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AutoPIPE 6.20 MODEL PAGE 1

[illegible]

Pipe Stress Analysis and Design Program

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 : 79319817_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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C O M P O N E N T D A T A L I S T I N G

*** SEGMENT E , LINE # 79319817

From E00 to E01, DX= -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:

E00, Coordinates, X= -255.41 mm, Y= -4704.59 mm, Z= -37363.70 mm

From E01 to E02, DY= 753.78 mm

Bend

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

E01, Coordinates, X= -788.41 mm, Y= -4704.59 mm, Z= -37363.70 mm
E01 N, Coordinates, X= -255.42 mm, Y= -4704.59 mm, Z= -37363.70 mm
E01 F, Coordinates, X= -788.41 mm, Y= -4171.60 mm, Z= -37363.70 mm

SUPPORT DATA:

E01 N, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

From E02 to E03, DX= 646.22 mm, DY= 646.22 mm, L= 913.89 mm

Bend

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

Elbow, Radius= 532.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 15.711, SIFI= 4.04, SIFO= 3.37

POINT DATA:

E02, Coordinates, X= -788.41 mm, Y= -3950.81 mm, Z= -37363.70 mm
E02 N, Coordinates, X= -788.41 mm, Y= -4171.58 mm, Z= -37363.70 mm
E02 F, Coordinates, X= -632.30 mm, Y= -3794.70 mm, Z= -37363.70 mm

From E03 to E04, DX= 223.82 mm

Bend

COMPONENT DATA (Bend, TIP= E03, Near= E03 N, Far= E03 F):

Elbow, Radius= 532.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 15.711, SIFI= 4.04, SIFO= 3.37

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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:

E03, Coordinates, X= -142.19 mm, Y= -3304.59 mm, Z= -37363.70 mm
E03 N, Coordinates, X= -298.30 mm, Y= -3460.70 mm, Z= -37363.70 mm
E03 F, Coordinates, X= 78.58 mm, Y= -3304.59 mm, Z= -37363.70 mm

From E04 to E05, DX= 496.95 mm

Redu

COMPONENT DATA (Reducer):

Length= 496.95 mm, SIF= 1.00

POINT DATA:

E04, Coordinates, X= 81.63 mm, Y= -3304.59 mm, Z= -37363.70 mm

From E05 to E06, DX= 376.00 mm

Run

PIPE DATA:

Pipe Id= 500MX6.0, Nom Size= 500 mm, OD= 508.00 mm

POINT DATA:

E05, Coordinates, X= 578.58 mm, Y= -3304.59 mm, Z= -37363.70 mm

From E06 to E07, DX= 376.00 mm

Tee

COMPONENT DATA (Tee Header, Center= E06):

B16.9 welding tee, SIFI= 4.08, SIFO= 5.10

POINT DATA:

E06, Coordinates, X= 954.58 mm, Y= -3304.59 mm, Z= -37363.70 mm

From E07 to E08, DX= 500.00 mm

Redu

COMPONENT DATA (Reducer):

Length= 500.00 mm, SIF= 1.00

POINT DATA:

E07, Coordinates, X= 1330.58 mm, Y= -3304.59 mm, Z= -37363.70 mm

From E08 to E09, DX= 220.78 mm

Run

PIPE DATA:

Pipe Id= 350MX6.0, Nom Size= 350 mm, OD= 355.00 mm

POINT DATA:

E08, Coordinates, X= 1830.58 mm, Y= -3304.59 mm, Z= -37363.70 mm

From E09 to E10, DX= 646.22 mm, DY= -646.22 mm, L= 913.89 mm

Bend

COMPONENT DATA (Bend, TIP= E09, Near= E09 N, Far= E09 F):

Elbow, Radius= 532.99 mm, Bend angle= 45.00 deg, End flanges= 0,

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

Flex= 15.711, SIFI= 4.04, SIFO= 3.37

POINT DATA:

E09, Coordinates, X= 2051.36 mm, Y= -3304.59 mm, Z= -37363.70 mm
E09 N, Coordinates, X= 1830.59 mm, Y= -3304.59 mm, Z= -37363.70 mm
E09 F, Coordinates, X= 2207.47 mm, Y= -3460.70 mm, Z= -37363.70 mm

From E10 to E11, DY= -753.78 mm

Bend

COMPONENT DATA (Bend, TIP= E10, Near= E10 N, Far= E10 F):

Elbow, Radius= 532.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 15.711, SIFI= 4.04, SIFO= 3.37

POINT DATA:

E10, Coordinates, X= 2697.58 mm, Y= -3950.81 mm, Z= -37363.70 mm
E10 N, Coordinates, X= 2541.47 mm, Y= -3794.70 mm, Z= -37363.70 mm
E10 F, Coordinates, X= 2697.58 mm, Y= -4171.58 mm, Z= -37363.70 mm

From E11 to E12, DX= -533.00 mm

Bend

COMPONENT DATA (Bend, TIP= E11, Near= E11 N, Far= E11 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:

E11, Coordinates, X= 2697.58 mm, Y= -4704.59 mm, Z= -37363.70 mm
E11 N, Coordinates, X= 2697.58 mm, Y= -4171.60 mm, Z= -37363.70 mm
E11 F, Coordinates, X= 2164.59 mm, Y= -4704.59 mm, Z= -37363.70 mm
E12, Coordinates, X= 2164.58 mm, Y= -4704.59 mm, Z= -37363.70 mm

SUPPORT DATA:

E11 F, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

*** SEGMENT F , LINE # 79319817

From E06 to F01, DZ= 510.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= E06):

B16.9 welding tee, SIFI= 4.08, SIFO= 5.10

PIPE DATA:

Pipe Id= 500MX6.0, Nom Size= 500 mm, OD= 508.00 mm

POINT DATA:

E06, Coordinates, X= 954.58 mm, Y= -3304.59 mm, Z= -37363.70 mm

From F01 to F02, DZ= 6000.00 mm

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

POINT DATA:

F01, Coordinates, X= 954.58 mm, Y= -3304.59 mm, Z= -36853.70 mm

From F02 to F03, DZ= 5417.16 mm

Run

POINT DATA:

F02, Coordinates, X= 954.58 mm, Y= -3304.59 mm, Z= -30853.70 mm

From F03 to F04, DX= 1630.85 mm, DY= -102.79 mm, DZ= 941.58 mm,
L= 1885.95 mm

Bend

COMPONENT DATA (Bend, TIP= F03, Near= F03 N, Far= F03 F):

Elbow, Radius= 761.99 mm, Bend angle= 60.05 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

POINT DATA:

F03, Coordinates, X= 954.58 mm, Y= -3304.59 mm, Z= -25436.53 mm
F03 N, Coordinates, X= 954.58 mm, Y= -3304.59 mm, Z= -25876.90 mm
F03 F, Coordinates, X= 1335.38 mm, Y= -3328.59 mm, Z= -25216.67 mm

From F04 to F05, DX= 432.37 mm, DY= -27.25 mm, DZ= 249.63 mm, L= 500.00 mm Redu

COMPONENT DATA (Reducer):

Length= 500.00 mm, SIF= 1.00

POINT DATA:

F04, Coordinates, X= 2585.43 mm, Y= -3407.38 mm, Z= -24494.95 mm

From F05 to F06, DX= 142.07 mm, DY= -8.95 mm, DZ= 82.02 mm, L= 164.29 mm Run

PIPE DATA:

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

POINT DATA:

F05, Coordinates, X= 3017.80 mm, Y= -3434.63 mm, Z= -24245.32 mm

From F06 to F07, DX= 819.45 mm

Bend

COMPONENT DATA (Bend, TIP= F06, Near= F06 N, Far= F06 F):

Elbow, Radius= 609.98 mm, Bend angle= 30.15 deg, End flanges= 0,
Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

F06, Coordinates, X= 3159.87 mm, Y= -3443.58 mm, Z= -24163.30 mm
F06 N, Coordinates, X= 3017.81 mm, Y= -3434.63 mm, Z= -24245.32 mm
F06 F, Coordinates, X= 3324.15 mm, Y= -3443.58 mm, Z= -24163.30 mm

From F07 to F08, DY= 409.05 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= F07, Near= F07 N, Far= F07 F):
Elbow, Radius= 405.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 27.094, SIFI= 5.81, SIFO= 4.85

POINT DATA:

F07, Coordinates, X= 3979.32 mm, Y= -3443.58 mm, Z= -24163.30 mm
F07 N, Coordinates, X= 3573.33 mm, Y= -3443.58 mm, Z= -24163.30 mm
F07 F, Coordinates, X= 3979.32 mm, Y= -3037.59 mm, Z= -24163.30 mm

From F08 to F09, DY= 442.95 mm

Valv

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 442.95 mm, Weight= 340 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

F08, Coordinates, X= 3979.32 mm, Y= -3034.53 mm, Z= -24163.30 mm

SUPPORT DATA:

F08, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

From F09 to F10, DY= 1387.00 mm

Run

POINT DATA:

F09, Coordinates, X= 3979.32 mm, Y= -2591.58 mm, Z= -24163.30 mm

SUPPORT DATA:

F09, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

From F10 to F11, DX= -528.28 mm, DZ= 305.00 mm, L= 610.00 mm

Bend

COMPONENT DATA (Bend, TIP= F10, Near= F10 N, Far= F10 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:

F10, Coordinates, X= 3979.32 mm, Y= -1204.58 mm, Z= -24163.30 mm
F10 N, Coordinates, X= 3979.32 mm, Y= -1814.57 mm, Z= -24163.30 mm
F10 F, Coordinates, X= 3451.05 mm, Y= -1204.58 mm, Z= -23858.31 mm

*** SEGMENT G , LINE # 79319817

From G00 to G01, DX= -431.33 mm, DY= 431.33 mm, L= 609.99 mm

Run

PIPE DATA:

Pipe Id= 400MX6.0, Nom Size= 400 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:

G00, Coordinates, X= -0.03 mm, Y= 0.02 mm, Z= 0.00 mm

From G01 to G02, DX= -610.00 mm, DY= -610.00 mm, L= 862.67 mm Bend

COMPONENT DATA (Bend, TIP= G01, Near= G01 N, Far= G01 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:

G01, Coordinates, X= -431.36 mm, Y= 431.35 mm, Z= 0.00 mm

G01 N, Coordinates, X= -0.03 mm, Y= 0.02 mm, Z= 0.00 mm

G01 F, Coordinates, X= -862.69 mm, Y= 0.02 mm, Z= 0.00 mm

SUPPORT DATA:

G01 N, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

From G02 to G03, DY= -509.95 mm Bend

COMPONENT DATA (Bend, TIP= G02, Near= G02 N, Far= G02 F):

Elbow, Radius= 609.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

G02, Coordinates, X= -1041.36 mm, Y= -178.65 mm, Z= 0.00 mm

G02 N, Coordinates, X= -862.70 mm, Y= 0.01 mm, Z= 0.00 mm

G02 F, Coordinates, X= -1041.36 mm, Y= -431.32 mm, Z= 0.00 mm

From G03 to G04, DY= -500.00 mm Redu

COMPONENT DATA (Reducer):

Length= 500.00 mm, SIF= 1.00

POINT DATA:

G03, Coordinates, X= -1041.36 mm, Y= -688.60 mm, Z= 0.00 mm

From G04 to G05, DY= -315.63 mm Run

PIPE DATA:

Pipe Id= 500MX6.0, Nom Size= 500 mm, OD= 508.00 mm

POINT DATA:

G04, Coordinates, X= -1041.36 mm, Y= -1188.60 mm, Z= 0.00 mm

From G05 to G06, DX= 723.14 mm, DY= -723.14 mm, L= 1022.67 mm Bend

COMPONENT DATA (Bend, TIP= G05, Near= G05 N, Far= G05 F):

Elbow, Radius= 761.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

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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:

G05, Coordinates, X= -1041.36 mm, Y= -1504.23 mm, Z= 0.00 mm
G05 N, Coordinates, X= -1041.36 mm, Y= -1188.60 mm, Z= 0.00 mm
G05 F, Coordinates, X= -818.18 mm, Y= -1727.41 mm, Z= 0.00 mm

From G06 to G07, DX= 723.14 mm, DY= -723.14 mm, L= 1022.67 mm Tee

COMPONENT DATA (Tee Header, Center= G06):

B16.9 welding tee, SIFI= 4.08, SIFO= 5.10

POINT DATA:

G06, Coordinates, X= -318.22 mm, Y= -2227.37 mm, Z= 0.00 mm

From G07 to G08, DX= 318.68 mm Bend

COMPONENT DATA (Bend, TIP= G07, Near= G07 N, Far= G07 F):

Elbow, Radius= 761.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

POINT DATA:

G07, Coordinates, X= 404.92 mm, Y= -2950.51 mm, Z= 0.00 mm
G07 N, Coordinates, X= 181.74 mm, Y= -2727.33 mm, Z= 0.00 mm
G07 F, Coordinates, X= 720.55 mm, Y= -2950.51 mm, Z= 0.00 mm

From G08 to G09, DX= 496.95 mm Redu

COMPONENT DATA (Reducer):

Length= 496.95 mm, SIF= 1.00

POINT DATA:

G08, Coordinates, X= 723.60 mm, Y= -2950.51 mm, Z= 0.00 mm

From G09 to G10, DX= 509.95 mm Run

PIPE DATA:

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

POINT DATA:

G09, Coordinates, X= 1220.55 mm, Y= -2950.51 mm, Z= 0.00 mm

From G10 to G11, DX= 610.00 mm, DY= 610.00 mm, L= 862.67 mm Bend

COMPONENT DATA (Bend, TIP= G10, Near= G10 N, Far= G10 F):

Elbow, Radius= 609.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

G10, Coordinates, X= 1730.50 mm, Y= -2950.51 mm, Z= 0.00 mm
G10 N, Coordinates, X= 1477.83 mm, Y= -2950.51 mm, Z= 0.00 mm
G10 F, Coordinates, X= 1909.16 mm, Y= -2771.85 mm, Z= 0.00 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 G11 to G12, DX= -431.33 mm, DY= 431.33 mm, L= 609.99 mm Bend

COMPONENT DATA (Bend, TIP= G11, Near= G11 N, Far= G11 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:

G11, Coordinates, X= 2340.50 mm, Y= -2340.51 mm, Z= 0.00 mm
G11 N, Coordinates, X= 1909.17 mm, Y= -2771.84 mm, Z= 0.00 mm
G11 F, Coordinates, X= 1909.17 mm, Y= -1909.18 mm, Z= 0.00 mm
G12, Coordinates, X= 1909.17 mm, Y= -1909.18 mm, Z= 0.00 mm

SUPPORT DATA:

G11 F, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

*** SEGMENT H , LINE # 79319817

From G06 to H01, DZ= -1272.00 mm Tee

COMPONENT DATA (Tee Branch, Center= G06):
B16.9 welding tee, SIFI= 4.08, SIFO= 5.10

PIPE DATA:

Pipe Id= 500MX6.0, Nom Size= 500 mm, OD= 508.00 mm

POINT DATA:

G06, Coordinates, X= -318.22 mm, Y= -2227.37 mm, Z= 0.00 mm

From H01 to H02, DX= 762.00 mm, DY= -762.00 mm, L= 1077.63 mm Bend

COMPONENT DATA (Bend, TIP= H01, Near= H01 N, Far= H01 F):
Elbow, Radius= 761.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

POINT DATA:

H01, Coordinates, X= -318.22 mm, Y= -2227.37 mm, Z= -1272.00 mm
H01 N, Coordinates, X= -318.22 mm, Y= -2227.37 mm, Z= -510.01 mm
H01 F, Coordinates, X= 220.59 mm, Y= -2766.18 mm, Z= -1272.00 mm

From H02 to H03, DX= 1248.79 mm Bend

COMPONENT DATA (Bend, TIP= H02, Near= H02 N, Far= H02 F):
Elbow, Radius= 761.99 mm, Bend angle= 45.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

POINT DATA:

H02, Coordinates, X= 443.78 mm, Y= -2989.37 mm, Z= -1272.00 mm
H02 N, Coordinates, X= 220.60 mm, Y= -2766.19 mm, Z= -1272.00 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

H02 F, Coordinates, X= 759.41 mm, Y= -2989.37 mm, Z= -1272.00 mm

From H03 to H04, DX= 962.00 mm

Tee

COMPONENT DATA (Tee Header, Center= H03):

B16.9 welding tee, SIFI= 4.08, SIFO= 5.10

POINT DATA:

H03, Coordinates, X= 1692.57 mm, Y= -2989.37 mm, Z= -1272.00 mm

From H04 to H05, DY= 2034.79 mm

Bend

COMPONENT DATA (Bend, TIP= H04, Near= H04 N, Far= H04 F):

Elbow, Radius= 761.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

POINT DATA:

H04, Coordinates, X= 2654.57 mm, Y= -2989.37 mm, Z= -1272.00 mm

H04 N, Coordinates, X= 1892.58 mm, Y= -2989.37 mm, Z= -1272.00 mm

H04 F, Coordinates, X= 2654.57 mm, Y= -2227.38 mm, Z= -1272.00 mm

From H05 to H06, DZ= -6762.00 mm

Bend

COMPONENT DATA (Bend, TIP= H05, Near= H05 N, Far= H05 F):

Elbow, Radius= 761.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

POINT DATA:

H05, Coordinates, X= 2654.57 mm, Y= -954.58 mm, Z= -1272.00 mm

H05 N, Coordinates, X= 2654.57 mm, Y= -1716.57 mm, Z= -1272.00 mm

H05 F, Coordinates, X= 2654.57 mm, Y= -954.58 mm, Z= -2033.99 mm

From H06 to H07, DZ= -6000.00 mm

Run

POINT DATA:

H06, Coordinates, X= 2654.57 mm, Y= -954.58 mm, Z= -8034.00 mm

From H07 to H08, DZ= -968.00 mm

Run

POINT DATA:

H07, Coordinates, X= 2654.57 mm, Y= -954.58 mm, Z= -14034.00 mm

From H08 to H09, DX= 484.54 mm, DZ= -1808.31 mm, L= 1872.10 mm

Bend

COMPONENT DATA (Bend, TIP= H08, Near= H08 N, Far= H08 F):

Elbow, Radius= 761.98 mm, Bend angle= 15.00 deg, End flanges= 0,
Flex= 22.737, SIFI= 5.17, SIFO= 4.31

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

H08, Coordinates, X= 2654.57 mm, Y= -954.58 mm, Z= -15002.00 mm
H08 N, Coordinates, X= 2654.57 mm, Y= -954.58 mm, Z= -14901.69 mm
H08 F, Coordinates, X= 2680.53 mm, Y= -954.58 mm, Z= -15098.90 mm

From H09 to H10, DZ= -103.37 mm

Bend

COMPONENT DATA (Bend, TIP= H09, Near= H09 N, Far= H09 F):
Elbow, Radius= 761.99 mm, Bend angle= 15.00 deg, End flanges= 0,
Flex= 22.737, SIFT= 5.17, SIFO= 4.31

POINT DATA:

H09, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -16810.31 mm
H09 N, Coordinates, X= 3113.15 mm, Y= -954.58 mm, Z= -16713.41 mm
H09 F, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -16910.63 mm

From H10 to H11, DZ= -496.95 mm

Redu

COMPONENT DATA (Reducer):
Length= 496.95 mm, SIF= 1.00

POINT DATA:

H10, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -16913.69 mm

From H11 to H12, DZ= -2099.26 mm

Run

PIPE DATA:

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

POINT DATA:

H11, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -17410.63 mm

From H12 to H13, DZ= -1625.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:

H12, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -19509.90 mm

From H13 to H14, DZ= -1610.31 mm

Run

POINT DATA:

H13, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -21134.90 mm
H13, Added Weight= 25.00 kg

From H14 to H15, DY= -250.00 mm, DZ= -933.01 mm, L= 965.92 mm

Bend

COMPONENT DATA (Bend, TIP= H14, Near= H14 N, Far= H14 F):
Elbow, Radius= 609.99 mm, Bend angle= 15.00 deg, End flanges= 0,

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

Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

H14, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -22745.21 mm
H14 N, Coordinates, X= 3139.11 mm, Y= -954.58 mm, Z= -22664.90 mm
H14 F, Coordinates, X= 3139.11 mm, Y= -975.36 mm, Z= -22822.78 mm

From H15 to F11, DX= 311.93 mm, DZ= -180.09 mm, L= 360.18 mm

Bend

COMPONENT DATA (Bend, TIP= H15, Near= H15 N, Far= H15 F):

Elbow, Radius= 609.99 mm, Bend angle= 61.12 deg, End flanges= 0,
Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

H15, Coordinates, X= 3139.11 mm, Y= -1204.58 mm, Z= -23678.21 mm
H15 N, Coordinates, X= 3139.11 mm, Y= -1111.36 mm, Z= -23330.31 mm
H15 F, Coordinates, X= 3451.04 mm, Y= -1204.58 mm, Z= -23858.30 mm

*** SEGMENT I , LINE # 79319817

From H03 to I01, DY= -298.45 mm

Tee

COMPONENT DATA (Tee Branch, Center= H03):

B16.9 welding tee, SIFI= 4.08, SIFO= 5.10
Rigid, Include weight= Yes, Include expansion= Yes

PIPE DATA:

Pipe Id= 25MMX3.4, Nom Size= 25 mm, OD= 33.400 mm, Sch= 3.4,
Wall Thk= 3.400 mm, Mill= 0.425 mm

POINT DATA:

H03, Coordinates, X= 1692.57 mm, Y= -2989.37 mm, Z= -1272.00 mm
I01, Coordinates, X= 1692.57 mm, Y= -3287.82 mm, Z= -1272.00 mm

Number of points in the system: 105

Weight of Empty Pipes + Weight of Contents = Total Weight of System
1756.3 kg + 0.0 kg = 1756.3 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 E , LINE # 79319817			
E00	-255.41	-4704.59	-37363.70
E01 N	-255.42	-4704.59	-37363.70
E01	-788.41	-4704.59	-37363.70
E01 F	-788.41	-4171.60	-37363.70
E02 N	-788.41	-4171.58	-37363.70
E02	-788.41	-3950.81	-37363.70
E02 F	-632.30	-3794.70	-37363.70
E03 N	-298.30	-3460.70	-37363.70
E03	-142.19	-3304.59	-37363.70
E03 F	78.58	-3304.59	-37363.70
E04	81.63	-3304.59	-37363.70
E05	578.58	-3304.59	-37363.70
E06	954.58	-3304.59	-37363.70
E07	1330.58	-3304.59	-37363.70
E08	1830.58	-3304.59	-37363.70
E09 N	1830.59	-3304.59	-37363.70
E09	2051.36	-3304.59	-37363.70
E09 F	2207.47	-3460.70	-37363.70
E10 N	2541.47	-3794.70	-37363.70
E10	2697.58	-3950.81	-37363.70
E10 F	2697.58	-4171.58	-37363.70
E11 N	2697.58	-4171.60	-37363.70
E11	2697.58	-4704.59	-37363.70
E11 F	2164.59	-4704.59	-37363.70
E12	2164.58	-4704.59	-37363.70
*** SEGMENT F , LINE # 79319817			
E06	954.58	-3304.59	-37363.70
F01	954.58	-3304.59	-36853.70
F02	954.58	-3304.59	-30853.70
F03 N	954.58	-3304.59	-25876.90
F03	954.58	-3304.59	-25436.53
F03 F	1335.38	-3328.59	-25216.67
F04	2585.43	-3407.38	-24494.95
F05	3017.80	-3434.63	-24245.32
F06 N	3017.81	-3434.63	-24245.32
F06	3159.87	-3443.58	-24163.30
F06 F	3324.15	-3443.58	-24163.30
F07 N	3573.33	-3443.58	-24163.30
F07	3979.32	-3443.58	-24163.30
F07 F	3979.32	-3037.59	-24163.30
F08	3979.32	-3034.53	-24163.30
F09	3979.32	-2591.58	-24163.30
F10 N	3979.32	-1814.57	-24163.30
F10	3979.32	-1204.58	-24163.30
F10 F	3451.05	-1204.58	-23858.31
F11	3451.04	-1204.58	-23858.30
*** SEGMENT G , LINE # 79319817			
G00	-0.03	0.02	0.00
G01 N	-0.03	0.02	0.00

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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
G01	-431.36	431.35	0.00
G01 F	-862.69	0.02	0.00
G02 N	-862.70	0.01	0.00
G02	-1041.36	-178.65	0.00
G02 F	-1041.36	-431.32	0.00
G03	-1041.36	-688.60	0.00
G04	-1041.36	-1188.60	0.00
G05 N	-1041.36	-1188.60	0.00
G05	-1041.36	-1504.23	0.00
G05 F	-818.18	-1727.41	0.00
G06	-318.22	-2227.37	0.00
G07 N	181.74	-2727.33	0.00
G07	404.92	-2950.51	0.00
G07 F	720.55	-2950.51	0.00
G08	723.60	-2950.51	0.00
G09	1220.55	-2950.51	0.00
G10 N	1477.83	-2950.51	0.00
G10	1730.50	-2950.51	0.00
G10 F	1909.16	-2771.85	0.00
G11 N	1909.17	-2771.84	0.00
G11	2340.50	-2340.51	0.00
G11 F	1909.17	-1909.18	0.00
G12	1909.17	-1909.18	0.00

*** SEGMENT H , LINE # 79319817

G06	-318.22	-2227.37	0.00
H01 N	-318.22	-2227.37	-510.01
H01	-318.22	-2227.37	-1272.00
H01 F	220.59	-2766.18	-1272.00
H02 N	220.60	-2766.19	-1272.00
H02	443.78	-2989.37	-1272.00
H02 F	759.41	-2989.37	-1272.00
H03	1692.57	-2989.37	-1272.00
H04 N	1892.58	-2989.37	-1272.00
H04	2654.57	-2989.37	-1272.00
H04 F	2654.57	-2227.38	-1272.00
H05 N	2654.57	-1716.57	-1272.00
H05	2654.57	-954.58	-1272.00
H05 F	2654.57	-954.58	-2033.99
H06	2654.57	-954.58	-8034.00
H07	2654.57	-954.58	-14034.00
H08 N	2654.57	-954.58	-14901.69
H08	2654.57	-954.58	-15002.00
H08 F	2680.53	-954.58	-15098.90
H09 N	3113.15	-954.58	-16713.41
H09	3139.11	-954.58	-16810.31
H09 F	3139.11	-954.58	-16910.63
H10	3139.11	-954.58	-16913.69
H11	3139.11	-954.58	-17410.63
H12	3139.11	-954.58	-19509.90
H13	3139.11	-954.58	-21134.90
H14 N	3139.11	-954.58	-22664.90

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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
H14	3139.11	-954.58	-22745.21
H14 F	3139.11	-975.36	-22822.78
H15 N	3139.11	-1111.36	-23330.31
H15	3139.11	-1204.58	-23678.21
H15 F	3451.04	-1204.58	-23858.30
F11	3451.04	-1204.58	-23858.30
*** SEGMENT I , LINE # 79319817			
H03	1692.57	-2989.37	-1272.00
I01	1692.57	-3287.82	-1272.00

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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
400MX6.0 AL	400 6.0	406.00	6.000 0 0.75 0 0	0	200 0 200	1.00 1.00
500MX6.0 AL	500 6.0	508.00	6.000 0 0.75 0 0	0	251 0 251	1.00 1.00
25MMX3.4 AL	25 3.4	33.400	3.400 0 0.43 0 0	0	8.51 0 8.51	1.00 1.00
350MX6.0 AL	350 6.0	355.00	6.000 0 0.75 0 0	0	175 0 175	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/			Expans. mm/m
					Axial	Hoop	Shear	
AL	350MX6.0	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459
AL	500MX6.0	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	25MMX3.4	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	500MX6.0	20.0 -196.0	103.42 71.00	0.00
AL	400MX6.0	20.0 -196.0	103.42 71.00	0.00
AL	25MMX3.4	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 E , LINE # 79319817

E00	0	-196	-3.846
E12	0	-196	-3.846

*** SEGMENT F , LINE # 79319817

E06	0	-196	-3.846
F11	0	-196	-3.846

*** SEGMENT G , LINE # 79319817

G00	0	-196	-3.846
G12	0	-196	-3.846

*** SEGMENT H , LINE # 79319817

G06	0	-196	-3.846
F11	0	-196	-3.846

*** SEGMENT I , LINE # 79319817

H03	0	-196	-3.846
I01	0	-196	-3.846

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H O T M O D U L U S (x10⁶ N/)

POINT

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

*** SEGMENT E , LINE # 79319817

E00 0.07646

E12 0.07646

*** SEGMENT F , LINE # 79319817

E06 0.07646

F11 0.07646

*** SEGMENT G , LINE # 79319817

G00 0.07646

G12 0.07646

*** SEGMENT H , LINE # 79319817

G06 0.07646

F11 0.07646

*** SEGMENT I , LINE # 79319817

H03 0.07646

I01 0.07646

* Non-standard material

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-----C A S E 1-----			H O T A L L O W A B L E S (N/mm2)			-----C A S E 2-----			-----C A S E 3-----		
POINT	NOT	NOT		NOT	NOT		NOT	NOT		NOT	NOT
NAME	ALLOW	USED	USED	ALLOW	USED	USED	ALLOW	USED	USED	ALLOW	USED

*** SEGMENT E , LINE # 79319817

E00 71.00*

E12 71.00*

*** SEGMENT F , LINE # 79319817

E06 71.00*

F11 71.00*

*** SEGMENT G , LINE # 79319817

G00 71.00*

G12 71.00*

*** SEGMENT H , LINE # 79319817

G06 71.00*

F11 71.00*

*** SEGMENT I , LINE # 79319817

H03 71.00*

I01 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)
E01 N	Thermal 1	4.70	0.00	-11.30	0.000	0.000	0.000
E11 F	Thermal 1	-4.70	0.00	-11.30	0.000	0.000	0.000
G01 N	Thermal 1	3.70	-3.70	-155.30	0.000	0.000	0.000
G11 F	Thermal 1	-3.70	3.70	-155.30	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 E begin *** Line # 79319817							
E00	T1	4.700	0.000	-11.300	0.000	0.000	0.000
E01 N	T1	4.700	0.000	-11.300	0.000	0.000	0.000
E01 F	T1	7.414	-1.619	-10.333	0.195	-0.022	-0.087
E02 N	T1	7.414	-1.619	-10.333	0.195	-0.022	-0.087
E02 F	T1	7.338	-3.271	-8.285	0.329	-0.122	-0.062
E03 N	T1	6.407	-4.906	-5.557	0.297	-0.147	-0.057
E03 F	T1	5.041	-5.598	-4.715	0.141	0.105	0.026
E04	T1	5.030	-5.596	-4.720	0.140	0.105	0.027
E05	T1	3.120	-5.350	-5.625	0.104	0.126	0.030
E06	T1	1.676	-5.149	-6.455	0.087	0.144	0.031
E07	T1	0.229	-4.960	-7.414	0.088	0.145	0.028
E08	T1	-1.696	-4.750	-8.699	0.092	0.146	0.022
E09 N	T1	-1.696	-4.750	-8.700	0.092	0.146	0.022
E09 F	T1	-3.282	-4.350	-9.820	0.087	0.115	-0.079
E10 N	T1	-5.049	-3.548	-11.001	0.091	0.106	-0.083
E10 F	T1	-6.228	-2.339	-11.603	0.022	0.063	-0.082
E11 N	T1	-6.228	-2.339	-11.603	0.022	0.063	-0.082
E11 F	T1	-4.700	0.000	-11.300	0.000	0.000	0.000
E12	T1	-4.700	0.000	-11.300	0.000	0.000	0.000
*** Segment E end *** Line # 79319817							
*** Segment F begin *** Line # 79319817							
E06	T1	1.676	-5.149	-6.455	0.087	0.144	0.031
F01	T1	3.087	-5.828	-8.401	0.068	0.169	0.039
F02	T1	28.536	-4.757	-31.288	-0.057	0.247	0.137
F03 N	T1	41.941	-0.297	-50.273	-0.024	0.012	0.218

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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
F03 F	T1	33.774	-0.147	-47.158	0.159	-1.267	0.126
F04	T1	12.772	0.817	-21.751	0.210	-1.309	0.142
F05	T1	5.466	1.048	-12.899	0.238	-1.300	0.146
F06 N	T1	5.465	1.048	-12.899	0.238	-1.300	0.146
F06 F	T1	2.599	1.188	-7.224	0.307	-0.915	0.060
F07 N	T1	1.643	1.453	-3.242	0.330	-0.891	0.060
F07 F	T1	0.000	0.112	-0.001	0.000	-0.001	0.000
F08	T1	0.000	0.101	0.000	0.000	0.000	0.000
F09	T1	0.000	-0.101	0.000	0.000	0.000	0.000
F10 N	T1	-0.017	-3.089	-0.470	-0.051	-0.021	0.004
F10 F	T1	0.539	-4.813	-5.527	-0.322	-0.175	0.158
F11	T1	0.539	-4.813	-5.527	-0.322	-0.175	0.158

*** Segment F end *** Line # 79319817

*** Segment G begin *** Line # 79319817

G00	T1	3.700	-3.700	-155.300	0.000	0.000	0.000
G01 N	T1	3.700	-3.700	-155.300	0.000	0.000	0.000
G01 F	T1	7.004	-3.603	-156.309	-0.008	-0.147	-0.007
G02 N	T1	7.004	-3.603	-156.309	-0.008	-0.147	-0.007
G02 F	T1	7.648	-1.924	-156.878	0.022	-0.176	-0.004
G03	T1	7.629	-0.934	-156.971	0.023	-0.182	-0.004
G04	T1	7.593	0.989	-157.171	0.026	-0.192	-0.004
G05 N	T1	7.593	0.989	-157.171	0.026	-0.192	-0.004
G05 F	T1	6.679	3.035	-157.010	0.088	-0.181	-0.009
G06	T1	4.676	4.879	-156.207	0.100	-0.187	-0.010
G07 N	T1	2.687	6.734	-155.586	0.091	-0.159	-0.007
G07 F	T1	0.617	7.622	-155.421	0.145	0.025	0.008

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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
G08	T1	0.605	7.622	-155.423	0.145	0.025	0.008
G09	T1	-1.305	7.694	-155.707	0.130	0.032	0.008
G10 N	T1	-2.294	7.730	-155.873	0.119	0.033	0.008
G10 F	T1	-3.937	7.035	-155.827	0.094	0.035	-0.011
G11 N	T1	-3.937	7.035	-155.827	0.094	0.035	-0.011
G11 F	T1	-3.700	3.700	-155.300	0.000	0.000	0.000
G12	T1	-3.700	3.700	-155.300	0.000	0.000	0.000
*** Segment G end *** Line # 79319817							
*** Segment H begin *** Line # 79319817							
G06	T1	4.676	4.879	-156.207	0.100	-0.187	-0.010
H01 N	T1	6.435	5.805	-154.237	0.108	-0.209	-0.014
H01 F	T1	13.720	12.655	-146.769	0.294	-0.860	0.281
H02 N	T1	13.720	12.655	-146.769	0.294	-0.860	0.281
H02 F	T1	12.677	15.923	-139.477	0.305	-0.957	0.237
H03	T1	9.086	19.762	-123.776	0.354	-0.957	0.235
H04 N	T1	8.317	20.581	-120.424	0.365	-0.954	0.234
H04 F	T1	2.769	20.500	-104.070	0.472	-0.785	0.167
H05 N	T1	1.284	18.535	-99.789	0.477	-0.756	0.165
H05 F	T1	5.156	19.768	-91.344	0.133	-0.216	0.415
H06	T1	16.942	27.696	-68.169	0.023	-0.029	0.354
H07	T1	15.161	25.413	-44.995	-0.062	0.043	0.293
H08 N	T1	14.484	24.400	-41.643	-0.072	0.045	0.285
H08 F	T1	14.231	24.189	-40.901	-0.126	0.044	0.276
H09 N	T1	11.272	22.429	-35.011	-0.143	0.051	0.261
H09 F	T1	10.932	21.969	-34.278	-0.190	0.089	0.253
H10	T1	10.927	21.959	-34.266	-0.190	0.089	0.253

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Point name	Load combination	TRANSLATIONS (mm)			ROTATIONS (deg)		
		X	Y	Z	X	Y	Z
H11	T1	10.130	20.278	-32.346	-0.197	0.094	0.246
H12	T1	6.332	12.379	-24.228	-0.233	0.108	0.206
H13	T1	3.278	5.775	-17.979	-0.233	0.108	0.206
H14 N	T1	0.654	-0.703	-12.063	-0.251	0.085	0.177
H14 F	T1	0.555	-1.361	-11.353	-0.282	0.034	0.179
H15 N	T1	0.719	-3.362	-8.714	-0.284	0.021	0.169
H15 F	T1	0.539	-4.813	-5.527	-0.322	-0.175	0.158
F11	T1	0.539	-4.813	-5.527	-0.322	-0.175	0.158

*** Segment I end *** Line # 79319817

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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
E01 N	Anchor T1	2220	482	17702	17847	12382	-1051	-1390	12504
E11 F	Anchor T1	1728	1308	2731	3486	2494	1486	-647	2974
F08	Anchor T1	-3876.18E+09	-19575.18E+09			-4420	-27868	-144	28217
F09	Anchor T1	1059-.1E+09	-11683.18E+09			-15687	-4230	574	16257
G01 N	Anchor T1	145	345	2999	3023	-1136	-559	-244	1289
G11 F	Anchor T1	-1276	-607	7827	7953	-2192	3599	-738	4278

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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 E begin *** Line # 79319817									
E00	T1	0	0	0	0	0	0	0	0
E01 N-	T1	0	0	0	0	0	0	0	0
E01 N+	T1	-2220	-482	-17702	17847	-12382	1051	1390	12504
E01 F	T1	-2220	-482	-17702	17847	-2948	10486	-50	10892
E02 N	T1	-2220	-482	-17702	17847	-2947	10486	-50	10892
E02 F	T1	-2220	-482	-17702	17847	3724	7722	-811	8612
E03 N	T1	-2220	-482	-17702	17847	9637	1810	-1392	9903
E03 F	T1	-2220	-482	-17702	17847	12400	-4862	-1557	13410
E04	T1	-2220	-482	-17702	17847	12400	-4916	-1555	13429
E05	T1	-2220	-482	-17702	17847	12400	-13713	-1316	18534
E06 -	T1	-2220	-482	-17702	17847	12400	-20368	-1135	23873
E06 +	T1	1728	1308	2731	3486	-1329	-1819	3355	4041
E07	T1	1728	1308	2731	3486	-1329	-792	2863	3255
E08	T1	1728	1308	2731	3486	-1329	574	2209	2641
E09 N	T1	1728	1308	2731	3486	-1329	574	2209	2641
E09 F	T1	1728	1308	2731	3486	-903	1603	1446	2340
E10 N	T1	1728	1308	2731	3486	9	2515	433	2552
E10 F	T1	1728	1308	2731	3486	1038	2941	-423	3147
E11 N	T1	1728	1308	2731	3486	1038	2941	-423	3147
E11 F-	T1	1728	1308	2731	3486	2494	1486	-647	2974
E11 F+	T1	0	0	0	0	0	0	0	0
E12	T1	0	0	0	0	0	0	0	0
*** Segment E end *** Line # 79319817									
*** Segment F begin *** Line # 79319817									
E06	T1	-3947	-1790	-20432	20887	13729	-18550	-4490	23511

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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
F01	T1	-3947	-1790	-20432	20887	12817	-16537	-4490	21398
F02	T1	-3947	-1790	-20432	20887	2079	7148	-4490	8693
F03 N	T1	-3947	-1790	-20432	20887	-6827	26793	-4490	28011
F03 F	T1	-3947	-1790	-20432	20887	-8499	21618	-3714	23524
F04	T1	-3947	-1790	-20432	20887	-11401	-1075	-1166	11510
F05	T1	-3947	-1790	-20432	20887	-12404	-8924	-284	15283
F06 N	T1	-3947	-1790	-20432	20887	-12404	-8924	-284	15283
F06 F	T1	-3947	-1790	-20432	20887	-12734	-14859	299	19571
F07 N	T1	-3947	-1790	-20432	20887	-12734	-19951	745	23680
F07 F	T1	-3947	-1790	-20432	20887	-4438	-28246	-131	28593
F08 -	T1	-3947	-1790	-20432	20887	-4376	-28246	-143	28583
F08 +	T1	-71	-1E+09	-857.18E+09		44	-378	1	381
F09 -	T1	-71	-1E+09	-857.18E+09		424	-378	-31	569
F09 +	T1	-1131	-262	10826	10888	16111	3852	-605	16576
F10 N	T1	-1131	-262	10826	10888	7698	3852	-1484	8735
F10 F	T1	-1131	-262	10826	10888	1015	-1522	-2312	2948
F11	T1	-1131	-262	10826	10888	1015	-1522	-2312	2948

*** Segment F end *** Line # 79319817

*** Segment G begin *** Line # 79319817

G00	T1	0	0	0	0	0	0	0	0
G01 N-	T1	0	0	0	0	0	0	0	0
G01 N+	T1	-145	-345	-2999	3023	1136	559	244	1289
G01 F	T1	-145	-345	-2999	3023	1136	3146	-54	3346
G02 N	T1	-145	-345	-2999	3023	1136	3146	-54	3346
G02 F	T1	-145	-345	-2999	3023	-158	3682	-53	3686
G03	T1	-145	-345	-2999	3023	-929	3682	-16	3798

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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
G04	T1	-145	-345	-2999	3023	-2429	3682	57	4411
G05 N	T1	-145	-345	-2999	3023	-2429	3682	57	4411
G05 F	T1	-145	-345	-2999	3023	-4045	3013	212	5048
G06 -	T1	-145	-345	-2999	3023	-5544	1513	457	5765
G06 +	T1	-1276	-607	7827	7953	299	-13835	-1684	13940
G07 N	T1	-1276	-607	7827	7953	4212	-9921	-743	10804
G07 F	T1	-1276	-607	7827	7953	5959	-5704	-131	8250
G08	T1	-1276	-607	7827	7953	5959	-5680	-129	8234
G09	T1	-1276	-607	7827	7953	5959	-1791	173	6225
G10 N	T1	-1276	-607	7827	7953	5959	223	329	5972
G10 F	T1	-1276	-607	7827	7953	4561	3599	363	5821
G11 N	T1	-1276	-607	7827	7953	4560	3599	363	5821
G11 F-	T1	-1276	-607	7827	7953	-2192	3599	-738	4278
G11 F+	T1	0	0	0	0	0	0	0	0
G12	T1	0	0	0	0	0	0	0	0
*** Segment G end *** Line # 79319817									
*** Segment H begin *** Line # 79319817									
G06	T1	1131	262	-10826	10888	-5843	15348	2142	16562
H01 N	T1	1131	262	-10826	10888	-5977	15925	2142	17143
H01 F	T1	1131	262	-10826	10888	-12010	10953	1391	16314
H02 N	T1	1131	262	-10826	10888	-12010	10953	1391	16314
H02 F	T1	1131	262	-10826	10888	-14426	5120	998	15340
H03 -	T1	1131	262	-10826	10888	-14426	-4983	754	15281
H03 +	T1	1131	262	-10826	10888	-14426	-4983	754	15281
H04 N	T1	1131	262	-10826	10888	-14426	-7148	701	16115
H04 F	T1	1131	262	-10826	10888	-6176	-15398	1364	16646

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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
H05 N	T1	1131	262	-10826	10888	-646	-15398	1941	15533
H05 F	T1	1131	262	-10826	10888	7404	-14536	2803	16552
H06	T1	1131	262	-10826	10888	5833	-7751	2803	10098
H07	T1	1131	262	-10826	10888	4263	-965	2803	5193
H08 N	T1	1131	262	-10826	10888	4036	16	2803	4914
H08 F	T1	1131	262	-10826	10888	3984	-42	2796	4868
H09 N	T1	1131	262	-10826	10888	3562	-2900	2683	5319
H09 F	T1	1131	262	-10826	10888	3510	-2958	2676	5313
H10	T1	1131	262	-10826	10888	3509	-2955	2676	5311
H11	T1	1131	262	-10826	10888	3379	-2393	2676	4930
H12	T1	1131	262	-10826	10888	2830	-18	2676	3895
H13 -	T1	1131	262	-10826	10888	2405	1819	2676	4032
H13 +	T1	1131	262	-10826	10888	2405	1819	2676	4032
H14 N	T1	1131	262	-10826	10888	2004	3550	2676	4876
H14 F	T1	1131	262	-10826	10888	1738	3728	2653	4894
H15 N	T1	1131	262	-10826	10888	133	4302	2499	4977
H15 F	T1	1131	262	-10826	10888	-1015	1522	2312	2948
F11	T1	1131	262	-10826	10888	-1015	1522	2312	2948

*** Segment H end *** Line # 79319817

*** Segment I begin *** Line # 79319817

H03	T1	0	0	0	0	0	0	0	0
I01	T1	0	0	0	0	0	0	0	0

*** Segment I end *** Line # 79319817

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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 E begin *** Line # 79319817									
E00	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
E01 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
E01 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	1390	1051	12382	4.04	3.37	(17) DISP	25	147
E01 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	50	2948	10486	4.04	3.37	(17) DISP	26	147
E01 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	2948	50	10486	1.00	1.00	(17) DISP	19	147
E02 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	2947	50	10486	1.00	1.00	(17) DISP	19	147
E02 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	50	2947	10486	4.04	3.37	(17) DISP	26	147
E02 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	811	2827	8094	4.04	3.37	(17) DISP	23	147
E02 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	2827	811	8094	1.00	1.00	(17) DISP	15	147
E03 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	5534	1392	8094	1.00	1.00	(17) DISP	18	147
E03 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	1392	5534	8094	4.04	3.37	(17) DISP	37	147
E03 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.04	3.37	(18) SUST	0	71
	Cold to T1	1557	4862	12400	4.04	3.37	(17) DISP	38	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.
					In	Out				
E03 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	4862	1557	12400	1.00	1.00	(17)	DISP	24	147
E04	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	4916	1555	12400	1.00	1.00	(17)	DISP	24	147
E05	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	13713	1316	12400	1.00	1.00	(17)	DISP	16	147
E06 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.08	5.10	(18)	SUST	0	71
	Cold to T1	20368	1135	12400	4.08	5.10	(17)	DISP	72	147
E06 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.08	5.10	(18)	SUST	0	71
	Cold to T1	1819	3355	1329	4.08	5.10	(17)	DISP	16	147
E07	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	792	2863	1329	1.00	1.00	(17)	DISP	3	147
E08	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	574	2209	1329	1.00	1.00	(17)	DISP	5	147
E09 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	574	2209	1329	1.00	1.00	(17)	DISP	5	147
E09 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.04	3.37	(18)	SUST	0	71
	Cold to T1	2209	574	1329	4.04	3.37	(17)	DISP	16	147
E09 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.04	3.37	(18)	SUST	0	71
	Cold to T1	1446	495	1772	4.04	3.37	(17)	DISP	11	147
E09 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	495	1446	1772	1.00	1.00	(17)	DISP	4	147
E10 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1785	433	1772	1.00	1.00	(17)	DISP	5	147
E10 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.04	3.37	(18)	SUST	0	71
	Cold to T1	433	1785	1772	4.04	3.37	(17)	DISP	12	147

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AutoPIPE 6.20 RESULT PAGE 12

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. Load no.	type	Code Stress	Code Allow.
					In	Out				
E10 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.04	3.37	(18)	SUST	0	71
	Cold to T1	423	1038	2941	4.04	3.37	(17)	DISP	9	147
E10 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1038	423	2941	1.00	1.00	(17)	DISP	6	147
E11 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1038	423	2941	1.00	1.00	(17)	DISP	6	147
E11 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.04	3.37	(18)	SUST	0	71
	Cold to T1	423	1038	2941	4.04	3.37	(17)	DISP	9	147
E11 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.04	3.37	(18)	SUST	0	71
	Cold to T1	647	1486	2494	4.04	3.37	(17)	DISP	11	147
E11 F+	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
E12	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
*** Segment E end *** Line # 79319817										
*** Segment F begin *** Line # 79319817										
E06	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.08	5.10	(18)	SUST	0	71
	Cold to T1	18550	13729	4490	4.08	5.10	(17)	DISP	88	147
F01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	16537	12817	4490	1.00	1.00	(17)	DISP	18	147
F02	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7148	2079	4490	1.00	1.00	(17)	DISP	7	147
F03 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	26793	6827	4490	1.00	1.00	(17)	DISP	24	147
F03 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	26310	8499	4490	5.17	4.31	(17)	DISP	120	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)		Eq. Load no. type	Code Code Stress Allow.
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	In	Out				
F03 F-	Max P						(3a)	HOOP		0 71
	Max P	0	0		5.17	4.31	(18)	SUST		0 71
	Cold to T1	21041	1696	10382	5.17	4.31	(17)	DISP		93 147
F03 F+	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	21041	1696	10382	1.00	1.00	(17)	DISP		20 147
F04	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	1789	4637	10382	1.00	1.00	(17)	DISP		10 147
F05	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	9658	5886	10279	1.00	1.00	(17)	DISP		21 147
F06 N-	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	9658	5886	10279	1.00	1.00	(17)	DISP		21 147
F06 N+	Max P						(3a)	HOOP		0 71
	Max P	0	0		4.43	3.69	(18)	SUST		0 71
	Cold to T1	8902	6822	10382	4.43	3.69	(17)	DISP		65 147
F06 F-	Max P						(3a)	HOOP		0 71
	Max P	0	0		4.43	3.69	(18)	SUST		0 71
	Cold to T1	14739	1909	12734	4.43	3.69	(17)	DISP		90 147
F06 F+	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	14859	299	12734	1.00	1.00	(17)	DISP		26 147
F07 N-	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	19951	745	12734	1.00	1.00	(17)	DISP		32 147
F07 N+	Max P						(3a)	HOOP		0 71
	Max P	0	0		5.81	4.85	(18)	SUST		0 71
	Cold to T1	745	19951	12734	5.81	4.85	(17)	DISP		131 147
F07 F-	Max P						(3a)	HOOP		0 71
	Max P	0	0		5.81	4.85	(18)	SUST		0 71
	Cold to T1	131	4438	28246	5.81	4.85	(17)	DISP		48 147
F07 F+	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	4438	131	28246	1.00	1.00	(17)	DISP		38 147
F08	Max P						(3a)	HOOP		0 71
	Max P	0	0		1.00	1.00	(18)	SUST		0 71
	Cold to T1	4376	143	28246	1.00	1.00	(17)	DISP		38 147

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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.	
F09	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	16111	605	3852	1.00	1.00	(17) DISP	22	147
F10 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	7698	1484	3852	1.00	1.00	(17) DISP	12	147
F10 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.43	3.69	(18) SUST	0	71
	Cold to T1	2564	7409	3852	4.43	3.69	(17) DISP	40	147
F10 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.43	3.69	(18) SUST	0	71
	Cold to T1	1495	1522	2035	4.43	3.69	(17) DISP	12	147
F10 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	1522	1392	2106	1.00	1.00	(17) DISP	4	147
F11	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	1522	1392	2106	1.00	1.00	(17) DISP	4	147
*** Segment F end *** Line # 79319817									
*** Segment G begin *** Line # 79319817									
G00	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
G01 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
G01 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.43	3.69	(18) SUST	0	71
	Cold to T1	244	1199	408	4.43	3.69	(17) DISP	6	147
G01 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.43	3.69	(18) SUST	0	71
	Cold to T1	54	1421	3028	4.43	3.69	(17) DISP	8	147
G01 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	1425	54	3026	1.00	1.00	(17) DISP	5	147
G02 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	1425	54	3026	1.00	1.00	(17) DISP	5	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.
G02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.43	3.69	(18)	SUST	0	71
	Cold to T1	54	1421	3028	4.43	3.69	(17)	DISP	8	147
G02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.43	3.69	(18)	SUST	0	71
	Cold to T1	53	158	3682	4.43	3.69	(17)	DISP	5	147
G02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	158	53	3682	1.00	1.00	(17)	DISP	5	147
G03	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	929	16	3682	1.00	1.00	(17)	DISP	5	147
G04	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2429	57	3682	1.00	1.00	(17)	DISP	4	147
G05 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2429	57	3682	1.00	1.00	(17)	DISP	4	147
G05 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	57	2429	3682	5.17	4.31	(17)	DISP	9	147
G05 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	212	730	4990	5.17	4.31	(17)	DISP	5	147
G05 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	730	212	4990	1.00	1.00	(17)	DISP	4	147
G06 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.08	5.10	(18)	SUST	0	71
	Cold to T1	2851	457	4990	4.08	5.10	(17)	DISP	11	147
G06 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.08	5.10	(18)	SUST	0	71
	Cold to T1	9571	1684	9994	4.08	5.10	(17)	DISP	35	147
G07 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	4037	743	9994	1.00	1.00	(17)	DISP	9	147
G07 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	743	4037	9994	5.17	4.31	(17)	DISP	17	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.
G07 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	131	5704	5959	5.17	4.31	(17)	DISP	22	147
G07 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	5704	131	5959	1.00	1.00	(17)	DISP	7	147
G08	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	5680	129	5959	1.00	1.00	(17)	DISP	7	147
G09	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1791	173	5959	1.00	1.00	(17)	DISP	8	147
G10 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	223	329	5959	1.00	1.00	(17)	DISP	8	147
G10 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.43	3.69	(18)	SUST	0	71
	Cold to T1	329	223	5959	4.43	3.69	(17)	DISP	8	147
G10 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.43	3.69	(18)	SUST	0	71
	Cold to T1	363	680	5770	4.43	3.69	(17)	DISP	9	147
G10 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	624	363	5776	1.00	1.00	(17)	DISP	8	147
G11 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	624	363	5776	1.00	1.00	(17)	DISP	8	147
G11 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.43	3.69	(18)	SUST	0	71
	Cold to T1	363	680	5770	4.43	3.69	(17)	DISP	9	147
G11 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.43	3.69	(18)	SUST	0	71
	Cold to T1	738	995	4095	4.43	3.69	(17)	DISP	9	147
G11 F+	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
G12	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

*** Segment G end *** Line # 79319817

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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 H begin *** Line # 79319817									
G06	Max P						(3a) HOOP	0	71
	Max P	0	0		4.08	5.10	(18) SUST	0	71
	Cold to T1	6721	14984	2142	4.08	5.10	(17) DISP	69	147
H01 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	15925	5977	2142	1.00	1.00	(17) DISP	15	147
H01 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		5.17	4.31	(18) SUST	0	71
	Cold to T1	7034	15487	2142	5.17	4.31	(17) DISP	65	147
H01 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		5.17	4.31	(18) SUST	0	71
	Cold to T1	747	1391	16237	5.17	4.31	(17) DISP	15	147
H01 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	806	1391	16234	1.00	1.00	(17) DISP	14	147
H02 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	806	1391	16234	1.00	1.00	(17) DISP	14	147
H02 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		5.17	4.31	(18) SUST	0	71
	Cold to T1	1391	747	16237	5.17	4.31	(17) DISP	15	147
H02 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		5.17	4.31	(18) SUST	0	71
	Cold to T1	998	5120	14426	5.17	4.31	(17) DISP	23	147
H02 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	5120	998	14426	1.00	1.00	(17) DISP	13	147
H03 -	Max P						(3a) HOOP	0	71
	Max P	0	0		4.08	5.10	(18) SUST	0	71
	Cold to T1	754	4983	14426	4.08	5.10	(17) DISP	25	147
H03 +	Max P						(3a) HOOP	0	71
	Max P	0	0		4.08	5.10	(18) SUST	0	71
	Cold to T1	754	4983	14426	4.08	5.10	(17) DISP	25	147
H04 N-	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	7148	701	14426	1.00	1.00	(17) DISP	14	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.
H04 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	701	7148	14426	5.17	4.31	(17)	DISP	29	147
H04 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	1364	6176	15398	5.17	4.31	(17)	DISP	27	147
H04 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	6176	1364	15398	1.00	1.00	(17)	DISP	14	147
H05 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	646	1941	15398	1.00	1.00	(17)	DISP	13	147
H05 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	646	1941	15398	5.17	4.31	(17)	DISP	15	147
H05 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	7404	14536	2803	5.17	4.31	(17)	DISP	63	147
H05 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	14536	7404	2803	1.00	1.00	(17)	DISP	14	147
H06	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7751	5833	2803	1.00	1.00	(17)	DISP	9	147
H07	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	965	4263	2803	1.00	1.00	(17)	DISP	4	147
H08 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	16	4036	2803	1.00	1.00	(17)	DISP	4	147
H08 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	16	4036	2803	5.17	4.31	(17)	DISP	15	147
H08 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		5.17	4.31	(18)	SUST	0	71
	Cold to T1	42	4572	1670	5.17	4.31	(17)	DISP	17	147
H08 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	42	4572	1670	1.00	1.00	(17)	DISP	4	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. Load no.	Load type	Code Stress Allow.
H09 N-	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	2900	4135	1670	1.00	1.00	(17)	DISP	5 147
H09 N+	Max P						(3a)	HOOP	0 71
	Max P	0	0		5.17	4.31	(18)	SUST	0 71
	Cold to T1	2900	4135	1670	5.17	4.31	(17)	DISP	20 147
H09 F-	Max P						(3a)	HOOP	0 71
	Max P	0	0		5.17	4.31	(18)	SUST	0 71
	Cold to T1	2958	3510	2676	5.17	4.31	(17)	DISP	18 147
H09 F+	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	2958	3510	2676	1.00	1.00	(17)	DISP	5 147
H10	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	2955	3509	2676	1.00	1.00	(17)	DISP	5 147
H11	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	2393	3379	2676	1.00	1.00	(17)	DISP	7 147
H12	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	18	2830	2676	1.00	1.00	(17)	DISP	5 147
H13	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	1819	2405	2676	1.00	1.00	(17)	DISP	5 147
H14 N-	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	3550	2004	2676	1.00	1.00	(17)	DISP	7 147
H14 N+	Max P						(3a)	HOOP	0 71
	Max P	0	0		4.43	3.69	(18)	SUST	0 71
	Cold to T1	2004	3550	2676	4.43	3.69	(17)	DISP	22 147
H14 F-	Max P						(3a)	HOOP	0 71
	Max P	0	0		4.43	3.69	(18)	SUST	0 71
	Cold to T1	1738	2915	3527	4.43	3.69	(17)	DISP	18 147
H14 F+	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	1738	2914	3527	1.00	1.00	(17)	DISP	7 147
H15 N-	Max P						(3a)	HOOP	0 71
	Max P	0	0		1.00	1.00	(18)	SUST	0 71
	Cold to T1	133	3509	3527	1.00	1.00	(17)	DISP	7 147

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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.
H15 N+	Max P						(3a) HOOP	0	71
	Max P	0	0		4.43	3.69	(18) SUST	0	71
	Cold to T1	3451	650	3527	4.43	3.69	(17) DISP	21	147
H15 F-	Max P						(3a) HOOP	0	71
	Max P	0	0		4.43	3.69	(18) SUST	0	71
	Cold to T1	1012	1878	2035	4.43	3.69	(17) DISP	11	147
H15 F+	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	1522	1171	2237	1.00	1.00	(17) DISP	4	147
F11	Max P						(3a) HOOP	0	71
	Max P	0	0		1.00	1.00	(18) SUST	0	71
	Cold to T1	1522	1171	2237	1.00	1.00	(17) DISP	4	147

*** Segment H end *** Line # 79319817

*** Segment I begin *** Line # 79319817

*** Segment I end *** Line # 79319817

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

Maximum displacements (mm)

Maximum X :	41.941	Point : F03 N	Load Comb.: T1
Maximum Y :	27.696	Point : H06	Load Comb.: T1
Maximum Z :	-157.171	Point : G04	Load Comb.: T1
Max. total:	157.357	Point : G04	Load Comb.: T1

Maximum rotations (deg)

Maximum X :	0.477	Point : H05 N	Load Comb.: T1
Maximum Y :	-1.309	Point : F04	Load Comb.: T1
Maximum Z :	0.415	Point : H05 F	Load Comb.: T1
Max. total:	1.333	Point : F04	Load Comb.: T1

Maximum restraint forces (N)

Maximum X :	-3876	Point : F08	Load Comb.: T1
Maximum Y :	-.176E+09	Point : F09	Load Comb.: T1
Maximum Z :	-19575	Point : F08	Load Comb.: T1
Max. total:	176392000	Point : F09	Load Comb.: T1

Maximum restraint moments (Nm)

Maximum X :	-15687	Point : F09	Load Comb.: T1
Maximum Y :	-27868	Point : F08	Load Comb.: T1
Maximum Z :	-1390	Point : E01 N	Load Comb.: T1
Max. total:	28217	Point : F08	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 :	-3947	Point : F05	Load Comb.: T1
Maximum Y :	-.176E+09	Point : F08	Load Comb.: T1
Maximum Z :	-20432	Point : E06	Load Comb.: T1
Max. total:	176392256	Point : F08	Load Comb.: T1

Maximum pipe moments (Nm)

Maximum X :	16111	Point : F09	Load Comb.: T1
Maximum Y :	-28246	Point : F07 F	Load Comb.: T1
Maximum Z :	-4490	Point : E06	Load Comb.: T1
Max. total:	28593	Point : F07 F	Load Comb.: T1

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

Maximum displacement stress

Point : F07 N
Stress N/mm2 : 131
Allowable N/mm2 : 147
Ratio : 0.89
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 : F07 N
Stress N/mm2 : 131
Allowable N/mm2 : 147
Ratio : 0.89
Load combination : Cold to T1

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

Rechnung mit Anker an Klappe PK 40003