

FE-SIZING

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Project . BINAK

ISO Orifice Plate - Concentric - Flange Taps - Gas Flow

Tag number FE-2121

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Input data

|                           |                     |
|---------------------------|---------------------|
| Fluid                     | GAS                 |
| Maximum gas flow          | 8924 kg/h           |
| Normal gas flow           | 8664.077 kg/h       |
| Meter inlet pressure      | 4.9 barg            |
| Differential range        | 250 mbar            |
| Flow temperature          | 36.78 degC          |
| Molecular weight          | 24.52               |
| Cp/Cv specific heat ratio | 1.245               |
| Viscosity @ FTP           | .011 cp             |
| Pipe inside diameter      | 8 in                |
| Density @ FTP             | 5.771 kg/m3         |
| Critical pressure         | bara                |
| Critical temperature      | degC                |
| Base pressure             | 14.69595 psia       |
| Base temperature          | 59 degF             |
| Barometric pressure       | 14.7 psia           |
| Element material          | 301 stainless steel |
| Pipe material             | Carbon steel        |

Output data

|                          |               |
|--------------------------|---------------|
| Orifice diameter         | 98.0619 mm    |
| Beta ratio               | .482587       |
| Normal flow differential | 235.6 mbar    |
| Uncertainty percent      | .6095 percent |
| Reynolds number          | 1370509       |
| Max pressure loss        | 186.3 mbar    |
| Max power loss           | 10.76 hp      |
| Flow status              |               |
| Minimum plate thickness  | 3.175 mm      |
| Thermal expansion factor | 1.00026       |
| Discharge coefficient    | .602488       |
| Gas expansion factor     | .986281       |
| Base pressure factor     | 1             |
| Base temperature factor  | 1             |

Modified Mass English  
Source - ISO 5167-2:2003. Orifice plates  
InstruCalc Ver.9.0.3.

Notes