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Special Documentation
Dosimag, Promag H

Selection of the optimal nominal diameter

Document information

Document function

This document is part of the Operating Instructions and is intended as supplementary information to the adapters and limiting flow.

Documentation

Standard documentation

This manual is a Special Documentation and is not a substitute for the Operating Instructions supplied with the device.

The Special Documentation is an integral part of the following documents:

Operating Instructions
- BA01171D (Proline Promag H 100 HART)
- BA01237D (Proline Promag H 100 PROFIBUS DP)
- BA01175D (Proline Promag H 100 Modbus RS485)
- BA01173D (Proline Promag H 100 EtherNet/IP)
- BA01421D (Proline Promag H 100 PROFINET)
- BA01110D (Proline Promag H 200 HART)
- BA01377D (Proline Promag H 200 FOUNDATION Fieldbus)
- BA01375D (Proline Promag H 200 PROFIBUS PA)
- BA00082D (Proline Promag 10 HART)
- BA00046D (Proline Promag 50 HART)
- BA00055D (Proline Promag 50 PROFIBUS DP/PA)
- BA00047D (Proline Promag 53 HART)
- BA00052D (Proline Promag 53 FOUNDATION Fieldbus)
- BA00053D (Proline Promag 53 PROFIBUS DP/PA)
- BA00117D (Proline Promag 53 Modbus RS485)
- BA00119D (Proline Promag 55 HART)
- BA00126D (Proline Promag 55 FOUNDATION Fieldbus)
- BA00124D (Proline Promag 55 PROFIBUS DP/PA)
- BA00098D (Dosimag)
- BA01321D (Dosimag Modbus RS485)

Technical Information
- TI01101D (Proline Promag H 100)
- TI01061D (Proline Promag H 200)
- TI00095D (Proline Promag 10H)
- TI00048D (Proline Promag 50H, 53H)
- TI00096D (Proline Promag 55H)
- TI00066D (Dosimag)

Content and scope

This Special Documentation contains supplementary descriptions on the adapters and limiting flows of the sensor.

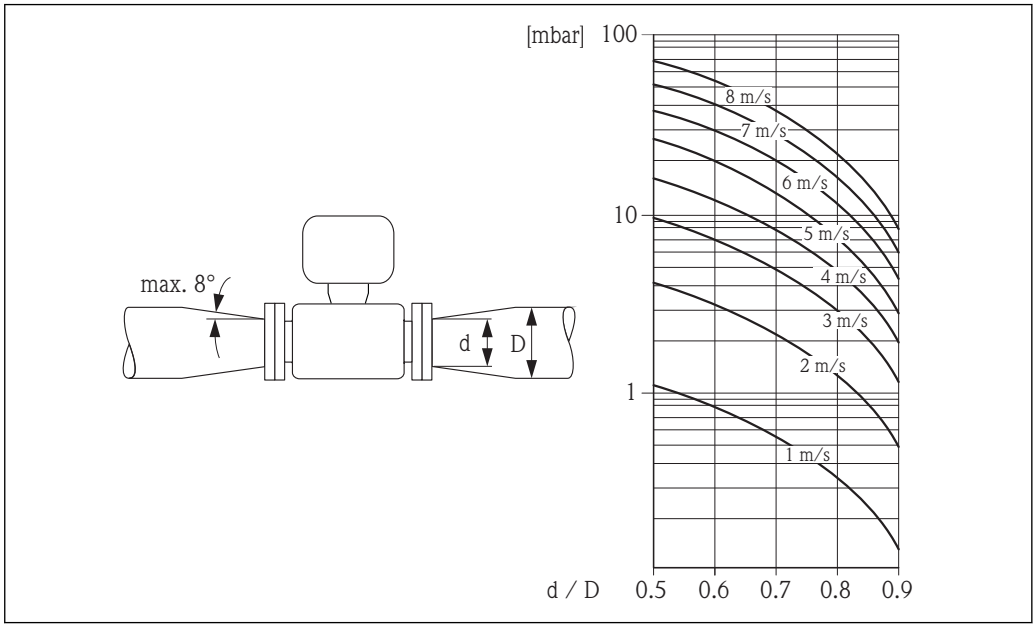
Installation

Adapters

Suitable adapters to DIN EN 545 (double-flange reducers) can be used to install the sensor in larger-diameter pipes. The resultant increase in the rate of flow improves measuring accuracy with very slow-moving fluids.

The nomogram shown here can be used to calculate the pressure loss caused by reducers and expanders:
- Calculate the ratio of the diameters d/D.
- From the nomogram read off the pressure loss as a function of flow velocity (downstream from the reduction) and the d/D ratio.

- The nomogram only applies to liquids with a viscosity similar to that of water.
- For high viscosities of the fluid the selection of a pipe with larger diameter may be considered to reduce the pressure loss.



Process

Flow limit

The diameter of the pipe and the flow rate determine the nominal diameter of the sensor. The optimum flow velocity is between 2 to 3 m/s (6.56 to 9.84 ft/s). Also match the velocity of flow (v) to the physical properties of the fluid:
- v < 2 m/s (6.56 ft/s): For low conductivity values, abrasive media (e.g. cleaning agents)
- v > 2 m/s (6.56 ft/s): For media that produce buildup (z.B. milk with high fat content)

- A necessary increase in the flow velocity can be achieved by reducing the sensor nominal diameter.
- For fluids with high levels of solids, the selection of a pipe with nominal diameter > DN 8 (3/8") may be considered, to improve the stability of the signal and cleanability due to larger electrodes.

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