

Differential Pressure Calculation for SDF-Sensors

Date	October, 15 2012
Customer	Airlitec / Mr. Houllier
Project	
Tag-No.	
Ref. procedure	
Additional note	Betriebsdichte 0,8168/m ³ Normdichte 0,8 kg/Nm ³

Pipe and sensor data

Cross section shape	round
SDF sensor type no.	SDF22
Internal diameter (cold)	260.4 mm
Wall thickness	6.3 mm
Insulation	0 mm
Pipe material	Carbon steel
k-factor (cold)	0.6535

Calculation base

Medium	natural gas 0,8168 kg/m ³
Calculation	according to standard volume flow statement
Density calculation procedure	Ideal gas

Process and state quantities

				Units
Standard density	0.8000			kg/Nm ³
Standard temperature	0.0			°C
Temperature	12	12	12	°C
Absolute pressure	108	108	108	kPa abs.
Kinem. viscosity	0.0e+00	0.0e+00	0.0e+00	m ² /s
Standard volume flow	2600			Nm ³ /h
Actual density				kg/m ³
k-factor (warm)	0.6535	0.6535	0.6535	
Internal diameter (warm)	260.4	260.4	260.4	mm
Expansion factor	0.9998	1.0000	1.0000	
flow velocity	13.28	0.00	0.00	m/s
Reynoldsnumber	0	0	0	

Results

Calculated diff.pressure	1.69	0.00	0.00	mbar
Remaining pressure drop	0.19	0.00	0.00	mbar