



## Magnetic Inductive Flow Meter



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



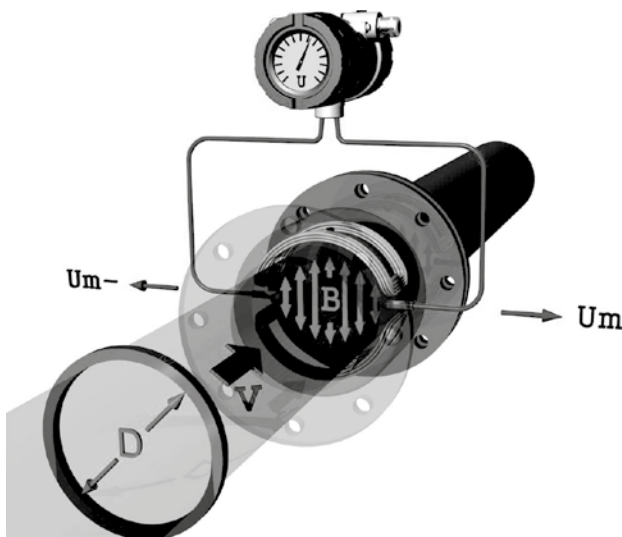
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### Function

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 flow meter 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® C276, 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 1/2" EN1092-1/JIS DN15... DN1200-ASME 1/2" ... 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® C276, stainless steel 1.4571/316 Ti titanium, tantalum and platinum-rhodium
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 (EPDM gasket) -20 ... +130 °C (-4 ... +266 °F) PTFE (PTFE gasket) -20 ... +150 °C (-4 ... +302 °F) ceramics 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

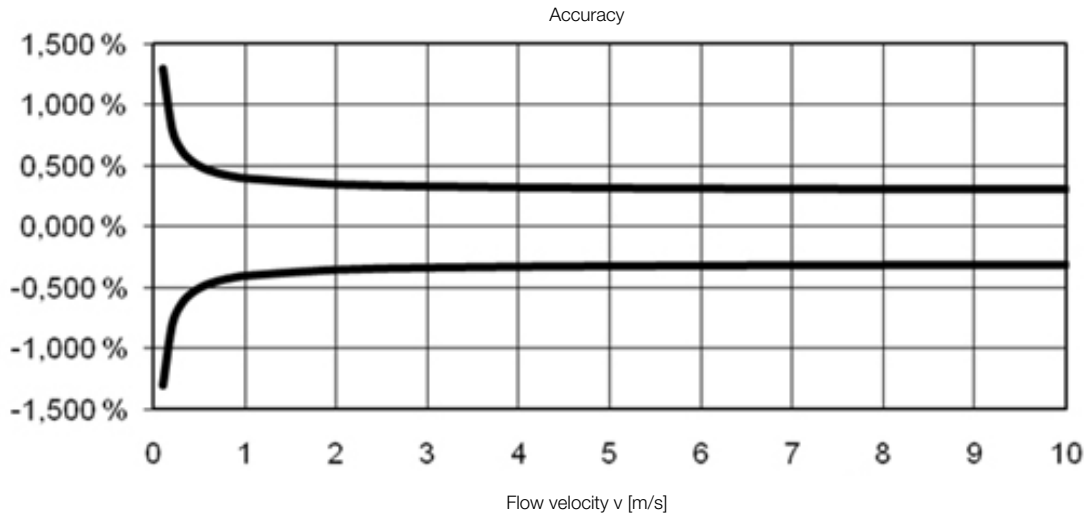


**Flow Specific Values**

Di	Connection		Litres/sec		m <sup>3</sup> /h	
	DN	ASME	Q <sub>min</sub>	Q <sub>max</sub>	Q <sub>min</sub>	Q <sub>max</sub>
2	10	½"	0.0008	0.0314	0.003	0.113
3	10	½"	0.0018	0.0707	0.006	0.254
6	10	½"	0.0071	0.2827	0.025	1.02
10	10	½"	0.0196	0.7854	0.071	2.83
15	15	½"	0.0442	1.767	0.159	6.36
25	25	1"	0.1227	4.909	0.442	17.67
40	40	1 ½"	0.3142	12.57	1.13	45.24
50	50	2"	0.4909	19.63	1.77	70.69
65	65	2 ½"	0.8296	33.18	2.99	119.5
80	80	3"	1.257	50.27	4.52	181.0
100	100	4"	1.963	78.54	7.07	282.7
125	125	5"	3.068	122.7	11.04	441.8
150	150	6"	4.418	176.7	15.90	636.2
200	200	8"	7.854	314.2	28.27	1131
250	250	10"	12.27	490.9	44.18	1767
300	300	12"	17.67	706.9	63.62	2545
350	350	14"	24.05	962.1	86.59	3464
400	400	16"	31.42	1257	113.1	4524
450	450	18"	39.76	1590	143.1	5726
500	500	20"	49.09	1963	176.7	7069
600	600	24"	70.69	2827	254.5	10179
700	700	28"	96.21	3848	346.4	13854
800	800	32"	125.7	5027	452.4	18096
900	900	36"	159.0	6362	572.6	22902
1000	1000	40"	196.3	7854	706.9	28274
1200	1200	44"	282.7	11310	1018	40715
1400	1400	48"	384.8	15394	1385	55418
1600	1600	-	502.7	20106	1810	72382
1800	1800	-	636.2	25447	2290	91609
2000	2000	-	785.4	31416	2827	113097

**Accuracy**

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

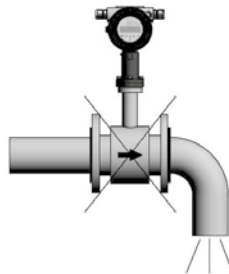


**Repeatability**

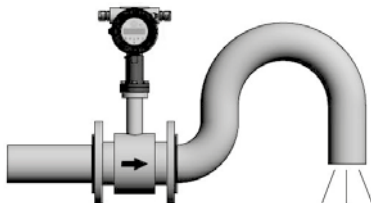
$\pm (0.15\%$  of measured value +  $0.00005 * (Q \text{ at } 10 \text{ m/s}))$

**Installation Conditions**

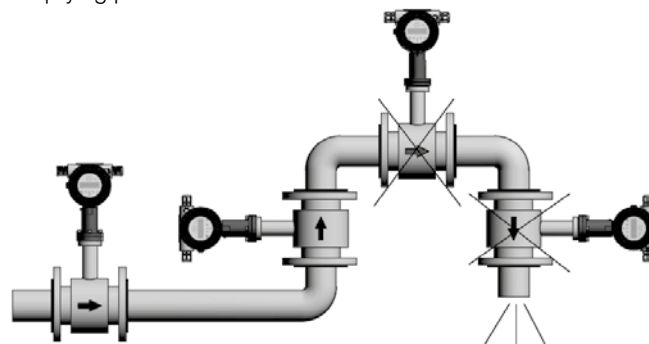
To avoid vacuum, emptying of pipes or gas aggregation please take notice of the following mounting advice.



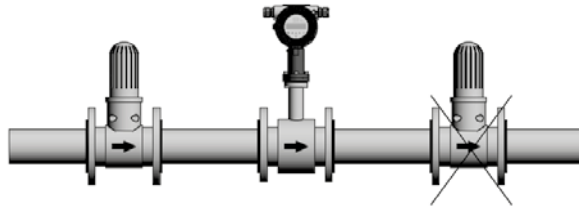
Emptying possible



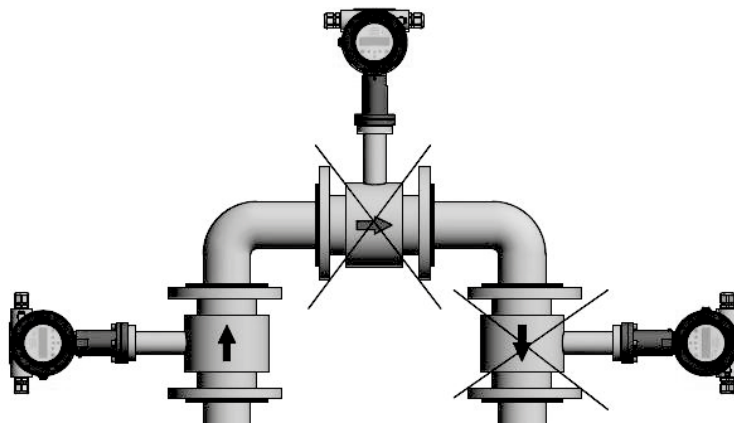
Emptying avoided



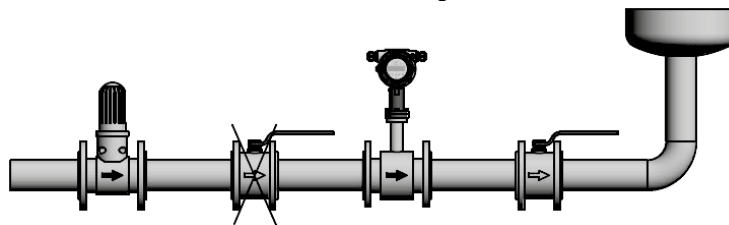
Installation Conditions (continued)



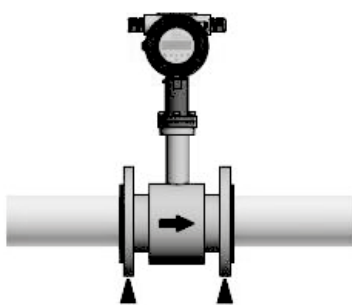
Upstream of pump, vacuum possible



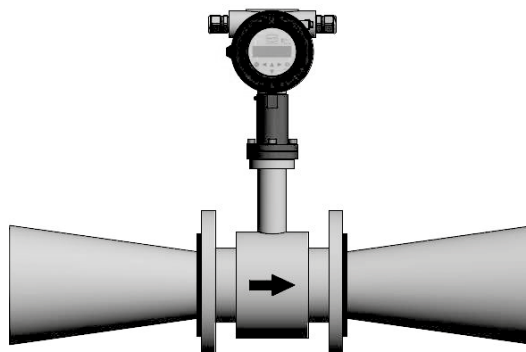
Mount in ascending main



Do not mount downstream of a valve



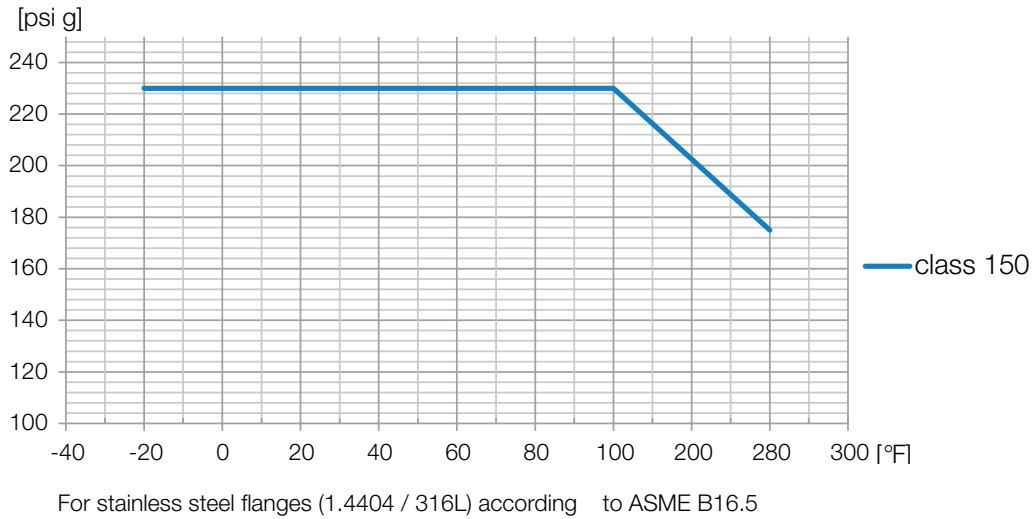
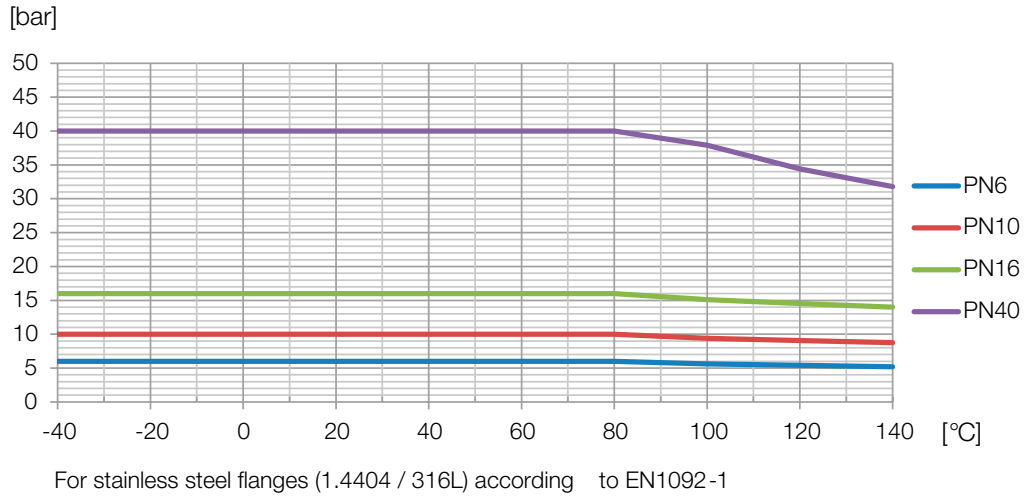
Use support to prevent vibrations



Pipe narrowing with maximum 8° angle



### Material Load Curves

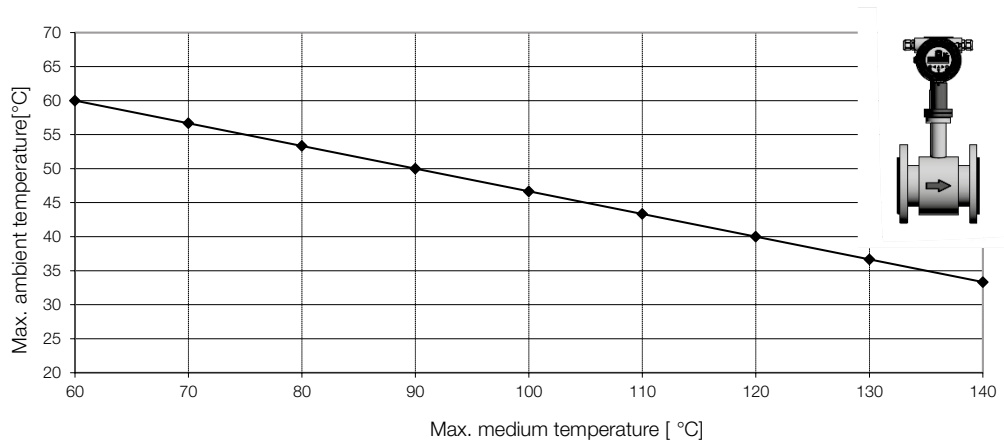


**Ambient Conditions**

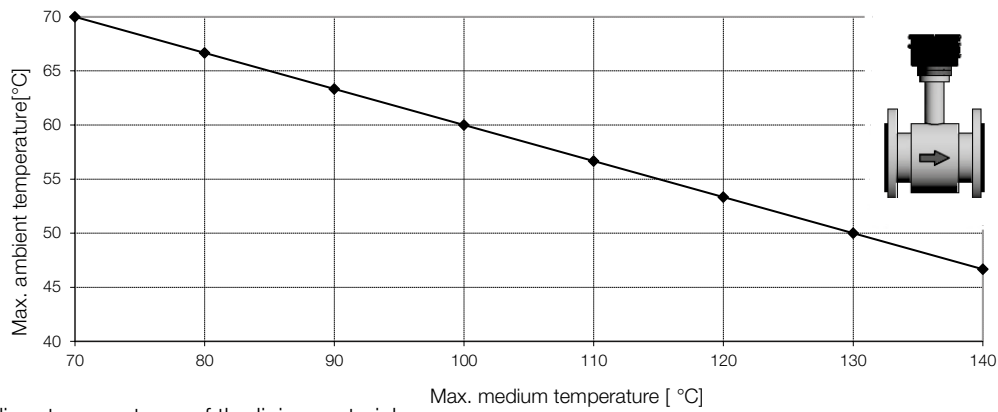
As the sensors are an element of the pipe, these are normally thermally isolated when installed to save energy and prevent accidental physical contact. The heat of the process temperature will be transferred through the supports neck of the compact mounted transmitter or the terminal box. For this

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**

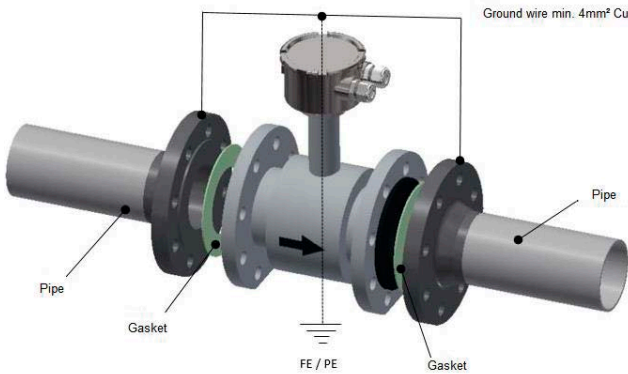


Mounting options: compact or remote  
 Housing: die cast aluminium, painted  
 Power supply: 115/230 V<sub>AC</sub> 50/60 Hz, 10 VA  
 24 V<sub>DC</sub> 10 W

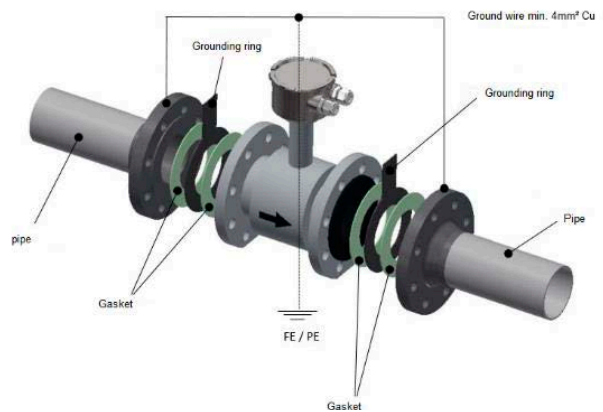
Indication: LCD, 2-lines, 16 digits, background lighted  
 Interface language: English, German  
 Output:  
     Analogue: 1 x 0/4-20 mA, active, galvanically isolated  
     Pulse output: passive, galvanically isolated 24 V, 60 mA  
     Status: passive, galvanically isolated 24 V, 60 mA  
 Ambient 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.



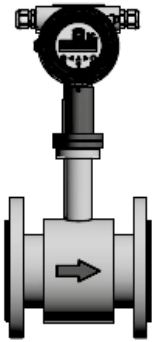
For metallic pipelines we recommend connecting the grounding terminal to the pipe.



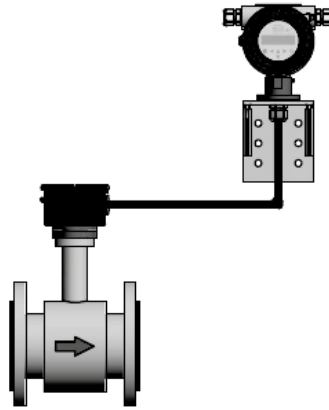
For non-metallic pipelines we recommend connecting the grounding terminal to the grounding discs.



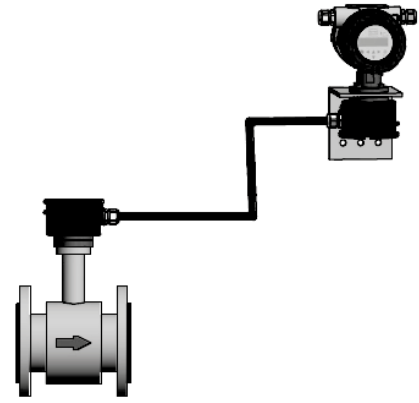
**Electrical Connections**  
**Mounting types**



Compact IP 67 according to  
 DIN/EN 60529  
 Dust tight, short time submersible.



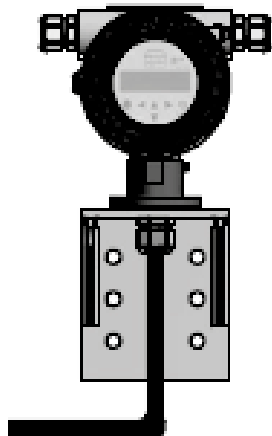
Remote IP 67 according to  
 DIN/EN 60529  
 Dust tight, short time submersible.



Remote IP 68 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.

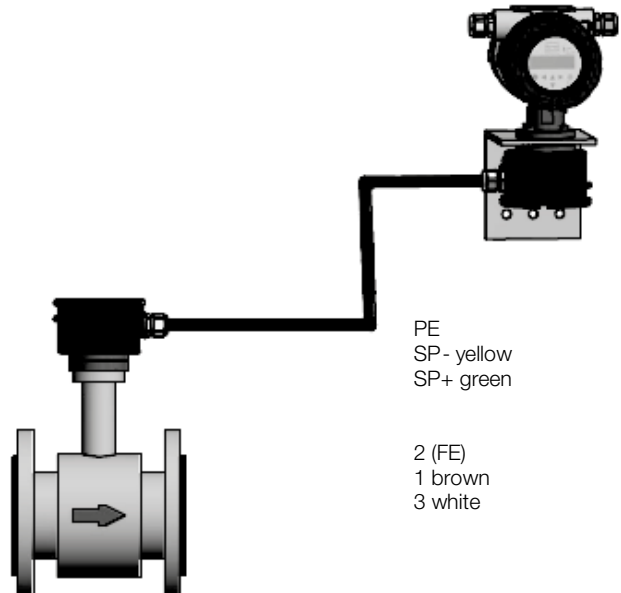
For distances >10 m, factory mounted  
 cable on transmitter, junction box on  
 sensor resin filled.



PE  
 SP- yellow  
 SP+ green

2 (FE)  
 1 brown  
 3 white

Remote version up to 10 m cable



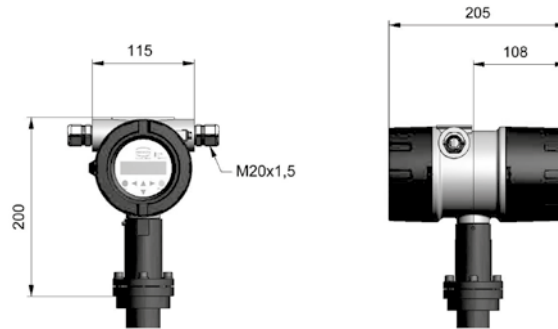
PE  
 SP- yellow  
 SP+ green

2 (FE)  
 1 brown  
 3 white

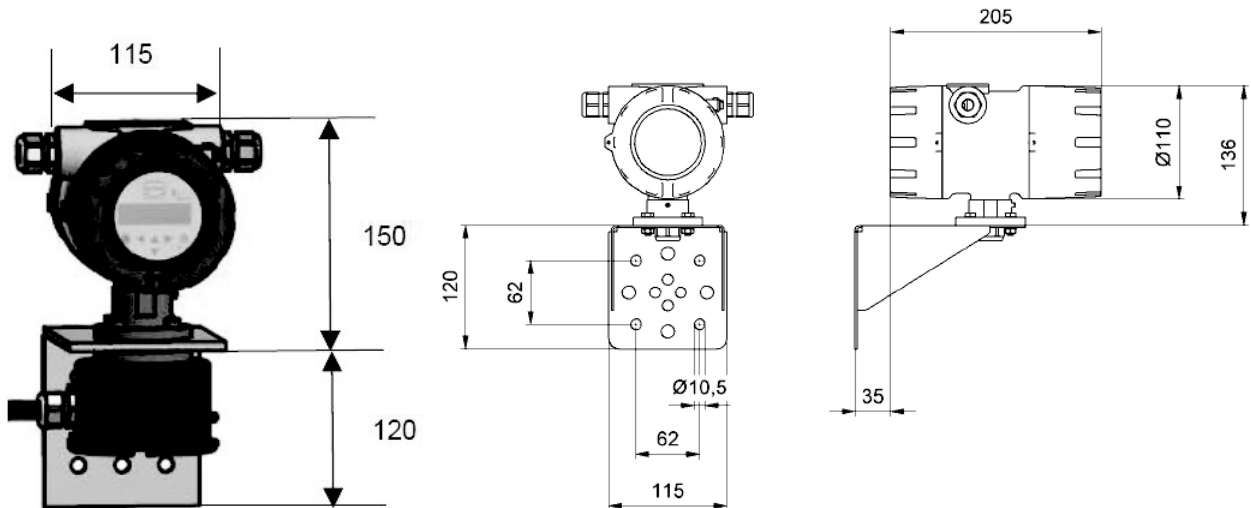
Remote version >10 m cable

**Dimensions of the Transmitter UMF2 [mm]**

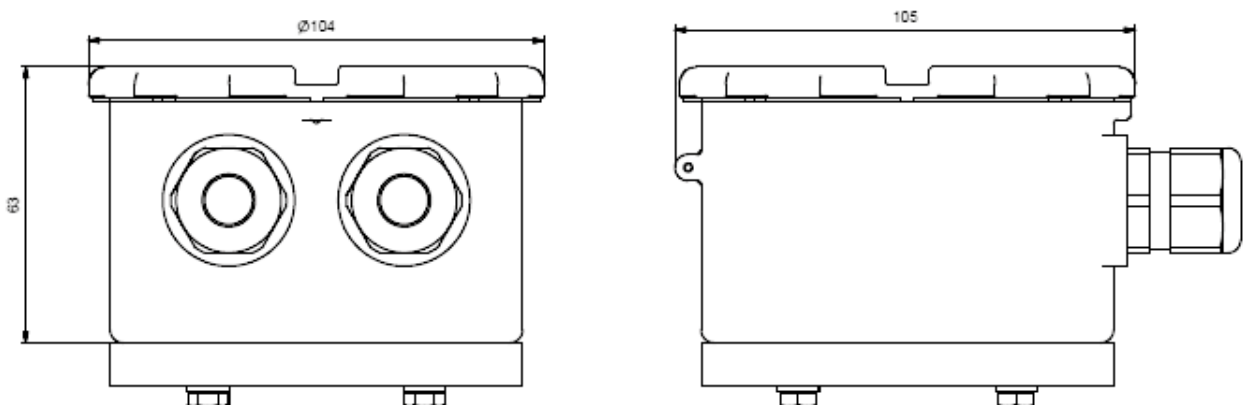
Transmitter compact mounted



Transmitter for remote mounting



Junction box (sensor) for remote mounting

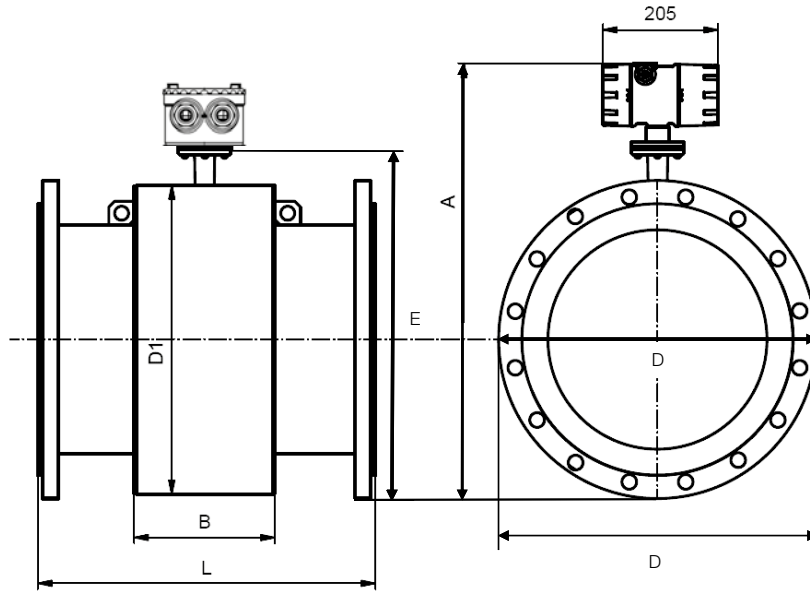




**Dimensions [mm]**

Sensor EPS

Flange design



Standard pressure level	DN	ASME	D				D1	E				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 1092-1	ASME	EN 1092-1	ASME	EN 1092-1	ASME						
PN40	15	½"	88.9	95.2	90	104	159	159	159	312	312	312	225.5	225.5	225.5	59	200	7.9	4		
	25	1"	108	124	115	104	164.5	161	169	317.5	314	322	231	227.5	235.5	59	200	7.9	5		
	40	1½"	127	155.4	150	124	192	180.5	194.7	345	333.5	347.7	258.5	247	261.2	82	200	7.9	8		
	50	2"	152.4	165.1	165	139	207	200.7	207.05	360	353.7	360.1	273.5	267.2	273.6	72	200	7.9	9		
PN16 PN10*	65	2½"	177.8	190.5	185	154	224.5	220.9	227.25	377.5	373.9	380.3	291	287.4	293.8	72	200	7.9	11		
	80	3"	190.5	209.6	200	174	242	237.25	246.8	395	390.3	399.8	308.5	303.8	313.3	72	200	7.9	12		
	100	4"	228.6	254	220	214	272	276.3	289	425	429.3	442	338.5	342.8	355.5	85	250	9.8	16		
	125	5"	254	279.4	250	239	299.5	301.5	314.2	452.5	454.5	467.2	366	368	380.7	85	250	9.8	19		
	150	6"	279.4	317.5	285	282	338.5	335.7	354.75	491.5	488.7	507.8	405	402.2	421.3	85	300	11.8	27		
	200	8"	342.9	381	340	338	394	395.45	414.5	547	548.5	567.5	460.5	462	481	137	350	13.8	40		
PN 10 PN 16*	250	10"	406.4	444.5	395	393	449	454.7	473.75	602	607.7	626.8	515.5	521.2	540.3	157	450	17.7	60		
	300	12"	482.6	520.7	445	444	499.5	518.3	537.35	652.5	671.3	690.4	566	584.8	603.9	157	500	19.7	80		
	350	14"	533.4	584.2	505	451	533	547.2	572.6	686	700.2	725.6	599.5	613.7	639.1	270	550	21.7	110		
	400	16"	596.9	647.7	565	502	588.5	604.45	629.85	741.5	757.5	782.9	655	671	696.4	270	600	23.6	125		
	450	18"	635	711.2	615	563	644	654	692.1	797	807	845.1	710.5	720.5	758.6	310	600	23.6	175		
	500	20"	698	774.7	670	614	697	711	749.35	850	864	902.4	763.5	777.5	815.9	350	600	23.6	200		
	600	24"	812.8	914.4	780	715	802.5	818.9	869.7	955.5	971.9	1022.7	869	885.4	936.2	320	600	23.6	287		
	700	-	-	-	880	816	903	-	-	1056	-	-	969.5	-	-	450	700	27.6	330		
	800	-	-	-	1015	927	1026	-	-	1179	-	-	1092.5	-	-	560	800	31.5	450		
	900	-	-	-	1115	1032	1128.5	-	-	1281.5	-	-	1195	-	-	630	900	35.4	530		
	1000	-	-	-	1230	1136	1238	-	-	1391	-	-	1304.5	-	-	670	1000	39.4	660		
	1200	-	-	-	1455	1348	1456.5	-	-	1609.5	-	-	1523	-	-	792	1200	47.2	1180		

\* Higher pressure on request

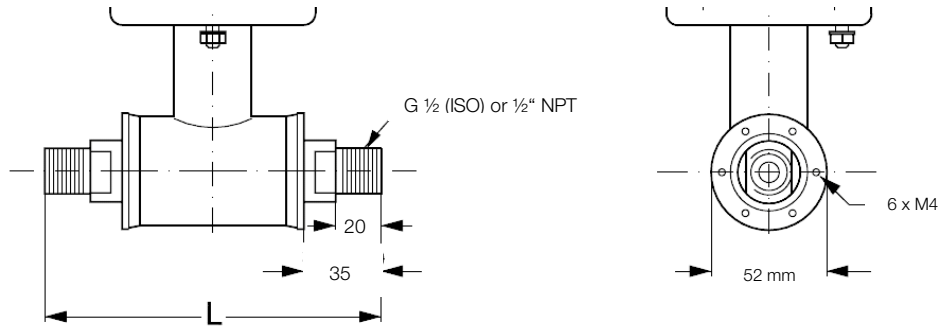
Weights are proximate (for PN16) without transmitter. For transmitter additional weight of 2.4 kg



Magnetic Inductive Flow Meter Model EPS

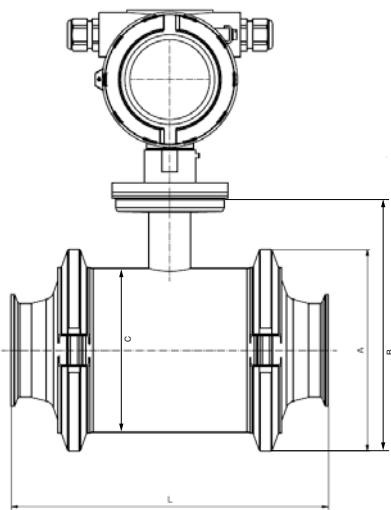
Dimensions [mm]

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 11851, Tri-Clover®



Size DN	A [mm]	B [mm]	C [mm]	Standard	
				11851 L [mm]	Tri-Clover® L [mm]
10	99	159.2	64	146	146
15	99	159.2	64	146	146
25	113	180	77.5	161	161
40	126	207	91	176	176
50	154	240.7	119	186	186
65	165	261.1	130	223	223
80	200	297	155	258	258
100	225	336.5	183	288	288
ANSI	A [inch]	B [inch]	C [inch]	L [inch]	L [inch]
3/8"	3.90	6.26	2.52	5.75	5.75
1/2"	3.90	6.26	2.52	5.75	5.75
1"	4.45	7.09	3.05	6.34	6.34
1 1/2"	4.96	8.15	3.58	6.93	6.93
2"	6.06	9.47	4.68	7.32	7.32
2 1/2"	6.50	10.28	5.12	8.78	8.78
3"	7.87	11.69	6.1	10.16	10.16
4"	8.86	13.25	7.2	11.34	11.34



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 / optionally with ground electrode up to DN600 PN16	-20...+150 °C						
A	ceramics	standard 2x measuring electrodes	-20...+150 °C (EPDM gasket) -20...+130 °C (PTFE gasket)						
	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	1017 l/h	150 mm	-	-	-	-	✓
010E	DN10 G½ (316L)/incl.gasket/EPDM	ceramics/platinum/EPDM	2827 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	1017 l/h	156 mm	-	-	-	-	✓
H10E	DN10 G½ (Hastelloy®)/incl.gasket/PTFE	ceramics/platinum/PTFE	2827 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		4523 m³/h	600 mm	✓	✓	✓	-	-
376B	DN400 PN16 Form B1 DIN EN 1092-1		4523 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		22902 m³/h	900 mm	-	✓	✓	-	-
392B	DN900 PN10 Form B1 DIN EN 1092-1		22902 m³/h	900 mm	✓	-	-	-	-
393B	DN1000 PN6 Form B1 DIN EN 1092-1		22329 m³/h	1000 mm	-	✓	✓	-	-
394B	DN1000 PN10 Form B1 DIN EN 1092-1		22329 m³/h	1000 mm	✓	-	-	-	-
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	✓	-	-	-	-



Magnetic Inductive Flow Meter 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
<b>ANSI connections</b>									
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	-	-	-	-	✓
<b>ANSI flanges</b>									
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	-	-	-	-	-
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
<b>JIS flanges</b>									
416R	1" JIS K10		19.1 m³/h	200 mm	-	-	-	-	-
418R	1" JIS K20		19.1 m³/h	200 mm	-	✓	✓	-	-
426R	1½" JIS K10		38 m³/h	200 mm	-	✓	✓	-	-
428R	1½" JIS K20		38 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		117 m³/h	200 mm	-	✓	✓	-	-
438R	2½" JIS K20		117 m³/h	272 mm	-	✓	✓	-	-
441R	3" JIS K10		170 m³/h	200 mm	-	✓	✓	-	-
443R	3" JIS K20		170 m³/h	272 mm	-	✓	✓	-	-
446R	4" JIS K10		274 m³/h	250 mm	-	✓	✓	-	-
448R	4" JIS K20		274 m³/h	310 mm	-	✓	✓	-	-
451R	5" JIS K10		431 m³/h	250 mm	-	✓	✓	-	-
453R	5" JIS K20		431 m³/h	335 mm	-	✓	✓	-	-
456R	6" JIS K10		632 m³/h	300 mm	-	✓	✓	-	-
458R	6" JIS K20		632 m³/h	300 mm	-	✓	✓	-	-
461R	8" JIS K10		1110 m³/h	350 mm	-	✓	✓	-	-
463R	8" JIS K20		1110 m³/h	350 mm	-	✓	✓	-	-
466R	10" JIS K10		1786 m³/h	450 mm	-	✓	✓	-	-
468R	10" JIS K20		1786 m³/h	450 mm	-	✓	✓	-	-
471R	12" JIS K10		2560 m³/h	500 mm	-	✓	✓	-	-
473R	12" JIS K20		2560 m³/h	500 mm	-	✓	✓	-	-
476R	14" JIS K10		3191 m³/h	550 mm	-	✓	✓	-	-
478R	14" JIS K20		3191 m³/h	550 mm	-	✓	✓	-	-
481R	16" JIS K10		4191 m³/h	600 mm	-	✓	✓	-	-
483R	16" JIS K20		4191 m³/h	600 mm	-	✓	✓	-	-
486R	18" JIS K10		5309 m³/h	600 mm	-	✓	✓	-	-
488R	18" JIS K20		5309 m³/h	640 mm	-	✓	✓	-	-
491R	20" JIS K10		6669 m³/h	600 mm	-	✓	✓	-	-
493R	20" JIS K20		6669 m³/h	680 mm	-	✓	✓	-	-
496R	24" JIS K10		9566 m³/h	600 mm	-	✓	✓	-	-
498R	24" JIS K20		9566 m³/h	800 mm	-	✓	✓	-	-
<b>Food design</b>									
7000	DN15 Tri-Clamp®-connection	ceramics/platinum	6.3 m³/h	144 mm	-	-	-	-	✓
7010	DN25 Tri-Clamp®-connection	ceramics/platinum	17.6 m³/h	159 mm	-	-	-	-	✓
7020	DN40 Tri-Clamp®-connection	ceramics/platinum	45 m³/h	174 mm	-	-	-	-	✓
7030	DN50 Tri-Clamp®-connection	ceramics/platinum	70 m³/h	184 mm	-	-	-	-	✓
7040	DN65 Tri-Clamp®-connection	ceramics/platinum	119 m³/h	221 mm	-	-	-	-	✓
7050	DN80 Tri-Clamp®-connection	ceramics/platinum	180 m³/h	256 mm	-	-	-	-	✓
7060	DN100 Tri-Clamp®-connection	ceramics/platinum	282 m³/h	286 mm	-	-	-	-	✓
6610	DN 15 sanitary connection DIN11851	ceramics/platinum	6.3 m³/h	144 mm	-	-	-	-	✓
6630	DN 25 sanitary connection DIN11851	ceramics/platinum	17.6 m³/h	159 mm	-	-	-	-	✓
6650	DN 40 sanitary connection DIN11851	ceramics/platinum	45 m³/h	174 mm	-	-	-	-	✓
6660	DN 50 sanitary connection DIN11851	ceramics/platinum	70 m³/h	184 mm	-	-	-	-	✓
6670	DN 65 sanitary connection DIN11851	ceramics/platinum	119 m³/h	221 mm	-	-	-	-	✓
XXXX	special on request		xx	xx	on request				



Order Details (continued)

Model code	Description			Material lining				
				EPDM	Hard rubber	Soft rubber	PTFE	Ceramics
	<b>Material process connection</b>							
0	w/o			-	-	-	-	-
1	flange steel painted			✓	✓	✓	✓	-
2	flange stainless steel 1.4301 (DN2...10 in 1.4404)			see add-on prices stainless steel flanges				
X	special on request			on request				
	<b>Material electrodes</b>							
S	stainless steel 1.4571			-	✓	✓	-	-
H	Hastelloy®			✓	✓	✓	✓	-
T	tantalum			-	✓	✓	✓	-
N	platinum/iridium	PTFE max. DN300/12"		-	✓	✓	✓	✓
M	titanium			-	✓	-	✓	-
X	special on request			on request				
	<b>Earthing electrode</b>							
0	w/o			-	-	-	✓	✓
S	stainless steel 1.4571			-	✓	✓	-	-
H	Hastelloy®	PTFE max. DN600/24"		✓	✓	✓	✓	-
T	tantalum	PTFE max. DN600/24"		-	✓	✓	✓	-
N	platinum	PTFE max. DN300/12"		-	✓	✓	✓	-
M	titanium	PTFE max. DN600/24"		-	✓	✓	✓	-
X	special on request			on request				
	<b>Transmitter mounting</b>		<b>Protection</b>					
1	integrated transmitter		IP 67				✓	
2	remote transmitter		IP67 terminal connection box via M20x1.5				✓	
3	remote transmitter		IP68, term. connection box via M20x1.5, encapsulated				✓	
	<b>Certificates</b>							
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		
<b>Transmitter</b>			
UMF2-	Mounting	Connection to sensor	Thread-electrical connection
<b>IP 67</b>			
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. term. conn. box on transmitter
D	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	
<b>IP 68</b>			
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
<b>Display and control unit</b>			
1	integrated		
<b>Power supply</b>			
1	230 V <sub>AC</sub> (+10%, -15%), 50/60 Hz		
2	115 V <sub>AC</sub> (+10%, -15%), 50/60 Hz		
4	24 V <sub>DC</sub> (±15%)		
<b>Output signal</b>			
F	current output: 1x0/4-20 mA pulse output: passive U <sub>m</sub> =24 V <sub>DC</sub> status output: passive U <sub>m</sub> =24 V <sub>DC</sub>		
G	current output: 1x0/4-20 mA c/w HART® protocol pulse output: passive U <sub>m</sub> =24 V <sub>DC</sub> status output: passive U <sub>m</sub> =24 V <sub>DC</sub>		
<b>Version</b>			
0BH	Heinrichs		
0BK	Kobold		
<b>Options</b>			
<b>Longer cable</b>			
<b>IP 67</b>			
0	2.5 m standard on remote version	breakout cable	
1	5 m		
2	10 m		
3	15 m		
4	20 m	add junction box to transmitter	
5	30 m		
6	40 m		
7	50 m		
<b>IP 68</b>			
A	2.5 m standard on remote version	add junction box to transmitter	
B	5 m		
C	10 m		
D	15 m		
E	20 m		
F	30 m		
G	40 m		
H	50 m		
X	special on request		