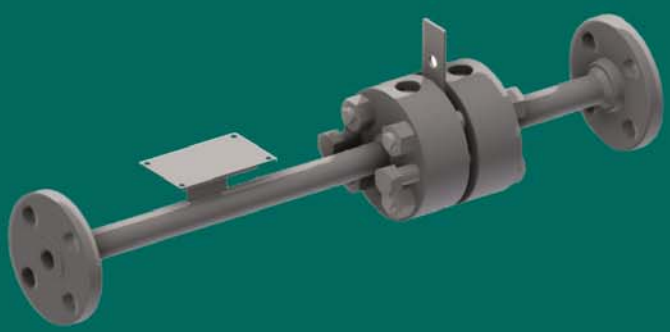
FLOW MEASURING

WITH METER RUN



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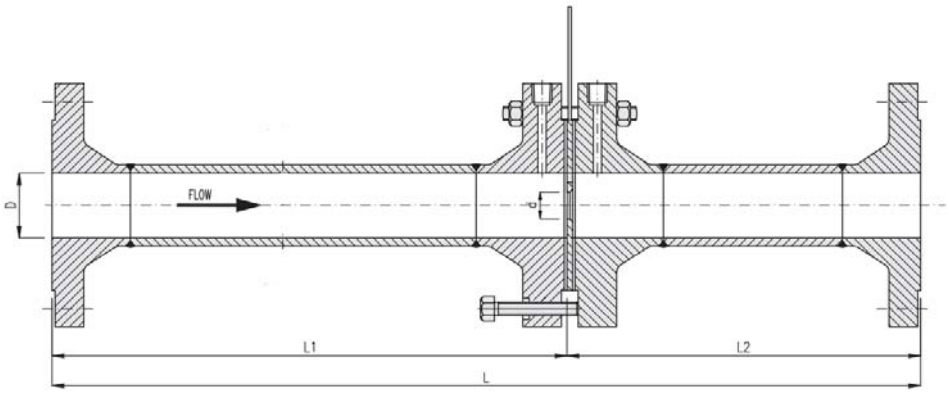
Introductions

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

Applications

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

There are 4 DP sensor ranges available. For optimum accuracy, select the sensor so that the full scale DP is in the shaded area and as close as possible to the maximum range of the sensor.



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 materials

- 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 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

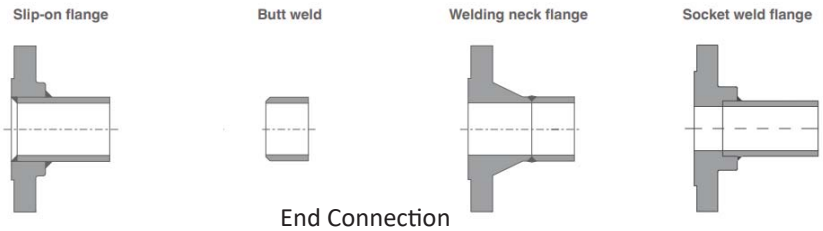
10:1

Maximum pressure

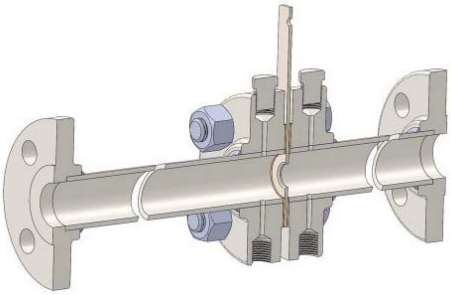
100 Bar @ 45 °C

Humidity

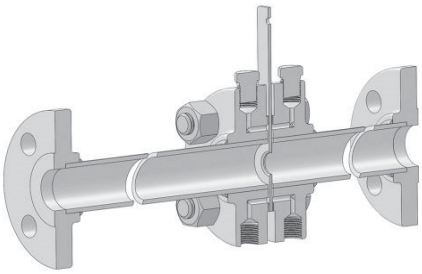
Relative humidity: up to 100 %



End Connection



Flanged Tap



Corner Tap

Compensation

Alongside differential pressure Δp, pressure p and temperature T are test variable of flow q. If there are no strong fluctuations in pressure and temperature, then the accuracy of the differential pres- sure signal is fully sufficient for the majority of measuring points. There is then no need for any Compensation.

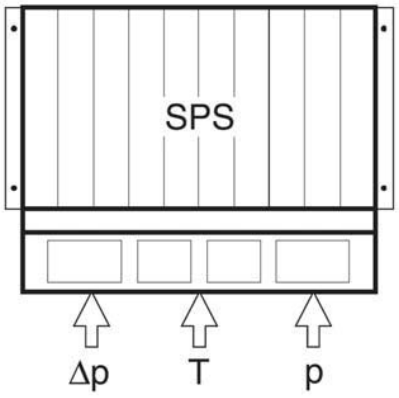
With some applications, particularly in the gas and steam sectors, a special compensation is required. A change in pressure and/or temperature leads to a change in density. If this is not taken into account, total accuracy may be reduced.

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 low, but the commissioning costs are increased.



Ordering Information

MET-	XXX	XX	XX	XX	XX	XX	XXX	XXX	XX	XX	XX	XXX
End Connection												
But Weld	BW											
Weldneck Flanged	WN											
Socket Weld Flanged	SW											
Slip On Flanged	SO											
Aramak Standards Flanged	AR											
Pipe Size												
..... (mm, inside Diameter)		XX										
Body/Flanged Material												
316 / 316L stainless			I1									
310 stainless steel			I2									
304 stainless steel			I3									
Carbone Steel			I4									
Other			P5									
Line Sch.												
..... (mm, Pipe Thickness)				XXX								
Connection Rating												
ANSI Class 150					A1							
ANSI Class 300					A2							
ANSI Class 600					A3							
ANSI Class 900					A4							
ANSI Class 1500					A5							
PN 10					P1							
PN 16					P2							
PN 25					P3							
PN 40					P4							
PN 63					P5							
PN 100					P6							
PN 160					P7							
Tapping Type												
Flanged tap						FT						
Corner tap						CT						
Other						ST						
Instrument Connection												
1/2" Male , NPT							10					
1/2" Female, NPT							11					
1/2" Male, G							12					
1/2" Female, G							13					
Other							O1					
RTD Sensor												
Not Applicable								0				
Included								1				
Transmitter												
Not Applicable									0			

Ordering Information

4~20 mA with Display, 24VDC Loop		10			
4~20 mA without Display, 24VDC Loop		11			
4~20 mA HART with Display, 24VDC Loop		20			
4~20 mA HART without Display, 24VDC Loop		21			
Other		30			
Tapping Qty.					
1 (Suitable for one Transmitter)			1		
2 (suitable for two transmitter)			2		
Other			3		
Certificate					
Material certificates				C0	
Material NACE MR0175				C1	
Material NACE MR0103				C2	
100% dimensional check				C3	
Hardness survey				C4	
Impact testing @ –196 °C (–320.8 °F)				C5	
Others				C6	
Added requirements					
Manufactured to customer drawing					DW
Special device					SP
Isolating Gate Valve 1/2" Carbone Steel					GV1
Isolating Gate Valve 1/2" Stainless Steel 304					GV2
Isolating Gate Valve 1/2" Stainless Steel 316					GV3
Isolating Ball Valve 1/2" Stainless Steel 304					BV1
Isolating Ball Valve 1/2" Stainless Steel 316					BV2
Isolating Niddle Valve 1/2" Stainless Steel 304					NV1
Seal pot					SP
5-way Valve Manifold					MF
Compress Fitting 1/2" to tube					CF
Others					OT

Contact us

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