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CASE 1 NORMAL GENERAL Date: 30-09-2022

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FILE NAME : D:\08 Linked In\02 DWSim\00 Plan Personal\24 Line Hydraulics\24 Line Hydraulic.kdf

DEFAULTS : Fitting method = Crane

fT based on steel = Yes

Compressible = Isothermal

Two phase flow = Homogeneous

Acceleration = Homogeneous

Elevation den = Flanigan

Dukler hold-up = Hughmark

Smooth pipe f = No

Sonic velocity = HEMOmega

Two phase orifice = Homogeneous

Two phase valve = Homogeneous

Atmospheric pres = 1.0133 bar abs

VIEW/PRINT SETTINGS:

Font = Courier, Size 7-8

Orientation = Landscape

Margins = 1-2 cm.

RUN MESSAGE: Case 1 Hydraulic solution reached after 2 iterations.

NOTES:

1) Close this report before running/viewing next results.

2) Report is not automatically saved or printed.

Save the report as rtf file from the Korf menu (Hydraulics | Results | Save Report) or editor menu (File | Save As for MS Word).

After the final run, print the saved report with an editor (MS Word, etc.) for quality assurance purposes.

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CASE 1 NORMAL PRESSURE PROFILE REPORT Date: 30-09-2022

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Circuit Feed 1

--------------

Number Description Flow Density Visc Dia Sch Length dP/L Velocity Elev dPelev dPin-out Pin Pout

kg/h kg/m3 cP in m kPa/100m m/s m bar bar barg barg

F1 Feed 0 0 0 2.00 2.00

L1 Pipe 3,600 997 0.89 4 40 575 0.212 0.122 1.47 1.48 2.00 0.5224

TK1 Product 15 0 0 0.5224 0.5224

NOTES - (1) dPElev and dPin-out represent DRAWING Inlet - Outlet.

(2) dPin-out = dPElev + dPfrictional + dPaccel

(3) Vessel/Tank dPElev represent effect of fluid levels inside vessel.

(4) Elev represent equipment or nozzle (vessel/tank) elevation.

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CASE 1 NORMAL PIPE LINE REPORT Date: 30-09-2022

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-----------------------------------------------------------

Line number | L1

Line name | Pipe

-----------------------------------------------------------

PROCESS DATA | AVG IN OUT

Temperature C | 25.0 25.0 25.0

Pressure barg | 1.261 2.00 0.5224

Liq Fraction wt | 1.0 1.0 1.0

Total-Flow kg/h | 3,600

Dens-NS kg/m3 | 997 997 997

Elev kg/m3 | 997

Visc-NS cP | 0.89

Vapor-Flow kg/h | 0

Density kg/m3 | 0 0 0

Visc cP | 0 0 0

Mol wt | 0 0 0

Z | 0 0 0

Cp/Cv | 0 0 0

Liquid-Flow (wt) kg/h | 3,600

Flow (vol) m3/h | 3.61

Density kg/m3 | 997 997 997

Visc cP | 0.89 0.89 0.89

PIPE DATA |

Material | Steel

Size in | 4

Length m | 575

Schedule | 40

ID Flow/Hydr m | 0.102 / 0.102

Roughness (E-3) m | 0.0457

Safety factor | 1.0

Sum of elev's m | 0

VELOCITY |

Velocity m/s | 0.122 0.122 0.122

Sonic (Vap) m/s | 5,000

PRESSURE DROP (In-Out) |

Overall bar | 1.478

Friction bar | 0.01226

Accel'n bar | 0

Static bar | 1.465

dP/Length kPa/100m | 0.212

LINE SIZING | MAX/LARGER MIN/SMALLER

dP/Length kPa/100m | 22.6

Velocity m/s | 100 0.30

VelCoef m/s | 3.8 0.317

Size-Larger/Small in | 6 3

dP/Length kPa/100m | 0.0299 0.781

Velocity m/s | 0.0538 0.21

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CASE 1 NORMAL PIPE LINE REPORT Date: 30-09-2022

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-----------------------------------------------------------

Line number | L1

Line name | Pipe

-----------------------------------------------------------

LIQUID HOLDUP |

Liquid Fraction (vol) | 1.0

Liquid Holdup(dP) (vol) | 1.0

2-PHASE METHOD | Homogeneous

FLOW REGIME |

Horizontal (Mandane) | -

Horizontal (Dukler) | -

Vertical Up (Fair) | -

Vertical Up (Dukler) | -

Vertical Down (Golan) | -

HOMOGENEOUS/DUKLER/BEGGS |

Reynolds No | 13,990

Friction factor | 0.0291

Friction factor (turb) | 0.01627

ftp/fns | 0

Dentp/Denns | 0

LOCKHART-M/CHENOWETH-M |

Liquid-Re | 0

f | 0

Psi/Psi^2 | 0

Vapor-Re | 0

f | 0

Psi^2 | 0

X factor | 0

FITTINGS | TYPE No L/D K

| Entrance 0 0 0.50

| Exit 0 0 1.0

| Gate valve 0 8.0 0

| Globe valv 0 340 0

| Check 0 50.0 0

| Stop-check 0 400 0

| Elbow 4 20.0 0

| 180 Bend 0 50.0 0

| T-Straight 0 20.0 0

| T-Branch 0 60.0 0

| Other 1 0 0

Fitting K | 0

Fitting L/D | 80.0

Total Eq Length m | 579.6

NOTES - (1) dPoverall = dPfrictional + dPaccel + dPstatic

(2) NS = No slip or homogenous

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CASE 1 NORMAL FEED SUMMARY Date: 30-09-2022

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Number Description Elevation Density Level Rel Elev dP loss dP level dP inlet dP total Pres

m kg/m3 m m bar bar bar bar barg

F1 Feed 0 997 0 0 0 0 0 0 2.0

NOTES - (1) dP Inlet for Feed, Products and Vessels represent pressure to velocity conversion only, not friction.

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CASE 1 NORMAL PRODUCT SUMMARY Date: 30-09-2022

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Number Description Elevation Density Level Rel Elev dP loss dP level dP inlet dP total Pres

m kg/m3 m m bar bar bar bar barg

TK1 Product 15.0 997 0 0 0 0 0 0 0.522

NOTES - (1) dP Inlet for Feed, Products and Vessels represent pressure to velocity conversion only, not friction.

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CASE 1 NORMAL WARNINGS & ERRORS Date: 30-09-2022

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Warning! Line L1 velocity coef less than minimum (m/s) = 0.3167

End of file