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FILE NAME : D:\08 Linked In\02 DWSim\00 Plan Personal\31 Orifice Sizing\31 Orifice Sizing.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 = 101.325 kPa 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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Circuit Feed 1

Number	Description	Flow kg/h	Density kg/m3	Visc cP	Dia in	Sch	Length m	dP/L kPa/100m	Velocity m/s	Elev m	dPelev kPa	dPin-out kPa	Pin kPag	Pout kPag
F1	Feed									0	0	0	400.0	400.0
L1	Pipe	100,000	995	0.765	6	40	5.0	12.3	1.5		0	0.614	400.0	399.4
O1	Orifice									0		33.1	399.4	366.2
L2	Pipe	100,000	995	0.764	6	40	5.0	12.3	1.5		0	0.614	366.2	365.6
TK1	Product									0	0	0	365.6	365.6

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

Line number		L1			L2		
Line name		Pipe			Pipe		
PROCESS DATA		AVG	IN	OUT	AVG	IN	OUT
Temperature	C	32.0	32.0	32.0	32.0	32.0	32.0
Pressure	kPag	399.7	400.0	399.4	365.9	366.2	365.6
Liq Fraction	wt	1.0	1.0	1.0	1.0	1.0	1.0
Total-Flow	kg/h	100,000			100,000		
Dens-NS	kg/m3	995	995	995	995	995	995
Elev	kg/m3	995			995		
Visc-NS	cP	0.765			0.764		
Vapor-Flow	kg/h	0			0		
Density	kg/m3	0	0	0	0	0	0
Visc	cP	0	0	0	0	0	0
Mol wt		0	0	0	0	0	0
Z		0	0	0	0	0	0
Cp/Cv		0	0	0	0	0	0
Liquid-Flow (wt)	kg/h	100,000			100,000		
Flow (vol)	m3/h	100.5			100.5		
Density	kg/m3	995	995	995	995	995	995
Visc	cP	0.765	0.765	0.765	0.764	0.764	0.764
PIPE DATA							
Material		Steel			Steel		
Size	in	6			6		
Length	m	5.0			5.0		
Schedule		40			40		
ID Flow/Hydr	m	0.154	/ 0.154		0.154	/ 0.154	
Roughness (E-3)	m	0.0457			0.0457		
Safety factor		1.0			1.0		
Sum of elev's	m	0			0		
VELOCITY							
Velocity	m/s	1.5	1.5	1.5	1.5	1.5	1.5
Sonic (Vap)	m/s	1,397			1,397		
PRESSURE DROP (In-Out)							
Overall	kPa	0.6138			0.6138		
Friction	kPa	0.6138			0.6138		
Accel'n	kPa	0			0		
Static	kPa	0			0		
dP/Length	kPa/100m	12.3			12.3		
LINE SIZING		MAX/LARGER	MIN/SMALLER		MAX/LARGER	MIN/SMALLER	
dP/Length	kPa/100m	22.6			22.6		
Velocity	m/s	100	0.30		100	0.30	
VelCoef	m/s	3.8	0.317		3.8	0.317	
Size-Larger/Small	in	8	4		8	4	
dP/Length	kPa/100m	3.12	97.9		3.12	97.9	
Velocity	m/s	0.865	3.4		0.865	3.4	

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CASE 1 NORMAL

PIPE LINE REPORT

Line number	L1				L2			
Line name	Pipe				Pipe			
LIQUID HOLDUP								
Liquid Fraction (vol)	1.0				1.0			
Liquid Holdup(dP) (vol)	1.0				1.0			
2-PHASE METHOD	Homogeneous				Homogeneous			
FLOW REGIME								
Horizontal (Mandane)	-				-			
Horizontal (Dukler)	-				-			
Vertical Up (Fair)	-				-			
Vertical Up (Dukler)	-				-			
Vertical Down (Golan)	-				-			
HOMOGENEOUS/DUKLER/BEGGS								
Reynolds No	300,312				300,357			
Friction factor	0.01695				0.01695			
Friction factor (turb)	0.01489				0.01489			
ftp/fns	0				0			
Dentp/Denns	0				0			
LOCKHART-M/CHENOWETH-M								
Liquid-Re	0				0			
f	0				0			
Psi/Psi^2	0				0			
Vapor-Re	0				0			
f	0				0			
Psi^2	0				0			
X factor	0				0			
FITTINGS	TYPE	No	L/D	K	TYPE	No	L/D	K
	Entrance	0	0	0.50	Entrance	0	0	0.50
	Exit	0	0	1.0	Exit	0	0	1.0
	Gate valve	0	8.0	0	Gate valve	0	8.0	0
	Globe valv	0	340	0	Globe valv	0	340	0
	Check	0	50.0	0	Check	0	50.0	0
	Stop-check	0	400	0	Stop-check	0	400	0
	Elbow	0	20.0	0	Elbow	0	20.0	0
	180 Bend	0	50.0	0	180 Bend	0	50.0	0
	T-Straight	0	20.0	0	T-Straight	0	20.0	0
	T-Branch	0	60.0	0	T-Branch	0	60.0	0
	Other	1	0	0	Other	1	0	0
Fitting K	0				0			
Fitting L/D	0				0			
Total Eq Length m	5.00				5.00			

NOTES - (1) dPoverall = dPfrictional + dPaccel + dPstatic
(2) NS = No slip or homogenous

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CASE 1 NORMAL

FEED SUMMARY

Number	Description	Elevation m	Density kg/m3	Level m	Rel Elev m	dP loss kPa	dP level kPa	dP inlet kPa	dP total kPa	Pres kPag
F1	Feed	0	995	0	0	0	0	0	0	400

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

Number	Description	Elevation m	Density kg/m3	Level m	Rel Elev m	dP loss kPa	dP level kPa	dP inlet kPa	dP total kPa	Pres kPag
TK1	Product	0	995	0	0	0	0	0	0	366

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

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CASE 1 NORMAL

ORIFICE SUMMARY

Number	Description	Type	No Holes	Bore m	Beta	Y	C	dPflgtap kPa	dPpipetap kPa	PresIn kPag	PresOut kPag
O1	Orifice	Orifice	1	0.077	0.5	1.0	0.6072	45.4	33.1	399	366

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