Magnetic Inductive Flowmeter

for conductive liquids

measuring • monitoring • analyzing

DMH

- Measuring Range: 0.29...26.4 to 431.6…43,333 GPM
- Accuracy: ±0.3% of Reading ±0.01% x Q_{max}
- p_{max}: 580 PSI; t_{max}: 300 °F
- Connection: Flange ASME ½" ... 24"
- Lining Material: Hard Rubber, Soft Rubber, or PTFE
- Output: Analog with HART®, Pulse, and Status

KOBOLD companies worldwide:

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Description

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

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

The measured voltage is proportional to the mean rate of flow and consequently also to the volumetric flow rate.

The 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 standardized output signal (4-20mA or pulse). The measuring transducer can be connected to the sensor directly or mounted remotely.

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

The significant properties exhibited by DMH include:

- great choice of linings
- stainless steel, Hastelloy, tantalum, platinum, or titanium 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 (for liquids in general) ≥20 µS/cm (demineralized water)
Accuracy:	±0.3 % of read. ± 0.01 % x Q_{max}
Repeatability:	±0.15 % of read. ± 0.005 % x Q_{max} (reference conditions: water, measured medium temperature of 72 °F ±4K, ambient temperature 72 °F ±2K, inlet ≥ 10 x pipe diameter, outlet ≥ 5 x pipe diameter, Q_{max} at 10 m/s)
Process temperature:	32 ... +176 °F (hard rubber, soft rubber) -4 ... +300 °F (PTFE)
Ambient temperature:	-4 ... +140 °F, depending on process temperature
Rated pressure:	ASME 150 lb ½" ... 24" ASME 300 lb ½" ... 24" higher pressures upon request

Sensor materials

Linings:	hard rubber, soft rubber, or PTFE
Electrodes:	stainless steel, Hastelloy C4, tantalum, platinum, titanium, and other materials upon request
Housing:	enameled steel
Process connection:	enameled steel or enameled 304 stainless steel flange ASME B16.5, other connections upon request
Nominal sizes:	½" to 24" other nominal sizes upon request
Protection type:	IP 67 (IP 68 upon request)

Transmitter UMF2

Display:	2-line, lighted flow, counter (forward + backward)
Operation:	6 buttons
Assembly type:	compact or remote
Housing:	enameled die-cast aluminum rotatable in 90° steps
Outputs:	galvanically isolated
Analog:	1 x 4-20 mA 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_{AC}, 50 / 60 Hz, 10 VA 230 V_{AC}, 50 / 60 Hz, 10 VA 24 V_{DC} ±10 %, 10 W / VA
Electrical connection:	Cable connection M 20 x 1,5 or ½ NPT
Ambient temperature:	-4 … +140°F, depending on process temperature for compact version
Protection type:	IP 67
Communication:	HART®
Diagnosis functions:	empty pipe recognition, flushing flow monitoring error message in plain text

Measuring range

Line Size	Minimum Measuring Value		Maximum Measuring Value	
	[GPM]	[LPM]	[GPM]	[LPM]
½"	0.29	1.10	26.4	100.0
¾"	0.53	2.01	35.2	133.2
1"	0.80	3.03	74.8	283.1
1.25"	1.33	5.04	123.2	466.3
1.5"	1.99	7.54	167.3	633.2
2"	3.18	12.04	272.9	1033.2
2.5"	5.29	20.03	493.1	1866.6
3"	7.93	30.02	717.6	2716.8
4"	12.33	46.68	1268.0	4800.0
5"	18.94	71.70	2007.7	7600.2
6"	28.62	108.4	2950.0	11166.6
8"	50.64	191.7	5230.6	19800.0
10"	79.26	300.1	8347.8	31600.2
12"	111.0	420.2	11808.4	44700.0
14"	154.1	583.2	14388.6	54466.8
16"	198.2	750.0	18932.2	71666.4
18"	237.8	900.0	23991.2	90816.6
20"	299.5	1133.4	29886.7	113133.6
24"	431.6	1633.2	43333.0	164033.4

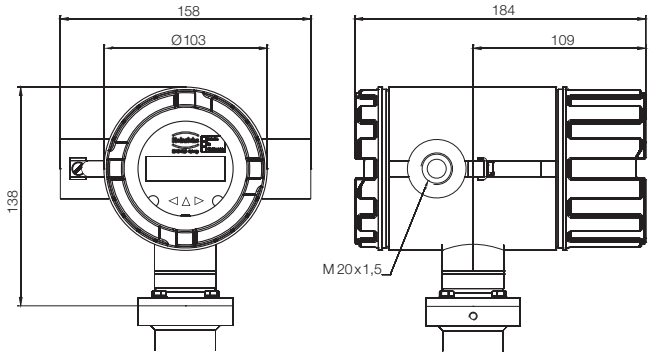
Order Details (Example: **DMH-1 L15 H 1 1 A 1 6**)

Model/ Flange Material	Process Connection[1] (flange acc. to ASME Form B1)	Liner Material	Electrode Material	Grounding Electrode Material	Versions/ Cable Lengths	Electronic Transmitter	Power Supply/ Electrical Connection
DMH-1 = enameled steel **DMH-2** = enameled stainless steel 304	**L15** = ½", 150 lb **L20** = ¾", 150 lb **L25** = 1", 150 lb **L32** = 1.25", 150 lb **L40** = 1.5", 150 lb **L50** = 2", 150 lb **L65** = 2.5", 150 lb **L80** = 3", 150 lb **L1H** = 4", 150 lb **L1Z** = 5", 150 lb **L1F** = 6", 150 lb **L2H** = 8", 150 lb **L2F** = 10", 150 lb **L3H** = 12", 150 lb **L3F** = 14", 150 lb **L4H** = 16", 150 lb **L4F** = 18", 150 lb **L5H** = 20", 150 lb **L6H** = 24", 150 lb	**H** = hard rubber **W** = soft rubber	**1** = stainless steel **3** = Hastelloy C4 **5** = tantalum **6** = titanium **7** = platinum	**1** = stainless steel **3** = Hastelloy C4 **5** = tantalum **6** = titanium **7** = platinum	**A** = compact **B** = remote version/2,5 m **C** = remote version/5 m **D** = remote version/10 m **E** = remote version/15 m **F** = remote version/ 20 m **G** = remote version/ 30 m **H** = remote version/ 50 m	**1** = UMF2-electronics with control unit, without HART® **2** = UMF2-electronics with control unit, with HART®	**0** = 230 V_{AC} M20x1,5 **4** = 115 V_{AC} M20x1,5 **3** = 24 V_{DC} M20x1,5 **5** = 230 V_{AC} ½ NPT **6** = 115 V_{AC} ½ NPT **8** = 24 V_{DC} ½ NPT
		T = PTFE	**3** = Hastelloy C4 **5** = tantalum **6** = titanium **7** = platinum	**3** = Hastelloy C4 **5** = tantalum **6** = titanium **7** = platinum			

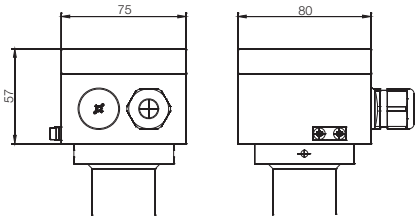
[1] ASME-flange class 300 lb: code Mxx, other process connections on request

Dimensions

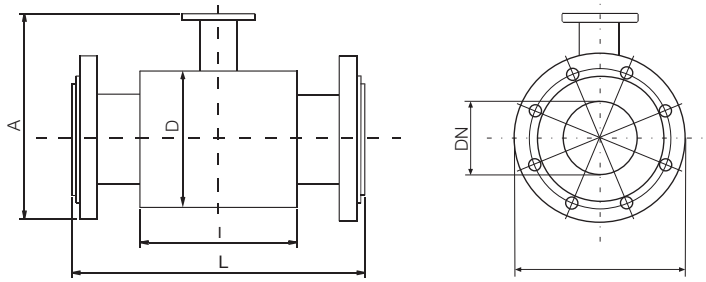
Transmitter UMF2



Connection box for sensor, remote version



Sensor, flange connection



Line Size	Flange ASME	D [mm]	d [mm]	A [mm]	L [mm]	l [mm]	Weight* [lbs]
½"	150	95	62	164	200	66	7
¾"	150	105	62	170	200	66	7
1"	150	115	72	180	200	96	7
1¼"	150	140	82	199	200	96	9
1½"	150	150	92	209	200	96	9
2"	150	165	107	223	200	96	13.5
2½"	150	185	127	244	200	96	20
3"	150	200	142	260	200	96	32
4"	150	220	162	280	250	96	36
5"	150	250	192	310	250	126	42
6"	150	285	218	340	300	126	25
8"	150	340	274	398	350	211	56
10"	150	395	370	480	450	211	120
12"	150	445	420	535	500	320	170
14"	150	505	480	584	550	320	203
16"	150	565	530	642	600	320	256
18"	150	c/f	c/f	c/f	600	320	340
20"	150	670	640	752	600	320	370
24"	150	780	760	870	600	320	695

* Weights of the sensors are only approximate values, please also include the weight of the electronic assembly - approx. 5.6 lbs.