

Differential Pressure Calculation for SDF-Sensors

Date June,06 2012
 Customer AIRLITEC Sarl, Mr. Houllier
 Project
 Tag-No.
 Ref. procedure AN120388

Pipe and sensor data

Cross section shape round
 SDF sensor type no. SDF22
 Internal diameter (cold) 592.4 mm
 Wall thickness 8.8 mm
 Insulation 0 mm
 Pipe material Carbon steel
 k-factor (cold) 0.6655

Calculation base

Medium Air
 Calculation according to standard volume flow statement
 Density calculation procedure Ideal gas

Process and state quantities

				Units
Standard density	1.2930			kg/Nm ³
Standard temperature	0.0			°C
Temperature	50	50	50	°C
Absolute pressure	102,2807	102,2807	102,2807	kPa abs.
Kinem. viscosity	1.8e-05	1.8e-05	1.8e-05	m ² /s
Standard volume flow	30000			Nm ³ /h
Actual density	1.1032	1.1032	1.1032	kg/m ³
k-factor (warm)	0.6655	0.6655	0.6655	
Internal diameter (warm)	592.6	592.6	592.6	mm
Expansion factor	0.9979	1.0000	1.0000	
flow velocity	35.41	0.00	0.00	m/s
Reynoldnumber	1178925	0	0	

Results

Calculated diff.pressure	15.68	0.00	0.00	mbar
Remaining pressure drop	0.77	0.00	0.00	mbar