



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 displacer rod, which is attached to a measuring spring using 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 of the measured medium, it must have been designed for the specific liquid to be measured.

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 CI150 (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: $U_i=30\text{ V}$, $I_i=20\text{ mA}$, $P_i=100\text{ mW}$

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

Ingress protection: IP 20 (EN60529)

Accuracy

Span	
50 g/l	$\pm 1,25\text{ g/l}$
100 g/l	$\pm 2\text{ g/l}$
200 g/l	$\pm 3\text{ g/l}$
300 g/l	$\pm 4,5\text{ g/l}$
600 g/l	$\pm 6\text{ g/l}$

$\pm 0,2\%$ with transmitter (ES)

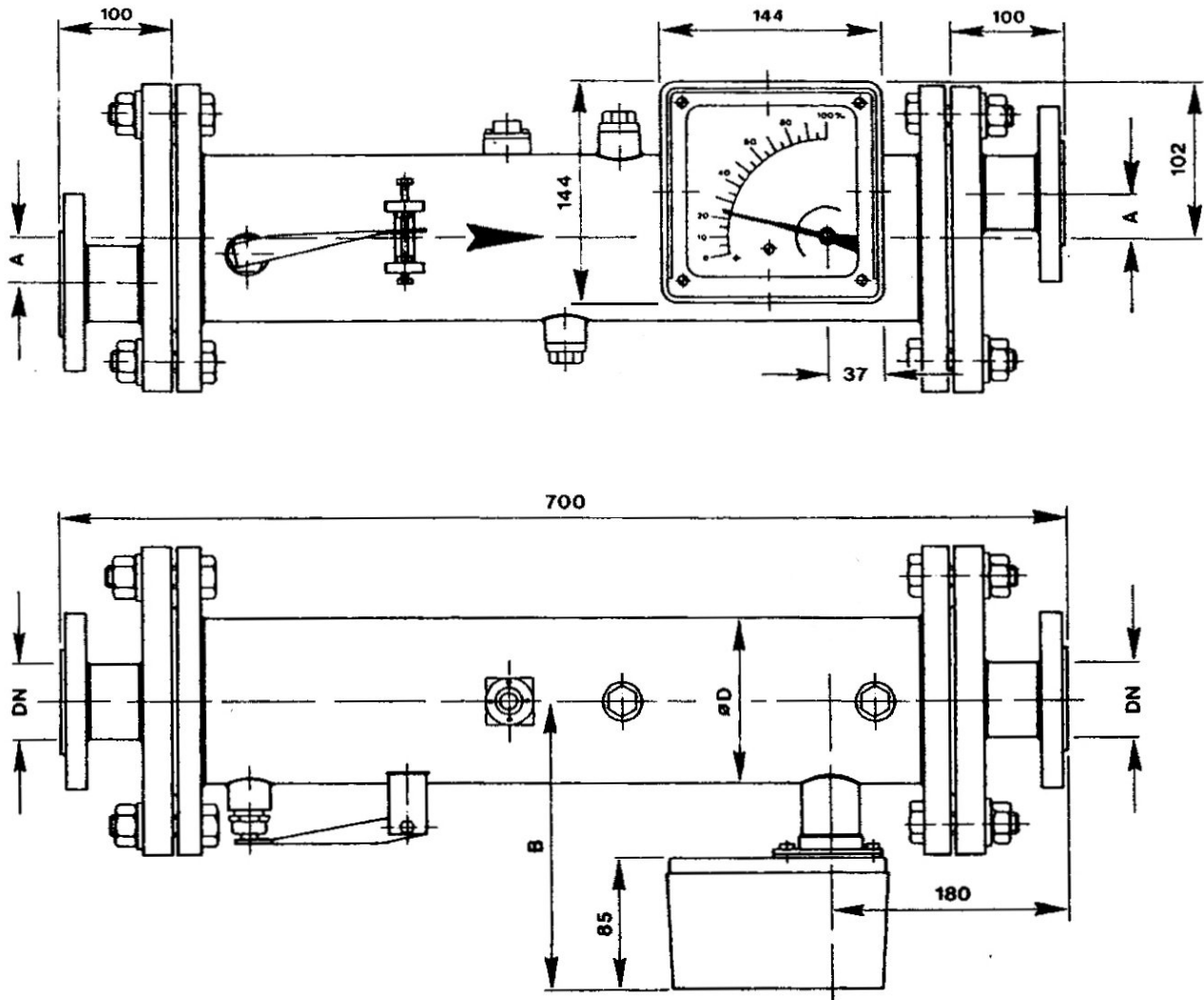
Certification

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.

Heinrichs Messtechnik GmbH

P. O. Box 600260
D-50682 Cologne

Robert-Perthel-Straße 9
D-50739 Cologne

Phone +49-221-49708-0
Fax +49-221-49708-178

www.heinrichs.eu
info@heinrichs.eu