# Baffle Plate System Flow Transmitter
## for liquids

## DWD

S3

- Measuring ranges:
  1-10 l/min … 360-3 600 m³/h water

- Accuracy: ±1.5 of full scale

- Connection:
  G ⅜ … G 2,
  ⅜" NPT … 2" NPT
  flange: DN 10 … DN 50
  ANSI ⅜" … 2"
  weld-on part for
  nominal pipe sizes:
  DN 40 … DN 500

- Material:
  brass, PVC or stainless steel

- $p_{max}$: PN 25, $t_{max}$: 120 °C

- Universal mounting

## 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 case 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 | steel | stainless steel | boring pipe box PVC |
| Electronics housing | aluminium coated PA 66 | aluminium coated PA 66 | aluminium coated PA 66 |
| $t_{max}$* | 120 °C | 120 °C | 20 °C (60 °C) |
| $p_{max}$* | 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$_{DC}$ ±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 DN 25 min. 6 l/min, max. 60 l/min or any other value upto max. 150 l/min in 1:10 ratio.

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## 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** = G⅜*<br>**N10** = ⅜" NPT* | | **R** = from right to left<br>**L** = from left to right | | **T** = above lead | | |
| 1 | 55 | DWD-15.. | DWD-16.. | DWD-17.. | **R15** = G½*<br>**N15** = ½" NPT* | | | | | | |
| 5 | 100 | DWD-15.. | DWD-16.. | DWD-17.. | **R20** = G¾*<br>**N20** = ¾" NPT* | | | | | | |
| 6 | 150 | DWD-15.. | DWD-16.. | DWD-17.. | **R25** = G1*<br>**N25** = 1" NPT* | **3** = 24 V_DC | **T** = from top to bottom | | **R** = right of lead | | **0** = without<br>**7** = RS232C interface |
| 10 | 250 | DWD-15.. | DWD-16.. | DWD-17.. | **R32** = G1¼*<br>**N32** = 1¼" NPT* | | **B** = from bottom to top | | **L** = left of lead | | |
| 20 | 400 | DWD-15.. | DWD-16.. | DWD-17.. | **R40** = G1½*<br>**N40** = 1½" NPT* | | | | | | |
| 50 | 600 | DWD-15.. | DWD-16.. | DWD-17.. | **R50** = G2*<br>**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

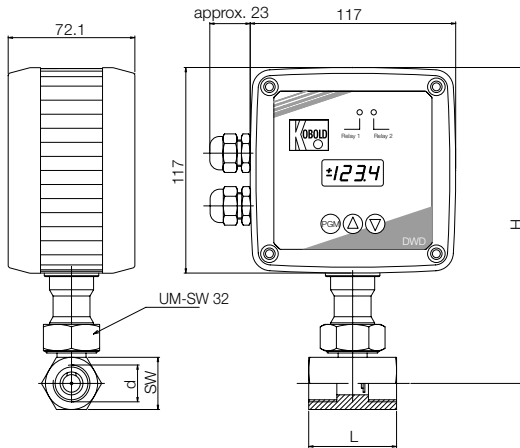| Flow range (l/min.) | | Material combination (pendulum system/ T piece) | | | Connection flange | Supply | Direction of flow | | Location of indicator | | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|
| min. Water | max. Water | St. steel/ brass | St. steel/ st. steel | St. steel/ PVC | | | | | | | |
| 1 | 25 | DWD-25.. | DWD-26.. | - | **F10** = DN 10<br>**A10** = ⅜" ANSI | | **R** = from right to left<br>**L** = from left to right | | **T** = above lead | | |
| 1 | 55 | DWD-25.. | DWD-26.. | - | **F15** = DN 15<br>**A15** = ½" ANSI | | | | | | |
| 5 | 100 | DWD-25.. | DWD-26.. | - | **F20** = DN 20<br>**A20** = ¾" ANSI | | | | | | |
| 6 | 150 | DWD-25.. | DWD-26.. | DWD-27.. | **F25** = DN 25<br>**A25** = 1" ANSI | **3** = 24 V_DC | **T** = from top to bottom | | **R** = right of lead | | **0** = without<br>**7** = RS232C interface |
| 10 | 250 | DWD-25.. | DWD-26.. | DWD-27.. | **F32** = DN 32<br>**A32** = 1¼" ANSI | | **B** = from bottom to top | | **L** = left of lead | | |
| 20 | 400 | DWD-25.. | DWD-26.. | DWD-27.. | **F40** = DN 40<br>**A40** = 1½" ANSI | | | | | | |
| 50 | 600 | DWD-25.. | DWD-26.. | DWD-27.. | **F50** = DN 50<br>**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/ steel | St. steel/ st. steel | St. steel/ PVC | | | | | | | |
| 1.2 | 24 | DWD-35.. | DWD-36.. | DWD-37.. | **W40** = DN 40 | | **R** = from right to left<br>**L** = from left to right | | **T** = above lead | | |
| 3.0 | 36 | DWD-35.. | DWD-36.. | DWD-37.. | **W50** = DN 50 | | | | | | |
| 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 | | | | | | **0** = without<br>**7** = RS232C interface |
| 42 | 600 | DWD-35.. | DWD-36.. | DWD-37.. | **W2H** = DN 200 | **3** = 24 V_DC | **T** = from top to bottom | | **R** = right of lead | | |
| 72 | 900 | DWD-35.. | DWD-36.. | - | **W2F** = DN 250 | | **B** = from bottom to top | | **L** = left of lead | | |
| 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 | | | | | | |

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No responsibility taken for errors; subject to change without prior notice.

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## 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

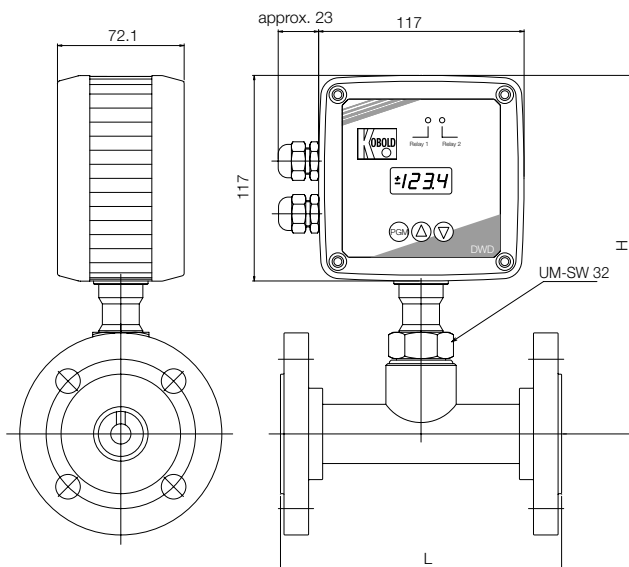| NW | L [mm] | H [mm] |
|----|--------|--------|
| ⅜" | 50 | 180 |
| ½ | 50 | 180 |
| ¾" | 50 | 180 |
| 1" | 50 | 185 (201) |
| 1¼" | 50 | 190 (201) |
| 1½ | 50 | 194 (201) |

**DWD-15... from 2" with male thread**
**DWD-16... and DWD-17... from 1" with male thread**
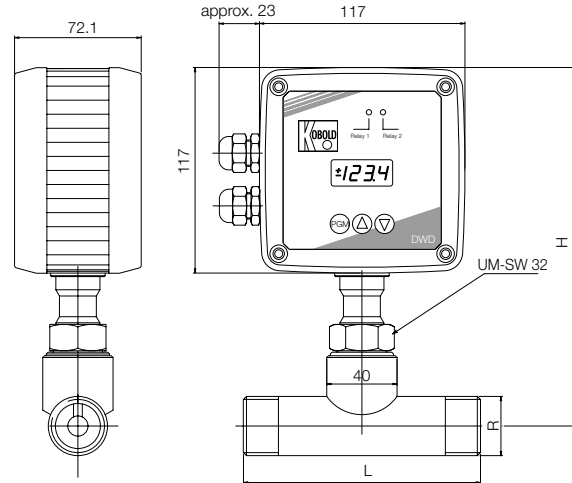


Values in ( ) valid for
DWD-16...
Values for DWD-17...
on request

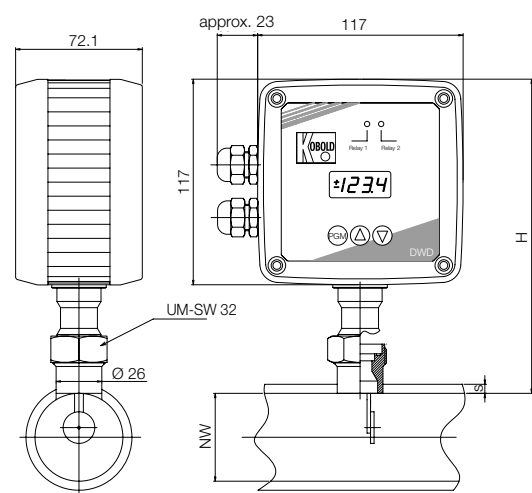| NW | L [mm] | H [mm] |
|----|--------|--------|
| 1" | 135 | 185 (201) |
| 1¼" | 170 | 190 (201) |
| 1½ | 170 | 194 (201) |
| 2 | 170 | 202 (211) |

**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 DN 40 | 180 |

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