordinates, X= 1459.87 mm, Y= 428.44 mm, Z= -5613.76 mm

From C09 to C10, DX= -107.33 mm, DY= 107.33 mm, DZ= 13.28 mm, L= 152.37 mm Run

POINT DATA:

C09, Coordinates, X= 1036.18 mm, Y= 852.13 mm, Z= -5561.34 mm

From C10 to C11, DX= -47.95 mm, DZ= 27.68 mm, L= 55.37 mm Bend

COMPONENT DATA (Bend, TIP= C10, Near= C10 N, Far= C10 F):

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C O M P O N E N T D A T A L I S T I N G

Elbow, Radius= 120.99 mm, Bend angle= 49.18 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C10, Coordinates, X= 928.85 mm, Y= 959.46 mm, Z= -5548.06 mm
C10 N, Coordinates, X= 967.86 mm, Y= 920.45 mm, Z= -5552.89 mm
C10 F, Coordinates, X= 881.45 mm, Y= 959.46 mm, Z= -5520.70 mm

From C11 to C12, DX= -455.99 mm, DZ= 263.27 mm, L= 526.53 mm Run

POINT DATA:

C11, Coordinates, X= 880.90 mm, Y= 959.46 mm, Z= -5520.38 mm

From C12 to C13, DX= -144.51 mm, DZ= 83.43 mm, L= 166.86 mm Run

POINT DATA:

C12, Coordinates, X= 424.91 mm, Y= 959.46 mm, Z= -5257.11 mm

From C13 to C14, DZ= 3711.19 mm Bend

COMPONENT DATA (Bend, TIP= C13, Near= C13 N, Far= C13 F):
Elbow, Radius= 120.99 mm, Bend angle= 60.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C13, Coordinates, X= 280.40 mm, Y= 959.46 mm, Z= -5173.68 mm
C13 N, Coordinates, X= 340.90 mm, Y= 959.46 mm, Z= -5208.61 mm
C13 F, Coordinates, X= 280.40 mm, Y= 959.46 mm, Z= -5103.83 mm

From C14 to C15, DX= 586.99 mm, DZ= 51.35 mm, L= 589.23 mm Bend

COMPONENT DATA (Bend, TIP= C14, Near= C14 N, Far= C14 F):
Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C14, Coordinates, X= 280.40 mm, Y= 959.46 mm, Z= -1462.49 mm
C14 N, Coordinates, X= 280.40 mm, Y= 959.46 mm, Z= -1573.36 mm
C14 F, Coordinates, X= 390.85 mm, Y= 959.46 mm, Z= -1452.83 mm

From C15 to C16, DY= -120.54 mm, DZ= 10.55 mm, L= 121.00 mm Bend

COMPONENT DATA (Bend, TIP= C15, Near= C15 N, Far= C15 F):
Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C15, Coordinates, X= 867.39 mm, Y= 959.46 mm, Z= -1411.14 mm
C15 N, Coordinates, X= 747.77 mm, Y= 959.46 mm, Z= -1421.60 mm
C15 F, Coordinates, X= 867.39 mm, Y= 839.84 mm, Z= -1400.67 mm

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C O M P O N E N T D A T A L I S T I N G

From C16 to C17, DY= -1357.26 mm, DZ= 118.75 mm, L= 1362.44 mm Run

POINT DATA:

C16, Coordinates, X= 867.39 mm, Y= 838.92 mm, Z= -1400.59 mm

From C17 to C18, DX= -799.99 mm, DZ= 69.99 mm, L= 803.05 mm Bend

COMPONENT DATA (Bend, TIP= C17, Near= C17 N, Far= C17 F):

Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C17, Coordinates, X= 867.39 mm, Y= -518.34 mm, Z= -1281.84 mm

C17 N, Coordinates, X= 867.39 mm, Y= -398.72 mm, Z= -1292.31 mm

C17 F, Coordinates, X= 747.77 mm, Y= -518.34 mm, Z= -1271.37 mm

From C18 to C19, DZ= 2700.00 mm Bend

COMPONENT DATA (Bend, TIP= C18, Near= C18 N, Far= C18 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C18, Coordinates, X= 67.40 mm, Y= -518.34 mm, Z= -1211.85 mm

C18 N, Coordinates, X= 177.85 mm, Y= -518.34 mm, Z= -1221.51 mm

C18 F, Coordinates, X= 67.40 mm, Y= -518.34 mm, Z= -1100.98 mm

From C19 to C20, DX= -500.00 mm Bend

COMPONENT DATA (Bend, TIP= C19, Near= C19 N, Far= C19 F):

Elbow, Radius= 120.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

C19, Coordinates, X= 67.40 mm, Y= -518.34 mm, Z= 1488.15 mm

C19 N, Coordinates, X= 67.40 mm, Y= -518.34 mm, Z= 1367.16 mm

C19 F, Coordinates, X= -53.59 mm, Y= -518.34 mm, Z= 1488.15 mm

C20, Coordinates, X= -432.60 mm, Y= -518.34 mm, Z= 1488.15 mm

SUPPORT DATA:

C20, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

*** SEGMENT D , LINE # 79319819

From D00 to D01, DX= 88.90 mm Run

COMPONENT DATA (Run):

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C O M P O N E N T D A T A L I S T I N G

Rigid, Include weight= Yes, Include expansion= Yes

PIPE DATA:

Pipe Id= 15MMX3.4, Nom Size= 15 mm, OD= 21.300 mm, Sch= NS,
Wall Thk= 5.325 mm, Mill= 0.666 mm, Long Modulus= 0.06899 x10⁶ N/m,
Hoop Modulus= 0.06899 x10⁶ N/m, Shear Modulus= 0.02653 x10⁶ N/m,
Sc= 103.4 N/mm²

POINT DATA:

D00, Coordinates, X= -4221.61 mm, Y= 889.27 mm, Z= -1568.47 mm

*** SEGMENT E , LINE #

From A08 to E01, DY= -409.84 mm

Tee

COMPONENT DATA (Tee Branch, Center= A08):

B16.9 welding tee, SIFI= 3.25, SIFO= 4.00

PIPE DATA:

Pipe Id= PIPE0001, Nom Size= 80 mm, OD= 88.900 mm, Wall Thk= 22.225 mm,
Mill= 2.778 mm

POINT DATA:

A08, Coordinates, X= 500.86 mm, Y= -182.30 mm, Z= -6082.96 mm

From E01 to E02, DX= -593.59 mm, DY= -593.59 mm, DZ= 224.93 mm,
L= 869.08 mm

Bend

COMPONENT DATA (Bend, TIP= E01, Near= E01 N, Far= E01 F):

Elbow, Radius= 113.99 mm, Bend angle= 46.92 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

E01, Coordinates, X= 500.86 mm, Y= -592.14 mm, Z= -6082.96 mm
E01 N, Coordinates, X= 500.86 mm, Y= -542.67 mm, Z= -6082.96 mm
E01 F, Coordinates, X= 467.07 mm, Y= -625.93 mm, Z= -6070.16 mm

From E02 to E03, DY= -1500.00 mm, DZ= 83.35 mm, L= 1502.31 mm

Bend

COMPONENT DATA (Bend, TIP= E02, Near= E02 N, Far= E02 F):

Elbow, Radius= 113.99 mm, Bend angle= 45.87 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

E02, Coordinates, X= -92.73 mm, Y= -1185.73 mm, Z= -5858.03 mm
E02 N, Coordinates, X= -59.79 mm, Y= -1152.79 mm, Z= -5870.51 mm
E02 F, Coordinates, X= -92.73 mm, Y= -1233.89 mm, Z= -5855.35 mm

From E03 to E04, DX= 1520.08 mm

Bend

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C O M P O N E N T D A T A L I S T I N G

COMPONENT DATA (Bend, TIP= E03, Near= E03 N, Far= E03 F):
Elbow, Radius= 113.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:
E03, Coordinates, X= -92.73 mm, Y= -2685.73 mm, Z= -5774.68 mm
E03 N, Coordinates, X= -92.73 mm, Y= -2571.92 mm, Z= -5781.00 mm
E03 F, Coordinates, X= 21.26 mm, Y= -2685.73 mm, Z= -5774.68 mm

From E04 to E05, DX= 17.44 mm, DZ= 4.67 mm, L= 18.05 mm Bend

COMPONENT DATA (Bend, TIP= E04, Near= E04 N, Far= E04 F):
Elbow, Radius= 114.00 mm, Bend angle= 14.99 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:
E04, Coordinates, X= 1427.35 mm, Y= -2685.73 mm, Z= -5774.68 mm
E04 N, Coordinates, X= 1412.35 mm, Y= -2685.73 mm, Z= -5774.68 mm
E04 F, Coordinates, X= 1441.84 mm, Y= -2685.73 mm, Z= -5770.80 mm

From E05 to E06, DX= 146.77 mm, DZ= 39.33 mm, L= 151.95 mm Valv

COMPONENT DATA (Valve):
NS, Rating= 10, Length= 151.95 mm, Weight= 40 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:
E05, Coordinates, X= 1444.79 mm, Y= -2685.73 mm, Z= -5770.01 mm

From E06 to E07, DX= -40.12 mm, DZ= 149.72 mm, L= 155.00 mm Valv

COMPONENT DATA (Valve):
NS, Rating= 10, Length= 155.00 mm, Weight= 40 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:
E06, Coordinates, X= 1591.56 mm, Y= -2685.73 mm, Z= -5730.68 mm

From E07 to E08, DX= -129.72 mm, DZ= 484.12 mm, L= 501.20 mm Run

POINT DATA:
E07, Coordinates, X= 1551.44 mm, Y= -2685.73 mm, Z= -5580.96 mm

From E08 to E09, DX= -1514.46 mm, DZ= 132.50 mm, L= 1520.24 mm Bend

COMPONENT DATA (Bend, TIP= E08, Near= E08 N, Far= E08 F):
Elbow, Radius= 113.99 mm, Bend angle= 70.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

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C O M P O N E N T D A T A L I S T I N G

E08, Coordinates, X= 1421.72 mm, Y= -2685.73 mm, Z= -5096.84 mm
E08 N, Coordinates, X= 1442.38 mm, Y= -2685.73 mm, Z= -5173.94 mm
E08 F, Coordinates, X= 1342.21 mm, Y= -2685.73 mm, Z= -5089.88 mm

From E09 to E10, DZ= 1334.55 mm

Bend

COMPONENT DATA (Bend, TIP= E09, Near= E09 N, Far= E09 F):
Elbow, Radius= 113.99 mm, Bend angle= 85.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

E09, Coordinates, X= -92.74 mm, Y= -2685.73 mm, Z= -4964.34 mm
E09 N, Coordinates, X= 11.32 mm, Y= -2685.73 mm, Z= -4973.44 mm
E09 F, Coordinates, X= -92.74 mm, Y= -2685.73 mm, Z= -4859.89 mm

From E10 to E11, DY= 1000.00 mm, DZ= 87.49 mm, L= 1003.82 mm

Bend

COMPONENT DATA (Bend, TIP= E10, Near= E10 N, Far= E10 F):
Elbow, Radius= 113.99 mm, Bend angle= 85.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

E10, Coordinates, X= -92.74 mm, Y= -2685.73 mm, Z= -3629.79 mm
E10 N, Coordinates, X= -92.74 mm, Y= -2685.73 mm, Z= -3734.24 mm
E10 F, Coordinates, X= -92.74 mm, Y= -2581.68 mm, Z= -3620.69 mm

From E11 to E12, DX= -3350.00 mm, DZ= 293.09 mm, L= 3362.80 mm

Bend

COMPONENT DATA (Bend, TIP= E11, Near= E11 N, Far= E11 F):
Elbow, Radius= 114.86 mm, Bend angle= 89.56 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

E11, Coordinates, X= -92.74 mm, Y= -1685.73 mm, Z= -3542.30 mm
E11 N, Coordinates, X= -92.74 mm, Y= -1799.29 mm, Z= -3552.24 mm
E11 F, Coordinates, X= -206.30 mm, Y= -1685.73 mm, Z= -3532.36 mm

From E12 to E13, DX= -534.68 mm, DY= 1995.44 mm, DZ= 180.74 mm,
L= 2073.72 mm

Bend

COMPONENT DATA (Bend, TIP= E12, Near= E12 N, Far= E12 F):
Elbow, Radius= 113.99 mm, Bend angle= 74.67 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:

E12, Coordinates, X= -3442.74 mm, Y= -1685.73 mm, Z= -3249.21 mm
E12 N, Coordinates, X= -3356.13 mm, Y= -1685.73 mm, Z= -3256.79 mm
E12 F, Coordinates, X= -3465.16 mm, Y= -1602.07 mm, Z= -3241.63 mm

From E13 to E14, DZ= 3000.00 mm

Bend

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C O M P O N E N T D A T A L I S T I N G

COMPONENT DATA (Bend, TIP= E13, Near= E13 N, Far= E13 F):
Elbow, Radius= 113.99 mm, Bend angle= 85.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:
E13, Coordinates, X= -3977.42 mm, Y= 309.71 mm, Z= -3068.47 mm
E13 N, Coordinates, X= -3950.49 mm, Y= 209.20 mm, Z= -3077.57 mm
E13 F, Coordinates, X= -3977.42 mm, Y= 309.71 mm, Z= -2964.02 mm

From E14 to E15, DX= -155.29 mm, DY= 579.56 mm, L= 600.00 mm Bend

COMPONENT DATA (Bend, TIP= E14, Near= E14 N, Far= E14 F):
Elbow, Radius= 113.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:
E14, Coordinates, X= -3977.42 mm, Y= 309.71 mm, Z= -68.47 mm
E14 N, Coordinates, X= -3977.42 mm, Y= 309.71 mm, Z= -182.46 mm
E14 F, Coordinates, X= -4006.92 mm, Y= 419.82 mm, Z= -68.47 mm

From E15 to D01, DZ= -1500.00 mm Bend

COMPONENT DATA (Bend, TIP= E15, Near= E15 N, Far= E15 F):
Elbow, Radius= 113.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 1.000, SIFI= 1.00, SIFO= 1.00

POINT DATA:
E15, Coordinates, X= -4132.71 mm, Y= 889.27 mm, Z= -68.47 mm
E15 N, Coordinates, X= -4103.21 mm, Y= 779.16 mm, Z= -68.47 mm
E15 F, Coordinates, X= -4132.71 mm, Y= 889.27 mm, Z= -182.46 mm

From D01 to E17, DZ= -500.00 mm Tee

COMPONENT DATA (Tee Header, Center= D01):
B16.9 welding tee, SIFI= 1.00, SIFO= 1.00

POINT DATA:
D01, Coordinates, X= -4132.71 mm, Y= 889.27 mm, Z= -1568.47 mm
E17, Coordinates, X= -4132.71 mm, Y= 889.27 mm, Z= -2068.47 mm

SUPPORT DATA:
E17, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

Number of points in the system: 102

Weight of Empty Pipes + Weight of Contents = Total Weight of System
551.1 kg + 0.0 kg = 551.1 kg

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C O O R D I N A T E S D A T A L I S T I N G

POINT NAME	-----COORDINATE (mm)----- X	Y	Z
*** SEGMENT A , LINE # 79319819			
A00	0.00	0.00	0.00
A01 N	0.01	-0.01	0.00
A01	500.86	-182.30	0.00
A01 F	500.86	-182.30	-532.99
A08	500.86	-182.30	-6082.96
A07	500.86	-182.30	-6182.96
A02	500.86	-182.30	-6382.96
A03	500.86	-182.30	-6432.96
A04	500.86	-182.30	-6782.96
A05 N	500.86	-182.30	-6782.97
A05	500.86	-182.30	-7392.96
A05 F	-72.34	26.33	-7392.96
A06	-284.18	103.43	-7392.96
*** SEGMENT B , LINE # 79319819			
A02	500.86	-182.30	-6382.96
B01	500.86	-412.30	-6382.96
*** SEGMENT C , LINE # 79319819			
B01	500.86	-412.30	-6382.96
C01 N	500.86	-550.97	-6382.96
C01	500.86	-671.96	-6382.96
C01 F	621.32	-671.96	-6371.61
C02 N	1330.08	-671.96	-6304.82
C02	1450.54	-671.96	-6293.47
C02 F	1450.54	-550.97	-6293.47
C03 N	1450.54	242.05	-6293.47
C03	1450.54	363.04	-6293.47
C03 F	1567.41	363.04	-6262.15
C04	1567.42	363.04	-6262.15
C05	1688.16	363.04	-6229.80
C06	1664.87	363.04	-6142.87
C07 N	1549.10	363.04	-5710.79
C07	1525.27	363.04	-5621.85
C07 F	1460.41	427.90	-5613.83
C08	1459.87	428.44	-5613.76
C09	1036.18	852.13	-5561.34
C10 N	967.86	920.45	-5552.89
C10	928.85	959.46	-5548.06
C10 F	881.45	959.46	-5520.70
C11	880.90	959.46	-5520.38
C12	424.91	959.46	-5257.11
C13 N	340.90	959.46	-5208.61
C13	280.40	959.46	-5173.68
C13 F	280.40	959.46	-5103.83
C14 N	280.40	959.46	-1573.36
C14	280.40	959.46	-1462.49
C14 F	390.85	959.46	-1452.83
C15 N	747.77	959.46	-1421.60
C15	867.39	959.46	-1411.14
C15 F	867.39	839.84	-1400.67

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COORDINATES DATA LISTING

POINT NAME	-----COORDINATE (mm)----- X	Y	Z
C16	867.39	838.92	-1400.59
C17 N	867.39	-398.72	-1292.31
C17	867.39	-518.34	-1281.84
C17 F	747.77	-518.34	-1271.37
C18 N	177.85	-518.34	-1221.51
C18	67.40	-518.34	-1211.85
C18 F	67.40	-518.34	-1100.98
C19 N	67.40	-518.34	1367.16
C19	67.40	-518.34	1488.15
C19 F	-53.59	-518.34	1488.15
C20	-432.60	-518.34	1488.15

*** SEGMENT D , LINE # 79319819

D00	-4221.61	889.27	-1568.47
D01	-4132.71	889.27	-1568.47

*** SEGMENT E , LINE #

A08	500.86	-182.30	-6082.96
E01 N	500.86	-542.67	-6082.96
E01	500.86	-592.14	-6082.96
E01 F	467.07	-625.93	-6070.16
E02 N	-59.79	-1152.79	-5870.51
E02	-92.73	-1185.73	-5858.03
E02 F	-92.73	-1233.89	-5855.35
E03 N	-92.73	-2571.92	-5781.00
E03	-92.73	-2685.73	-5774.68
E03 F	21.26	-2685.73	-5774.68
E04 N	1412.35	-2685.73	-5774.68
E04	1427.35	-2685.73	-5774.68
E04 F	1441.84	-2685.73	-5770.80
E05	1444.79	-2685.73	-5770.01
E06	1591.56	-2685.73	-5730.68
E07	1551.44	-2685.73	-5580.96
E08 N	1442.38	-2685.73	-5173.94
E08	1421.72	-2685.73	-5096.84
E08 F	1342.21	-2685.73	-5089.88
E09 N	11.32	-2685.73	-4973.44
E09	-92.74	-2685.73	-4964.34
E09 F	-92.74	-2685.73	-4859.89
E10 N	-92.74	-2685.73	-3734.24
E10	-92.74	-2685.73	-3629.79
E10 F	-92.74	-2581.68	-3620.69
E11 N	-92.74	-1799.29	-3552.24
E11	-92.74	-1685.73	-3542.30
E11 F	-206.30	-1685.73	-3532.36
E12 N	-3356.13	-1685.73	-3256.79
E12	-3442.74	-1685.73	-3249.21
E12 F	-3465.16	-1602.07	-3241.63
E13 N	-3950.49	209.20	-3077.57
E13	-3977.42	309.71	-3068.47
E13 F	-3977.42	309.71	-2964.02
E14 N	-3977.42	309.71	-182.46

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C O O R D I N A T E S D A T A L I S T I N G

POINT NAME	-----COORDINATE (mm)----- X	Y	Z
E14	-3977.42	309.71	-68.47
E14 F	-4006.92	419.82	-68.47
E15 N	-4103.21	779.16	-68.47
E15	-4132.71	889.27	-68.47
E15 F	-4132.71	889.27	-182.46
D01	-4132.71	889.27	-1568.47
E17	-4132.71	889.27	-2068.47

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P I P E D A T A L I S T I N G

Pipe ID/ Material	Nom/ Sch	O.D. mm	-----Thickness(mm)----- W.Th. Corr Mill Insu Ling	Spec Grav	Weight(N/m) Pipe Other Total	ZL/ ZC
350MX6.0 AL	350 6.0	355.00	6.000 0 0.75 0 0	0	175 0 175	1.00 1.00
400MX6.0 AL	400 6.0	406.00	6.000 0 0.75 0 0	0	200 0 200	1.00 1.00
50MMX3.9 AL	50 3.9	60.300	3.900 0 0.49 0 0	0	18.35 0 18.35	1.00 1.00
80MMX5.5 AL	80 5.5	88.900	5.500 0 0.69 0 0	0	38.26 0 38.26	1.00 1.00
15MMX3.4 AL	15 NS	21.300	5.325 0 0.67 0 0	0	7.09 0 7.09	1.00 1.00
PIPE0001 AL	80 NS	88.900	22.23 0 2.78 0 0	0	124 0 124	1.00 1.00

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M A T E R I A L D A T A L I S T I N G

Material Name	Pipe ID	Density kg/m3	Pois. Ratio	Temper. deg C	Modulus x10 ⁶ N/ Axial	Hoop	Shear	Expans. mm/m
AL	350MX6.0	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459
AL	400MX6.0	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459
AL	50MMX3.9	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459
AL	15MMX3.4	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459
AL	PIPE0001	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459

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M A T E R I A L A L L O W A B L E D A T A L I S T I N G

Material Name	Pipe ID	Temper. deg C	Allow. N/mm2	Yield N/mm2
AL	350MX6.0	20.0 -196.0	103.42 71.00	0.00
AL	400MX6.0	20.0 -196.0	103.42 71.00	0.00
AL	50MMX3.9	20.0 -196.0	103.42 71.00	0.00
AL	15MMX3.4	20.0 -196.0	103.42 71.00	0.00
AL	PIPE0001	20.0 -196.0	103.42 71.00	0.00

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TEMPERATURE AND PRESSURE DATA

	-----C A S E 1-----	-----C A S E 2-----	-----C A S E 3-----
POINT	PRESS. TEMPER EXPAN.	PRESS. TEMPER EXPAN.	PRESS. TEMPER EXPAN.
NAME	N/mm2 deg C mm/m	N/mm2 deg C mm/m	N/mm2 deg C mm/m

*** SEGMENT A , LINE # 79319819
A00 0 -196 -3.846
A06 0 -196 -3.846

*** SEGMENT B , LINE # 79319819
A02 0 -196 -3.846
B01 0 -196 -3.846

*** SEGMENT C , LINE # 79319819
B01 0 -196 -3.846
C20 0 -196 -3.846

*** SEGMENT D , LINE # 79319819
D00 0 -196 -3.846
D01 0 -196 -3.846

*** SEGMENT E , LINE #
A08 0 -196 -3.846
E17 0 -196 -3.846

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H O T M O D U L U S ($\times 10^6$ N/)

POINT

NAME	CASE 1	CASE 2	CASE 3
------	--------	--------	--------

*** SEGMENT A , LINE # 79319819

A00 0.07646

A06 0.07646

*** SEGMENT B , LINE # 79319819

A02 0.07646

B01 0.07646

*** SEGMENT C , LINE # 79319819

B01 0.07646

C20 0.07646

*** SEGMENT D , LINE # 79319819

D00 0.07646

D01 0.07646

*** SEGMENT E , LINE #

A08 0.07646

E17 0.07646

* Non-standard material

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POINT NAME	C A S E 1		H O T		A L L O W A B L E S (N/mm ²)			C A S E 2		C A S E 3	
	ALLOW	USED	NOT USED	ALLOW	USED	USED	ALLOW	USED	NOT USED	NOT USED	

*** SEGMENT A , LINE # 79319819
A00 71.00*
A06 71.00*

*** SEGMENT B , LINE # 79319819
A02 71.00*
B01 71.00*

*** SEGMENT C , LINE # 79319819
B01 71.00*
C20 71.00*

*** SEGMENT D , LINE # 79319819
D00 71.00*
D01 71.00*

*** SEGMENT E , LINE #
A08 71.00*
E17 71.00*

< User-defined code allowable
* Non-code material

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THERMAL ANCHOR MOVEMENTS AND DISPLACEMENTS

POINT NAME	LOAD CASE	DX (mm)	DY (mm)	DZ (mm)	RX (deg)	RY (deg)	RZ (deg)
A01 N	Thermal 1	-6.50	2.40	-87.60	0.000	0.000	0.000
A06	Thermal 1	-5.40	2.00	-59.20	0.000	0.000	0.000
C20	Thermal 1	0.00	0.00	-95.00	0.000	0.000	0.000
E17	Thermal 1	9.30	0.00	-76.80	0.000	0.000	0.000

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DISPLACEMENTS

Point name	Load combination	TRANSLATIONS (mm)			ROTATIONS (deg)		
		X	Y	Z	X	Y	Z
*** Segment A begin *** Line # 79319819							
A00	T1	-6.500	2.400	-87.600	0.000	0.000	0.000
A01 N	T1	-6.500	2.400	-87.600	0.000	0.000	0.000
A01 F	T1	-8.439	3.097	-85.550	0.000	0.003	-0.001
A08	T1	-8.537	3.119	-64.202	-0.001	-0.005	-0.001
A07	T1	-8.528	3.118	-63.817	-0.001	-0.005	-0.001
A02	T1	-8.507	3.116	-63.048	-0.001	-0.006	-0.001
A03	T1	-8.502	3.115	-62.856	-0.001	-0.006	-0.001
A04	T1	-8.466	3.111	-61.510	-0.001	-0.006	-0.001
A05 N	T1	-8.466	3.111	-61.510	-0.001	-0.006	-0.001
A05 F	T1	-6.215	2.297	-59.199	0.000	0.000	0.000
A06	T1	-5.400	2.000	-59.200	0.000	0.000	0.000
*** Segment A end *** Line # 79319819							
*** Segment B begin *** Line # 79319819							
A02	T1	-8.507	3.116	-63.048	-0.001	-0.006	-0.001
B01	T1	-8.540	4.001	-63.128	0.061	-0.499	-0.018
*** Segment B end *** Line # 79319819							
*** Segment C begin *** Line # 79319819							
B01	T1	-8.540	4.001	-63.128	0.061	-0.499	-0.018
C01 N	T1	-8.600	4.534	-63.354	0.138	-0.797	-0.033
C01 F	T1	-9.416	4.757	-61.535	0.301	-1.334	-0.132
C02 N	T1	-14.152	1.510	-40.441	1.098	-1.979	-0.277
C02 F	T1	-14.212	0.094	-33.425	1.429	-2.144	-0.441
C03 N	T1	-6.799	-2.954	-12.141	1.474	-2.311	-0.610
C03 F	T1	-7.170	-5.439	-4.681	1.218	-2.280	-0.651
C04	T1	-7.171	-5.439	-4.681	1.218	-2.280	-0.651

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D I S P L A C E M E N T S

Point name	Load combination	TRANSLATIONS (mm)			ROTATIONS (deg)		
		X	Y	Z	X	Y	Z
C05	T1	-8.922	-7.499	0.000	1.216	-2.280	-0.651
C06	T1	-12.292	-9.079	-1.261	1.216	-2.280	-0.652
C07 N	T1	-28.710	-15.659	-7.443	0.901	-2.194	-0.711
C07 F	T1	-31.162	-16.081	-10.321	0.675	-2.150	-0.808
C08	T1	-31.155	-16.076	-10.335	0.674	-2.150	-0.808
C09	T1	-25.309	-12.075	-21.964	0.312	-1.875	-0.817
C10 N	T1	-24.347	-11.409	-23.855	0.268	-1.818	-0.810
C10 F	T1	-24.483	-10.477	-26.478	0.242	-1.700	-0.807
C11	T1	-24.490	-10.471	-26.496	0.241	-1.699	-0.807
C12	T1	-29.816	-5.075	-39.773	0.063	-1.362	-0.714
C13 N	T1	-30.615	-4.083	-41.904	0.032	-1.288	-0.692
C13 F	T1	-32.455	-3.374	-43.566	-0.021	-1.006	-0.665
C14 N	T1	-31.086	-1.319	-57.157	0.319	0.664	0.245
C14 F	T1	-30.060	-1.623	-58.978	0.458	0.718	0.276
C15 N	T1	-31.041	-0.017	-63.569	0.660	0.702	0.333
C15 F	T1	-30.504	0.908	-66.623	0.797	0.666	0.370
C16	T1	-30.497	0.910	-66.636	0.797	0.666	0.370
C17 N	T1	-21.552	4.002	-86.139	0.824	0.290	0.326
C17 F	T1	-20.387	3.636	-87.291	0.701	0.236	0.228
C18 N	T1	-18.008	1.210	-85.356	0.417	0.224	0.172
C18 F	T1	-17.004	0.208	-85.333	0.274	0.310	0.122
C19 N	T1	-2.207	-0.183	-94.835	-0.077	0.188	-0.002
C19 F	T1	-1.458	-0.036	-95.101	-0.047	0.047	-0.006
C20	T1	0.000	0.000	-95.000	0.000	0.000	0.000

*** Segment C end *** Line # 79319819

*** Segment D begin *** Line # 79319819

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DISPLACEMENTS

Point name	Load combination	TRANSLATIONS (mm)			ROTATIONS (deg)		
		X	Y	Z	X	Y	Z
D00	T1	9.651	-0.012	-78.720	0.002	0.002	0.001
D01	T1	9.309	-0.011	-78.723	0.002	0.002	0.001
*** Segment D end *** Line # 79319819							
*** Segment E begin *** Line #							
A08	T1	-8.537	3.119	-64.202	-0.001	-0.005	-0.001
E01 N	T1	-8.553	4.505	-64.186	-0.004	-0.005	-0.004
E01 F	T1	-8.431	4.829	-64.232	-0.005	-0.005	-0.005
E02 N	T1	-6.492	6.954	-64.968	-0.012	-0.006	-0.009
E02 F	T1	-6.381	7.275	-65.012	-0.013	-0.006	-0.010
E03 N	T1	-6.654	12.440	-64.941	-0.017	-0.008	-0.012
E03 F	T1	-7.117	12.857	-64.915	-0.017	-0.009	-0.011
E04 N	T1	-12.467	12.583	-64.728	-0.015	-0.005	-0.012
E04 F	T1	-12.580	12.578	-64.740	-0.015	-0.005	-0.012
E05	T1	-12.592	12.577	-64.743	-0.015	-0.005	-0.012
E06	T1	-13.160	12.557	-64.881	-0.015	-0.005	-0.012
E07	T1	-13.019	12.605	-65.461	-0.015	-0.005	-0.012
E08 N	T1	-12.624	12.737	-67.033	-0.015	-0.002	-0.014
E08 F	T1	-12.241	12.783	-67.358	-0.014	-0.001	-0.014
E09 N	T1	-7.116	13.151	-67.730	-0.010	0.006	-0.015
E09 F	T1	-6.704	13.196	-68.156	-0.009	0.006	-0.014
E10 N	T1	-6.534	13.334	-72.485	-0.004	0.012	-0.012
E10 F	T1	-6.489	12.941	-72.928	-0.003	0.013	-0.012
E11 N	T1	-6.312	9.934	-73.209	0.000	0.020	-0.012
E11 F	T1	-5.845	9.521	-73.242	0.000	0.022	-0.012
E12 N	T1	6.395	10.086	-72.855	0.011	0.024	-0.005
E12 F	T1	6.827	9.770	-72.853	0.011	0.023	-0.004

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D I S P L A C E M E N T S

Point name	Load combination	TRANSLATIONS (mm)			ROTATIONS (deg)		
		X	Y	Z	X	Y	Z
E13 N	T1	8.735	2.771	-72.993	0.010	0.006	0.002
E13 F	T1	8.845	2.365	-73.411	0.009	0.005	0.002
E14 N	T1	8.817	2.123	-84.108	0.005	-0.001	0.004
E14 F	T1	8.922	1.688	-84.537	0.005	0.000	0.004
E15 N	T1	9.268	0.300	-84.503	0.005	0.001	0.004
E15 F	T1	9.370	-0.115	-84.053	0.005	0.002	0.003
D01	T1	9.309	-0.011	-78.723	0.002	0.002	0.001
E17	T1	9.300	0.000	-76.800	0.000	0.000	0.000

*** Segment E end *** Line #

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R E S T R A I N T R E A C T I O N S

Point name	Load combination	FORCES (N)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
A01 N	Anchor T1	-85	13	275	289	-30	-39	-12	51
A06	Anchor T1	134	55	266	303	-86	-180	34	202
C05	V - Stop T1	[ID: C05 1] Mark: Undefined				Tag#: Undefined			
		0	0	-717	717	0	0	0	0
C20	Anchor T1	-62	-58	191	209	-32	5	-16	36
E17	Anchor T1	13	-9	-15	22	19	16	5	25

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G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
*** Segment A begin *** Line # 79319819									
A00	T1	0	0	0	0	0	0	0	0
A01 N-	T1	0	0	0	0	0	0	0	0
A01 N+	T1	85	-13	-275	289	30	39	12	51
A01 F	T1	85	-13	-275	289	-14	-53	3	55
A08 -	T1	85	-13	-275	289	55	420	3	424
A08 +	T1	72	-3	-260	270	16	421	-30	422
A07	T1	72	-3	-260	270	17	428	-30	430
A02 -	T1	72	-3	-260	270	17	443	-30	444
A02 +	T1	134	55	266	303	45	-106	-48	125
A03	T1	134	55	266	303	43	-99	-48	118
A04	T1	134	55	266	303	23	-52	-48	74
A05 N	T1	134	55	266	303	23	-52	-48	74
A05 F	T1	134	55	266	303	-66	-123	12	140
A06	T1	134	55	266	303	-86	-180	34	202
*** Segment A end *** Line # 79319819									
*** Segment B begin *** Line # 79319819									
A02	T1	-62	-58	-526	533	-28	548	17	549
B01	T1	-62	-58	-526	533	-149	548	32	569
*** Segment B end *** Line # 79319819									
*** Segment C begin *** Line # 79319819									
B01	T1	-62	-58	-526	533	-149	548	32	569
C01 N	T1	-62	-58	-526	533	-222	548	40	593
C01 F	T1	-62	-58	-526	533	-287	486	55	567
C02 N	T1	-62	-58	-526	533	-290	117	96	327
C02 F	T1	-62	-58	-526	533	-227	54	95	252

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G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
C03 N	T1	-62	-58	-526	533	190	54	47	203
C03 F	T1	-62	-58	-526	533	252	-6	46	256
C04	T1	-62	-58	-526	533	252	-6	46	256
C05 -	T1	-62	-58	-526	533	250	-67	53	264
C05 +	T1	-62	-58	191	209	250	-67	53	264
C06	T1	-62	-58	191	209	245	-66	52	259
C07 N	T1	-62	-58	191	209	220	-62	45	233
C07 F	T1	-62	-58	191	209	202	-73	36	217
C08	T1	-62	-58	191	209	202	-73	36	217
C09	T1	-62	-58	191	209	118	-150	-15	192
C10 N	T1	-62	-58	191	209	104	-163	-23	195
C10 F	T1	-62	-58	191	209	95	-177	-31	204
C11	T1	-62	-58	191	209	95	-177	-31	204
C12	T1	-62	-58	191	209	80	-248	-57	267
C13 N	T1	-62	-58	191	209	77	-261	-62	279
C13 F	T1	-62	-58	191	209	71	-266	-66	283
C14 N	T1	-62	-58	191	209	-135	-48	-66	158
C14 F	T1	-62	-58	191	209	-142	-20	-59	155
C15 N	T1	-62	-58	191	209	-144	50	-39	157
C15 F	T1	-62	-58	191	209	-122	74	-24	145
C16	T1	-62	-58	191	209	-122	74	-24	145
C17 N	T1	-62	-58	191	209	108	81	52	144
C17 F	T1	-62	-58	191	209	129	59	53	152
C18 N	T1	-62	-58	191	209	126	-46	19	136
C18 F	T1	-62	-58	191	209	119	-60	13	134
C19 N	T1	-62	-58	191	209	-25	93	13	97

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G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
C19 F	T1	-62	-58	191	209	-32	77	6	83
C20	T1	-62	-58	191	209	-32	5	-16	36
*** Segment C end *** Line # 79319819									
*** Segment D begin *** Line # 79319819									
D00	T1	0	0	0	0	0	0	0	0
D01	T1	0	0	0	0	0	0	0	0
*** Segment D end *** Line # 79319819									
*** Segment E begin *** Line #									
A08	T1	13	-9	-15	22	39	-1	33	51
E01 N	T1	13	-9	-15	22	34	-1	28	44
E01 F	T1	13	-9	-15	22	32	-1	27	42
E02 N	T1	13	-9	-15	22	22	5	15	27
E02 F	T1	13	-9	-15	22	21	5	14	26
E03 N	T1	13	-9	-15	22	0	4	-4	6
E03 F	T1	13	-9	-15	22	-2	2	-5	5
E04 N	T1	13	-9	-15	22	-2	-19	8	21
E04 F	T1	13	-9	-15	22	-2	-20	8	22
E05	T1	13	-9	-15	22	-2	-20	9	22
E06	T1	13	-9	-15	22	-2	-23	10	25
E07	T1	13	-9	-15	22	-4	-24	10	26
E08 N	T1	13	-9	-15	22	-8	-28	8	30
E08 F	T1	13	-9	-15	22	-8	-27	8	29
E09 N	T1	13	-9	-15	22	-9	-8	-5	13
E09 F	T1	13	-9	-15	22	-10	-8	-6	15
E10 N	T1	13	-9	-15	22	-21	-23	-6	32
E10 F	T1	13	-9	-15	22	-20	-25	-4	32

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G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
E11 N	T1	13	-9	-15	22	-9	-26	6	28
E11 F	T1	13	-9	-15	22	-7	-24	7	26
E12 N	T1	13	-9	-15	22	-10	20	-22	32
E12 F	T1	13	-9	-15	22	-9	22	-22	32
E13 N	T1	13	-9	-15	22	17	27	-3	32
E13 F	T1	13	-9	-15	22	18	26	-1	31
E14 N	T1	13	-9	-15	22	-8	-11	-1	14
E14 F	T1	13	-9	-15	22	-7	-12	0	14
E15 N	T1	13	-9	-15	22	-2	-11	4	12
E15 F	T1	13	-9	-15	22	1	-9	5	10
D01 -	T1	13	-9	-15	22	14	10	5	18
D01 +	T1	13	-9	-15	22	14	10	5	18
E17	T1	13	-9	-15	22	19	16	5	25

*** Segment E end *** Line #

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ASME B31.3b (2001) CODE COMPLIANCE									
			(Moments in Nm)			(Stress in N/mm2)			
Point	Load	In-Pl.	Out-Pl.	Torsion	S.I.F		Eq. Load	Code	Code
name	combination	Moment	Moment	Moment	In	Out	no. type	Stress	Allow.
*** Segment A begin *** Line # 79319819									
A00	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17) DISP	0	147
A01 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17) DISP	0	147
A01 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	47	12	14	4.04	3.37	(17) DISP	0	147
A01 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	55	5	3	4.04	3.37	(17) DISP	0	147
A01 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	53	14	3	1.00	1.00	(17) DISP	0	147
A08 -	Max P						(3a) HOOP	0	71
	Max P	0	0		3.25	4.00	(18) SUST	0	71
	Cold to T1	55	420	3	3.25	4.00	(17) DISP	3	147
A08 +	Max P						(3a) HOOP	0	71
	Max P	0	0		3.25	4.00	(18) SUST	0	71
	Cold to T1	16	421	30	3.25	4.00	(17) DISP	3	147
A07	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	428	17	30	1.00	1.00	(17) DISP	1	147
A02 -	Max P						(3a) HOOP	0	71
	Max P	0	0		3.25	4.00	(18) SUST	0	71
	Cold to T1	17	443	30	3.25	4.00	(17) DISP	3	147
A02 +	Max P						(3a) HOOP	0	71
	Max P	0	0		3.25	4.00	(18) SUST	0	71
	Cold to T1	45	106	48	3.25	4.00	(17) DISP	1	147
A03	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	99	43	48	1.00	1.00	(17) DISP	0	147
A04	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	52	23	48	1.00	1.00	(17) DISP	0	147

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ASME B31.3b (2001) CODE COMPLIANCE										
Point name	Load combination	(Moments in Nm)			S.I.F		(Stress in N/mm2)		Code Stress	Code Allow.
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	In	Out	Eq. Load no.	Load type		
A05 N-	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.00	1.00	(18) SUST	0	71	
	Cold to T1	52	23	48	1.00	1.00	(17) DISP	0	147	
A05 N+	Max P						(3a) HOOP	0	71	
	Max P	0	0		4.43	3.69	(18) SUST	0	71	
	Cold to T1	41	40	48	4.43	3.69	(17) DISP	0	147	
A05 F-	Max P						(3a) HOOP	0	71	
	Max P	0	0		4.43	3.69	(18) SUST	0	71	
	Cold to T1	139	12	20	4.43	3.69	(17) DISP	1	147	
A05 F+	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.00	1.00	(18) SUST	0	71	
	Cold to T1	139	12	20	1.00	1.00	(17) DISP	0	147	
A06	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.00	1.00	(18) SUST	0	71	
	Cold to T1	199	34	20	1.00	1.00	(17) DISP	0	147	
*** Segment A end *** Line # 79319819										
*** Segment B begin *** Line # 79319819										
A02	Max P						(3a) HOOP	0	71	
	Max P	0	0		3.25	4.00	(18) SUST	0	71	
	Cold to T1	28	17	548	3.25	4.00	(17) DISP	60	147	
B01	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.00	1.00	(18) SUST	0	71	
	Cold to T1	149	32	548	1.00	1.00	(17) DISP	62	147	
*** Segment B end *** Line # 79319819										
*** Segment C begin *** Line # 79319819										
B01	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.00	1.00	(18) SUST	0	71	
	Cold to T1	149	32	548	1.00	1.00	(17) DISP	62	147	
C01 N-	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.00	1.00	(18) SUST	0	71	
	Cold to T1	222	40	548	1.00	1.00	(17) DISP	65	147	
C01 N+	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.27	1.06	(18) SUST	0	71	
	Cold to T1	61	217	548	1.27	1.06	(17) DISP	66	147	
C01 F-	Max P						(3a) HOOP	0	71	
	Max P	0	0		1.27	1.06	(18) SUST	0	71	
	Cold to T1	81	486	280	1.27	1.06	(17) DISP	65	147	

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ASME B31.3b (2001) CODE COMPLIANCE									
Point name	Load combination	(Moments in Nm)			S.I.F		(Stress in N/mm2)		Code Stress
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	In	Out	Eq. Load no. type	Code Allow.	
C01 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	486	81	280	1.00	1.00	(17) DISP	62	147
C02 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	117	123	280	1.00	1.00	(17) DISP	36	147
C02 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	123	117	280	1.27	1.06	(17) DISP	38	147
C02 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	116	217	54	1.27	1.06	(17) DISP	31	147
C02 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	227	95	54	1.00	1.00	(17) DISP	28	147
C03 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	190	47	54	1.00	1.00	(17) DISP	22	147
C03 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	4	196	54	1.27	1.06	(17) DISP	23	147
C03 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	21	6	255	1.27	1.06	(17) DISP	28	147
C03 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	6	21	255	1.00	1.00	(17) DISP	28	147
C04	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	6	21	255	1.00	1.00	(17) DISP	28	147
C06	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	66	250	14	1.00	1.00	(17) DISP	28	147
C07 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	62	224	14	1.00	1.00	(17) DISP	25	147
C07 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	122	198	14	1.27	1.06	(17) DISP	29	147

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ASME B31.3b (2001) CODE COMPLIANCE									
Point name	Load combination	(Moments in Nm)			S.I.F		(Stress in N/mm2)		Code Stress
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	In	Out	Eq. Load no. type	Code Allow.	
C07 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	100	34	190	1.27	1.06	(17) DISP	25	147
C07 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	91	52	190	1.00	1.00	(17) DISP	24	147
C08	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	91	52	190	1.00	1.00	(17) DISP	24	147
C09	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	23	1	190	1.00	1.00	(17) DISP	21	147
C10 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	41	7	190	1.00	1.00	(17) DISP	21	147
C10 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	30	32	190	1.27	1.06	(17) DISP	21	147
C10 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	45	173	97	1.27	1.06	(17) DISP	24	147
C10 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	177	21	98	1.00	1.00	(17) DISP	22	147
C11	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	177	21	98	1.00	1.00	(17) DISP	22	147
C12	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	248	10	98	1.00	1.00	(17) DISP	29	147
C13 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	261	16	98	1.00	1.00	(17) DISP	31	147
C13 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	261	16	98	1.27	1.06	(17) DISP	38	147
C13 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	266	71	66	1.27	1.06	(17) DISP	39	147

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ASME B31.3b (2001) CODE COMPLIANCE									
Point name	Load combination	(Moments in Nm)			S.I.F		(Stress in N/mm2)		
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	In	Out	Eq. Load no. type	Code Stress	Code Allow.
C13 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	266	71	66	1.00	1.00	(17) DISP	31	147
C14 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	48	135	66	1.00	1.00	(17) DISP	17	147
C14 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	48	135	66	1.27	1.06	(17) DISP	18	147
C14 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	20	47	147	1.27	1.06	(17) DISP	17	147
C14 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	47	147	1.00	1.00	(17) DISP	17	147
C15 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	50	26	147	1.00	1.00	(17) DISP	17	147
C15 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	22	52	147	1.27	1.06	(17) DISP	17	147
C15 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	7	123	76	1.27	1.06	(17) DISP	17	147
C15 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	122	18	76	1.00	1.00	(17) DISP	16	147
C16	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	122	18	76	1.00	1.00	(17) DISP	16	147
C17 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	108	59	76	1.00	1.00	(17) DISP	16	147
C17 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	68	102	76	1.27	1.06	(17) DISP	17	147
C17 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	69	54	124	1.27	1.06	(17) DISP	18	147

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ASME B31.3b (2001) CODE COMPLIANCE									
Point name	Load combination	(Moments in Nm)			S.I.F		(Stress in N/mm2)		
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	In	Out	Eq. Load no. type	Code Stress	Code Allow.
C17 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	59	64	124	1.00	1.00	(17) DISP	17	147
C18 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	46	30	124	1.00	1.00	(17) DISP	15	147
C18 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	46	30	124	1.27	1.06	(17) DISP	15	147
C18 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	60	119	13	1.27	1.06	(17) DISP	16	147
C18 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	60	119	13	1.00	1.00	(17) DISP	15	147
C19 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	93	25	13	1.00	1.00	(17) DISP	11	147
C19 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	93	25	13	1.27	1.06	(17) DISP	13	147
C19 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.27	1.06	(18) SUST	0	71
	Cold to T1	77	6	32	1.27	1.06	(17) DISP	11	147
C19 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	77	6	32	1.00	1.00	(17) DISP	9	147
C20	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	5	16	32	1.00	1.00	(17) DISP	4	147

*** Segment C end *** Line # 79319819

*** Segment D begin *** Line # 79319819

*** Segment D end *** Line # 79319819

*** Segment E begin *** Line #

A08	Max P						(3a) HOOP	0	71
	Max P	0	0		3.25	4.00	(18) SUST	0	71
	Cold to T1	39	33	1	3.25	4.00	(17) DISP	9	147

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ASME B31.3b (2001) CODE COMPLIANCE									
		(Moments in Nm)			(Stress in N/mm2)				
Point	Load	In-Pl.	Out-Pl.	Torsion	S.I.F	Eq. Load	Code	Code	
name	combination	Moment	Moment	Moment	In Out	no. type	Stress	Allow.	
E01 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	34	28	1	1.00 1.00	(17) DISP	1	147	
E01 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	39	21	1	1.00 1.00	(17) DISP	1	147	
E01 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	37	15	15	1.00 1.00	(17) DISP	1	147	
E01 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	23	32	15	1.00 1.00	(17) DISP	1	147	
E02 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	13	20	15	1.00 1.00	(17) DISP	0	147	
E02 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	22	9	15	1.00 1.00	(17) DISP	0	147	
E02 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	20	16	4	1.00 1.00	(17) DISP	0	147	
E02 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	21	14	4	1.00 1.00	(17) DISP	0	147	
E03 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	0	4	4	1.00 1.00	(17) DISP	0	147	
E03 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	4	0	4	1.00 1.00	(17) DISP	0	147	
E03 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	4	2	2	1.00 1.00	(17) DISP	0	147	
E03 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	2	5	2	1.00 1.00	(17) DISP	0	147	
E04 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	19	8	2	1.00 1.00	(17) DISP	0	147	

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ASME B31.3b (2001) CODE COMPLIANCE									
		(Moments in Nm)			(Stress in N/mm2)				
Point name	Load combination	In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. Load no. type	Code Stress	Code Allow.
E04 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	19	8	2	1.00	1.00	(17) DISP	0	147
E04 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	9	0	1.00	1.00	(17) DISP	0	147
E04 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	9	0	1.00	1.00	(17) DISP	0	147
E05	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	9	0	1.00	1.00	(17) DISP	0	147
E07	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	24	1	10	1.00	1.00	(17) DISP	0	147
E08 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	28	5	10	1.00	1.00	(17) DISP	0	147
E08 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	28	5	10	1.00	1.00	(17) DISP	0	147
E08 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	27	7	9	1.00	1.00	(17) DISP	0	147
E08 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	27	7	9	1.00	1.00	(17) DISP	0	147
E09 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	8	6	9	1.00	1.00	(17) DISP	0	147
E09 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	8	6	9	1.00	1.00	(17) DISP	0	147
E09 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	8	10	6	1.00	1.00	(17) DISP	0	147
E09 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	8	10	6	1.00	1.00	(17) DISP	0	147

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ASME B31.3b (2001) CODE COMPLIANCE									
		(Moments in Nm)			(Stress in N/mm2)				
Point	Load	In-Pl.	Out-Pl.	Torsion	S.I.F		Eq. Load	Code	Code
name	combination	Moment	Moment	Moment	In	Out	no. type	Stress	Allow.
E10 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	23	21	6	1.00	1.00	(17) DISP	0	147
E10 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	21	23	6	1.00	1.00	(17) DISP	0	147
E10 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	2	25	1.00	1.00	(17) DISP	1	147
E10 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	2	25	1.00	1.00	(17) DISP	1	147
E11 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	9	8	25	1.00	1.00	(17) DISP	0	147
E11 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	8	10	25	1.00	1.00	(17) DISP	0	147
E11 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	8	24	8	1.00	1.00	(17) DISP	0	147
E11 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	24	6	8	1.00	1.00	(17) DISP	0	147
E12 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	20	23	8	1.00	1.00	(17) DISP	0	147
E12 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	24	19	8	1.00	1.00	(17) DISP	0	147
E12 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	24	1	21	1.00	1.00	(17) DISP	0	147
E12 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	3	24	21	1.00	1.00	(17) DISP	0	147
E13 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	24	4	21	1.00	1.00	(17) DISP	0	147

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ASME B31.3b (2001) CODE COMPLIANCE										
		(Moments in Nm)			(Stress in N/mm2)					
Point name	Load combination	In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F		Eq. no.	Load type	Code Stress	Code Allow.
E13 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	24	4	21	1.00	1.00	(17)	DISP	0	147
E13 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	24	20	1	1.00	1.00	(17)	DISP	0	147
E13 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	26	18	1	1.00	1.00	(17)	DISP	0	147
E14 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	11	8	1	1.00	1.00	(17)	DISP	0	147
E14 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	10	9	1	1.00	1.00	(17)	DISP	0	147
E14 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	10	0	10	1.00	1.00	(17)	DISP	0	147
E14 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	10	0	10	1.00	1.00	(17)	DISP	0	147
E15 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	4	4	10	1.00	1.00	(17)	DISP	0	147
E15 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	4	4	10	1.00	1.00	(17)	DISP	0	147
E15 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1	9	5	1.00	1.00	(17)	DISP	0	147
E15 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	9	1	5	1.00	1.00	(17)	DISP	0	147
D01 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	10	14	5	1.00	1.00	(17)	DISP	0	147
D01 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	10	14	5	1.00	1.00	(17)	DISP	0	147

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		ASME B31.3b (2001)			CODE COMPLIANCE				
		(Moments in Nm)					(Stress in N/mm2)		
Point	Load	In-Pl.	Out-Pl.	Torsion	S.I.F		Eq. Load	Code	Code
name	combination	Moment	Moment	Moment	In	Out	no. type	Stress	Allow.
E17	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	16	19	5	1.00	1.00	(17) DISP	0	147

*** Segment E end *** Line #

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S Y S T E M S U M M A R Y

Maximum displacements (mm)

Maximum X :	-32.455	Point : C13 F	Load Comb.: T1
Maximum Y :	-16.081	Point : C07 F	Load Comb.: T1
Maximum Z :	-95.101	Point : C19 F	Load Comb.: T1
Max. total:	95.112	Point : C19 F	Load Comb.: T1

Maximum rotations (deg)

Maximum X :	1.474	Point : C03 N	Load Comb.: T1
Maximum Y :	-2.311	Point : C03 N	Load Comb.: T1
Maximum Z :	-0.817	Point : C09	Load Comb.: T1
Max. total:	2.808	Point : C03 N	Load Comb.: T1

Maximum restraint forces (N)

Maximum X :	134	Point : A06	Load Comb.: T1
Maximum Y :	-58	Point : C20	Load Comb.: T1
Maximum Z :	-717	Point : C05	Load Comb.: T1
Max. total:	717	Point : C05	Load Comb.: T1

Maximum restraint moments (Nm)

Maximum X :	-86	Point : A06	Load Comb.: T1
Maximum Y :	-180	Point : A06	Load Comb.: T1
Maximum Z :	34	Point : A06	Load Comb.: T1
Max. total:	202	Point : A06	Load Comb.: T1

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S Y S T E M S U M M A R Y

Maximum pipe forces (N)

Maximum X :	134	Point : A04	Load Comb.: T1
Maximum Y :	-58	Point : C15 N	Load Comb.: T1
Maximum Z :	-526	Point : A02	Load Comb.: T1
Max. total:	533	Point : A02	Load Comb.: T1

Maximum pipe moments (Nm)

Maximum X :	-290	Point : C02 N	Load Comb.: T1
Maximum Y :	548	Point : A02	Load Comb.: T1
Maximum Z :	96	Point : C02 N	Load Comb.: T1
Max. total:	593	Point : C01 N	Load Comb.: T1

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S Y S T E M S U M M A R Y

Maximum displacement stress

Point : C01 N
Stress N/mm2 : 66
Allowable N/mm2 : 147
Ratio : 0.45
Load combination : Cold to T1

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S Y S T E M S U M M A R Y

Maximum displacement stress ratio

Point : C01 N
Stress N/mm2 : 66
Allowable N/mm2 : 147
Ratio : 0.45
Load combination : Cold to T1

* * * The system satisfies ASME B31.3 code requirements * * *
* * * for the selected options * * *