# Differential Pressure Calculation for SDF-Sensors

| | |
|---|---|
| Date | February,02 2012 |
| Customer | Airlitec |
| Project | D2012RH0211 |
| Tag-No. | A 6000 |
| Ref. procedure | |

| **Pipe and sensor data** | |
|---|---|
| Cross section shape | round |
| SDF sensor type no. | SDF22 |
| Internal diameter (cold) | 300 mm |
| Wall thickness | 6.3 mm |
| Insulation | 0 mm |
| Pipe material | Carbon steel |
| k-factor (cold) | 0.6574 |

| **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/Nm3 |
| Standard temperature | 0.0 | | | °C |
| Temperature | 20 | 20 | 20 | °C |
| Absolute pressure | 195 | 195 | 195 | kPa abs. |
| Kinem. viscosity | 7.9e-06 | 7.9e-06 | 7.9e-06 | m2/s |
| Standard volume flow | 6000 | | | Nm3/h |
| Actual density | 2.3186 | 2.3186 | 2.3186 | kg/m3 |
| k-factor (warm) | 0.6574 | 0.6574 | 0.6574 | |
| Internal diameter (warm) | 300.0 | 300.0 | 300.0 | mm |
| Expansion factor | 0.9997 | 1.0000 | 1.0000 | |
| flow velocity | 13.15 | 0.00 | 0.00 | m/s |
| Reynoldsnumber | 500082 | 0 | 0 | |

| **Results** | | | | |
|---|---|---|---|---|
| **Calculated diff.pressure** | **4.64** | **0.00** | **0.00** | **mbar** |
| Remaining pressure drop | 0.45 | 0.00 | 0.00 | mbar |

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