Density meter

DWF

- Mechanical density measuring and monitoring of liquids in pipes
- No bypass required
- Robust design
- Clear 90°-scale
- Transmitter with HART or PROFIBUS-PA as option

Function

The measuring element is composed of a measuring chamber, measuring spring-rods, float and a magnetic coupling system.
If a liquid medium flows through the horizontal measuring chamber, the float surrounded by the liquid is lifted until a state of balance between the lift force, the measuring spring-rods and the float weight is reached.
The vertical position of the float in the chamber is a measure for the density of the medium and will be transmitted to the scale by an encapsulated magnetic coupling system.
Density changes thus entail an adjustment of the local indication or of the electrical output signal.
The readings obtained apply solely to the medium for which the device has been calibrated or for a medium with the same viscosity.

Application

The sensor DWF is used for density metering of liquid media in pipes. The scale on the device shows the density rate expressed as grams per liter or kg per m³.

Applications: density metering, -monitoring, and control of liquid media.

The meter's design as 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

Sensor

Materials:	Stainless steel, Hastelloy other materials on request
Process connection:	DN 25 ASME 1“ (TSK1) DN 50 ASME 2“ (TSK 2, 3) flange acc. EN 1092, ASME B16.5, DIN2512, special connections on request
Nominal pressure:	PN 15, ASME Cl150 (standard) higher pressure rates up to 400 bar optional
Process temperature:	-20°C up to +150°C
Ambient temperature:	-20°C up to +80°C
Ingress protection:	IP 65/67 (EN60529)

Certification

Explosion protection:	BVS 03 ATEX H/B 112

Measuring data:

Density range:	700 g/l – 1900 g/l
Measuring span:	50 g/l – 600 g/l

Flow range:

Model	Flow range*
1	2500 l/h
2	5000 l/h
3	10000 l/h

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

Display

Aluminum (stove-enameled)
Stainless steel (as option)

Outputs

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

Ambient temperature:

-20°C up to +80°C (without switch)
-20°C up to +65°C (with switch)

Transmitter

ES with HART-protocol
ES with HART-protocol and 2 NAMUR-switches
ES with HART-protocol and 1 NAMUR-switch / 1 pulse output
ES with Profibus-PA

Power supply: 14 - 30 VDC
Output: passive, galvanically isolated
Currency: 4-20 mA
Binary 1 and 2: U_i=30 V, I_i=20mA, P_i=100 mW

Ambient temperature: -40°C up to +70°C

Ingress protection: IP 20 (EN60529)

Accuracy

Span	
50 g/l	± 1,25 g/l
100 g/l	± 2 g/l
200 g/l	± 3 g/l
300 g/l	± 4,5 g/l
600 g/l	± 6 g/l

± 0,2% with transmitter (ES)

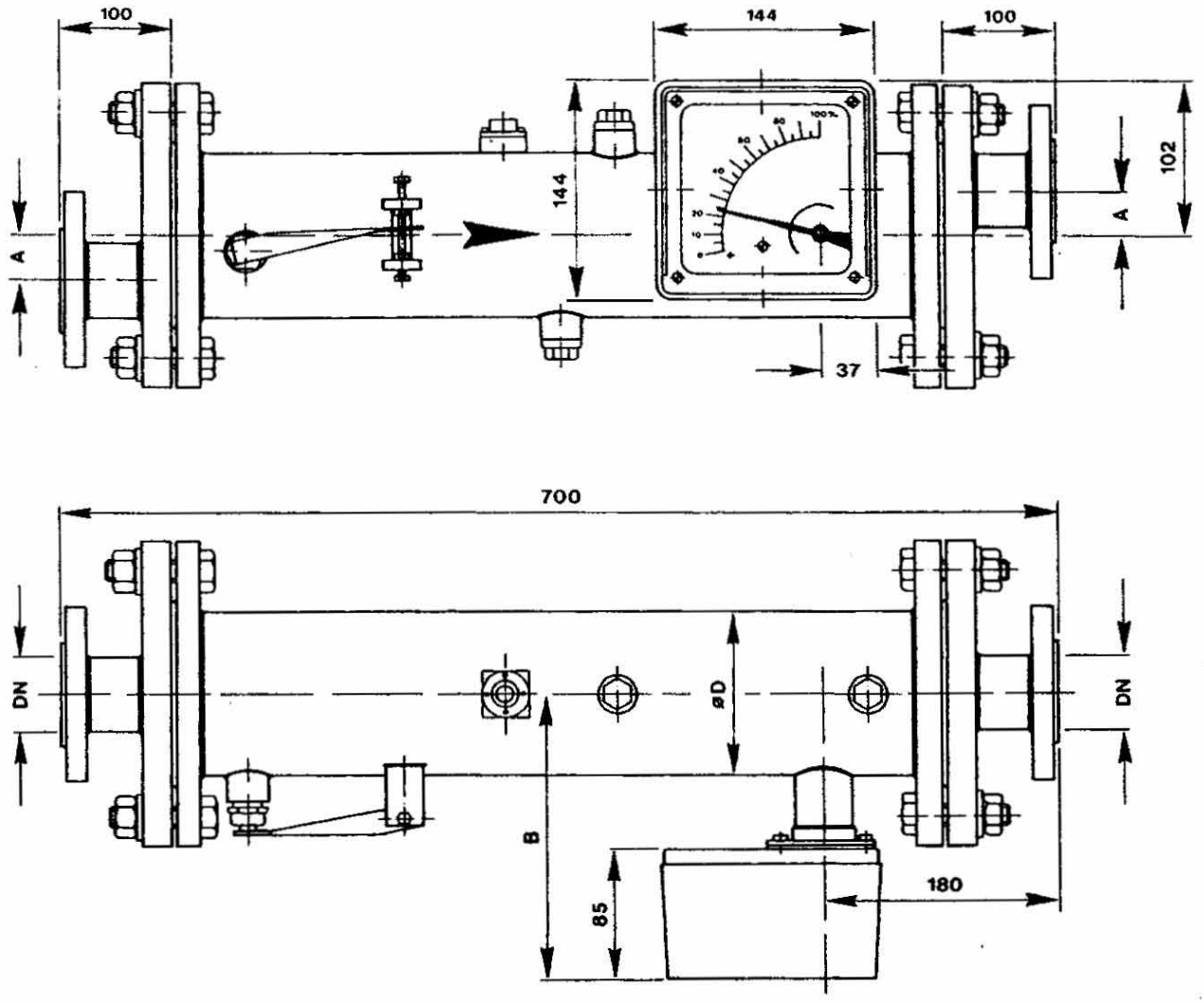
Certification
Explosion protection: DMT 00 ATEX E 075
Type of protection: II 2G EEx ia IIC T6

CE-Marking: Explosion Protection Directive 94/9/EC

Electromagnetic compatibility:

EMC-Directive 89/336/EEC
EN 61000-6-3:2001 (emissions residential environments)
EN 61000-6-2:1999 (immunity for industrial environments)
EN 55011:1998+A1: 1999 Group 1, Class B (radio interference)
EN 61000-4-2 to DIN EN 61000-4-6
EN 61000-4-8
EN 61000-4-11
EN 61000-4-29
EN 61326

Dimension



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

For further information see device description DWF_GB_XX_en.
Subjects to change without notice.

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