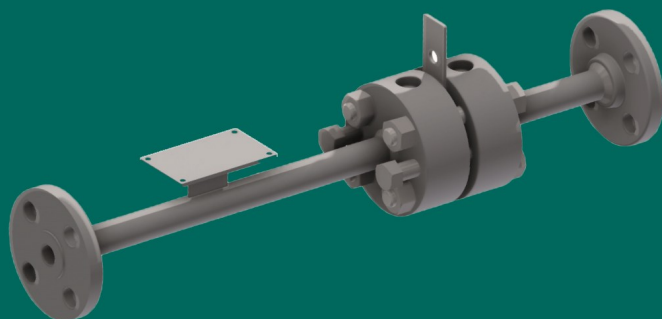




FLOW MEASURING WITH METER RUN



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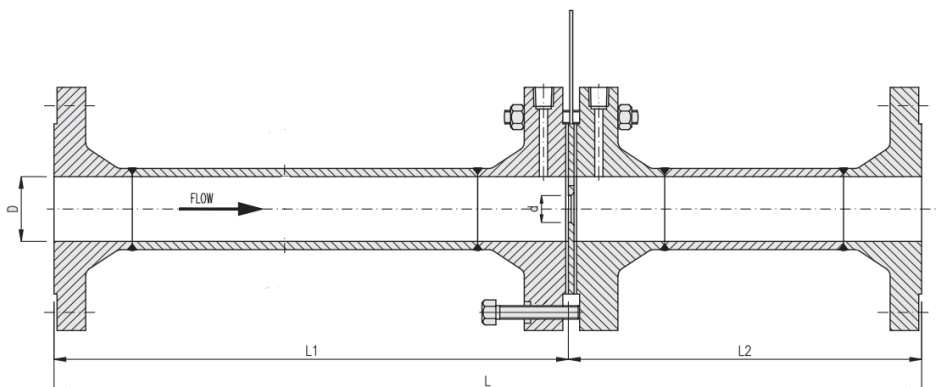
Introduction

Differential pressure type flow meters are widely used in many industrial applications. If a high accuracy flow measurement is requested, the best solution for primary element is a flow meter run. A flow meter run is an assembly consisting of an orifice plate with flanges along with the calibrated upstream and downstream pipes. Since the flow meter run is manufactured as one unit, it is possible to optimally match all its components with each other. Thus any faults that might lead to measuring inaccuracies can be avoided.

Applications

A compact integral orifice flowmeter, is used to provide with the measurements directly in mass or corrected volume units for liquids and steam. Gas flow measurement is provided directly in reduced volume units. The flow meter uses a multivariable transmitter to measure DP, temperature (from a user-supplied external temperature element) and pressure; providing the flowrate and the total display, and to transmit a 4 to 20 mA signal proportional to the mass or corrected volume flowrate to the control room.

There are 4 ranges of DP sensors available. For optimum accuracy, the right DP range is calculated by Aramak and the corresponding orifice plate is selected so as the full maximum range of the sensor is achieved .





Specification

Fluids :

Liquids, gases and saturated steam

Line sizes :

1/2" to 2" (DN 15 to DN 50)

Instrument tapping adaptor

- Threaded G or NPT

Tapping No.

1 or 2

Meter Run material

- Pipe: Carbon steel ASTM A106 gr. B
- Pipe flanges: Carbon steel ASTM A105
- Orifice flanges: Carbon steel ASTM A105
- Plug: Carbon steel
- Sealing: Stainless steel 316, graphite, carbon steel
- Orifice plate Stainless steel 316/316L
- Other solutions on request

End Connection

- Butt-welds
- Flanged connection is available

on request such as welding-neck or slip-on-type according to ASME or PN

Output signal

- Two-wire, 4 to 20 mA, selected for square-root output
- Low flow cut-off facility
- HART® communication
- Optional Profibus PA, Foundation Fieldbus or Modbus communications

Accuracy Uncalibrated

±1% of actual flow

Flow range

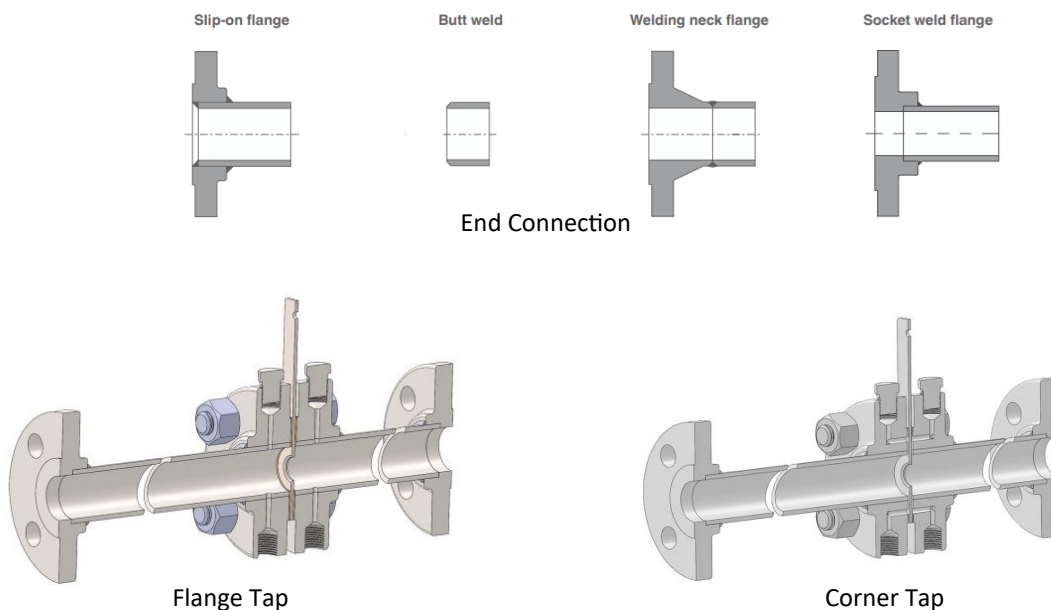
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Maximum pressure

100 Bar @ 45 °C

Humidity

Relative humidity: up to 100 %





Compensation

Alongside the differential pressure (Δp), pressure (p) and temperature (T) are test variables of flow (q). If there are no strong fluctuations in pressure and temperature, then the accuracy of the differential pressure signal is fully sufficient for the majority of measuring points. In this case there is no need for any Compensation.

In some applications, particularly in the gas and steam sectors, a special compensation is required. A change in pressure and/or temperature leads to a change in density. If this is not taken into account, total accuracy may be reduced.

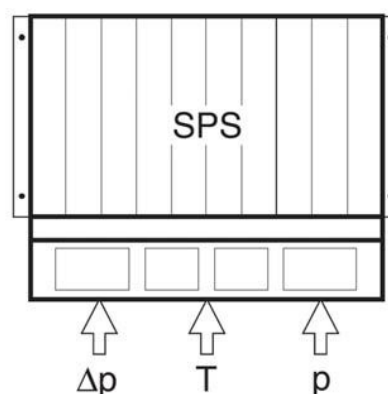
The following parameters are required for compensation:

- Gases: compensation of P and T
- Saturated steam: either P or T are compensated
- Superheated steam: compensation of P and T
- Liquids: compensation of T (very rare)

Both on the process side and on the system side, there are two possibilities for implementing

compensation (large differences in price and effort).

The process variables are fed into the (available) PLC or Flow Computer. The flow equations are programmed there. With this solution the investment costs are reduced, but the commissioning costs are increased.





Ordering Code Information

[Please check the order code in our website. \(Click here\)](#)



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