




Calculation header

Identifier *BINAK*
 Tag No. *FE-2111*


Medium selection and state

Medium  *Mixture (liquid)*
 Liquid mixture  *V-2104 LIQ. OUTLET*
 State  *Liquid*
☐ Liquid contains dissolved gas
☐ Enhanced substance calculation

Inlet properties

Operating temperature	t1	<i>23.22</i>	°C
Operating pressure	p1	<i>19.5</i>	bar(g)
Vapor pressure (t1)	pv1 	<i>-0.99288</i>	bar(g)
Operating density (t1, p1)	ρ1 	<i>999.02</i>	kg/m³
<input checked="" type="radio"/> Dynamic viscosity (t1, p1)	η1 	<i>0.76644</i>	cP




Pipeline

<input checked="" type="radio"/> Pipe class	 <i>ANSI</i>
Size class	NPS  <i>4"</i>
Schedule	SCH  <i>Schedule 40</i>





Orifice plate

Throttle	<i>Single stage</i>
Type of orifice plate	<i>Single-hole orifice</i>
Type of bore	<i>Cylindrical bore</i>
<input type="checkbox"/> Flow coefficient	C  <i>0.8034</i> -

Operating data

<input type="checkbox"/> Safety-related application	
Calculation	<i>d</i>
Permanent pressure loss	Δω <i>250.0</i> mbar
Throttle orifice (20°C)	d  <i>22.133</i> mm
<input checked="" type="radio"/> Mass flow rate	qm <i>7,873.8</i> kg/h
<input type="radio"/> Volume flow rate (operating conditions)	qv  <i>34.701</i> GPM(US)
Flow type	 <i>Non-critical</i>



Calculated auxiliary values

Sound pressure level (A-weighted)	LpAe 	25.0	dB(A)
Diameter ratio	β 	0.21644	-
Flow velocity in pipeline	u1 	0.87455	ft/s
Flow velocity in pipeline	u2 	0.87456	ft/s

Outlet properties

Operating pressure	p2 	19.25	bar(g)
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Hint:





-  Approximate value: Min. orifice thickness for Δp - E,min
-  The thermodynamical property calculation is deactivated.

Comments:

Liquid mixture

Water: 99.9 %, Hydrosulfuric Acid: 0.0551 %, Carbondioxide: 0.00778 %

Legend

-  Calculated value
-  Modified calculated value
-  Lookup value
-  Hint