

# Differential Pressure Calculation for SDF-Sensors

Date October,11 2012  
 Customer Airlitec / Mr. Houllier  
 Project  
 Tag-No.  
 Ref. procedure

## Pipe and sensor data

Cross section shape round  
 SDF sensor type no. SDF22  
 Internal diameter (cold) 309.7 mm  
 Wall thickness 7.1 mm  
 Insulation 100 mm  
 Pipe material Carbon steel  
 k-factor (cold) 0.6581

## Calculation base

Medium Steam  
 Calculation acc. to mass flow statement

## Process and state quantities

				Units
Temperature	155,56	155,6	155,56	°C
Absolute pressure	551,3	551,3	551,3	kPa abs.
Kinem. viscosity	4.8e-06	4.8e-06	4.8e-06	m <sup>2</sup> /s
Mass flow	21000	21000		kg/h
Actual density	2.9254	2.9250	2.9254	kg/m <sup>3</sup>
k-factor (warm)	0.6581	0.6581	0.6581	
Internal diameter (warm)	310.3	310.3	310.3	mm
Expansion factor	0.9995	0.9995	1.0000	
flow velocity	26.38	26.38	0.00	m/s
Reynoldsnumber	1679175	1678977	0	

## Results

<b>Calculated diff.pressure</b>	<b>23.50</b>	<b>23.51</b>	<b>0.00</b>	<b>mbar</b>
Remaining pressure drop	2.21	2.21	0.00	mbar