



Magnetic Inductive Flowmeter



measuring
•
monitoring
•
analysing

EPS



- High accuracy:
0.3 % of actual flow
- Maintenance-free
- No pressure drop
- Numerous lining materials
- Numerous electrode materials
- Low-cost grounding electrode instead of earthing rings, also available in special materials e.g. tantalum

SS



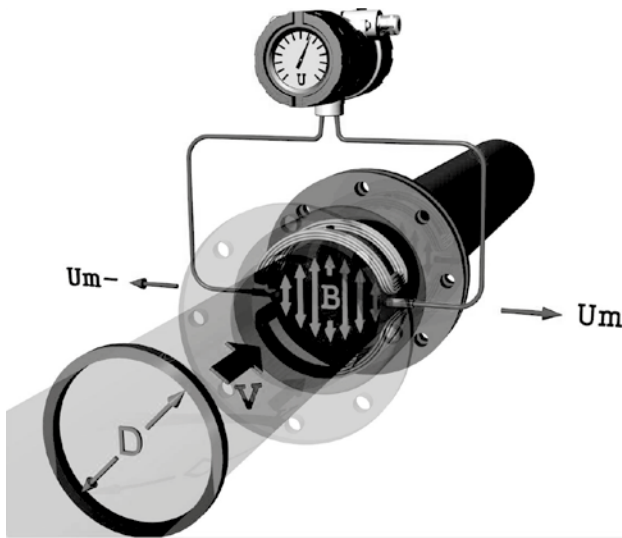
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Function

An electrically conductive medium flowing through an orientated magnetic field in accordance to Faraday's law of induction will induce a voltage proportional to the mean flow velocity rate and hence the volumetric flow. A magnetic inductive flowmeter consists of an isolated lined tube, through which a conductive liquid flows, a magnetic field coil and two electrodes. The electrode voltage is detected by a transmitter and converted into standardised electrical signal such as 4-20 mA or pulses. The sensor EPS can be used in combination with the KOBOLD UMF2 transmitter. The transmitter can be mounted compact or separately to the sensor.



Application

The magnetic-inductive flow sensor EPS is used to measure the volume flow of liquids, slurries, pastes and other electrically conductive media without any pressure drop. Pressure, temperature, density and viscosity do not affect the volume measurements. Solid particles and small gas bubbles should be avoided.

The sensor EPS has the following significant characteristics:

- Wide variety of lining materials
- Electrodes in stainless steel, Hastelloy® C4, tantalum, Platinum
- Large selection of process connections
- Deployable in harsh environments

Technical Details

Sensor EPS

Armature:	painted steel (standard), stainless steel at DIN11851; Tri-Clamp® and ceramic lined 2/3/6/10 mm inside diameter
Nominal sizes:	2/3/6/10 mm inside diameter process connection in DIN-DN10 or ASME ½" EN1092-1/JIS DN15...DN1200-ASME ½" ... 24" (other nominal sizes on request)
Process connection:	flanges of steel or stainless steel 1.4301 (EN1092 and ASME B16.5), food connection DIN 11851, Tri-Clamp® (other connections on request)
Lining material:	hard rubber, soft rubber, PTFE, ceramics, EPDM
Electrode material:	Hastelloy® HC276, C22, stainless steel 1.4571/316 Ti titanium, tantalum and platinum-rhodium (on request)
Grounding ring:	on request
Nominal pressure:	PN40, (40 bar) (580 psi) DN15 ... 300 PN16, (16 bar) (232 psi) DN50 ... 600 PN10, (10 bar) (145 psi) DN200 ... 1200 (higher pressures on request)
Process temperature:	-10 ... +70 °C (14 ... +158 °F) EPDM -20 ... +150 °C (-4 ... +302 °F) PTFE -20 ... +150 °C (-4 ... +302 °F) ceramics (EPDM gasket) -20 ... +130 °C (-4 ... +266 °F) ceramics (PTFE gasket) 0 ... +95 °C (32 ... +203 °F) hard rubber 0 ... +70 °C (+32 ... +158 °F) soft rubber
Ambient temperature:	-20 °C ... +60 °C (-4 ... +140 °F), depending on process temperature
Conductivity:	≥ 5 µS/cm ≥ 20 µS/cm with demineralised water
Measuring ranges:	0.5 m/s ... 10 m/s
Accuracy:	± 0.3% of measured value ± 0.01 % * (Q at 10 m/s) (under reference conditions)
Repeatability:	± 0.15% of measured value ± 0.005 % * (Q at 10 m/s) (under reference conditions)
Protection:	IP67 (EN60529), IP68 on request

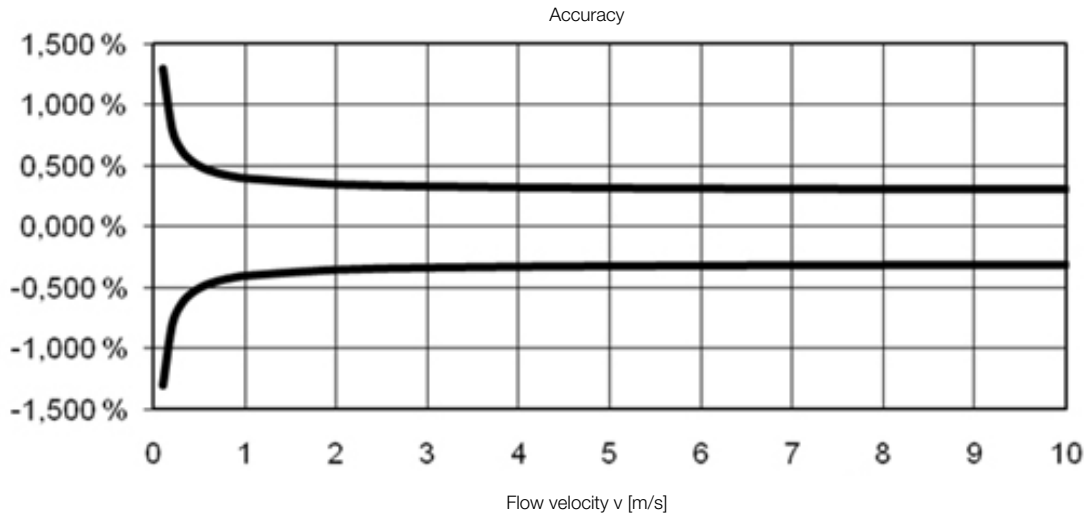


Flow Specific Values

Di	Connection		Litre/sec		m ³ /h	
	DN	ASME	Q _{min}	Q _{max}	Q _{min}	Q _{max}
2	10	½"	0.002	0.031	0.006	0.113
3	10	½"	0.004	0.071	0.013	0.254
6	10	½"	0.014	0.283	0.051	1.018
10	10	½"	0.039	0.785	0.141	2.827
15,3	15	½"	0.092	1.847	0.332	6.648
26	25	1"	0.265	5.309	0.956	19.113
36.8	40	1 ½"	0.532	10.636	1.915	38.290
49.9	50	2"	0.976	19.529	3.515	70.305
64.5	65	2 ½"	1.632	32.649	5.877	117.537
77.5	80	3"	2.357	47.143	8.486	169.713
98.5	100	4"	3.807	76.139	13.705	274.102
124	125	5"	5.993	119.864	21.575	431.509
149	150	6"	8.774	175.480	31.586	631.727
198	200	8"	15.428	308.553	55.540	1110.792
251	250	10"	24.815	496.308	89.335	1786.709
301	300	12"	35.552	711.047	127.988	2559.768
336	350	14"	44.327	886.542	159.578	3191.553
385	400	16"	58.208	1164.156	209.548	4190.963
433	450	18"	73.740	1474.803	265.465	5309.292
486	500	20"	92.627	1852.535	333.456	6669.127
582	600	24"	132.864	2657.286	478.311	9566.228
687	700	28"	185.342	3706.836	667.230	13344.609
789	800	32"	244.463	4889.269	880.068	17601.367
889	900	36"	310.126	6202.513	1116.452	22329.046
991	1000	40"	385.403	7708.058	1387.450	27749.009
1190	1200	44"	556.413	11128.255	2003.086	40061.718
1384	1400	48"	752.198	15043.956	2707.912	54158.242
1584	1600	-	985.304	19706.080	3547.094	70941.887
1777	1800	-	1240.037	24800.746	4464.134	89282.684
1976	2000	-	1533.323	30666.468	5519.964	110399.285

Accuracy

$\pm 0.3\%$ of measured value + $0.0001 * (Q \text{ at } 10 \text{ m/s})$

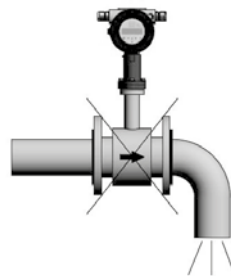


Repeatability

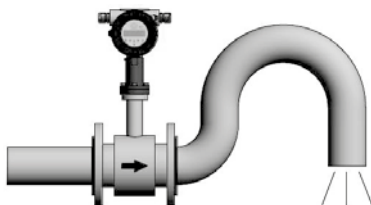
$\pm (0.15\%$ of measured value + $0.00005 * (Q \text{ at } 10 \text{ m/s})$

Installation Conditions

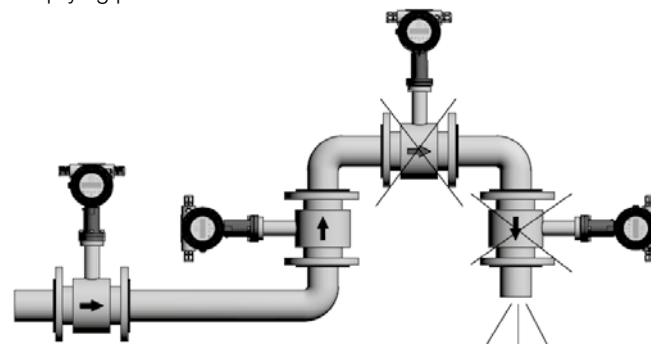
To avoid vacuum, emptying of pipes or gas aggregation please take notice of the following mounting advice.



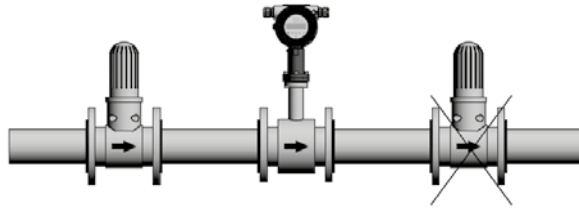
Emptying possible



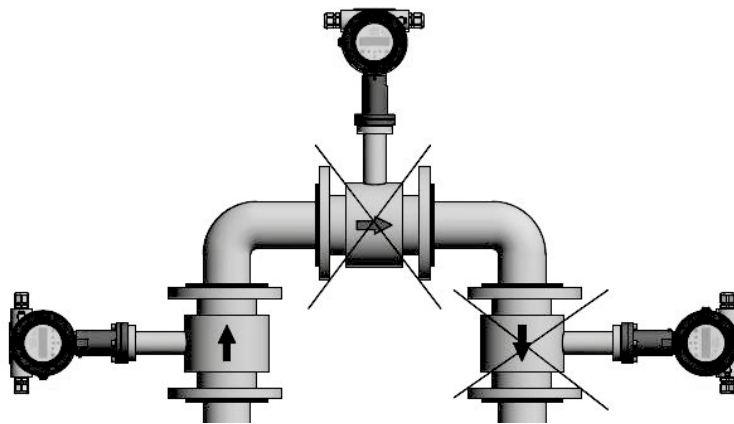
Emptying avoided



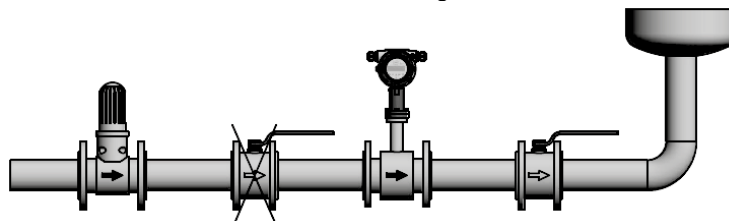
Installation Conditions (continued)



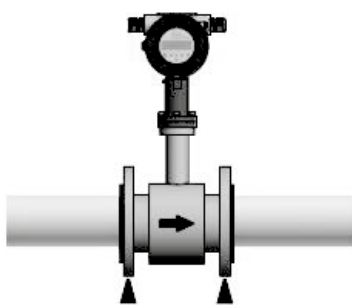
Upstream of pump, vacuum possible



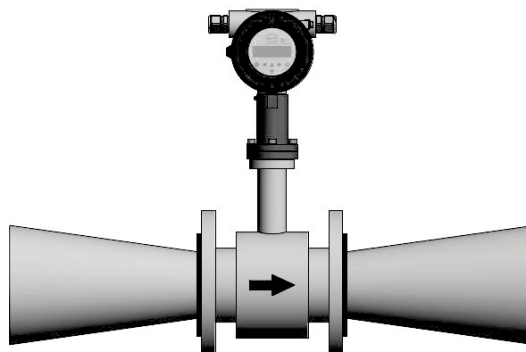
Mount in ascending main



Do not mount downstream of a valve



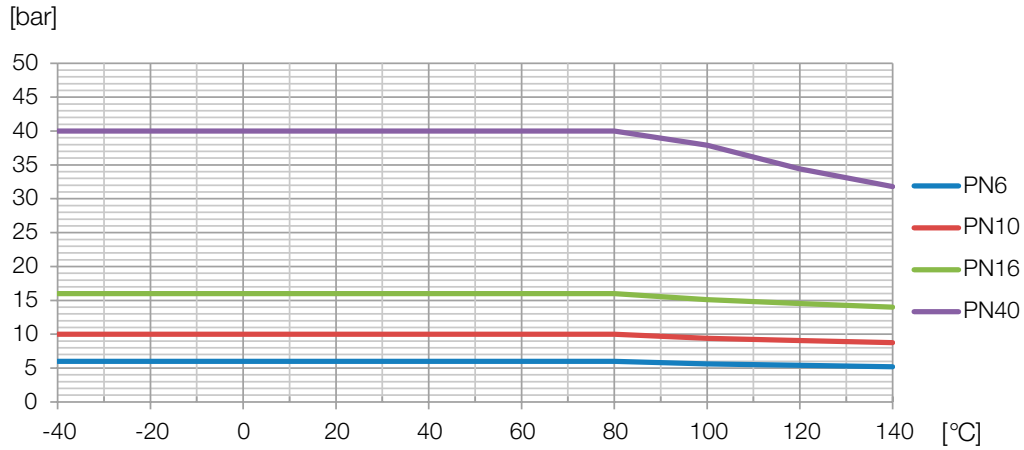
Use support to prevent vibrations



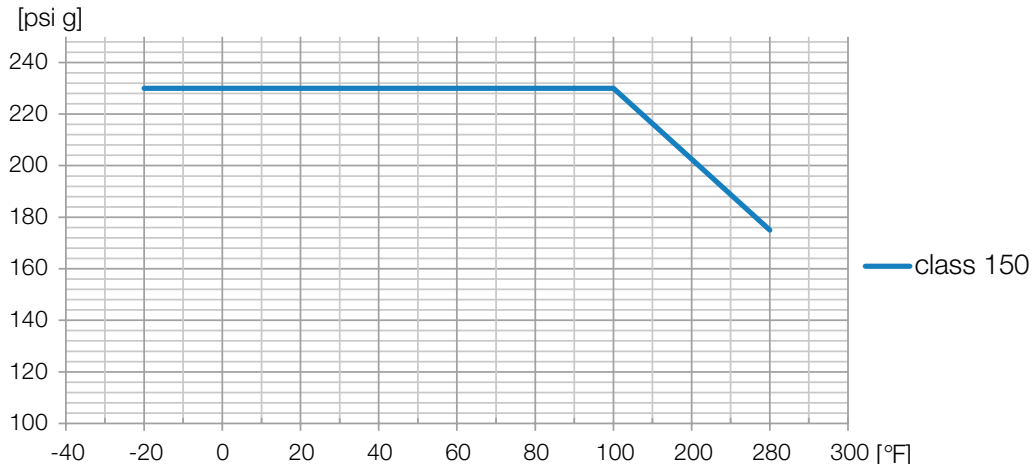
Pipe narrowing with maximum 8° angle



Material Load Curves



For stainless steel flanges (1.4404 / 316L) according to EN1092-1



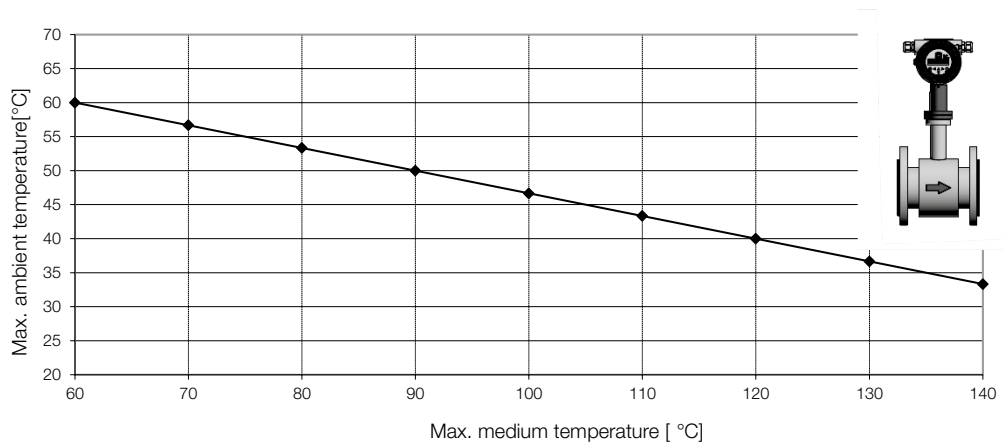
For stainless steel flanges (1.4404 / 316L) according to ASME B16.5

Ambient Conditions

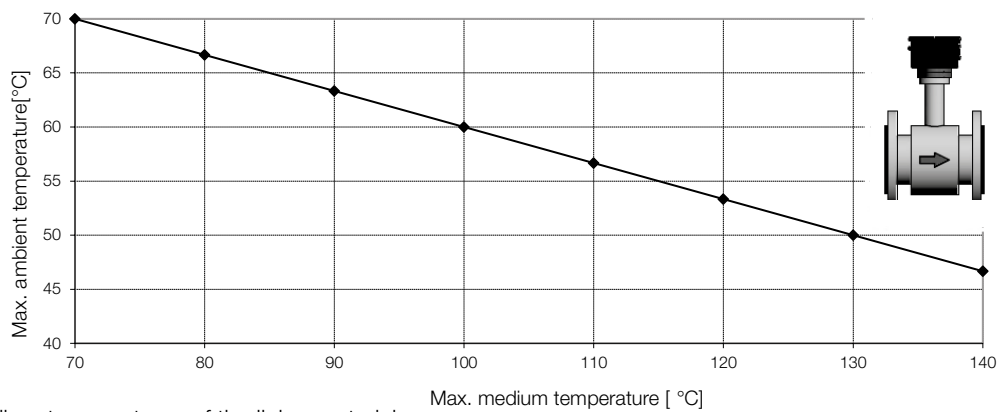
As the sensors are an element of the pipe, these are normally thermally isolated when installed to save energy and prevent accidental physical contact. The heat of the process temperature will be transferred through the supports neck of the compact mounted transmitter or the terminal box. For this

reason the thermal insulation of the sensor should only extend half way up the support of the transmitter. It is essential not to include the transmitter or the terminal box into the thermal insulation. The maximum permissible liquid temperature range is stated on the rating plate of the respective version.

Maximum ambient temperature according to medium temperature with a direct mounted transmitter



Maximum ambient temperature according to medium temperature with a mounted connection box



Apply the medium temperatures of the lining materials.

Technical Details Transmitter

UMF2

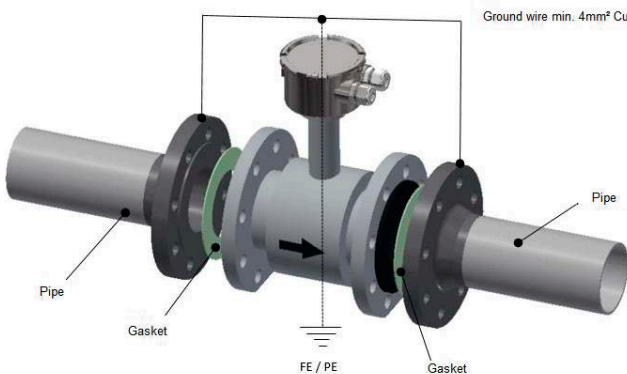


Mounting options: compact or remote
 Housing: die cast aluminium, painted
 Power supply: 115/230 V_{AC} 50/60 Hz, 10 VA
 24 V_{DC} 10 W

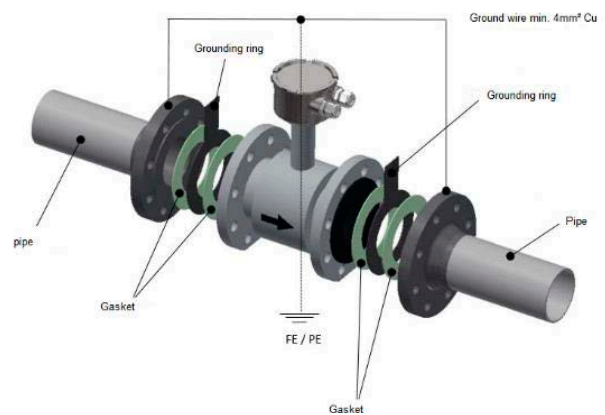
Indication: LCD, 2-lines, 16 digits, background lighted
 Interface language: English, German
 Output:
 Analogue: 1 x 0/4-20 mA HART®, active, galvanically isolated
 Pulse output: passive, galvanically isolated 24 V, 60 mA
 Status: passive, galvanically isolated 24 V, 60 mA
 Ambient temperature: -20 °C ... +60 °C (-4 ... +140 °F), depending on process temperature
 Protection: IP68 (EN60529)
 Communication: HART®
 Diagnostic functions: empty pipe detection, coil current surveillance
 Electromagnetic tolerance: EMC-Directive 2014/30/EU (EMC)

Potential equalisation

The potential equalisation is achieved via the grounding terminal of the junction box.

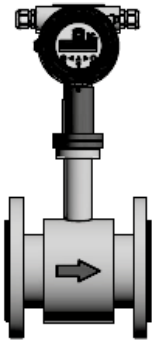


For metallic pipelines we recommend connecting the grounding terminal to the pipe.

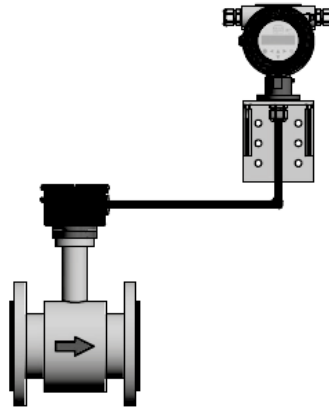


For non-metallic pipelines we recommend connecting the grounding terminal to the grounding discs.

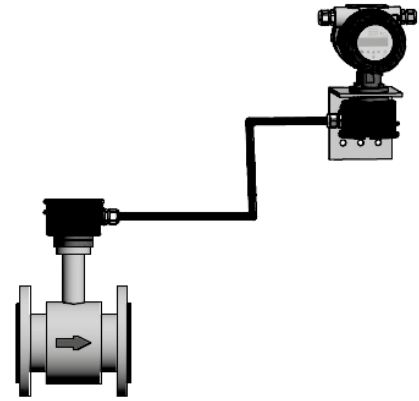
Electrical Connections
Mounting types



Compact IP65 according to DIN/EN 60529
 Dust tight, protected against powerful water jets.



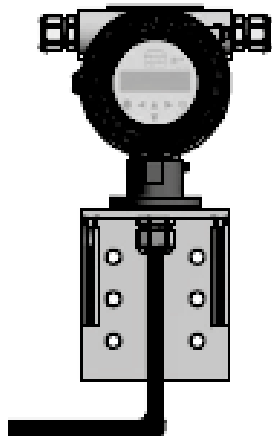
Remote IP65 according to DIN/EN 60529
 Dust tight, protected against powerful water jets.



Remote IP68 according to DIN/EN 60529
 Dust tight, suitable for continuous immersion.

With 2.5 m, 5 m and 10 m factory mounted cable on transmitter.

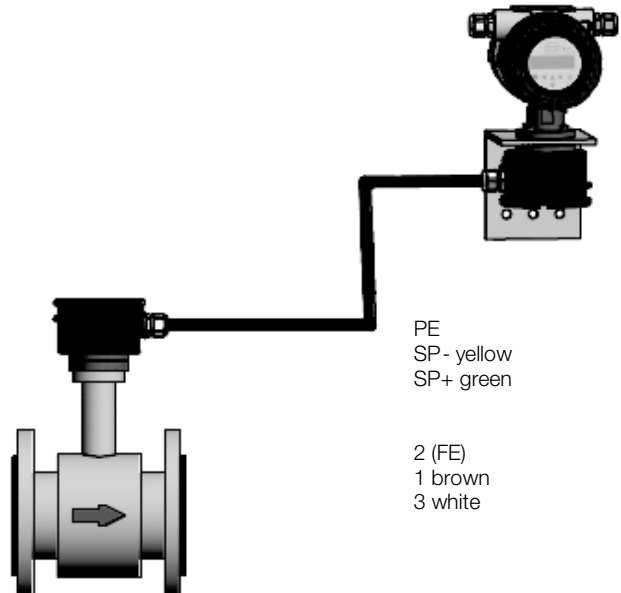
For distances >10 m, factory mounted cable on transmitter, junction box on sensor resin filled.



PE
 SP- yellow
 SP+ green

2 (FE)
 1 brown
 3 white

Remote version up to 10 m cable



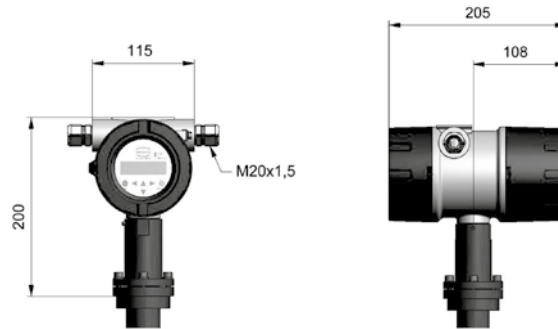
PE
 SP- yellow
 SP+ green

2 (FE)
 1 brown
 3 white

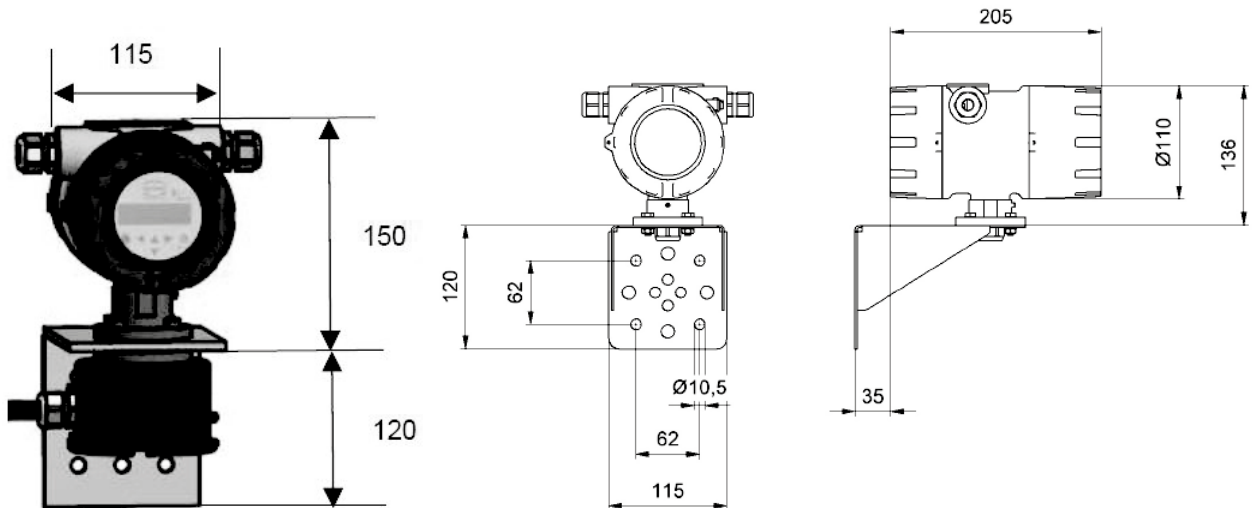
Remote version >10 m cable

Dimensions of the Transmitter UMF2 [mm]

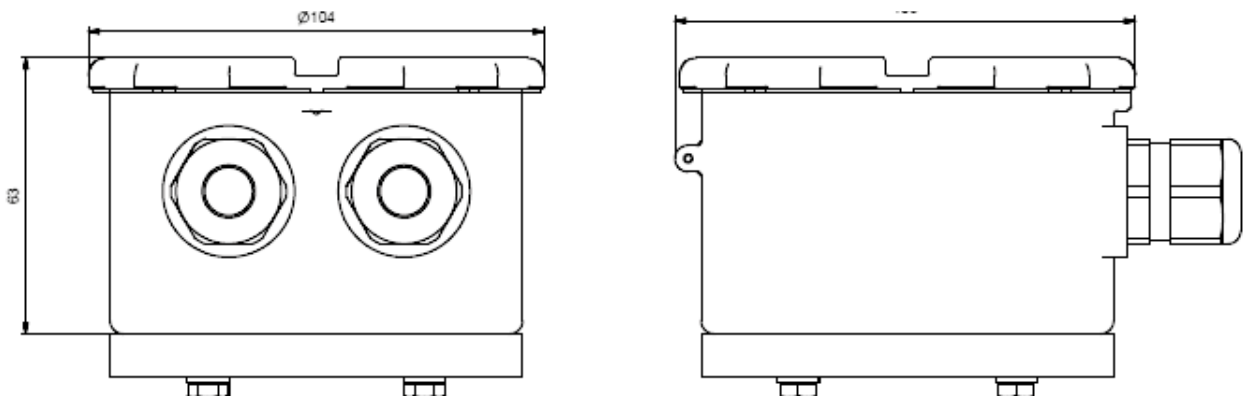
Transmitter compact mounted



Transmitter for remote mounting



Junction box (sensor) for remote mounting

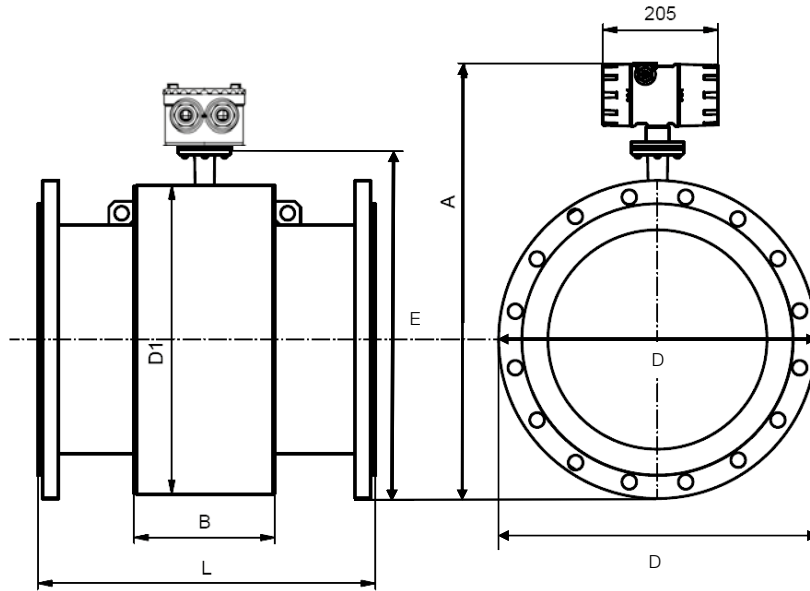




Dimensions [mm]

Sensor EPS

Flange design



Standard pressure level	DN	ASME	D				D1	A'			A						B [mm]	L		Weight/mass [kg]
			ASME		EN 1092-1	EN 1092-1		ASME		with transmitter			with junction box			mm		Inch		
			150 lbs	300 lbs				EN 1092-1	ASME	EN	ASME	EN	ASME	EN	ASME					
			150 lbs	300 lbs	1092-1	150 lbs		300 lbs	1092-1	150 lbs	300 lbs	1092-1	150 lbs	300 lbs	1092-1	150 lbs		300 lbs		
PN40	15	½"	88.9	95.2	90	104	159	159	159	267	267.6	264.4	180.5	181.1	177.9	59	200	7.9	4	
	25	1"	108	124	115	104	164.5	161	169	260	260	260	173.5	173.5	173.5	59	200	7.9	5	
	40	1½"	127	155.4	150	124	192	180.5	194.7	270	270	270	183.5	183.5	183.5	82	200	7.9	8	
	50	2"	152.4	165.1	165	139	207	200.7	207.05	277.5	277.5	277.5	191	191	191	72	200	7.9	9	
PN16 PN10*	65	2½"	177.8	190.5	185	154	224.5	220.9	227.25	285	285	285	198.5	198.5	198.5	72	200	7.9	11	
	80	3"	190.5	209.6	200	174	242	237.25	246.8	295	295	295	208.5	208.5	208.5	72	200	7.9	12	
	100	4"	228.6	254	220	214	272	276.3	289	315	315	315	228.5	228.5	228.5	85	250	9.8	16	
	125	5"	254	279.4	250	239	299.5	301.5	314.2	327.5	327.5	327.5	241	241	241	85	250	9.8	19	
	150	6"	279.4	317.5	285	282	338.5	335.7	354.75	349	349	349	262.5	262.5	262.5	85	300	11.8	27	
	200	8"	342.9	381	340	338	394	395.45	414.5	377	377	377	290.5	290.5	290.5	137	350	13.8	40	
PN 10 PN 16*	250	10"	406.4	444.5	395	393	449	454.7	473.75	404.5	404.5	404.5	318	318	318	157	450	17.7	60	
	300	12"	482.6	520.7	445	444	499.5	518.3	537.35	430	430	430	343.5	343.5	343.5	157	500	19.7	80	
	350	14"	533.4	584.2	505	451	533	547.2	572.6	433.5	433.5	433.5	347	347	347	270	550	21.7	110	
	400	16"	596.9	647.7	565	502	588.5	604.45	629.85	459	459	459	372.5	372.5	372.5	270	600	23.6	125	
	450	18"	635	711.2	615	563	644	654	692.1	489.5	489.5	489.5	403	403	403	310	600	23.6	175	
	500	20"	698	774.7	670	614	697	711	749.35	515	515	515	428.5	428.5	428.5	350	600	23.6	200	
	600	24"	812.8	914.4	780	715	802.5	818.9	869.7	565.5	565.5	565.5	479	479	479	320	600	23.6	287	
	700	-	-	-	880	816	903	-	-	616	-	-	-	529.5	-	-	450	700	27.6	330
	800	-	-	-	1015	927	1026	-	-	671.5	-	-	-	585	-	-	560	800	31.5	450
	900	-	-	-	1115	1032	1128.5	-	-	724	-	-	-	637.5	-	-	630	900	35.4	530
	1000	-	-	-	1230	1136	1238	-	-	776	-	-	-	689.5	-	-	670	1000	39.4	660
	1200	-	-	-	1455	1348	1456.5	-	-	882	-	-	-	795.5	-	-	792	1200	47.2	1180

* Higher pressure on request

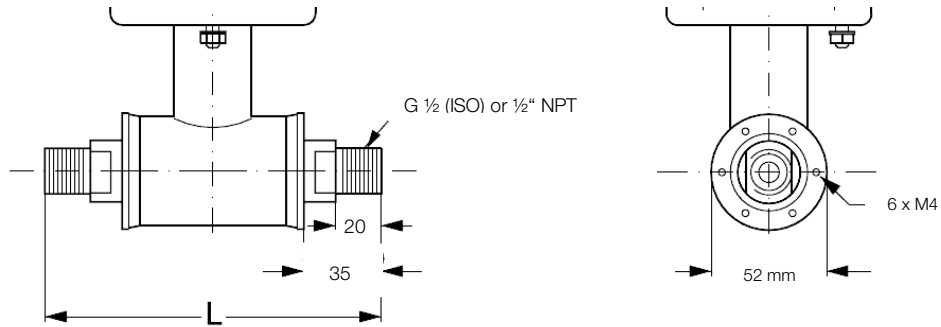
Weights are proximate (for PN16) without transmitter. For transmitter additional weight of 2.4 kg



Magnetic Inductive Flowmeter Model EPS

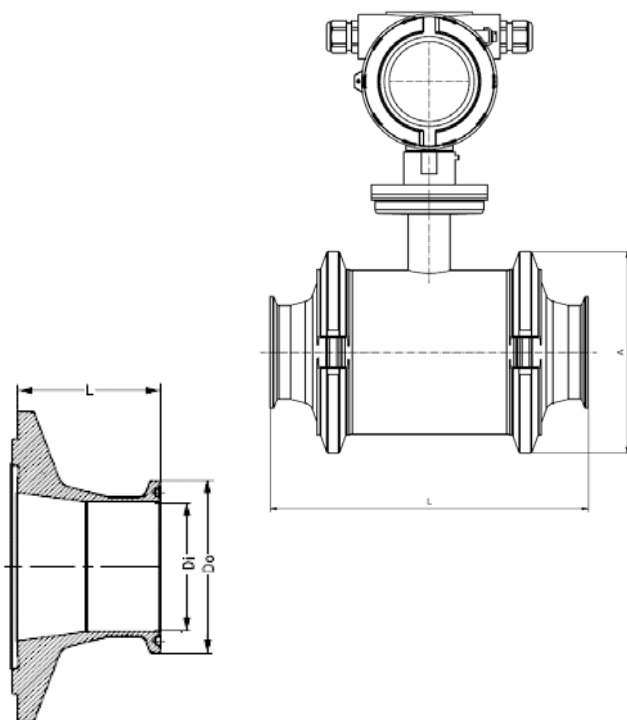
Dimensions [mm]

Wafer-version DN 2, 3, 6, 10 incl. G 1/2 (ISO) or 1/2" NPT connection



DN	L [mm] (w/o gasket)	L [mm] EPDM	L [mm] graphite	L [mm] Teflon
2	150	150	152	156
3				
6				
10				
Size	L [inch] (w/o gasket)	L [inch] EPDM	L [inch] graphite	L [inch] Teflon
1/12	5.9	5.9	6	6.1
1/8				
1/4				
3/8				

EPS Food design is possible in DIN 11850, ISO 2037 (SMS3008), Tri-Clover® (B54825-1)



DN	A [mm]	L* [mm]
10	99	146
15	99	146
25	113	161
40	126	176
50	154	186
65	165	223
80	200	258
100	225	288
Size	A [inch]	L* [inch]
3/8"	3.90	5.75
1/2"	3.90	5.75
1"	4.45	6.34
1 1/2"	4.96	6.93
2"	6.06	7.32
2 1/2"	6.50	8.78
3"	7.87	10.16
4"	8.86	11.34

* Total installation length »L« depends on the connection type used



Order Details

Model code	Description									
Sensor										
EPS-	Material lining	Electrodes	Process temperature		Material lining					
E	EPDM	standard 2x measuring- & 2x grounding electrodes	-10...+70 °C		EPDM	Hard rubber	Soft rubber	PTFE	Ceramics	
H	hard rubber (Ebonit)	standard 2x measuring- & 2x grounding electrodes	0...95 °C							
W	soft rubber	standard 2x measuring- & 2x grounding electrodes	0...70 °C							
P	PTFE	standard 2x measuring electrodes	-20...150 °C							
A	ceramics	standard 2x measuring electrodes	-20...150 °C							
	Process connection	Material lining / electrodes / sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length						
DIN connections										
002E	DN2 G½ (316L)/incl.gasket/EPDM	ceramics/platinum/EPDM	113 l/h	150mm	-	-	-	-	-	✓
003E	DN3 G½ (316L)/incl.gasket/EPDM	ceramics/platinum/EPDM	254 l/h	150 mm	-	-	-	-	-	✓
006E	DN6 G½ (316L)/incl.gasket/EPDM	ceramics/platinum/EPDM	1020 l/h	150 mm	-	-	-	-	-	✓
010E	DN10 G½ (316L)/incl.gasket/EPDM	ceramics/platinum/EPDM	2830 l/h	150 mm	-	-	-	-	-	✓
H02E	DN2 G½ (Hastelloy®)/incl.gasket/PTFE	ceramics/platinum/PTFE	113 l/h	156 mm	-	-	-	-	-	✓
H03E	DN3 G½ (Hastelloy®)/incl.gasket/PTFE	ceramics/platinum/PTFE	254 l/h	156 mm	-	-	-	-	-	✓
H06E	DN6 G½ (Hastelloy®)/incl.gasket/PTFE	ceramics/platinum/PTFE	1020 l/h	156 mm	-	-	-	-	-	✓
H10E	DN10 G½ (Hastelloy®)/incl.gasket/PTFE	ceramics/platinum/PTFE	2830 l/h	156 mm	-	-	-	-	-	✓
DIN flanges										
305B	DN15 PN40 Form B1 DIN EN 1092-1		6.6 m³/h	200 mm	✓	-	-	✓	-	-
309B	DN25 PN40 Form B1 DIN EN 1092-1		19.1 m³/h	200 mm	✓	✓	✓	✓	✓	-
317B	DN40 PN40 Form B1 DIN EN 1092-1		38 m³/h	200 mm	✓	✓	✓	✓	✓	-
320B	DN50 PN16 Form B1 DIN EN 1092-1	only EPDM	70 m³/h	200 mm	✓	-	-	-	-	-
321B	DN50 PN40 Form B1 DIN EN 1092-1		70 m³/h	200 mm	-	✓	✓	✓	✓	-
325B	DN65 PN16 Form B1 DIN EN 1092-1		117 m³/h	200 mm	✓	✓	✓	✓	✓	-
326B	DN65 PN40 Form B1 DIN EN 1092-1		117 m³/h	200 mm	-	✓	✓	✓	-	-
330B	DN80 PN16 Form B1 DIN EN 1092-1		170 m³/h	200 mm	✓	✓	✓	✓	✓	-
331B	DN80 PN40 Form B1 DIN EN 1092-1		170 m³/h	272 mm	-	✓	✓	-	-	-
335B	DN100 PN16 Form B1 DIN EN 1092-1		274 m³/h	250 mm	✓	✓	✓	✓	✓	-
336B	DN100 PN40 Form B1 DIN EN 1092-1		274 m³/h	250 mm	-	✓	✓	✓	-	-
340B	DN125 PN16 Form B1 DIN EN 1092-1		431 m³/h	250 mm	✓	✓	✓	✓	✓	-
341B	DN125 PN40 Form B1 DIN EN 1092-1		431 m³/h	250 mm	-	✓	✓	✓	-	-
345B	DN150 PN16 Form B1 DIN EN 1092-1		632 m³/h	300 mm	✓	✓	✓	✓	✓	-
346B	DN150 PN40 Form B1 DIN EN 1092-1		632 m³/h	300 mm	-	✓	✓	✓	-	-
349B	DN200 PN10 Form B1 DIN EN 1092-1		1110 m³/h	350 mm	✓	✓	✓	✓	✓	-
350B	DN200 PN16 Form B1 DIN EN 1092-1		1110 m³/h	350 mm	✓	✓	✓	✓	✓	-
351B	DN200 PN40 Form B1 DIN EN 1092-1		1110 m³/h	350 mm	-	✓	✓	✓	-	-
355B	DN250 PN10 Form B1 DIN EN 1092-1		1786 m³/h	450 mm	✓	✓	✓	✓	✓	-
356B	DN250 PN16 Form B1 DIN EN 1092-1		1786 m³/h	450 mm	✓	✓	✓	✓	✓	-
358B	DN250 PN40 Form B1 DIN EN 1092-1		1786 m³/h	450 mm	-	✓	✓	✓	-	-
362B	DN300 PN10 Form B1 DIN EN 1092-1		2560 m³/h	500 mm	✓	✓	✓	✓	✓	-
363B	DN300 PN16 Form B1 DIN EN 1092-1		2560 m³/h	500 mm	✓	✓	✓	✓	✓	-
365B	DN300 PN40 Form B1 DIN EN 1092-1		2560 m³/h	550 mm	-	✓	✓	-	-	-
369B	DN350 PN10 Form B1 DIN EN 1092-1		3191 m³/h	550 mm	✓	✓	✓	✓	✓	-
370B	DN350 PN16 Form B1 DIN EN 1092-1		3191 m³/h	550 mm	✓	✓	✓	✓	✓	-
375B	DN400 PN10 Form B1 DIN EN 1092-1		4191 m³/h	600 mm	✓	✓	✓	-	-	-
376B	DN400 PN16 Form B1 DIN EN 1092-1		4191 m³/h	600 mm	✓	✓	✓	-	-	-
3B1B	DN450 PN10 Form B1 DIN EN 1092-1		5309 m³/h	600 mm	✓	✓	✓	-	-	-
3B2B	DN450 PN16 Form B1 DIN EN 1092-1		5309 m³/h	600 mm	✓	✓	✓	-	-	-
380B	DN500 PN10 Form B1 DIN EN 1092-1		6669 m³/h	600 mm	✓	✓	✓	-	-	-
381B	DN500 PN16 Form B1 DIN EN 1092-1		6669 m³/h	600 mm	✓	✓	✓	-	-	-
384B	DN600 PN10 Form B1 DIN EN 1092-1		9566 m³/h	600 mm	✓	✓	✓	-	-	-
385B	DN600 PN16 Form B1 DIN EN 1092-1		9566 m³/h	600 mm	✓	✓	✓	-	-	-
38AB	DN700 PN10 Form B1 DIN EN 1092-1		13344 m³/h	700 mm	✓	✓	✓	-	-	-
389B	DN800 PN6 Form B1 DIN EN 1092-1		17601 m³/h	800 mm	-	✓	✓	-	-	-
390B	DN800 PN10 Form B1 DIN EN 1092-1		17601 m³/h	800 mm	✓	-	-	-	-	-
391B	DN900 PN6 Form B1 DIN EN 1092-1		22329 m³/h	900 mm	-	✓	✓	-	-	-
392B	DN900 PN10 Form B1 DIN EN 1092-1		22329 m³/h	900 mm	✓	-	-	-	-	-
393B	DN1000 PN6 Form B1 DIN EN 1092-1		27749 m³/h	1000 mm	-	✓	✓	-	-	-
394B	DN1000 PN10 Form B1 DIN EN 1092-1		27749 m³/h	1000 mm	✓	-	-	-	-	-



Magnetic Inductive Flowmeter Model EPS

Order Details (continued)

Model code	Process connection	Material lining/electrodes/sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length	Material lining				
					EPDM	Hard rubber	Soft rubber	PTFE	Ceramics
395B	DN1200 PN6 Form B1 DIN EN 1092-1		40061 m³/h	1200 mm	-	✓	✓	-	-
396B	DN1200 PN10 Form B1 DIN EN 1092-1		40061 m³/h	1200 mm	✓	-	-	-	-
ANSI connections									
002A	DN2 ½" NPT(316L)/incl. gasket/EPDM	ceramics/platinum/EPDM	113 l/h	150 mm	-	-	-	-	✓
003A	DN3 ½" NPT(316L)/incl. gasket/EPDM	ceramics/platinum/EPDM	254 l/h	150 mm	-	-	-	-	✓
006A	DN6 ½" NPT(316L)/incl. gasket/EPDM	ceramics/platinum/EPDM	1020 l/h	150 mm	-	-	-	-	✓
010A	DN10 ½" NPT(316L)/incl. gasket/EPDM	ceramics/platinum/EPDM	2830 l/h	150 mm	-	-	-	-	✓
H02A	DN2 ½" NPT(Hastelloy®)/incl. gasket/PTFE	ceramics/platinum/PTFE	113 l/h	156 mm	-	-	-	-	✓
H03A	DN3 ½" NPT(Hastelloy®)/incl. gasket/PTFE	ceramics/platinum/PTFE	254 l/h	156 mm	-	-	-	-	✓
H06A	DN6 ½" NPT(Hastelloy®)/incl. gasket/PTFE	ceramics/platinum/PTFE	1020 l/h	156 mm	-	-	-	-	✓
H10A	DN10 ½" NPT(Hastelloy®)/incl. gasket/PTFE	ceramics/platinum/PTFE	2830 l/h	156 mm	-	-	-	-	✓
ANSI flanges									
201R	½" Class 150 RF ASME B16.5-2003		6.6 m³/h	200 mm	✓	-	-	✓	-
221R	½" Class 300 RF ASME B16.5-2003		6.6 m³/h	200 mm	-	-	-	-	-
203R	1" Class 150 RF ASME B16.5-2003		19.1 m³/h	200 mm	✓	✓	✓	✓	-
223R	1" Class 300 RF ASME B16.5-2003		19.1 m³/h	200 mm	-	✓	✓	-	-
205R	1½" Class 150 RF ASME B16.5-2003		38 m³/h	200 mm	✓	✓	✓	✓	-
225R	1½" Class 300 RF ASME B16.5-2003		38 m³/h	200 mm	-	✓	✓	-	-
206R	2" Class 150 RF ASME B16.5-2003		70 m³/h	200 mm	✓	✓	✓	✓	-
226R	2" Class 300 RF ASME B16.5-2003		70 m³/h	200 mm	-	✓	✓	-	-
207R	2½" Class 150 RF ASME B16.5-2003		117 m³/h	200 mm	✓	✓	✓	✓	-
227R	2½" Class 300 RF ASME B16.5-2003		117 m³/h	272 mm	-	✓	✓	-	-
208R	3" Class 150 RF ASME B16.5-2003		170 m³/h	272 mm	✓	✓	✓	✓	-
228R	3" Class 300 RF ASME B16.5-2003		170 m³/h	272 mm	-	✓	✓	-	-
210R	4" Class 150 RF ASME B16.5-2003		274 m³/h	250 mm	✓	✓	✓	✓	-
230R	4" Class 300 RF ASME B16.5-2003		274 m³/h	310 mm	-	✓	✓	-	-
211R	5" Class 150 RF ASME B16.5-2003		431 m³/h	250 mm	✓	✓	✓	✓	-
231R	5" Class 300 RF ASME B16.5-2003		431 m³/h	335 mm	-	✓	✓	-	-
212R	6" Class 150 RF ASME B16.5-2003		632 m³/h	300 mm	✓	✓	✓	✓	-
232R	6" Class 300 RF ASME B16.5-2003		632 m³/h	300 mm	-	✓	✓	-	-
213R	8" Class 150 RF ASME B16.5-2003		1110 m³/h	350 mm	✓	✓	✓	✓	-
233R	8" Class 300 RF ASME B16.5-2003		1110 m³/h	350 mm	-	✓	✓	-	-
214R	10" Class 150 RF ASME B16.5-2003		1786 m³/h	450 mm	✓	✓	✓	✓	-
234R	10" Class 300 RF ASME B16.5-2003		1786 m³/h	450 mm	-	✓	✓	-	-
215R	12" Class 150 RF ASME B16.5-2003		2560 m³/h	500 mm	✓	✓	✓	✓	-
235R	12" Class 300 RF ASME B16.5-2003		2560 m³/h	500 mm	-	✓	✓	-	-
216R	14" Class 150 RF ASME B16.5-2003		3191 m³/h	550 mm	✓	✓	✓	-	-
236R	14" Class 300 RF ASME B16.5-2003		3191 m³/h	550 mm	-	✓	✓	-	-
217R	16" Class 150 RF ASME B16.5-2003		4191 m³/h	600 mm	✓	✓	✓	-	-
237R	16" Class 300 RF ASME B16.5-2003		4191 m³/h	600 mm	-	✓	✓	-	-
218R	18" Class 150 RF ASME B16.5-2003		5309 m³/h	600 mm	✓	✓	✓	-	-
238R	18" Class 300 RF ASME B16.5-2003		5309 m³/h	640 mm	-	✓	✓	-	-
219R	20" Class 150 RF ASME B16.5-2003		6669 m³/h	600 mm	✓	✓	✓	-	-
239R	20" Class 300 RF ASME B16.5-2003		6669 m³/h	730 mm	-	✓	✓	-	-
220R	24" Class 150 RF ASME B16.5-2003		9566 m³/h	600 mm	✓	✓	✓	-	-
240R	24" Class 300 RF ASME B16.5-2003		9566 m³/h	860 mm	-	✓	✓	-	-
2A1R	28" Class 150 RF ASME B16.5-2004		13344 m³/h	800 mm	-	-	-	-	-
2A2R	30" Class 150 RF ASME B16.5-2005		15904 m³/h	900 mm	-	-	-	-	-
2A3R	32" Class 150 RF ASME B16.5-2006		17601 m³/h	900 mm	-	-	-	-	-
2A4R	36" Class 150 RF ASME B16.5-2007		22329 m³/h	1100 mm	-	-	-	-	-
2A5R	40" Class 150 RF ASME B16.5-2008		27749 m³/h	1100 mm	-	-	-	-	-
2A6R	48" Class 150 RF ASME B16.5-2010		54158 m³/h	1400 mm	-	-	-	-	-



Order Details (continued)

Model code	Process connection	Material lining/electrodes/sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length	Material lining				
					EPDM	Hard rubber	Soft rubber	PTFE	Ceramics
JIS flanges									
416R	1" JIS K10		17.6 m³/h	200 mm	-	-	-	-	-
418R	1" JIS K20		17.6 m³/h	200 mm	-	✓	✓	-	-
426R	1½" JIS K10		45 m³/h	200 mm	-	✓	✓	-	-
428R	1½" JIS K20		45 m³/h	240 mm	-	✓	✓	-	-
431R	2" JIS K10		70 m³/h	200 mm	-	✓	✓	-	-
433R	2" JIS K20		70 m³/h	240 mm	-	✓	✓	-	-
436R	2½" JIS K10		119 m³/h	200 mm	-	✓	✓	-	-
438R	2½" JIS K20		119 m³/h	272 mm	-	✓	✓	-	-
441R	3" JIS K10		180 m³/h	200 mm	-	✓	✓	-	-
443R	3" JIS K20		180 m³/h	272 mm	-	✓	✓	-	-
446R	4" JIS K10		282 m³/h	250 mm	-	✓	✓	-	-
448R	4" JIS K20		282 m³/h	310 mm	-	✓	✓	-	-
451R	5" JIS K10		441 m³/h	250 mm	-	✓	✓	-	-
453R	5" JIS K20		441 m³/h	335 mm	-	✓	✓	-	-
456R	6" JIS K10		636 m³/h	300 mm	-	✓	✓	-	-
458R	6" JIS K20		636 m³/h	300 mm	-	✓	✓	-	-
461R	8" JIS K10		1130 m³/h	350 mm	-	✓	✓	-	-
463R	8" JIS K20		1130 m³/h	350 mm	-	✓	✓	-	-
466R	10" JIS K10		1767 m³/h	450 mm	-	✓	✓	-	-
468R	10" JIS K20		1767 m³/h	450 mm	-	✓	✓	-	-
471R	12" JIS K10		2544 m³/h	500 mm	-	✓	✓	-	-
473R	12" JIS K20		2544 m³/h	500 mm	-	✓	✓	-	-
476R	14" JIS K10		3463 m³/h	550 mm	-	✓	✓	-	-
478R	14" JIS K20		3463 m³/h	550 mm	-	✓	✓	-	-
481R	16" JIS K10		4523 m³/h	600 mm	-	✓	✓	-	-
483R	16" JIS K20		4523 m³/h	600 mm	-	✓	✓	-	-
486R	18" JIS K10		5725 m³/h	600 mm	-	✓	✓	-	-
488R	18" JIS K20		5725 m³/h	640 mm	-	✓	✓	-	-
491R	20" JIS K10		7068 m³/h	600 mm	-	✓	✓	-	-
493R	20" JIS K20		7068 m³/h	680 mm	-	✓	✓	-	-
496R	24" JIS K10		10178 m³/h	600 mm	-	✓	✓	-	-
498R	24" JIS K20		10178 m³/h	800 mm	-	✓	✓	-	-
Food design									
7000	DN15 Tri-Clamp®-connection	ceramics/platinum	6.6 m³/h	144	-	-	-	-	✓
7010	DN25 Tri-Clamp®-connection	ceramics/platinum	19.1 m³/h	159	-	-	-	-	✓
7020	DN40 Tri-Clamp®-connection	ceramics/platinum	38 m³/h	174	-	-	-	-	✓
7030	DN50 Tri-Clamp®-connection	ceramics/platinum	70 m³/h	184	-	-	-	-	✓
7040	DN65 Tri-Clamp®-connection	ceramics/platinum	117 m³/h	221	-	-	-	-	✓
7050	DN80 Tri-Clamp®-connection	ceramics/platinum	170 m³/h	256	-	-	-	-	✓
7060	DN100 Tri-Clamp®-connection	ceramics/platinum	274 m³/h	286	-	-	-	-	✓
6610	DN 15 sanitary connection DIN11851	ceramics/platinum	6.6 m³/h	144	-	-	-	-	✓
6630	DN 25 sanitary connection DIN11851	ceramics/platinum	19.1 m³/h	159	-	-	-	-	✓
6650	DN 40 sanitary connection DIN11851	ceramics/platinum	38 m³/h	174	-	-	-	-	✓
6660	DN 50 sanitary connection DIN11851	ceramics/platinum	70 m³/h	184	-	-	-	-	✓
6670	DN 65 sanitary connection DIN11851	ceramics/platinum	117 m³/h	221	-	-	-	-	✓
6680	DN 80 sanitary connection DIN11851	ceramics/platinum	170 m³/h	256	-	-	-	-	✓
6690	DN100 sanitary connection DIN11851	ceramics/platinum	274 m³/h	286	-	-	-	-	✓
XXXX	special on request		xx	xx	on request				
	Material process connection								
1	flange steel painted				✓	✓	✓	✓	-



Order Details (continued)

Model code	Process connection	Material lining/electrodes/sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length	Material lining				
					EPDM	Hard rubber	Soft rubber	PTFE	Ceramics
2	flange stainless steel 1.4301 (DN2...10 in 1.4404)				see add-on prices stainless steel flanges				
X	special on request				on request				
	Material electrodes								
S	stainless steel 1.4571 (316 TI)				-	✓	✓	-	-
H	Hastelloy® C276				✓	✓	✓	✓	-
T	tantalum				-	-	✓	on requ.	-
N	platinum/iridium				-	-	✓	on requ.	✓
M	titanium				-	✓	-	on requ.	-
X	special on request				on request				
	Earthing electrode								
0	w/o				-	-	-	✓	-
S	stainless steel 1.4571 (316 TI)				-	✓	✓	-	-
H	Hastelloy®				✓	✓	✓	-	-
T	tantalum				-	-	✓	-	-
N	platinum				-	-	✓	-	-
M	titanium				-	✓	-	-	-
X	special on request				on request				
	Transmitter mounting	Protection							
1	integrated transmitter	IP 67						✓	
2	remote transmitter	IP 67 terminal connection box via M20x1.5	cabel >10 m add junction box at transmitter					✓	
3	remote transmitter	IP 68, term. connection box via M20x1.5, encapsulated	add junction box at transmitter					✓	
	Certificates								
0	w/o							✓	
1	Certificate of compliance with order 2.1							✓	
2	Test report 2.2							✓	
B	Inspection / material certificate 3.1 DIN/EN 10204:2008							✓	
C	Inspection / material certificate 3.2 DIN/EN 10204:2008							✓	



Order Details (continued)

Model code	Description		
Transmitter			
UMF2-	Mounting	Connection to sensor	Thread-electrical connection
IP 67			
A	integrated transmitter IP 67 standard		½" NPT (f)
B	integrated transmitter IP 67 standard		M20x1.5
C	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	cable >10 m add junction box at transmitter
D	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	
IP 68			
G	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	transmitter c/w term.conn. box
H	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	transmitter c/w term.conn. box
Display and control unit			
1	integrated		
Power supply			
1	230 V _{AC} (+10%, -15%), 50/60 Hz		
2	115 V _{AC} (+10%, -15%), 50/60 Hz		
4	24 V _{DC} (±15%)		
Output signal			
F0BK	current output: 1x0/4-20 mA pulse output: passive U _m =24 V _{DC} status output: passive U _m =24 V _{DC}		
G0BK	current output: 1x0/4-20 mA c/w HART® protocol pulse output: passive U _m =24 V _{DC} status output: passive U _m =24 V _{DC}		
Options			
Longer cable			
IP 67			
0	2.5 m standard on remote version	breakout cable	
1	5 m	breakout cable	
2	10 m	breakout cable	
3	15 m	add junction box to transmitter	
4	20 m	add junction box to transmitter	
5	30 m	add junction box to transmitter	
6	40 m	add junction box to transmitter	
7	50 m	add junction box to transmitter	
IP 68			
A	2.5 m standard on remote version	add junction box to transmitter	
B	5 m	add junction box to transmitter	
C	10 m	add junction box to transmitter	
D	15 m	add junction box to transmitter	
E	20 m	add junction box to transmitter	
F	30 m	add junction box to transmitter	
G	40 m	add junction box to transmitter	
H	50 m	add junction box to transmitter	
X	special on request		