

# Magnetic-Inductive Flow Meter FMQ

## Application/Specified usage

- Magnetic-inductive flowmeter for the measurement of flow rate and volume in food and pharmaceutical applications
- Suitable for liquids, mash and pastes with a minimum conductivity of  $5 \mu\text{S}/\text{cm}$
- Precise measurement of media containing solids
- Measurement range from 30 l/h to 280 000 l/h
- Suitable for dosing and filling applications

## Hygienic design/Process connection

- Versions available to conform to 3-A Standard 28-
- All wetted materials are FDA-conform
- Sensor made entirely of stainless steel
- Meter tube in transmitter with PFA coating
- Vacuum-tight and piggable
- Electrodes made of stainless steel 1.4404 / AISI 316L
- Sensor available with or without process connections

## Special features/Advantages

- Process temperature limit of  $165 \text{ }^\circ\text{C}$  /  $329 \text{ }^\circ\text{F}$  max.
- High measurement accuracy even at low flow rates
- Switch input for resetting the quantity-/volume counter (option)
- Automatic empty pipe detection avoids undefined readings for empty pipes
- PFA lining for maximum resistance to aggressive substances such as acids and bases
- Vacuum-tight, rigid meter tube lining, even at high temperatures
- Swiveling housing head with illuminated graphic display
- Operation of device via optical keys without opening the housing
- Minimal maintenance and care requirements
- Pharmaceutical version available with all necessary certificates
- IO-Link digital communication

## Options/Accessories

- Add-On Instructions are available at [www.anderson-negele.com/aoi](http://www.anderson-negele.com/aoi)

## Communication

IO-Link 4...20 mA

## FMQ flowmeter



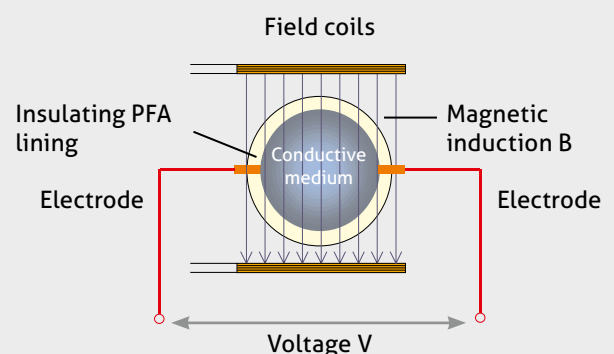
## FMQ-R Remote version



## 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 or an optional IO-Link digital communication.

## Magnetic-inductive measurement



**Features**

- Supply voltage: 24 V DC
- Outputs
  - 1 digital output
  - 1 analog output
- Optional switch input
- IO-Link communication

**Display**

- Integrated graphic display, illuminated
- Operation via optical button (not necessary to open housing)

**Electrical connection**

M12 plug

**Rotating head unit**

- Display area 4 x 90° rotatable

**Measurement transmitter**

- PFA liner, vacuum-tight, piggable, FDA-approved
- Measurement electrodes, 1.4404 / AISI 316L

**Meter tube**

Aseptic flange DIN 11864-2, form A

Pipe standard

- DIN 11850 series 2
- DN 10...DN 100


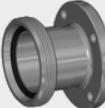
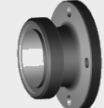



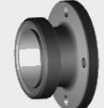
**Process connection**

- Wide variety of process connections available
- Available for food or pharmaceutical applications

**Note**

The display comes with a power saving mode. The background lighting automatically switches off after 30 minutes, while the measured values continue to be displayed. For better readability, however, the lighting can be switched on again at any time by pressing the optical keys.

**Process adapters (optional available)**

							
<b>SS</b> Weld flange	<b>TC</b> Tri-Clamp	<b>GG</b> Milk pipe fitting	<b>HH</b> Aseptic fitting	<b>VN</b> Varivent	<b>FG</b> FG hygienic flange	<b>DF</b> DIN flange	<b>SM</b> SMS threaded connector

Technical data		
<b>Measuring Tube</b>	Measuring principle Measurement range Nominal width Pipe standard	Magnetic-inductive 0.10...10 m/s DN 10...DN 100 DIN 11850 Series 2
<b>Process connection (optional)</b>	Pipe standards	Food: DIN 11850 Series 2, OD tube (ASME BPE) Pharma: DIN 11866 Series A, B, C
<b>Material</b>	Food seal Pharma seal Transmitter housing Transmitter lining Food electrodes Pharma electrodes Converter housing Sight glass M12 connector	EPDM, FDA number 21 CFR 177.2600 EPDM with USP Class VI 1.4301 / AISI 304, blasted PFA, FDA number 21 CFR 177.1550 1.4404 / AISI 316L 1.4404 / AISI 316L with 3.1 material certificate 1.4301 / AISI 304 PMMA (acrylic glass) Plastic optional: 1.4301 / AISI 304
<b>Pipe connection</b>	Food Pharma	1.4404 / AISI 316L 1.4435 / AISI 316L with 3.1 material certificate
<b>Temperature ranges</b>	Ambient Compact design  Remote design	-25...60 °C / -13...140 °F Process: 0...100 °C / 32...212 °F CIP/SIP cleaning: up to 130 °C / 266 °F max. 30 min Process: 0...165 °C / 32...329 °F
<b>Operating pressure</b>	PN16	0.1...17 bar / 1.5...246 psi absolute, vacuum-tight (may be lower depending on the selected process adapter)
<b>Protection class</b>		IP 67
<b>Transmitter</b>	Optional Display User Interface Languages Electrical connection Supply voltage Power consumption	Graphic display 46 mm x 23 mm, backlit English, German, Spanish, French, Italian, Czech 1x M12 connector 24 V DC ±10 % Max. 2.5 W (without display) Max. 3.0 W (with display)
<b>Measurement accuracy</b>		±0.5 % of rate (±2 mm/s), under reference conditions as per DIN EN 29104 and VDI/VDE 2641
<b>Product conductivity</b>	Standard Demineralized water	> 5 µS/cm > 20 µS/cm
<b>Digital output</b>	Active pulse output IO-Link	1x 24 V / 20 mA, pulse sequence max. 1 kHz IO-Link communication (no pulse output)
<b>Switch input (optional) (resets volumetric counter)</b>	Active	9...32 V DC
<b>Analog output (flow rate)</b>	Active Ohmic resistance	4...20 mA Max. 500 Ω

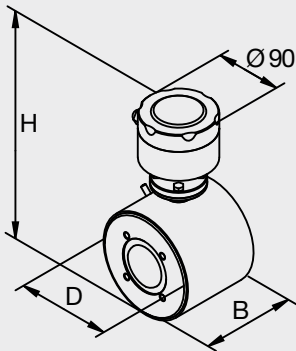
**Note**

This product information is not an operating manual. Please note the information on device safety, installation and operation in the product operating manual.



## FMQ dimensions and optional process connections for food

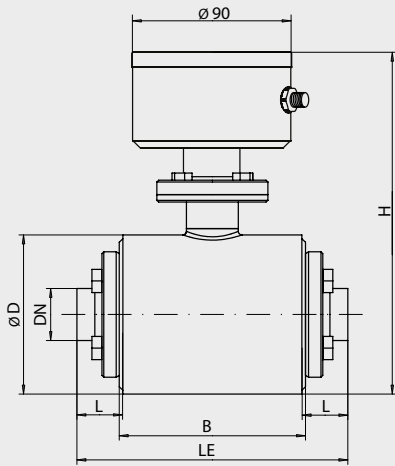
## FMQ dimensional drawing



## Dimensions measurement range and weight: FMQ without process connection

Transmitter type	DN transmitter	B	D	H	Measurement range [l/h]	Sensor weight [kg]
FT010	10	104	90	190	30...3000	4
FT015	15	104	90	190	70...7000	4
FT025	25	104	90	190	180...18000	4
FT032	32	104	105	205	300...30000	5
FT040	40	104	105	205	450...45000	5
FT050	50	104	130	230	700...70000	6
FT065	65	160	130	230	1200...120000	6
FT080	80	160	155	255	1800...180000	10
FT100	100	200	170	270	2800...280000	15

## FMQ dimensional drawing



## Dimensions: pipe standard OD tube (ASME-BPE) and transmitter type

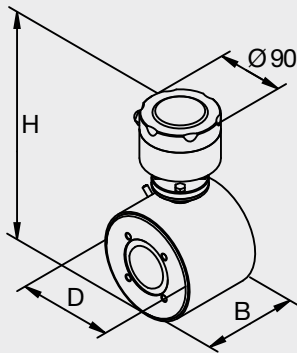
DN pipe	Pipe dimension Da x S	Installation length LE			Transmitter type
		SS	TC as per ASME-BPE (plate size)	SM	
1/2"	12.7 x 1.65	152	170.8 (25)	-	FT010
3/4"	19.05 x 1.65	152	204.6 (25)	-	FT015
1"	25.4 x 1.65	152	202.8 (50)	182	FT025
1½"	38.1 x 1.65	152	202.8 (50)	192	FT040
2"	50.8 x 1.65	152	202.8 (64)	192	FT050
2½"	63.5 x 1.65	208	229.4 (77)	256	FT065
3"	76.2 x 1.65	212	252.6 (91)	260	FT080
4"	101.6 x 2.11	252	299.2 (119)	312	FT100

## Dimensions: pipe standard DIN 11850 Series 2 and transmitter type

DN pipe	Pipe dimension Da x S	Installation length LE							Transmitter type
		SS	TC as per DIN 32676 (plate size)	GG	HH	DF	VN	FG	
10	13 x 1.5	152	200 (34)	200	190	200	200	200	FT010
15	19 x 1.5	152	200 (34)	200	190	200	200	200	FT015
25	29 x 1.5	152	200 (50)	200	204	225	200	200	FT025
32	35 x 1.5	152	200 (50)	200	212	225	200	200	FT032
40	41 x 1.5	152	200 (50)	200	214	225	200	200	FT040
50	53 x 1.5	152	200 (64)	200	214	225	200	200	FT050
65	70 x 2.0	208	256 (91)	256	280	306	256	256	FT065
80	85 x 2.0	212	255 (91)	255	296	305	255	255	FT080
100	104 x 2.0	252	340 (119)	340	352	340	340	340	FT100

## FMQ dimensions and optional process connections for pharma

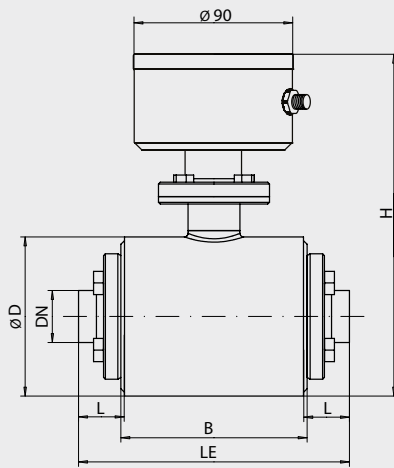
## FMQ dimensional drawing



## Dimensions measurement range and weight: FMQ without process connection

Transmitter type	DN transmitter	B	D	H	Measurement range [l/h]	Sensor weight [kg]
FT010	10	104	90	190	30...3 000	4
FT015	15	104	90	190	70...7 000	4
FT025	25	104	90	190	180...18 000	4
FT032	32	104	105	205	300...30 000	5
FT040	40	104	105	205	450...45 000	5
FT050	50	104	130	230	700...70 000	6
FT065	65	160	130	230	1 200...120 000	6
FT080	80	160	155	255	1 800...180 000	10
FT100	100	200	170	270	2 800...280 000	15

## FMQ dimensional drawing



## Installation length LE for FMQ as per DIN 11866 Series A

DN pipe	Pipe dimension Da x S	Installation length LE		Transmitter type
		SS	Tri-Clamp as per DIN 32676 (plate size)	
10	13 x 1.5	152	200 (34)	FT010
15	19 x 1.5	152	200 (34)	FT015
25	29 x 1.5	152	200 (50)	FT025
32	35 x 1.5	152	200 (50)	FT032
40	41 x 1.5	152	200 (50)	FT040
50	53 x 1.5	152	200 (64)	FT050
65	70 x 2.0	208	256 (91)	FT065
80	85 x 2.0	212	255 (106)	FT080
100	104 x 2.0	252	340 (119)	FT100

## Installation length LE for FMQ as per DIN 11866 Series B

DN pipe	Pipe dimension Da x S	Installation length LE		Transmitter type
		SS	Tri-Clamp as per DIN 32676 (plate size)	
8	13.5 x 1.6	152	200 (25)	FT010
10	17.2 x 1.6	152	200 (25)	FT015
15	21.3 x 1.6	152	200 (50)	FT025
20	26.9 x 1.6	152	200 (50)	
25	33.7 x 2.0	152	200 (50)	FT032
32	42.4 x 2.0	152	200 (64)	FT040
40	48.3 x 2.0	152	200 (64)	FT050
50	60.3 x 2.0	152	200 (77)	
65	76.1 x 2.0	208	256 (91)	FT065
80	88.9 x 2.3	212	255 (106)	FT080
100	114.3 x 2.77	252	340 (119)	FT100

## Installation length LE for FMQ as per DIN 11866 Series C

DN pipe	Pipe dimension Da x S	Installation length LE		Transmitter type
		SS	Tri-Clamp as per ASME-BPE (plate size)	
1/2"	12.7 x 1.65	152	170.8 (25)	FT010
3/4"	19.05 x 1.65	152	204.6 (25)	FT015
1"	25.4 x 1.65	152	202.8 (50)	FT025
1½"	38.1 x 1.65	152	202.8 (50)	FT040
2"	50.8 x 1.65	152	202.8 (64)	FT050
2½"	63.5 x 1.65	208	229.4 (77)	FT065
3"	76.2 x 1.65	212	252.6 (91)	FT080
4"	101.6 x 2.11	252	299.2 (119)	FT100

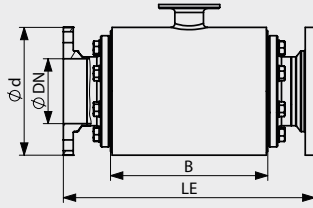
## Note

All dimensions in millimeters [mm].



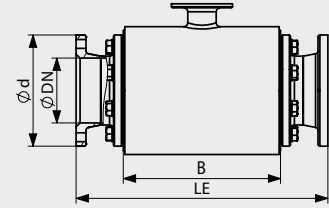
## FG | Hygiene flange, smooth flange

ø DN	DN pipe	ø d	LE
25	25	80	200
40	40	92	200
50	50	108	200
65	65	130	256
80	80	146	255
100	71.5	166	340



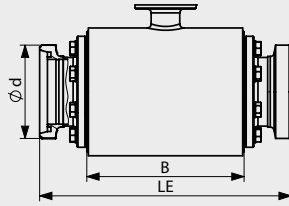
## VN | VARIVENT

ø DN	DN pipe	ø d	LE
25	25	70	200
32	32	76	200
40	40	82	200
50	50	94	200
65	65	113	256
80	80	128	256



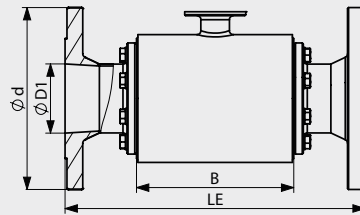
## GG | Milk pipe fitting DIN 11851

ø DN	DN pipe	ø d	LE
10	10	Rd 28 x 1/8"	200
15	15	Rd 34 x 1/8"	200
25	25	Rd 52 x 1/6"	200
32	32	Rd 58 x 1/6"	200
40	40	Rd 65 x 1/6"	200
50	50	Rd 78 x 1/6"	200
65	65	Rd 95 x 1/6"	256
80	80	Rd 110 x 1/4"	256



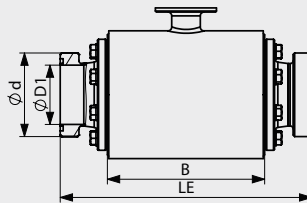
## DF | DIN flange DIN EN 1092-1

ø DN	DN pipe	ø D1	ø d	LE
10	10	13.6	90	200
15	15	17.3	95	200
25	25	28.5	115	225
40	40	43.1	150	225
50	50	54.5	165	225
65	65	70.3	185	306
80	80	82.3	200	305
100	100	107.1	235	340



## SM | SMS threaded connector 1146

ø DN	DN pipe	ø D1	ø d	LE
25	1"	22.5	Rd 40 x 1/6"	182
40	1 1/2"	35.5	Rd 60 x 1/6"	192
50	2"	48.5	Rd 70 x 1/6"	192
65	2 1/2"	60.5	Rd 85 x 1/6"	256
80	3"	73.1	Rd 98 x 1/6"	260
100	4"	97.6	Rd 132 x 1/6"	312



## Note

- All dimensions in millimeters [mm].
- "ø DN" always refers to the pipe diameter of the transmitter.

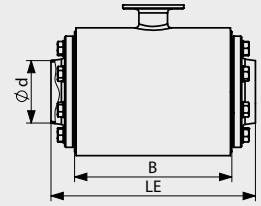


## SS | Weld flange DIN 11853-2

DINA, DIN2			
ø DN	DN pipe	ø d	LE
10	10	13.0	152
15	15	19.0	152
25	25	29.0	152
32	32	35.0	152
40	40	41.0	152
50	50	53.0	152
65	65	70.0	208
80	80	85.0	212
100	100	104.0	252

DINB			
ø DN	DN pipe	ø d	LE
10	08	13.5	152
15	10	17.2	152
25	15	21.3	152
	20	26.9	152
32	25	33.7	152
40	32	42.4	152
50	40	48.3	152
	50	60.3	152
65	65	76.1	208
80	80	88.9	212
100	100	114.3	252

DINC, ASME			
ø DN	DN pipe	ø d	LE
10	1/2"	12.7	152
15	3/4"	19.05	152
25	1"	25.4	152
40	1½"	38.1	152
50	2"	50.8	152
65	2½"	63.5	208
80	3"	76.2	212
100	4"	101.6	252

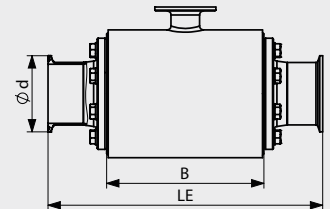


## TC | Tri-Clamp DIN 32676 or ASME-BPE

DINA, DIN2			
ø DN	DN pipe	ø d	LE
10	10	34.0	200
15	15	34.0	200
25	25	50.5	200
32	32	50.5	200
40	40	50.5	200
50	50	64.0	200
65	65	91.0	256
80	80	106.0	256
100	100	119.0	340

DINB			
ø DN	DN pipe	ø d	LE
10	08	25.0	200
15	10	25.0	200
25	20	50.5	200
32	25	50.5	200
40	32	64.0	200
50	40	64.0	200
	50	77.0	200
65	65	91.0	256
80	80	106.0	256
100	100	119.0	340

DINC, ASME			
ø DN	DN pipe	ø d	LE
10	1/2"	12.7	170.8
15	3/4"	19.05	204.6
25	1"	25.4	202.8
40	1½"	38.1	202.8
50	2"	50.8	202.8
65	2½"	63.5	229.4
80	3"	76.2	252.6
100	4"	101.6	299.2

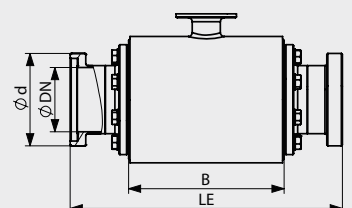


## HH | Aseptic fitting 11853-1

Series A, DIN2			
ø DN	DN pipe	ø d	LE
10	10	Rd 28 x 1/8"	190
15	15	Rd 34 x 1/8"	190
25	25	Rd 52 x 1/6"	204
32	32	Rd 58 x 1/6"	212
40	40	Rd 65 x 1/6"	214
50	50	Rd 78 x 1/6"	214
65	65	Rd 95 x 1/6"	280
80	80	Rd 110 x 1/4"	296
100	100	Rd 130 x 1/4"	352

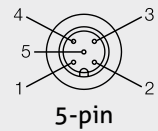
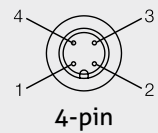
Series B			
ø DN	DN pipe	ø d	LE
10	08	Rd 28 x 1/8"	190
15	10	Rd 34 x 1/8"	190
25	15	Rd 44 x 1/6"	194
	20	Rd 52 x 1/6"	204
32	25	Rd 58 x 1/6"	212
40	32	Rd 65 x 1/6"	214
50	40	Rd 78 x 1/6"	214
	50	Rd 95 x 1/6"	224
65	65	Rd 110 x 1/4"	292
80	80	Rd 130 x 1/4"	312

Series C, ASME			
ø DN	DN pipe	ø d	LE
10	1/2"	Rd 28 x 1/8"	190
15	3/4"	Rd 34 x 1/8"	190
25	1"	Rd 52 x 1/6"	204
40	1½"	Rd 65 x 1/6"	214
50	2"	Rd 78 x 1/6"	214
65	2½"	Rd 95 x 1/6"	280
80	3"	Rd 110 x 1/4"	296
100	4"	Rd 130 x 1/4"	352



M12 Connection / Communication selection	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
X and M12	+24 V DC	4...20 mA	0 V DC	Pulse output	N/A
K	+24 V DC	4...20 mA	0 V DC	C/Q - IO-Link	N/A
M	+24 V DC	4...20 mA	0 V DC	Pulse output	Switch input
L	+24 V DC	4...20 mA	0 V DC	C/Q - IO-Link	Switch input

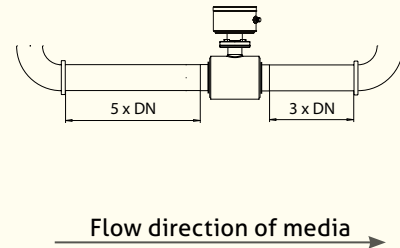
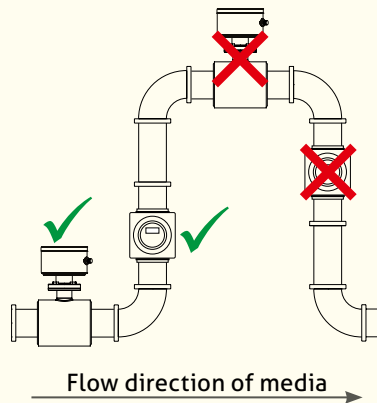
## M12 plug



## Mechanical Connection / Installation



- For installation please check also the installation remarks mentioned in the product manual.
- **Correct installation:**
  - Before or into an ascending pipe.
- **Wrong installation:**
  - Before or into a descending pipe.
  - Into the highest point of a pipe, air bubbles will concentrate there.



## Note on 3-A Sanitary Standard 28-



Information on installation according to 3-A standard is available on our website:  
[www.anderson-negele.com/3A28.pdf](http://www.anderson-negele.com/3A28.pdf)

Click on the PDF icon to download the document.

## Note on IO-Link



Information on parameters and events are available on our website:

[www.anderson-negele.com/iodd](http://www.anderson-negele.com/iodd)

Click on the IO-Link icon to open the website.



**Cleaning/Maintenance**

- When using a pressure washer, do not point the nozzle directly at the electrical connections.

**Standards and guidelines**

- Compliance with the applicable regulations and directives is mandatory.

**Transport/Storage**

- Do not store outside
- Store in an area that is dry and dust-free
- Do not expose to corrosive media
- Protect against solar radiation
- Avoid mechanical shock and vibration
- Storage temperature 0...60 °C / 32...140 °F
- Relative humidity max. 80 %

**Reshipment**

- Sensors and process connection must be clean and must not be contaminated with hazardous media and/or heat-conductive paste. Please note the cleaning notice!
- To avoid damage of the equipment, use suitable transport packaging only.

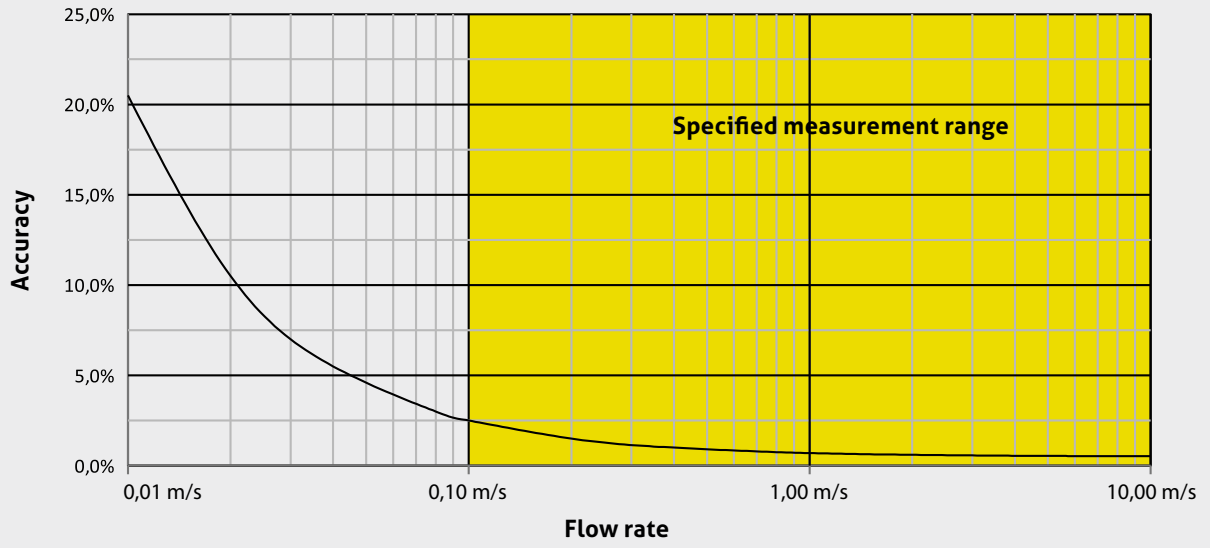
**Notice on CE**

- Applicable directives:  
Electromagnetic Compatibility Directive 2014/30/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.

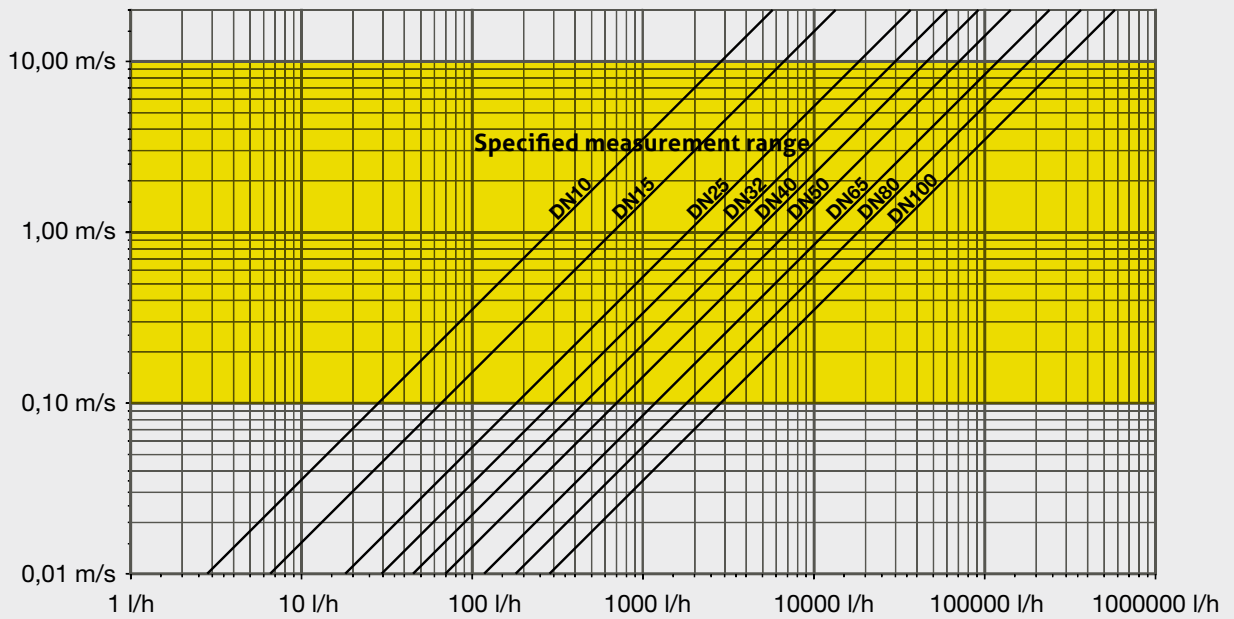
**Disposal**

- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

Measurement accuracy by flow rate



Flow rate nomogram



## Process connection kit for FMQ

**FMQ-FC** Process connection for food applications; material 1.4404 / AISI 316L

**Pipe standard**

**DIN2** DIN 11850 Series 2

**ASME** OD tube as per ASME-BPE

**Transmitter** (fits the specified nominal widths of the process connections as per standard)

DIN2	ASME	
010	1/2"	Suitable for transmitter FT010
015	3/4"	Suitable for transmitter FT015
025	1"	Suitable for transmitter FT025
032	-	Suitable for transmitter FT032
040	1,5"	Suitable for transmitter FT040
050	2"	Suitable for transmitter FT050
065	2,5"	Suitable for transmitter FT065
080	3"	Suitable for transmitter FT080
100	4"	Suitable for transmitter FT100

**Process connection** (Ⓐ: 3-A conform)

**SS** Weld flange Ⓐ

**TC** Tri-Clamp Ⓐ

**HH** aseptic fitting DIN 11864-1 threaded side Ⓐ

**GG** milk pipe fitting DIN 11851

**VN** VARIVENT smooth flange

**FG** FG hygienic flange, smooth flange

**DF** DIN flange as per DIN EN 1092-1 Type 11 Form B, similar to DIN 2623/2633

**SM** SMS threaded connector

**DIN 11850 Series 2**

DIN2	SS	TC	GG	HH	DF	VN	FG
10	x	x	x	x	x		
15	x	x	x	x	x		
25	x	x	x	x	x		x
32	x	x	x	x		x	
40	x	x	x	x	x		x
50	x	x	x	x	x	x	x
65	x	x	x	x	x	x	x
80	x	x	x	x	x	x	x
100	x	x		x	x		x

**OD-Tube (ASME BPE)**

ODT	SS	TC	SM
1/2"	x	x	
3/4"	x	x	
1"	x	x	x
-			
1½"	x	x	x
2"	x	x	x
2½"	x	x	x
3"	x	x	x
4"	x	x	x

x = process connection available for nominal width

**Surface**

**08**  $R_a \leq 0.8 \mu\text{m}$

FMQ-FC / DIN2 / 100 / SS / 08

**Note**

The process connection kit FMQ-FC (food) contains:

- Process connections made of stainless steel (1.4404 / AISI 316L) including the required screws
- Seals EPDM (FDA number 21 CFR 177.2600)



Process connection kit for FMQ

**FMQ-PC** Process connection for pharma applications; material 1.4435 / AISI 316L with material certificates

**Pipe standard**

- DINA** DIN 11866 Series A (pipe dimension as per DIN 11850 Series 2)
- DINB** DIN 11866 Series B (pipe dimension as per DIN EN ISO 1127)
- DINC** DIN 11866 Series C (pipe dimension as per ASME-BPE)

**Transmitter** (fits the specified nominal widths of the process connections as per standard)

DINA	DINB	DINC	
010	008	1/2"	Suitable for transmitter FT010
015	010	3/4"	Suitable for transmitter FT015
025	015	1"	Suitable for transmitter FT025
-	020	-	Suitable for transmitter FT025
032	025	-	Suitable for transmitter FT032
040	032	1,5"	Suitable for transmitter FT040
050	040	2"	Suitable for transmitter FT050
-	050	-	Suitable for transmitter FT050
065	065	2,5"	Suitable for transmitter FT065
080	080	3"	Suitable for transmitter FT080
100	100	4"	Suitable for transmitter FT100

**Process connection** (Ⓐ: 3-A conform)

- SS** Weld flange Ⓐ
- TC** Tri-Clamp Ⓐ

DIN 11866 Series A			DIN 11866 Series B			DIN 11866 Series C		
DINA	SS	TC	DINB	SS	TC	DINC	SS	TC
10	x	x	08	x	x	1/2"	x	x
15	x	x	10	x	x	3/4"	x	x
25	x	x	15	x	x	1"	x	x
32	x	x	25	x	x	-		
40	x	x	32	x	x	1½"	x	x
50	x	x	40	x	x	2"	x	x
65	x	x	50	x	x	2½"	x	x
80	x	x	65	x	x	3"	x	x
100	x	x	80	x	x	4"	x	x

x = process connection available for nominal width

**Surface**

- 08**  $R_a \leq 0.8 \mu\text{m}$
- 04**  $R_a \leq 0.4 \mu\text{m}$

FMQ-PC / DINA / 015 / SS / 04

**Note**



The process connection kit FMQ-PC (pharma) contains:

- Process connection made of stainless steel (1.4435 / AISI 316L) with the associated 3.1 certificate including the required screws
- Seals EPDM (USP Class VI certificate)
- Optional: Surface of the metallic process connections  $R_a \leq 0.4 \mu\text{m}$  electropolished

**Options for process connection FMQ-PC (pharma)**

- RAC / FMQ-PC** Certificate for surface quality of process connections incl. measurement report (1 measuring point)
- DFC / FMQ-PC** Certificate for delta ferrite content of process connections incl. measurement report

## FMQ-R Remote version with transmitter and head electronics

## FMQ-R Remote Magnetic-Inductive Flow Meter

**Interconnect Cable**

<b>1</b>	1 meter length
<b>2</b>	2 meter length
<b>3</b>	3 meter length
<b>4</b>	4 meter length
<b>5</b>	5 meter length
<b>6</b>	6 meter length
<b>7</b>	7 meter length
<b>8</b>	8 meter length
<b>9</b>	9 meter length
<b>10</b>	10 meter length

**Nominal diameter/size**

<b>FT010</b>	Meter tube nominal width DN 10
<b>FT015</b>	Meter tube nominal width DN 15
<b>FT025</b>	Meter tube nominal width DN 25
<b>FT032</b>	Meter tube nominal width DN 32
<b>FT040</b>	Meter tube nominal width DN 40
<b>FT050</b>	Meter tube nominal width DN 50
<b>FT065</b>	Meter tube nominal width DN 65
<b>FT080</b>	Meter tube nominal width DN 80
<b>FT100</b>	Meter tube nominal width DN 100

**Certificate**

<b>S</b>	None
<b>P</b>	3.1 certificates of all wetted parts and factory calibration certificate

**Display / Cap**

<b>L</b>	Optical LED status light
<b>B</b>	Blind stainless steel cap
<b>D</b>	Graphic display

**M12 Connection / Communication**

<b>X</b>	M12 connector, pulse output, 4-pin, plastic
<b>K</b>	M12 connector IO-Link (no pulse output), 4-pin, stainless steel
<b>L</b>	M12 connector IO-Link with switch input (no pulse output), 5-pin, stainless steel
<b>M12</b>	M12 connector without switch input, 4-pin, stainless steel
<b>M</b>	M12 connector with switch input, 5-pin, stainless steel

FMQ-R / 1 / FT010 / S / L / X

## FMQ Compact device with transmitter and head electronics

## FMQ Compact Magnetic-Inductive Flow Meter

## Nominal diameter/size

<b>FT010</b>	Meter tube nominal width DN 10
<b>FT015</b>	Meter tube nominal width DN 15
<b>FT025</b>	Meter tube nominal width DN 25
<b>FT032</b>	Meter tube nominal width DN 32
<b>FT040</b>	Meter tube nominal width DN 40
<b>FT050</b>	Meter tube nominal width DN 50
<b>FT065</b>	Meter tube nominal width DN 65
<b>FT080</b>	Meter tube nominal width DN 80
<b>FT100</b>	Meter tube nominal width DN 100

## Certificate

<b>S</b>	None
<b>P</b>	3.1 certificates of all wetted parts and factory calibration certificate

## Display / Cap

<b>L</b>	Optical LED status light
<b>B</b>	Blind stainless steel cap
<b>D</b>	Graphic display

## M12 Connection / Communication

<b>X</b>	M12 connector, pulse output, 4-pin, plastic
<b>K</b>	M12 connector IO-Link (no pulse output), 4-pin, stainless steel
<b>L</b>	M12 connector IO-Link with switch input (no pulse output), 5-pin, stainless steel
<b>M12</b>	M12 connector without switch input, 4-pin, stainless steel
<b>M</b>	M12 connector with switch input, 5-pin, stainless steel

FMQ / FT010 / S / L / X

## Accessories

## PVC-cable with M12 connection, brass nickel-plated, IP69K, shielded

<b>M12-PVC/5G-8m</b>	5 pin, length 8 m
<b>M12-PVC/5G-15m</b>	5 pin, length 15 m
<b>M12-PVC/5G-30m</b>	5 pin, length 30 m

<b>FMQ display kit</b>	Display module for FMQ for retrofitting incl. connection cable, screws and cover
------------------------	--

## Graphic display



## Options

<b>CERT / 2.2 / FMQ</b>	Factory certificate 2.2 as per EN 10204 (product-contacting only)
<b>RE-CAL / FMQ</b>	Recalibration of a FMQ (standard calibration certificate, 2...3 calibration points 10 %, 50 %, 100 %)