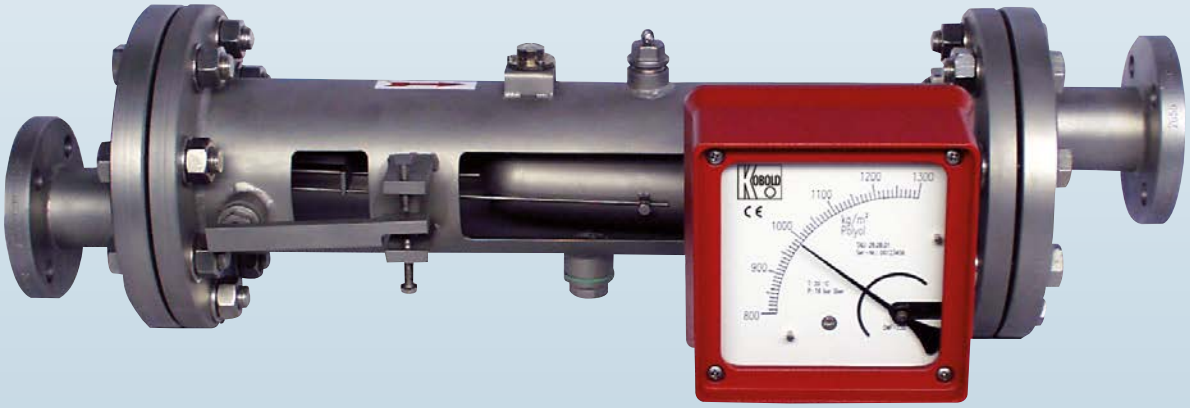
Density meter

DWF

Fieldbus Foundation · HART COMMUNICATION FOUNDATION · PROFIBUS PROCESS FIELD BUS · Ex



- Especially suited for multiphase media
- Mechanical density measuring and monitoring of liquids in pipes
- No bypass required
- Robust design
- Clear 90°-scale
- Transmitter optional with HART®, PROFIBUS-PA® or Fieldbus Foundation™

A3

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Description

The displacer rod, which is attached to a measuring spring by a chain, immerses into the liquid and is subject to a buoyant force proportional to the mass of the displaced liquid.
Every change in the weight of the rod corresponds to a change in the length of the spring and is therefore a measure of the liquid level. The longitudinal expansion of the spring, i. e. the travel of the rod, will be transmitted from the measuring space to the indicator unit by means of a magnetic coupling.
The basic version of the indicator unit consists of a scale with a pointer for displaying the liquid level. As an option, the indicator unit may be equipped with electrical transmitters for remote display or with limit switches.
If the device cannot be installed from above, because, for example, a stirrer is mounted in the container, a special displacement vessel is available for lateral installation.
Since the buoyancy of the displacer rod depends on the density (g /L or kg/m3) of the measured medium, it must have been designed for the specific liquid to be measured.

Application examples

- Density metering, -monitoring, and control of liquid media in pipes.
- The meter's design as a pure mechanical device is excellent for processes under difficult and rough operating conditions.
- The device is available with additional electrical equipment for process monitoring and control.
- A large spectrum of wetted materials
- Magneto-resistive signal transmission
- High-temperature application (option)
- High-pressure application (option)
- Excellent heat tracing technology (option)

Technical Data

Density range:	700 g/l – 1900 g/l
Measuring span:	50 g/l – 600 g/l
Materials sensor:	Stainless steel, Hastelloy other materials on request
Materials display:	Aluminum (stove-enameled), Stainless steel (option)
Process connection:	DN 25 ASME 1" (TSK1) DN 50 ASME 2" (TSK 2, 3) flange acc. EN 1092, ASME B16.5, DIN 2512, special connections on request
Nominal pressure:	PN 16, ASME Cl150 (standard) higher pressure rates optional
Process temperature:	-20 °C …+150 °C
Ambient temperature:	-20 °C…+80 °C -20 °C…+65 °C (with switch) -40 °C …+70 °C (transmitter)
Ingress protection	
Sensor:	IP 65/67 (EN60529)
Transmitter:	IP 20 (EN60529)

Flow range

Model	Flow range**
1	2 500 l/h
2	5 000 l/h
3	10 000 l/h

* Reference condition: according to IEC 770: Water at 20 °C

1/01-2014

Outputs:	inductive switch inductive switch (safety design) microswitch others on request

Transmitter

- ES with HART®-protocol
- ES with HART®-protocol and 2 NAMUR-switches
- ES with HART®-protocol and 1 NAMUR-Kontakt / 1 pulse output
- ES with Profibus® PA
- ES with HART®-protocol and counter module
- ES with Fieldbus FOUNDATION™

Power supply:	14 - 30 V_{DC}
Output:	passive, galvanically isolated
Currency:	4-20 mA
Binary 1 and 2:	U_i = 30 V, I_i = 20 mA, P_i = 100 mW
Input Binary:	Counter reset (only for ES with counter module)
Ambient temperature:	-40 °C ... +70 °C

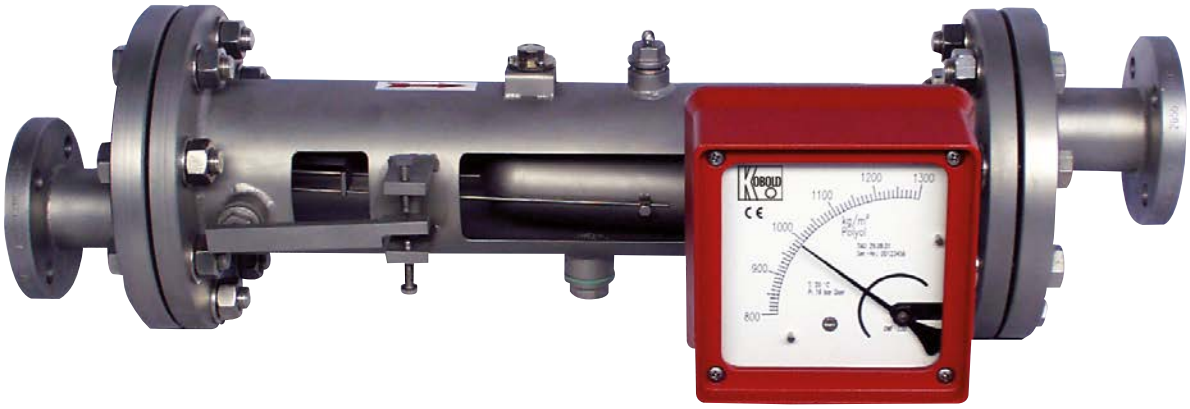
Accuracy

Span	Accuracy
50 g/l	± 1.25 g/l
100 g/l	± 2.00 g/l
200 g/l	± 3.00 g/l
300 g/l	± 4.50 g/l
600 g/l	± 6.00 g/l

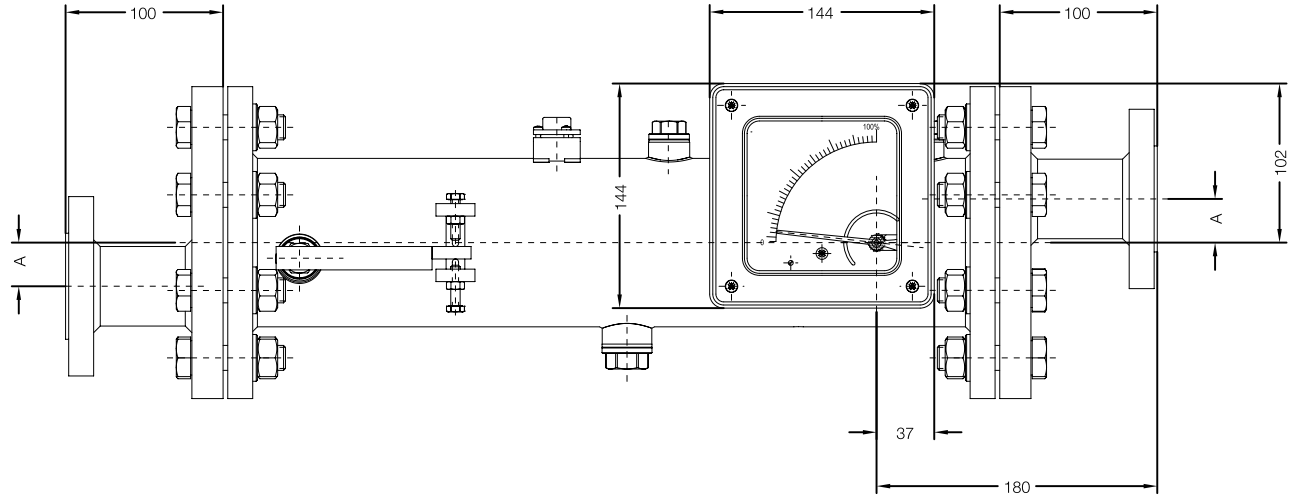
± 0.2% with transmitter (ES)

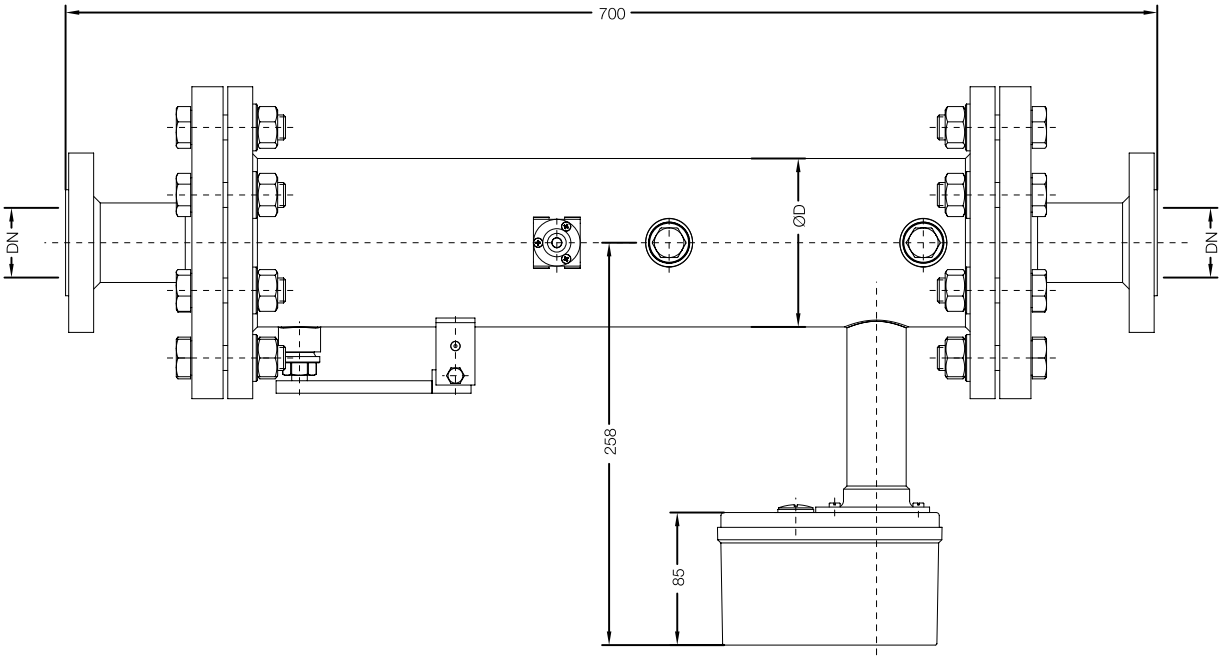
Certification

Explosion protection:	DMT 00 ATEX E 075
Type of protection:	⟨Ex⟩ II 2G EEx ia IIC T6
CE-Marking:	Explosion Protection Directive 94/9/EG



Dimensions [mm]





Model	Size	D	A	B
1	DN25/1"	108 mm	30 mm	258 mm
2	DN50/2"	140 mm	40 mm	258 mm
3	DN50/2"	194 mm	65 mm	258 mm