



## Baffle Plate System Flow Transmitter for liquids



measuring  
•  
monitoring  
•  
analysing

DWD



- Measuring ranges:  
1-10 l/min ... 360-3 600 m<sup>3</sup>/h water
- Accuracy: ±1.5 of full scale
- Connection:  
G 3/8 ... G 2,  
3/8" NPT ... 2" NPT  
flange: DN 10 ... DN 50  
ANSI 3/8" ... 2"  
weld-on part for  
nominal pipe sizes:  
DN 40 ... DN 500
- Material:  
brass, PVC or stainless steel
- p<sub>max</sub>: PN25, t<sub>max</sub>: 120 °C
- Universal mounting

SS



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### Description

The new KOBOLD measuring instrument type DWD is a flow rate transmitter with digital indication of the actual flow rate, analogue output and two adjustable all-or-nothing relays indicating the switching point for monitoring limit values. An RS232C serial interface is available as an option.

The combination of the proven displacement-deflection measuring technique with the new patented pendulum system and electronic analyser with programmable EEPROM produces a reliable and economical flow transmitter. Due to its modern technology and features this device is also ideally suited for applications where much more expensive methods of measurement have been used up until now.

The flow transmitter type DWD uses the reliable displacement-deflection technique together with new patented technology. The flowing medium presses against a baffle plate that is fastened to a pendulum – thus causing the displacement. The pendulum that is retained by a progressive spring system changes its position without friction and depending on the flow. The position of a magnet attached to the pendulum is sensed by a Hall-effect sensor fixed outside the medium. This signal is processed and evaluated by microchip-based electronics with EEPROM memory.

The devices are calibrated and supplied according to your specifications. Costly adjustments and programming are not required. The DWD is ready for immediate operation. The devices can be re-programmed if necessary. The casing can also be adapted easily for the desired mounting position. Numerous connections and materials allow a wide range of applications. Large line cross-sections can also be measured reliably and economically.

### Advantages at a Glance

- Ready for operation immediately
- No bearings, no friction
- Only a slightly moving part
- Negligible sensitivity to dirt
- Wider flow range
- Small pressure loss
- Any measuring ranges programmable
- Linear signal

### Areas of Application

- Heavy goods industry
- Rolling mills and mill trains
- Chemicals and pharmaceuticals industries
- Food and beverage industry
- General mechanical engineering and capital equipment
- Measuring and monitoring product, cooling and lubricant circuits

### Technical Details

Device part	Material combination		
	5	6	7
Pendulum case	brass	stainless steel	stainless steel
Pendulum system	stainless steel	stainless steel	stainless steel
T piece	brass	stainless steel	PVC
Seals	FPM	FPM	FPM
Connecting thread	brass	stainless steel	PVC
Connecting flange	steel zinc-plat.	stainless steel	PVC
Weld-on part	stainless steel	stainless steel	boring pipe box PVC
Electronics housing	aluminium coated PA 66	aluminium coated PA 66	aluminium coated PA 66
t <sub>max</sub> *	120 °C	120 °C	20 °C (60 °C)
p <sub>max</sub> *	25 bar	25 bar	16 bar (2 bar)

\* Higher upon request

Flow range:	flow ratio 1:10 standard (for example 10-100 l/min) max. 1:25 upon request
Accuracy:	± 1.5 % of full scale
Medium temperature:	-20 °C ... +120 °C (other ranges upon request)
Max. pressure:	25 bar (higher values upon request) 16 bar (DWD-17/27/37)
Direction of flow:	any
Analogue output:	0 ... 10 V or 4 ... 20 mA (switchable)
Switching contacts:	2 x 230 V, 1 A max., adjustable with indication on display
Display:	LCD DOT-matrix module, 2 x 8 positions
Totaliser:	with EEPROM memory
Power supply:	24 V <sub>DC</sub> ± 10%
Current consumption:	max. 200 mA
Protection type:	IP 65
Optional:	RS232C serial interface

### Mounting Position

Note the direction of flow marked with an arrow on the device when installing. Otherwise you may use any mounting position as the display/transmitter case and display front panel can be rotated in 90° steps. The device can thus (even if already fitted) be adapted to different mounting positions in the piping, thus convenient reading and operation are always possible.

Example Measuring range:

For connection DN25 min. 6 l/min, max. 60 l/min or any other value upto max. 150 l/min in 1:10 ratio.



**Order Details** (Example: **DWD-15 R10 3 R T 0**)

We require the following details as well as the order number: medium, viscosity, service temperature, operating pressure, flow range within the values detailed below with the ratio min/max 1:10

**Flow transmitter model DWD-1... with thread connection**

Flow range (l/min.)		Material combination (pendulum system/ T piece)			Connection	Supply	Direction of flow	Location of indicator	Option
min. Water	max. Water	St. steel/ brass	St. steel/ st. steel	St. steel/ PVC					
1	25	DWD-15..	DWD-16..	DWD-17..	R10 = G 3/8" N10 = 3/8" NPT*	3 = 24 V <sub>DC</sub>	R = from right to left L = from left to right	T = above lead	0 = without 7 = RS232C interface
1	55	DWD-15..	DWD-16..	DWD-17..	R15 = G 1/2" N15 = 1/2" NPT*		T = from top to bottom B = from bottom to top	R = right of lead L = left of lead	
5	100	DWD-15..	DWD-16..	DWD-17..	R20 = G 3/4" N20 = 3/4" NPT*				
6	150	DWD-15..	DWD-16..	DWD-17..	R25 = G 1" N25 = 1" NPT*				
10	250	DWD-15..	DWD-16..	DWD-17..	R32 = G 1 1/4" N32 = 1 1/4" NPT*				
20	400	DWD-15..	DWD-16..	DWD-17..	R40 = G 1 1/2" N40 = 1 1/2" NPT*				
50	600	DWD-15..	DWD-16..	DWD-17..	R50 = G 2" N50 = 2" NPT*				

\*Model DWD-15... female thread to R40, above external thread; Model DWD-16.../DWD-17... female thread to R20, above external thread

**Flow transmitter model DWD-2... with flange connection**

Flow range (l/min.)		Material combination (pendulum system/ T piece)			Connection flange	Supply	Direction of flow	Location of indicator	Option
min. Water	max. Water	St. steel/ brass	St. steel/ st. steel	St. steel/ PVC					
1	25	DWD-25..	DWD-26..	-	F10 = DN 10 A10 = 3/8" ANSI	3 = 24 V <sub>DC</sub>	R = from right to left L = from left to right	T = above lead	0 = without 7 = RS232C interface
1	55	DWD-25..	DWD-26..	-	F15 = DN 15 A15 = 1/2" ANSI		T = from top to bottom B = from bottom to top	R = right of lead L = left of lead	
5	100	DWD-25..	DWD-26..	-	F20 = DN 20 A20 = 3/4" ANSI				
6	150	DWD-25..	DWD-26..	DWD-27..	F25 = DN 25 A25 = 1" ANSI				
10	250	DWD-25..	DWD-26..	DWD-27..	F32 = DN 32 A32 = 1 1/4" ANSI				
20	400	DWD-25..	DWD-26..	DWD-27..	F40 = DN 40 A40 = 1 1/2" ANSI				
50	600	DWD-25..	DWD-26..	DWD-27..	F50 = DN 50 A50 = 2" ANSI				

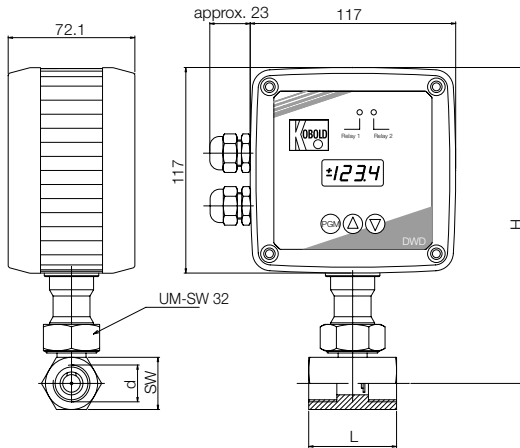
**Baffle plate system-flow transmitter DWD-35.../DWD-36... with weld-on part, DWD-37... with boring pipe box**

Flow range (m³/h)		Material combination (pendulum system/weld-on part)			For pipe cross-section	Supply	Direction of flow	Location of indicator	Option
min. Water	max. Water	St. steel/ st. steel	St. steel/ st. steel	St. steel/ PVC					
1.2	24	DWD-35..	DWD-36..	DWD-37..	W40 = DN 40	3 = 24 V <sub>DC</sub>	R = from right to left L = from left to right	T = above lead	0 = without 7 = RS232C interface
3.0	36	DWD-35..	DWD-36..	DWD-37..	W50 = DN 50		T = from top to bottom B = from bottom to top	R = right of lead L = left of lead	
4.8	60	DWD-35..	DWD-36..	DWD-37..	W65 = DN 65				
7.2	90	DWD-35..	DWD-36..	DWD-37..	W80 = DN 80				
12	144	DWD-35..	DWD-36..	DWD-37..	W1H = DN 100				
18	225	DWD-35..	DWD-36..	DWD-37..	W1Z = DN 125				
24	330	DWD-35..	DWD-36..	DWD-37..	W1F = DN 150				
42	600	DWD-35..	DWD-36..	DWD-37..	W2H = DN 200				
72	900	DWD-35..	DWD-36..	-	W2F = DN 250				
102	1200	DWD-35..	DWD-36..	-	W3H = DN 300				
150	1800	DWD-35..	DWD-36..	-	W3F = DN 350				
180	2400	DWD-35..	DWD-36..	-	W4H = DN 400				
300	3600	DWD-35..	DWD-36..	-	W5H = DN 500				

**Dimensions [mm]**

DWD-15... to 1½" with female thread

DWD-16... and DWD-17... to ¾" with female thread

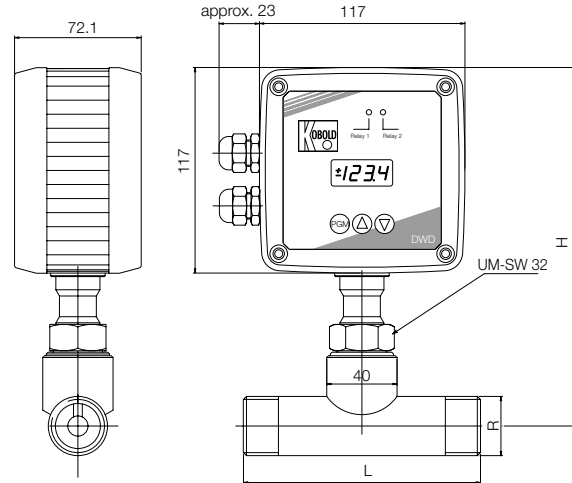


Values in ( ) valid for DWD-16...  
Values for DWD-17... on request

NW	L [mm]	H [mm]
¾"	50	180
½"	50	180
¾"	50	180
1"	50	185 (201)
1¼"	50	190 (201)
1½"	50	194 (201)

DWD-15... from 2" with male thread

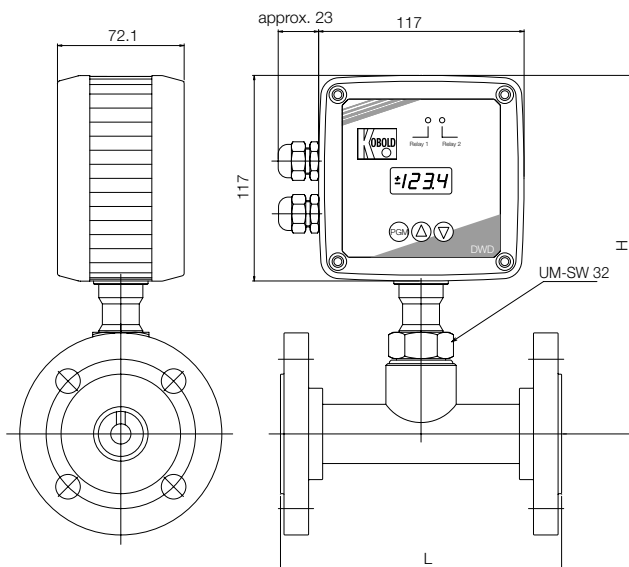
DWD-16... and DWD-17... from 1" with male thread



Values in ( ) valid for DWD-16...  
Values for DWD-17... on request

NW	L [mm]	H [mm]
1"	135	185 (201)
1¼"	170	190 (201)
1½"	170	194 (201)
2	170	202 (211)

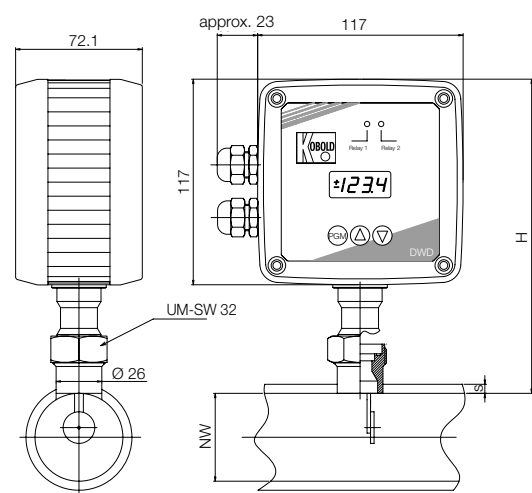
**DWD-2... with flange**



Values in ( ) valid for DWD-26...  
Values for DWD-27... on request

DN	D [mm]	K [mm]	L [mm]	H [mm]
10	90	60	155	180
15	95	65	155	180
20	105	75	160	180
25	115	85	160	185 (201)
32	140	100	190	190 (201)
40	150	110	190	194 (201)
50	165	125	190	202 (211)

**DWD-3... with weld-on part**



Values valid for DWD-... 35 and 36  
Values for DWD-37... on request

NW	H [mm]
from DN40	180