

Product information FMQ
FOOD

Magnetic-Inductive Flow Meter FMQ

Application/Specified usage

- Magnetic-inductive flowmeter for the measurement of flow rate and volume in food applications
- Suitable for liquids, slurries and pastes with a minimum conductivity of $5 \mu\text{S/cm}$
- Precise measurement of media containing solids
- Measurement range from 30 l/h to 640 000 l/h (8 gal/hr to 169,000 gal/hr)
- Suitable for dosing and filling applications

Hygienic design/Process connection

- Sensor made of stainless steel
- Hygienic design 3-A compliant
- All parts in contact with the product are FDA-compliant
- Transmitter made of PFA; vacuum-tight and piggable
- Process connection made of 316 stainless steel
- Electrodes made of stainless steel 1.4404
- CIP-/SIP-cleaning up to max. $130 \text{ }^\circ\text{C}$ (max. 30 minutes)
- Multiple connection choices available

Special features/Advantages

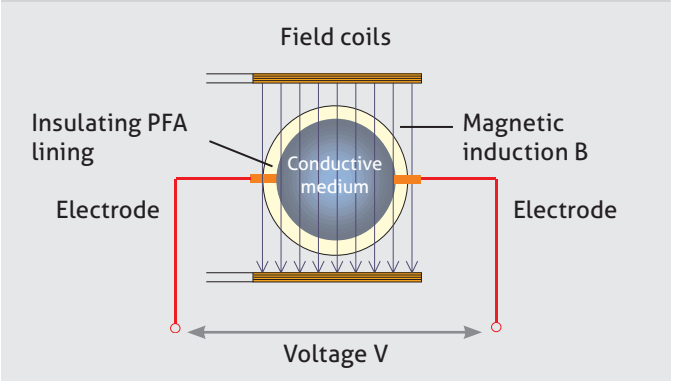
- High measurement accuracy even at low flow rates
- Simple, intuitive parameterization
- Automatic empty pipe detection
- PFA lining for maximum resistance to aggressive substances such as acids and bases
- Vacuum-tight, rigid flow tube lining
- Rotatable housing with illuminated graphic display
- Operation of device via optical keys without opening the housing
- Minimal maintenance and care requirements

Certification

FMQ flowmeter

Functional principle

The principle behind this measurement method is Faraday's law of induction. This law states that a voltage is induced in a conductor that moves in a magnetic field. In the magnetic-inductive measurement method, the flowing, conductive medium acts as the conductor. Two vertically positioned field coils generate a constant magnetic field. The voltage induced in the flowing medium is measured by two stainless steel electrodes that are arranged horizontally. The voltage is directly proportional to the flow rate and can be expressed as the flow volume using the nominal tube width. The determined measurement values are made available as a counting pulse and 4...20 mA standard signal.

Magnetic-inductive measurement


Display (optional)

- Integrated graphic display, illuminated
- Display swivels 360°
- Operation via optical keys (housing does not need to be opened)
- User guidance in English/German (switchable)

Bus system (optional)

- CS3/RS485 Bus System

Meter tube

Universal DIN 11864 aseptic flange

Available with buttweld, ASME clamp or DIN clamp process connections

Electrical connection

M12 plug

**Outputs**

- 1 digital output
- 1 analog output

Supply voltage

Supply voltage
24 V DC

Measurement transmitter

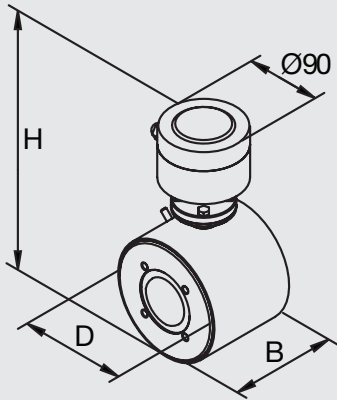
- DN 10 ... DN 150
- PFA liner, vacuum-tight, piggable, FDA-approved
- Measurement electrodes, 1.4404

Technical data

Transmitter	Measuring principle Measurement ranges Nominal width	Magnetic-inductive 0.10...10 m/s DN10...DN100 (1/2"...4")
Process connection (optional)	Transmitter Tube standards	Aseptic flange DIN 11864-2, Form A Inside diameter as per DIN 11850 Series 2 Food: DIN 11850 Series 2, OD Tube (ASME BPE)
Materials	Pipe connection Seal Transmitter housing Transmitter lining Electrodes Converter housing Sight glass M12 plug	Food: 1.4404 Food: EPDM, Silicone (FDA CFR 21.177) 1.4301 (blasted) PFA (FDA CFR 21.177) 1.4404 1.4404 PMMA (acrylic glass) Polyamide
Temperature ranges	Ambient Process CIP / SIP cleaning	-25...+60 °C 0...+100 °C up to 130 °C max. 30 min
Operating pressure	DN10...100	0.1...17 bar (PN16)
Protection class		IP 67
Transmitter	LCD display Electrical connection Supply voltage Power consumption	Graphic LCD, 46 mm x 23 mm, back-lit with auto dimming feature M12 plug (DC power supply only) DC: 24 V ±10 % Max. 2.5 W (without display) / Max. 3.0 W (with display)
Measurement accuracy		±0.5 % ±2 mm/s, under reference conditions as per DIN EN 29104 and VDI/VDE 2641
Product conductivity		> 5 µS/cm, for demineralized water > 20 µS/cm
Pulse output (volume counter)	1x optocoupler, passive	24 V / 20 mA, pulse sequence max. 1 kHz
Analog output (flow rate)	active Load resistance	(0)/4...20 mA Max. 500 Ω

FMQ Dimensions

FMQ dimensional drawing

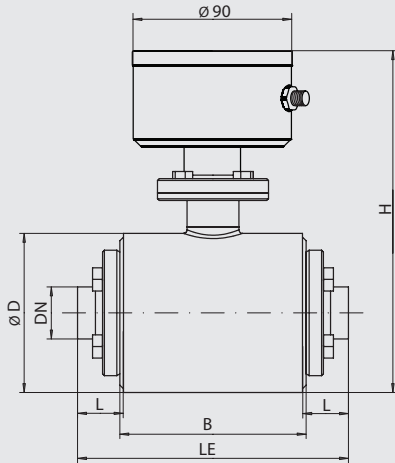


FMQ dimensions, incl. measurement range and weight

Nominal width DN	B [mm]	D [mm]	H [mm]	Measurement range [l/h]	Weight [kg]
					Transmitter and converter (display unit)
10	104	90	201	30...3.000	4
15	104	90	201	70...7.000	4
25	104	90	201	180...18.000	4
32	104	105	216	300...30.000	5
40	104	105	216	450...45.000	5
50	104	130	241	700...70.000	6
65	160	130	241	1.200...120.000	6
80	160	155	266	1.800...180.000	10
100	200	170	281	2.800...280.000	15

FMQ dimension equipped with Anderson-Negele process connection

FMQ dimensional drawing



Main application area: Food | Material: 1.4404

Transmitter Ø	Pipe DN [mm]	Pipe size OD x WT [mm]	installation length LE		
			Weld flange DIN 11850 Series 2 [mm]	Tri-Clamp ASME [mm] (* Tri-Clamp size)	DIN 32676 Clamp [mm]
10	10	12.7 x 1.65	152	172 (½")*	209
15	15	19.05 x 1.65	152	203 (1")*	209
25	25	25.4 x 1.65	152	203 (1")*	223
32	32	38.1 x 1.65	152	203 (1½")*	223
40	40	38.1 x 1.65	152	203 (1½")*	223
50	50	50.8 x 1.65	152	203 (2")*	223
65	65	63.5 x 1.65	208	229 (2.5")*	303
80	80	76.2 x 1.65	212	251 (3")*	308
100	100	101.6 x 2.11	252	302 (4")*	348

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FMQ Magnetic-Inductive Flow Meter

Nominal diameter/Size

010	(10 mm)
015	(15 mm)
025	(25 mm)
032	(32 mm)
040	(40 mm)
050	(50 mm)
065	(65 mm)
080	(80 mm)
100	(100 mm)

Certifications**S** (none)**Display****L** (Optical LED status light)
D (Graphical Display)**M12 Connection****0** (M12)**Connection****0** (Butt-weld)
1 (ASME clamp)
2 (DIN clamp)**Elastomer****A** (EPDM)
B (Silicone)

FMQ 010 S L 0 0 A

Accessories

42117H0025	5-Conductor w/25' cable
42117H0050	5-Conductor w/50' cable
42117H0100	5-Conductor w/100' cable
57001A0001	Display board kit
57002A0001	Display cap kit
57002B0001	Status Light cap kit
56623D0004	M12 connector kit

Graphical Display