



## Magnetic Inductive Flowmeter for conductive fluids



measuring  
•  
monitoring  
•  
analysing

### DMH



- Measuring range: 0.4...2500 m<sup>3</sup>/h
- Accuracy: ±0.3% of reading  
±0.01% x Q<sub>max</sub>
- p<sub>max</sub>: PN40; t<sub>max</sub>: -20...+150 °C
- Connection: flange DN 15...300,  
ANSI 3/4" ... 12"
- Lining material: hard rubber,  
soft rubber, Wagunit, PTFE
- Outputs: analogue with HART®,  
pulses and status



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**Description**

The KOBOLD DMH flowmeter is used to measure and monitor the volume flow rate of fluids, pulps, pastes and other electrically conductive materials, without loss of pressure.

When an electrically conductive medium passes through a directional magnetic field, a voltage is induced in accordance with Faraday's Law of Induction.

The size of this measurement voltage is proportional to the mean rate of flow and consequently also to the volume flow rate.

A flowmeter consists of a sensor that picks up the measuring signal generated from the induced voltage, and a transducer that converts this signal into a standardised output signal (4-20 mA or pulses). The measurement transducer can be affixed to the sensor or mounted separately.

Pressure, temperature, density and viscosity do not affect the volume measurement. Solid fractions and gas bubbles should be avoided.

The significant properties exhibited by DMH include:

- great choice of linings
- stainless steel, Hastelloy, tantalum or platinum electrodes
- wide variety of process connections
- can be used in rough ambient conditions

**Fields of application**

- acids, alkalis
- pastes
- drinking water, waste water
- beer, wine, milk, mineral water
- spirits, molasses, fruit juice
- soft cheese etc.

**Technical data**

|   |  |
|---|--|
| Adjustable measuring range terminal values: | 0.5...10 m/s   |
| Minimum conductivity:                       | ≥5 µS/cm<br>(for fluids in general)<br>≥20 µS/cm<br>(demineralised water)  |
| Accuracy:                                   | ±0.3 % of read. ±0.01 % x Q <sub>max</sub>   |
| Repeat accuracy:                            | ±0.15 % of read. ±0.005 % x Q <sub>max</sub><br>(reference conditions: water, measured medium temperature of 22 °C ±4K, ambient temperature 22 °C ±2K, inlet path ≥ 10 x DN, outlet path ≥ 5 x DN, Q <sub>max</sub> at 10 m/s) |
| Process temperature:                        | 0 ... +80 °C<br>(hard rubber, soft rubber, Wagunit)<br>-20 ... +150 °C (PTFE)  |
| Ambient temperature:                        | -20 ... +60 °C,<br>depending on process temperature  |
| Rated pressure:                             | PN 40, ASME CI150/300<br>DN 15 ... DN 50<br>PN 16, ASME CI150<br>DN 50 ... DN 200<br>PN 10, ASME CI150<br>DN 250 ... DN 300<br>higher pressures on request   |
| <b>Sensor materials</b>                     |  |
| Linings:                                    | hard rubber, soft rubber, PTFE, Wagunit  |
| Electrodes:                                 | stainless steel, Hastelloy C4, tantalum, platinum, earth ring and other materials on request   |
| Housing:                                    | enamelled steel (DMH-1)<br>stainless steel (DMH-2)   |
| Process connection:                         | steel or stainless steel 1.4301<br>flange EN1092 and ASME B16.5,<br>wafer version, foodstuff,<br>screw seal DIN11851, Tri-Clamp®,<br>other connections on request  |
| Nominal sizes:                              | DN 15 to DN 300<br>other nominal sizes on request  |
| Protection type:                            | IP 67 (IP 68 on request)   |
| <b>Transducer UMF2</b>                      |  |
| Display:                                    | 2-line, lighted<br>flow, counter (forward+backward)  |
| Operation:                                  | 6 buttons  |
| Assembly type:                              | compact or separate  |
| Housing:                                    | enamelled die-cast aluminium<br>rotatable in 90° steps   |
| Outputs:                                    | galvanically isolated  |
| Analogue:                                   | 1 x 0(4)-20 mA<br>load: <600 Ω (>250 Ω for HART®)  |

**Technical Data** (continued):

Pulse output: passive, using optocoupler, max. 30 V, 60 mA, 1.8 W

Status: passive, using optocoupler max. 30 V, 60 mA, 1.8 W

Power supply: 115 V<sub>AC</sub>, 50/60 Hz, 10 VA  
230 V<sub>AC</sub>, 50/60 Hz, 10 VA  
24 V<sub>DC</sub> ±10%, 10W/VA

Electrical connection: Cable connection M 20x1,5 or ½ NPT

Ambient temperature: -20 ... +60°C, depending on process temperature for compact version

Protection type: IP67

Communication: HART®

Diagnosis functions: empty pipe recognition, flushing flow monitoring error message in plain text

**Measuring range**

| DN  | Smallest measuring range |           | Greatest measuring range |             |
|-----|--------------------------|-----------|--------------------------|-------------|
|     | [m³/h]                   | [L/min]   | [m³/h]                   | [L/min]     |
| 15  | 0... 0.4                 | 0... 7    | 0... 6.3                 | 0... 105    |
| 20  | 0... 0.6                 | 0... 10   | 0... 11                  | 0... 183    |
| 25  | 0... 0.9                 | 0... 15   | 0... 18                  | 0... 300    |
| 32  | 0... 1.5                 | 0... 25   | 0... 28                  | 0... 466    |
| 40  | 0... 2.3                 | 0... 40   | 0... 45                  | 0... 750    |
| 50  | 0... 3.6                 | 0... 60   | 0... 70                  | 0... 1166   |
| 65  | 0... 6                   | 0... 100  | 0... 120                 | 0... 2000   |
| 80  | 0... 9                   | 0... 150  | 0... 180                 | 0... 3000   |
| 100 | 0... 14                  | 0... 235  | 0... 280                 | 0... 4650   |
| 125 | 0... 22                  | 0... 370  | 0... 430                 | 0... 7166   |
| 150 | 0... 33                  | 0... 550  | 0... 635                 | 0... 10 580 |
| 200 | 0... 58                  | 0... 970  | 0... 1130                | 0... 18 800 |
| 250 | 0... 90                  | 0... 1500 | 0... 1760                | 0... 29 300 |
| 300 | 0... 126                 | 0... 2100 | 0... 2520                | 0... 42 000 |

**Order Details** (Example: DMH-1 A15 H 1 0 A 1 0)

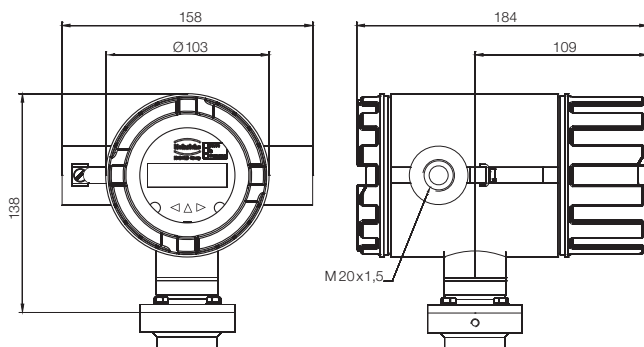
| Model/<br>flange-<br>material                   | Process connection <sup>1)</sup><br>(flange acc. to<br>EN 1092-1 Form B1)                                      | Lining  | Electrode-<br>material  | Earth<br>electrode<br>material   | Versions/<br>cable lengths   | Electronics   | Power supply/<br>cable entry point   |
|---|--|---|---|--|--|---|--|
| <b>DMH-1</b> =<br>enamelled<br>steel            | <b>A15</b> = DN 15, PN40<br><b>A20</b> = DN 20, PN40<br><b>A25</b> = DN 25, PN40<br><b>A32</b> = DN 32, PN40   |   |   |  | <b>A</b> = compact<br><b>B</b> = separate<br>version/2,5 m<br><b>C</b> = separate<br>version/5 m<br><b>D</b> = separate<br>version/10 m<br><b>E</b> = separate<br>version/15 m<br><b>F</b> = separate<br>version/ 20 m<br><b>G</b> = separate<br>version/ 30 m<br><b>H</b> = separate<br>version/ 50 m |   |  |
| <b>DMH-2</b> =<br>stainless<br>steel<br>1.4301  | <b>A40</b> = DN 40, PN40<br><b>A50</b> = DN 50, PN40<br><b>C65</b> = DN 65, PN 16<br><b>C80</b> = DN 80, PN 16 | <b>H</b> = hard<br>rubber<br><b>W</b> = soft<br>rubber<br><b>T</b> = PTFE<br><b>V</b> = Wagunit | <b>1</b> = stainless<br>steel<br><b>3</b> = Hastelloy<br>C4<br><b>5</b> = tantalum<br><b>7</b> = platinum | <b>0</b> = without<br><b>1</b> = Edelstahl<br><b>3</b> = Hastelloy<br>C4<br><b>5</b> = Tantal<br><b>7</b> = Platin |  | <b>1</b> = UMF2-<br>electronics<br>with control<br>unit, without<br>HART®<br><b>2</b> = UMF2-<br>electronics<br>with control<br>unit, with<br>HART® | <b>0</b> = 230 V <sub>AC</sub><br>M20x1,5<br><b>4</b> = 115 V <sub>AC</sub><br>M20x1,5<br><b>3</b> = 24 V <sub>DC</sub><br>M20x1,5<br><b>5</b> = 230 V <sub>AC</sub><br>½ NPT<br><b>6</b> = 115 V <sub>AC</sub><br>½ NPT<br><b>8</b> = 24 V <sub>DC</sub><br>½ NPT |
| <b>DMH-5<sup>2)</sup></b> =<br>wafer<br>version | <b>C1H</b> = DN 100, PN 16<br><b>C1Z</b> = DN 125, PN 16<br><b>C1F</b> = DN 150, PN 16                         |   |   |  |  |   |  |
| <b>DMH-6</b> =<br>food con-<br>nection          | <b>C2H</b> = DN 200, PN 16<br><b>D2F</b> = DN 250, PN 10<br><b>D3H</b> = DN 300, PN 10                         |   |   |  |  |   |  |

<sup>1)</sup> ASME-flange class 150: code Lxx, ASME-flange class 300: code Mxx (up to 1½" / DN 40), other process connections on request

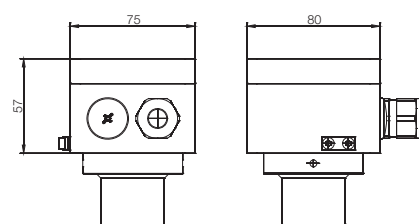
<sup>2)</sup> wafer version only for nominal width DN 20...200

**Dimensions**

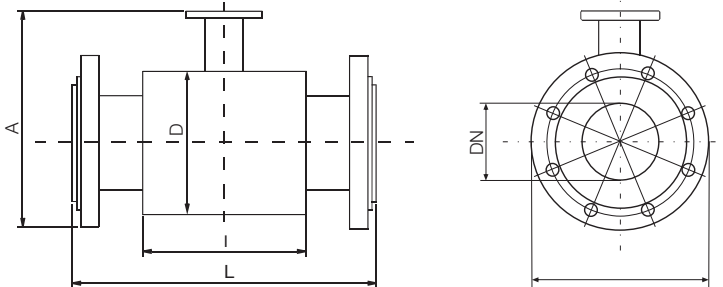
**Transducer UMF2**



**Connection box for sensor, separate version**



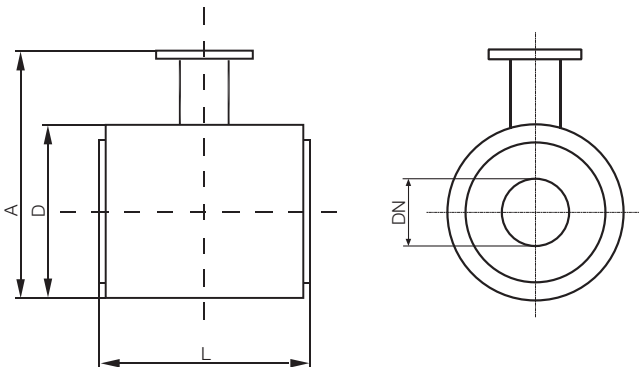
Sensor, flange connection



| DN  | PN | ASME | D [mm] | d [mm] | A [mm] | L [mm] | I [mm] | Weight* [kg] |
|-----|----|------|--------|--------|--------|--------|--------|--------------|
| 15  | 40 | -    | 95     | 62     | 164    | 200    | 66     | 3            |
| 20  | 40 | ¾"   | 105    | 62     | 170    | 200    | 66     | 3            |
| 25  | 40 | 1"   | 115    | 72     | 180    | 200    | 96     | 3            |
| 32  | 40 | 1¼"  | 140    | 82     | 199    | 200    | 96     | 4            |
| 40  | 40 | 1½"  | 150    | 92     | 209    | 200    | 96     | 4            |
| 50  | 16 | 2"   | 165    | 107    | 223    | 200    | 96     | 6            |
| 65  | 16 | 2½"  | 185    | 127    | 244    | 200    | 96     | 9            |
| 80  | 16 | 3"   | 200    | 142    | 260    | 200    | 96     | 14           |
| 100 | 16 | 4"   | 220    | 162    | 280    | 250    | 96     | 16           |
| 125 | 16 | 5"   | 250    | 192    | 310    | 250    | 126    | 19           |
| 150 | 16 | 6"   | 285    | 218    | 340    | 300    | 126    | 25           |
| 200 | 16 | 8"   | 340    | 274    | 398    | 350    | 211    | 41           |
| 250 | 10 | 10"  | 395    | 370    | 480    | 450    | 211    | 54           |
| 300 | 10 | 12"  | 445    | 420    | 535    | 500    | 320    | 77           |

\* Weights of the sensors are only approximate values, including the weight of the electronics approx. 2.4kg

Sensor, wafer flange



| DN  | PN | D [mm] | A [mm] | L [mm] | Weight* [kg] |
|-----|----|--------|--------|--------|--------------|
| 20  | 40 | 62     | 145    | 74     | 1            |
| 25  | 40 | 72     | 158    | 104    | 2            |
| 32  | 40 | 82     | 168    | 104    | 2            |
| 40  | 40 | 92     | 179    | 104    | 2            |
| 50  | 16 | 107    | 192    | 104    | 3            |
| 65  | 16 | 127    | 212    | 104    | 3            |
| 80  | 16 | 142    | 227    | 104    | 4            |
| 100 | 16 | 162    | 247    | 104    | 4            |
| 125 | 16 | 192    | 277    | 134    | 6            |
| 150 | 16 | 218    | 303    | 134    | 8            |
| 200 | 16 | 274    | 359    | 219    | 10           |

\* Weights of the sensors are only approximate values, including the weight of the electronics approx. 2.4kg