



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



CS

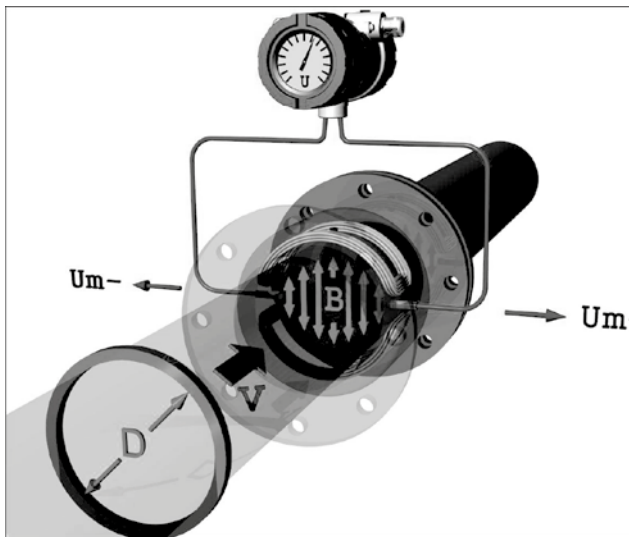
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Function

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 consist 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:	<p> painted steel (standard), stainless steel at DIN11851 or Tri-Clamp®, ceramic and PFA, lining to maximum DN10 </p>
Nominal sizes:	<p> 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) </p>
Process connection:	<p> flanges of steel or stainless steel 1.4301 (EN1092 and ASME B16.5), intermediate flange design, food connection DIN 11851, Tri-Clamp® (other connections on request) </p>
Lining material:	<p> hard rubber, soft rubber, PTFE (PFA), ceramics, EPDM </p>
Electrode material:	<p> Hastelloy® HC276, C22, stainless steel 1.4571/316 Ti titanium, tantalum and platinum-rhodium (on request) </p>
Grounding ring:	<p>on request</p>
Nominal pressure:	<p> PN40, (40 bar) (580 psi) DN15 ... 50 (1/2" ... 2") PN16, (16 bar) (232 psi) DN65 ... 300 (1/2" ... 8") PN10, (10 bar) (145 psi) DN200 ... 1200 (8" ... 24") (higher pressures on request) </p>
Process temperature:	<p> -10 ... +70 °C (14 ... +158 °F) EPDM -20 ... +150 °C (-4 ... +302 °F) PTFE -30 ... +130 °C (-22 ... +266 °F) PFA -20 ... +150 °C (-4 ... +302 °F) ceramics -40 ... +70 °C (-40 ... +158 °F) hard rubber 0 ... +70 °C (+32 ... +158 °F) soft rubber </p>
Ambient temperature:	<p> -20 °C ... +60 °C (-4 ... +140 °F), depending on process temperature </p>
Conductivity:	<p> ≥ 5 µS/cm ≥ 20 µS/cm with demineralised water </p>
Measuring ranges:	<p>0.1 m/s ... 10 m/s</p>
Accuracy:	<p> ± 0.3 % of measured value ± 0.01 % * (Q at 10 m/s) (under reference conditions) </p>
Repeatability:	<p> ± 0.15 % of measured value ± 0.005 % * (Q at 10 m/s) (under reference conditions) </p>
Protection:	<p>IP67 (EN60529), IP68 on request</p>



Flow Specific Values

Di	Connection		Litre/sec		m³/h	
	DN	ASME	Q _{min}	Q _{max}	Q _{min}	Q _{max}
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
20	20	¾"	0.0785	3.142	0.283	11.31
25	25	1"	0.1227	4.909	0.442	17.67
32	32	1 ¼"	0.2011	8.042	0.724	28.95
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	1130	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

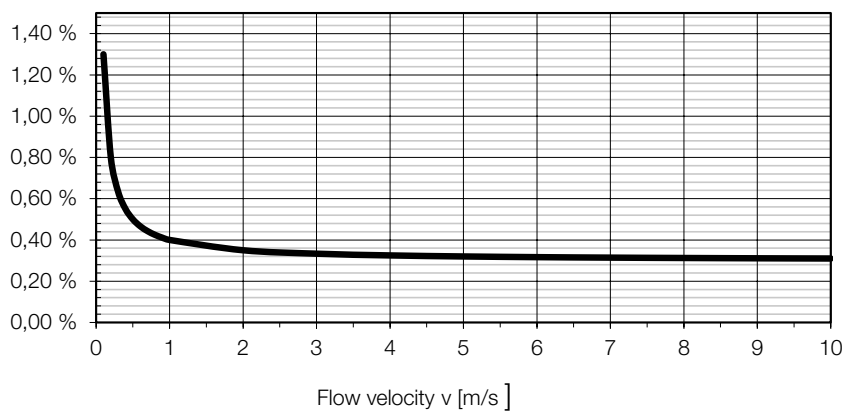
Accuracy

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

Repeatability

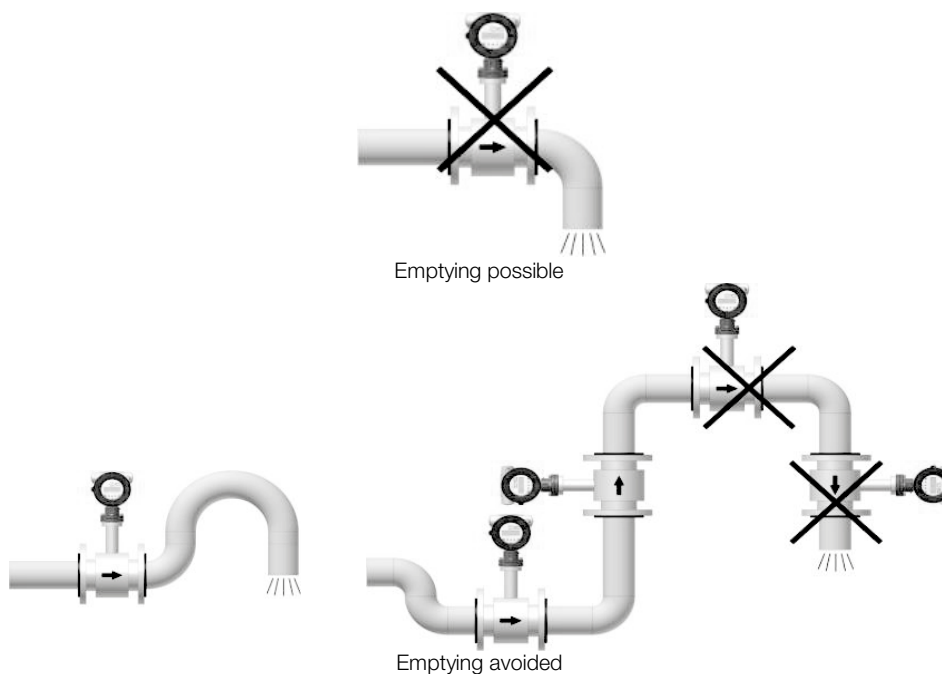
$\pm (0.15\% \text{ of measured value} + 0.00005 \cdot (Q \text{ at } 10 \text{ m/s}))$

Accuracy



Installation Conditions

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



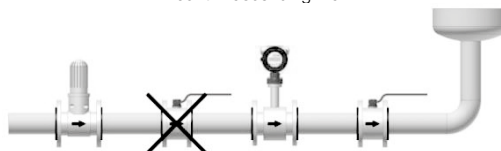
Installation Conditions (continued)



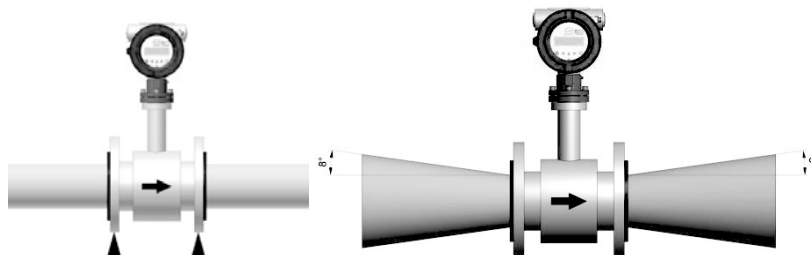
Upstream of pump, vacuum possible



Mount in ascending main



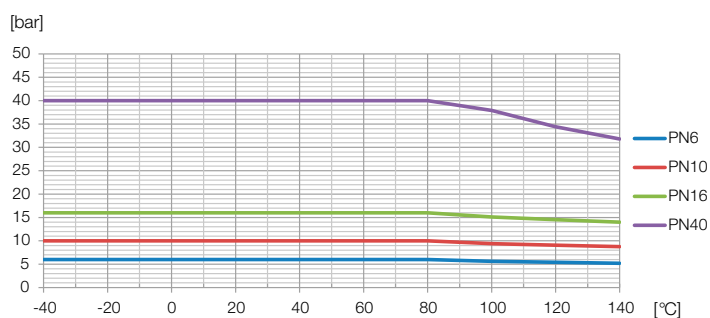
Do not mount downstream of a valve



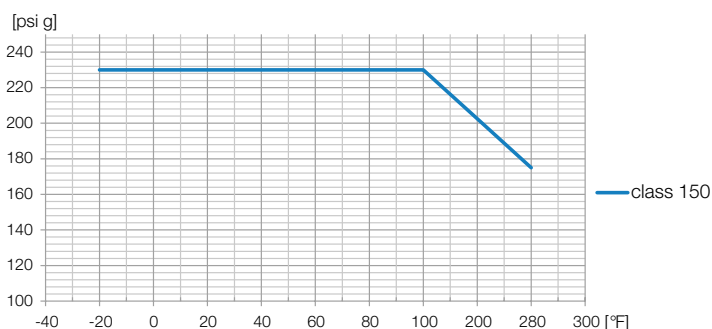
Use support to prevent vibrations

Pipe narrowing with maximum 8° angle

Material Load Curves



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



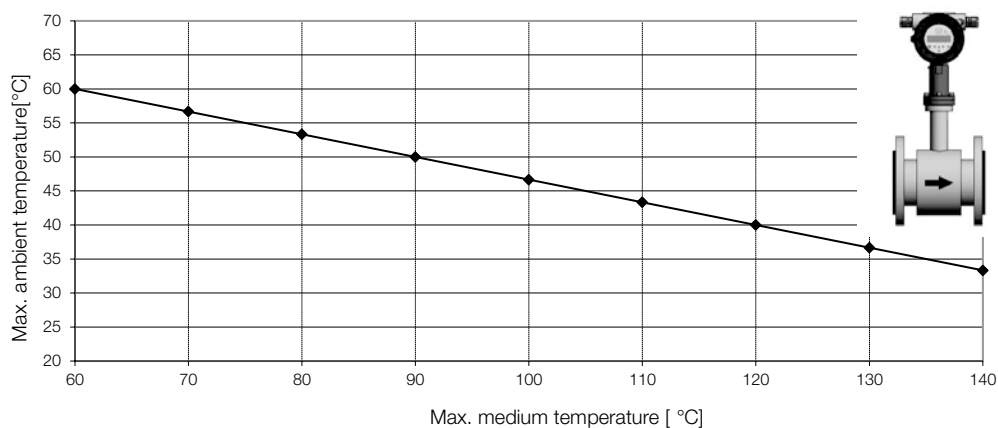
For stainless steel flanges (1.4404 / 316L) according to ASME B16.5

Ambient Conditions

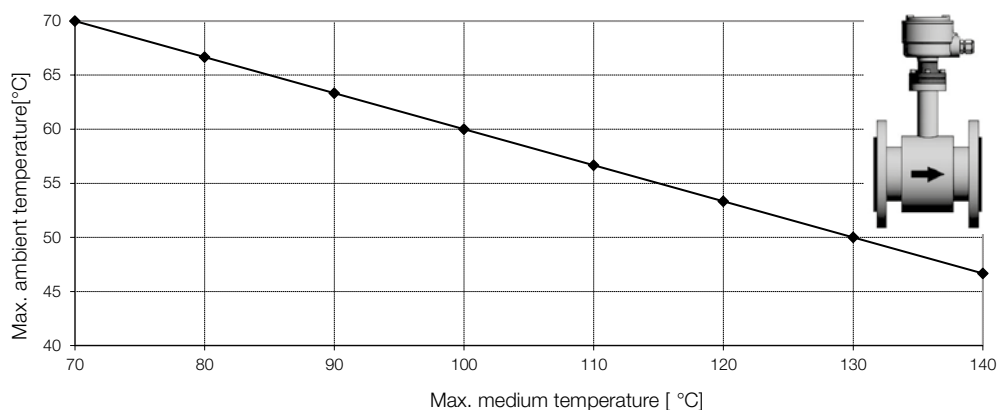
As the sensors are an element of the pipe, these are normally thermally isolated when installed to save energy and prevent accidental physical contact. The heat of the process temperature will be transferred through the supports neck of the compact mounted transmitter or the terminal box. For this

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



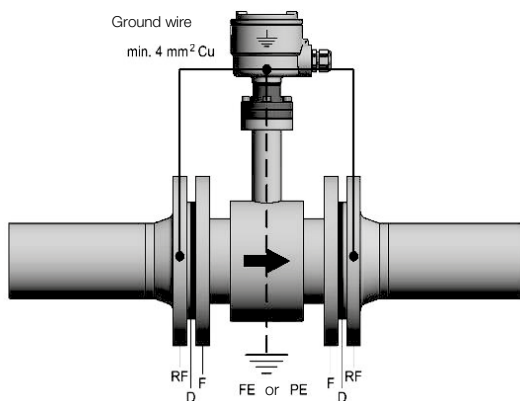
Mounting options: compact or remote
 Housing: die cast aluminium, painted
 Power supply: 115/230 V_{AC} 50/60 Hz, 10 VA
 24 V_{DC} 10 W

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 2004/108/EG

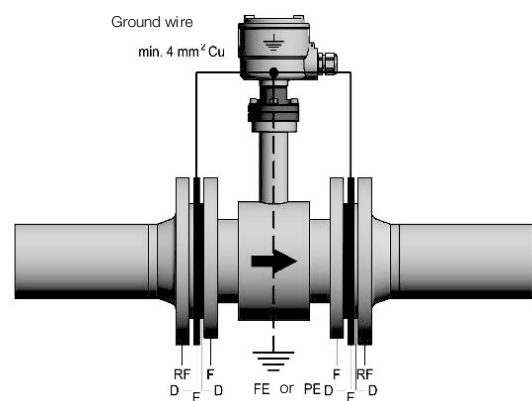
Potential equalisation

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

F Sensor flange
 RF Pipe flanges
 D Sealing
 E Grounding rings
 PE Ground
 PA Equipotential bonding
 FE Functional ground



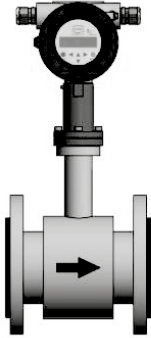
For metallic pipelines we recommend connecting the grounding terminal to the pipe.



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

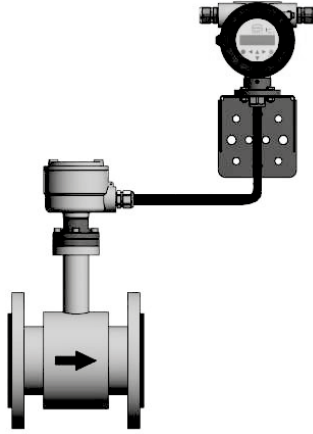
Electrical Connections

Mounting types



Compact IP65 according to DIN/EN 60529

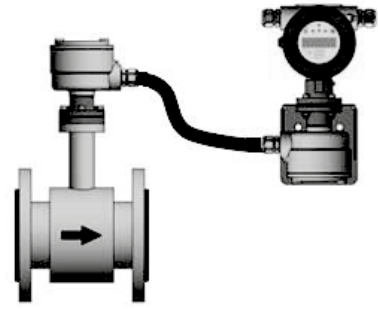
Dust tight, protected against powerful water jets.



Remote IP65 according to DIN/EN 60529

Dust tight, protected against powerful water jets.

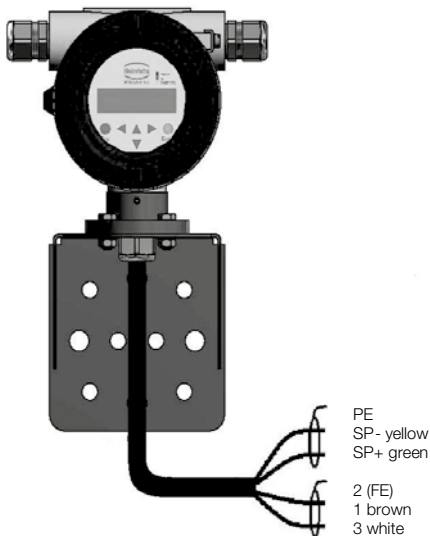
With 2.5 m, 5 m and 10 m factory mounted cable on transmitter.



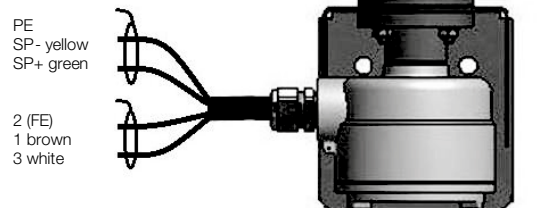
Remote IP68 according to DIN/EN 60529

Dust tight, suitable for continuous immersion.

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



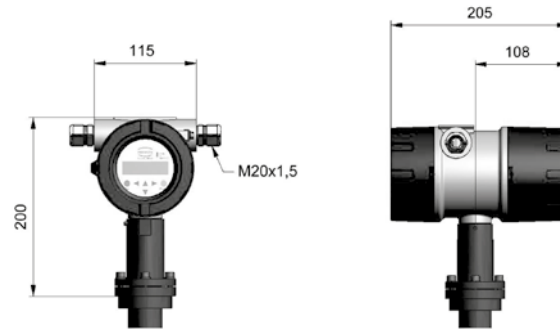
Remote version up to 10 m cable



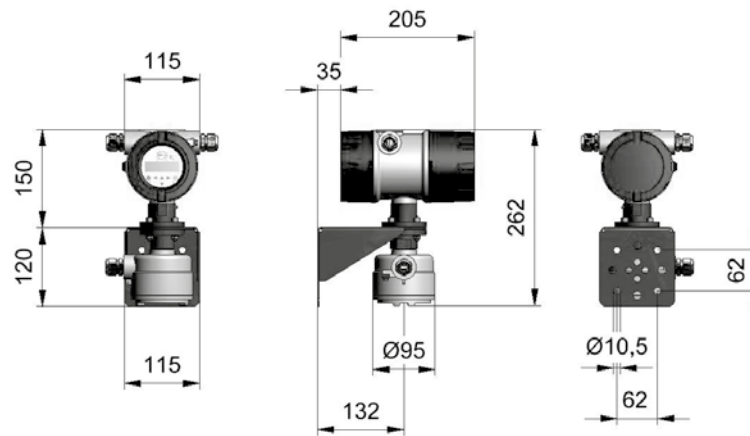
Remote version >10 m cable

Dimensions of the Transmitter UMF2 [mm]

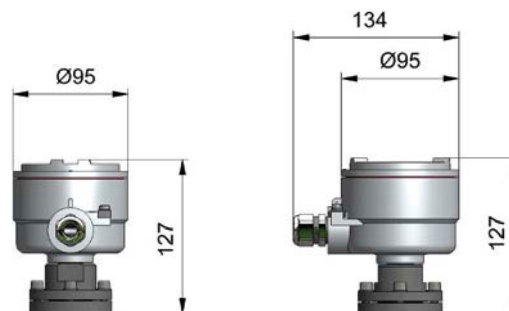
Transmitter compact mounted



Transmitter for remote mounting

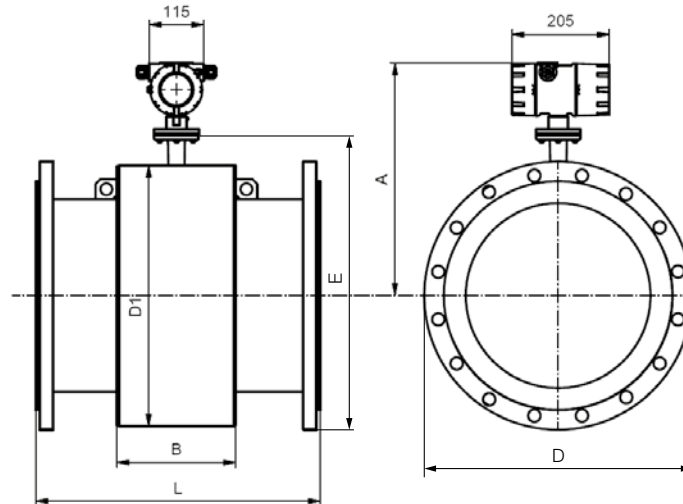


Junction box (sensor) for remote mounting



Dimensions [mm]

Sensor EPS



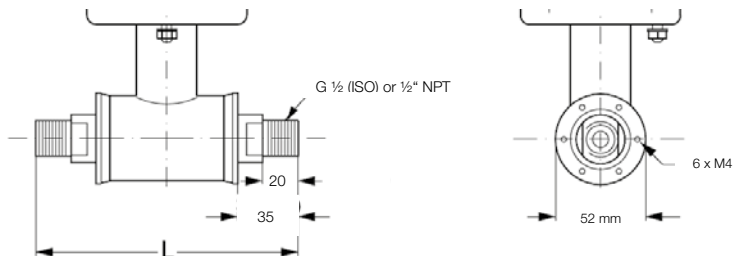
Standard pressure level	DN	ASME	D			D1	A'			A						B [mm]	L		Weight/ mass
			ASME		EN 1092-1		EN 1092-1	ASME		with transmitter		with junction box		mm	Inch				
			150 lbs	300 lbs				150 lbs	300 lbs	1092-1	150 lbs	300 lbs	1092-1				150 lbs	300 lbs	
																			[kg]
PN40	15	½"	88.9	95.2	90	104	159	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

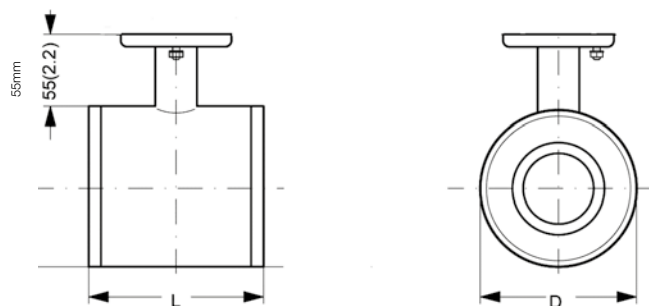
Dimensions [mm]

Wafer-version DN 2, 3, 6, 10 incl. G ½ (ISO) or ½" 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				

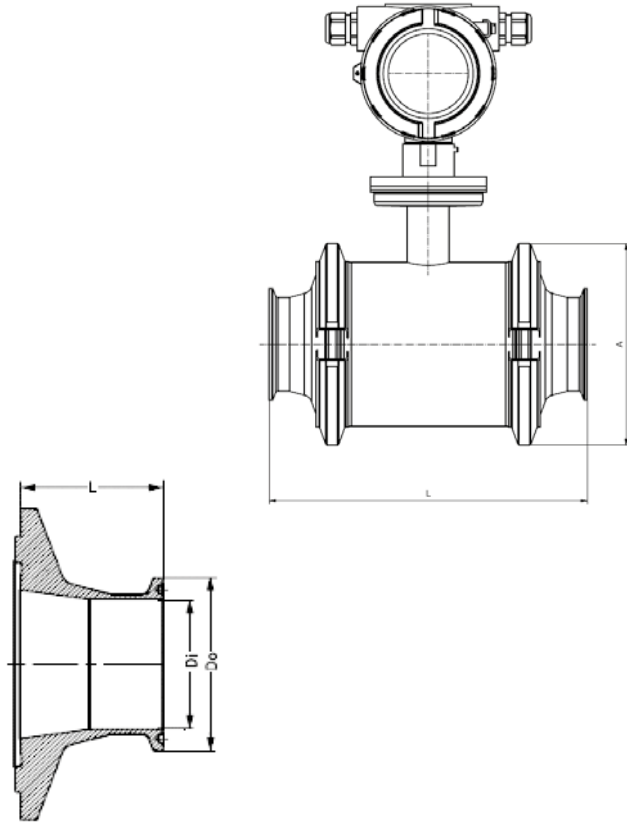
EPS Food Design



DN	D [mm]	A [mm]	L [mm]	Weight [kg]
2	48.7	103.7	64	2.2
3	48.7	103.7	64	2.2
6	48.7	103.7	64	2.2
10	48.7	103.7	64	2.2
15	48.7	103.7	64	2.2
25	63.5	118.5	79	2.7
40	84	139	94	3.4
50	101.6	156.6	104	4.2
65	120.9	175.9	129	5.5
80	133	188	154	7
100	159	214	184	10
Size	D [inch]	A [inch]	L [inch]	Weight [lbs]
1/12"	1.92	4.09	2.52	4.8
1/8"	1.92	4.09	2.52	4.8
1/4"	1.92	4.09	2.52	4.8
3/8"	1.92	4.09	2.52	4.8
1/2"	1.92	4.09	2.52	4.8
1"	2.5	4.67	3.1	4.9
1 1/2"	3.31	5.48	3.7	7.5
2"	4	6.17	4.05	9.2
2 1/2"	4.76	6.93	5.05	12
3"	5.24	7.41	6	15
4"	6.26	8.43	7.2	22

Dimensions (continued)

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

Process connection DN [mm]	Sensor DN [mm]	L [mm]	Welded socket for pipeline according to the following standard					
			DIN 11850		ISO 2037(SMS 3008)		Tri-Clover® (B54825-1)	
			Di [mm]	Do [mm]	Di [mm]	Do [mm]	Di [mm]	Do [mm]
10	10	40	10.0	13.0	10.0	13.0	9.4	12.7
15	15	40	16.0	19.0	16.0	19.0	-	-
15.9	15	40	-	-	-	-	15.75	19.05
20	15	40	-	-	20.0	23.0	-	-
25	25	40	-	-	22.6	25.6	22.1	25.4
25	25	40	26.0	29.0	-	-	-	-
28	25	40	-	-	25.6	28.6	-	-
32	25	40	-	-	-	-	-	-
32	25	40	32.0	35.0	-	-	-	-
38	40	40	-	-	35.6	38.6	34.8	38.1
40	40	40	-	-	37.6	40.6	-	-
40	40	40	38.0	41.0	-	-	-	-
50	50	40	-	-	48.6	51.6	47.5	50.8
50	50	40	50.0	53.0	-	-	-	-
63.5	65	45	-	-	60.3	64.1	60.2*	63.5*
65	65	45	66.0	70.0	-	-	-	-
76	65	45	-	-	-	-	-	-
76.1	80	50	-	-	72.9	76.7	72.9	76.2
80	80	50	81.0	85.0	-	-	-	-
100	100	50	100.0	104.0	-	-	-	-
101.6	100	50	-	-	97.6	102.5	97.38*	101.6*
114.3	100	50	-	-	110.3	115.6	-	-

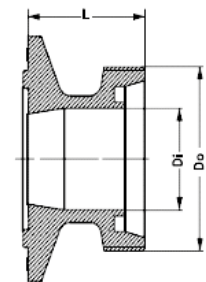
* For BS 4825-1 see ISO 2037

Clamping ring

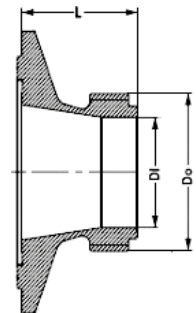
Process connection DN [mm]	Sensor DN [mm]	L [mm]	Clamping ring / version for the following standards					
			DIN 11850		ISO 2037(SMS 3008,B54825-3)		Tri-Clover® (B54825-1)	
			Di [mm]	Do [mm]	Di [mm]	Do [mm]	Di [mm]	Do [mm]
10	10	40	10.0	34.0	10.0	34.0	10.0	34.0
15	15	40	16.0	34.0	16.0	34.0	10.0	34.0
25	25	40	-	-	-	-	22.6	50.5
25	25	40	26.0	50.5	26.0	-	-	-
33.7	25	40	-	-	31.3	50.0	-	-
38	40	40	-	-	35.6	38.6	35.6	50.5
40	40	40	38.0	50.0	-	-	-	-
50	50	40	50.0	64.0	-	-	-	-
51	50	40	-	-	48.6	64.0	48.6	64.0
63.5	65	45	-	-	60.3	77.5	60.3*	77.5
65	65	45	66.0	91.0	-	-	-	-
76.1	80	50	-	-	72.9	91.0	72.9	91.0
80	80	50	81.0	85.0	-	-	-	-
100	100	50	100.0	119.9	-	-	-	-
101.6	100	50	-	-	97.6	119.0	97.6	119.0

Tri-Clover® is a registered trademark of Ladish Co.

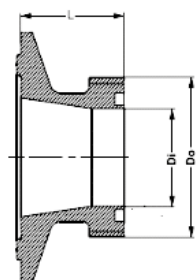
Pipe fitting



Process connection DN [mm]	Sensor DN [mm]	L [mm]	Pipe fitting according to the following standards	
			DIN 11851	
			Di [mm]	Do [mm]
10	10	40	10.0	28.0
15	15	40	16.0	34.0
20	20	40	20.0	44.0
25	25	40	26.0	52.0
32	25	40	32.0	58.0
40	40	40	38.0	65.0
50	50	40	50.0	78.0
65	65	45	66.0	95.0
80	80	50	81.0	110.0
100	100	50	100.0	130.0



Process connection DN [mm]	Sensor DN [mm]	L [mm]	Pipe fitting according to the following standards			
			ISO 2853		BS 4825-4	
			Di [mm]	Do [mm]	Di [mm]	Do [mm]
25	25	40	22.6	37.0	22.6	37.0
38	40	40	35.6	51.0	35.6	51.0
51	50	40	48.6	64.0	48.6	64.0
63.5	65	45	60.3	78.0	60.3	78.0
76.1	80	50	72.9	91.0	72.9	91.0
101.6	100	50	-	-	97.6	126.0
101.6	100	50	97.6	118.0	-	-



Process connection DN [mm]	Sensor DN [mm]	L [mm]	Pipe fitting according to the following standards	
			SMS 1145	
			Di [mm]	Do [mm]
25	25	40	22.6	40.0
38	40	40	35.6	60.0
51	50	40	48.6	70.0
63.5	65	45	60.3	85.0
76	65	45	72.0	98.0



Order Details

Model code	Description			
Sensor				
EPS-	Material lining	Electrodes	Process temperature	
E	EPDM	standard 2x measuring- & 2x grounding electrodes	-10...+70 °C	
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	PFA /ceramics	standard 2x measuring electrodes	-30...+130 °C /-20...+150 °C	
	Process connection	Material lining /electrodes /sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length
DIN connections				
002E	DN2 intermediate flange design DN10/incl. seals	ceramic /platinum /EPDM	156 l/h	64 mm
003E	DN3 intermediate flange design DN10/incl. seals	ceramic /platinum /EPDM	254 l/h	64 mm
006E	DN6 intermediate flange design DN10/incl. seals	ceramic /platinum /EPDM	1017 l/h	64 mm
010E	DN10 intermediate flange design DN10/incl. seals	PFA /HC2 /--	2827 l/h	64 mm
DIN flanges				
305B	DN15 PN40 Form B1 DIN EN 1092-1		6.3 m³/h	200 mm
3A5B	DN20 PN40 Form B1 DIN EN 1092-1		8.1 m³/h	200 mm
309B	DN25 PN40 Form B1 DIN EN 1092-1		17.6 m³/h	200 mm
317B	DN40 PN40 Form B1 DIN EN 1092-1		45 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		119 m³/h	200 mm
326B	DN65 PN40 Form B1 DIN EN 1092-1		119 m³/h	200 mm
330B	DN80 PN16 Form B1 DIN EN 1092-1		180 m³/h	200 mm
331B	DN80 PN40 Form B1 DIN EN 1092-1		180 m³/h	272 mm
335B	DN100 PN16 Form B1 DIN EN 1092-1		282 m³/h	250 mm
336B	DN100 PN40 Form B1 DIN EN 1092-1		282 m³/h	250 mm
340B	DN125 PN16 Form B1 DIN EN 1092-1		441 m³/h	250 mm
341B	DN125 PN40 Form B1 DIN EN 1092-1		441 m³/h	250 mm
345B	DN150 PN16 Form B1 DIN EN 1092-1		636 m³/h	300 mm
346B	DN150 PN40 Form B1 DIN EN 1092-1		636 m³/h	300 mm
349B	DN200 PN10 Form B1 DIN EN 1092-1		1130 m³/h	350 mm
350B	DN200 PN16 Form B1 DIN EN 1092-1		1130 m³/h	350 mm
351B	DN200 PN40 Form B1 DIN EN 1092-1		1130 m³/h	350 mm
355B	DN250 PN10 Form B1 DIN EN 1092-1		1767 m³/h	450 mm
356B	DN250 PN16 Form B1 DIN EN 1092-1		1767 m³/h	450 mm
358B	DN250 PN40 Form B1 DIN EN 1092-1		1767 m³/h	450 mm
362B	DN300 PN10 Form B1 DIN EN 1092-1		2544 m³/h	500 mm
363B	DN300 PN16 Form B1 DIN EN 1092-1		2544 m³/h	500 mm
365B	DN300 PN40 Form B1 DIN EN 1092-1		2544 m³/h	550 mm
369B	DN350 PN10 Form B1 DIN EN 1092-1		3463 m³/h	550 mm
370B	DN350 PN16 Form B1 DIN EN 1092-1		3463 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		5725 m³/h	600 mm
3B2B	DN450 PN16 Form B1 DIN EN 1092-1		5725 m³/h	600 mm
380B	DN500 PN10 Form B1 DIN EN 1092-1		7068 m³/h	600 mm
381B	DN500 PN16 Form B1 DIN EN 1092-1		7068 m³/h	600 mm
384B	DN600 PN10 Form B1 DIN EN 1092-1		10178 m³/h	600 mm
385B	DN600 PN16 Form B1 DIN EN 1092-1		10178 m³/h	600 mm
38AB	DN700 PN10 Form B1 DIN EN 1092-1		13854 m³/h	700 mm
389B	DN800 PN6 Form B1 DIN EN 1092-1		18095 m³/h	800 mm
391B	DN900 PN6 Form B1 DIN EN 1092-1		22902 m³/h	900 mm
393B	DN1000 PN6 Form B1 DIN EN 1092-1		27274 m³/h	1000 mm
395B	DN1200 PN6 Form B1 DIN EN 1092-1		40715 m³/h	1200 mm
ANSI connections				
002A	DN 2 wafer ANSI 3/8" /incl. seals	ceramic /platinum /EPDM		64 mm
003A	DN 3 wafer ANSI 1/2" /incl. seals	ceramic /platinum /EPDM		64 mm
006A	DN 6 wafer ANSI 1 1/2" /incl. seals	ceramic /platinum /EPDM		64 mm
010A	DN 10 wafer ANSI 2" /without seals	PFA /HC276 /--		64 mm



Order Details (continued)

Model code	Process connection	Material lining/electrodes/sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length
ANSI flanges				
201R	½" Class 150 RF ASME B16.5-2003		6.3 m³/h	200 mm
221R	½" Class 300 RF ASME B16.5-2003		6 m³/h	200 mm
203R	1" Class 150 RF ASME B16.5-2003		17.6 m³/h	200 mm
223R	1" Class 300 RF ASME B16.5-2003		17.6 m³/h	200 mm
205R	1½" Class 150 RF ASME B16.5-2003		45 m³/h	200 mm
225R	1½" Class 300 RF ASME B16.5-2003		45 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		119 m³/h	200 mm
227R	2½" Class 300 RF ASME B16.5-2003		119 m³/h	272 mm
208R	3" Class 150 RF ASME B16.5-2003		180 m³/h	272 mm
228R	3" Class 300 RF ASME B16.5-2003		180 m³/h	272 mm
210R	4" Class 150 RF ASME B16.5-2003		282 m³/h	250 mm
230R	4" Class 300 RF ASME B16.5-2003		282 m³/h	310 mm
211R	5" Class 150 RF ASME B16.5-2003		441 m³/h	250 mm
231R	5" Class 300 RF ASME B16.5-2003		441 m³/h	335 mm
212R	6" Class 150 RF ASME B16.5-2003		636 m³/h	300 mm
232R	6" Class 300 RF ASME B16.5-2003		636 m³/h	300 mm
213R	8" Class 150 RF ASME B16.5-2003		1130 m³/h	350 mm
233R	8" Class 300 RF ASME B16.5-2003		1130 m³/h	350 mm
214R	10" Class 150 RF ASME B16.5-2003		1767 m³/h	450 mm
234R	10" Class 300 RF ASME B16.5-2003		1767 m³/h	450 mm
215R	12" Class 150 RF ASME B16.5-2003		2544 m³/h	500 mm
235R	12" Class 300 RF ASME B16.5-2003		2544 m³/h	500 mm
216R	14" Class 150 RF ASME B16.5-2003		3463 m³/h	550 mm
236R	14" Class 300 RF ASME B16.5-2003		3463 m³/h	550 mm
217R	16" Class 150 RF ASME B16.5-2003		4523 m³/h	600 mm
237R	16" Class 300 RF ASME B16.5-2003		4523 m³/h	600 mm
218R	18" Class 150 RF ASME B16.5-2003		5725 m³/h	600 mm
238R	18" Class 300 RF ASME B16.5-2003		5725 m³/h	640 mm
219R	20" Class 150 RF ASME B16.5-2003		7068 m³/h	600 mm
239R	20" Class 300 RF ASME B16.5-2003		7068 m³/h	730 mm
220R	24" Class 150 RF ASME B16.5-2003		10178 m³/h	600 mm
240R	24" Class 300 RF ASME B16.5-2003		10178 m³/h	860 mm
JIS flanges				
406	DN15(½") JIS K10		6.3 m³/h	200 mm
408	DN15(½") JIS K20		6 m³/h	200 mm
416	DN25(1") JIS K10		17.6 m³/h	200 mm
418	DN25(1") JIS K20		17.6 m³/h	200 mm
426	DN40(1½") JIS K10		45 m³/h	200 mm
428	DN40(1½") JIS K20		45 m³/h	240 mm
431	DN50(2") JIS K10		70 m³/h	200 mm
433	DN50(2") JIS K20		70 m³/h	240 mm
436	DN65(2½") JIS K10		119 m³/h	200 mm
438	DN65(2½") JIS K20		119 m³/h	272 mm
441	DN80(3") JIS K10		180 m³/h	200 mm
443	DN80(3") JIS K20		180 m³/h	272 mm
446	DN100(4") JIS K10		282 m³/h	250 mm
448	DN100(4") JIS K20		282 m³/h	310 mm
451	DN125(5") JIS K10		441 m³/h	250 mm
453	DN125(5") JIS K20		441 m³/h	335 mm
456	DN150(6") JIS K10		636 m³/h	300 mm
458	DN150(6") JIS K20		636 m³/h	300 mm
461	DN200(8") JIS K10		1130 m³/h	350 mm
463	DN200(8") JIS K20		1130 m³/h	350 mm
466	DN250(10") JIS K10		1767 m³/h	450 mm
468	DN250(10") JIS K20		1767 m³/h	450 mm
471	DN300(12") JIS K10		2544 m³/h	500 mm
473	DN300(12") JIS K20		2544 m³/h	500 mm
476	DN350(14") JIS K10		3463 m³/h	550 mm
478	DN350(14") JIS K20		3463 m³/h	550 mm
481	DN400(16") JIS K10		4523 m³/h	600 mm
483	DN400(16") JIS K20		4523 m³/h	600 mm



Order Details (continued)

Model code	Process connection	Material lining/electrodes/sealing	Max. measuring range (water 20 °C, 1 mPas)	Installation length
486	DN450(18") JIS K10		5725 m³/h	600 mm
488	DN450(18") JIS K20		5725 m³/h	640 mm
491	DN500(20") JIS K10		7068 m³/h	600 mm
493	DN500(20") JIS K20		7068 m³/h	680 mm
496	DN600(24") JIS K10		10178 m³/h	600 mm
498	DN600(24") JIS K20		10178 m³/h	800 mm
xxxx				
Model code	Process connection	Material lining/electrodes	Max. range (water 20 °C, 1 mPas)	Installation length
7000	DN10 Tri-Clamp®-connection	PFA/HC276	2.8 m³/h	
7000	DN15 Tri-Clamp®-connection	PFA/HC276	6.3 m³/h	
7010	DN25 Tri-Clamp®-connection	PFA/HC276	17.6 m³/h	
7020	DN40 Tri-Clamp®-connection	PFA/HC276	45 m³/h	
7030	DN50 Tri-Clamp®-connection	PFA/HC276	70 m³/h	
7040	DN65 Tri-Clamp®-connection	PFA/HC276	119 m³/h	
7050	DN80 Tri-Clamp®-connection	PFA/HC276	180 m³/h	
7060	DN100 Tri-Clamp®-connection	PFA/HC276	282 m³/h	
6610	DN 15 sanitary connection DIN11851	PFA / HC276	6.3 m³/h	
6620	DN 20 sanitary connection DIN11851	PFA / HC276	8.1 m³/h	
6630	DN 25 sanitary connection DIN11851	PFA / HC276	17.6 m³/h	
6640	DN 32 sanitary connection DIN11851	PFA / HC276	28.9 m³/h	
6650	DN 40 sanitary connection DIN11851	PFA / HC276	45 m³/h	
6660	DN 50 sanitary connection DIN11851	PFA / HC276	70 m³/h	
6670	DN 65 sanitary connection DIN11851	PFA / HC276	119 m³/h	
6680	DN 80 sanitary connection DIN11851	PFA / HC276	180 m³/h	
6690	DN100 sanitary connection DIN11851	PFA / HC276	282 m³/h	
XXXX	xx		xx	
	Material process connection			
0	w/o			
1	flange steel painted			
2	flange stainless steel 1.4301			
G	threaded connection G½ male, st.st. 14404	incl. sealing EPDM		
N	threaded connection ½" NPT male, st.st. 14404	incl. sealing EPDM		
X	XXXX			
	Material electrodes			
S	stainless steel 1.4571 (316 TI)	(standard for hard rubber, soft rubber, EPDM)		
H	Hastelloy®	(standard for PTFE/PFA-lining)		
T	tantalum	(only for PFA lining)		
N	platinum/iridium	(standard for ceramic lining)		
M	titanium			
X	XXXX			
	Earthing electrode			
0	w/o	(standard for PTFE/PFA/ceramic lining)		
S	stainless steel 1.4571 (316 TI)	(standard for hard rubber, soft rubber, EPDM)		
H	Hastelloy®	(not for PTFE/PFA/ceramic lining)		
T	tantal	(not for PTFE/PFA/ceramic lining)		
N	platin	(not for PTFE/PFA/ceramic lining)		
M	titan	(not for PTFE/PFA/ceramic lining)		
X	XXXX			
	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	

Order Details (continued)

	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			
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	½" NPT (f)
D	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket		M20x1.5
	IP 68 (terminal connection box on transmitter standard)			
G	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	transmitter c/w term. conn.box	½" NPT (f)
H	remote transmitter	incl 2.5 m cable, c/w pipe/wall mounting bracket	transmitter c/w term. conn.box	M20x1.5
	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			
B	5 m			
C	10 m			
D	15 m			
E	20 m			
F	30 m			
G	40 m			
H	50 m			
X	XX			



Order Details (continued)

Model code	Description			
Transmitter UMF2-				
	Earthing ring/price per piece	Connection to sensor	Material	
A	earthing ring/sensor	DN2 ... DN10	stainless steel	
B	earthing ring/sensor	DN15/½"	stainless steel	
C	earthing ring/sensor	DN20/¾"	stainless steel	
D	earthing ring/sensor	DN25/1"	stainless steel	
E	earthing ring/sensor	DN32/1¼"	stainless steel	
F	earthing ring/sensor	DN40/1½"	stainless steel	
G	earthing ring/sensor	DN50/2"	stainless steel	
H	earthing ring/sensor	DN65/2½"	stainless steel	
I	earthing ring/sensor	DN80/3"	stainless steel	
J	earthing ring/sensor	DN100/4"	stainless steel	
K	earthing ring/sensor	DN125/5"	stainless steel	
L	earthing ring/sensor	DN150/6"	stainless steel	
M	earthing ring/sensor	DN200/8"	stainless steel	
N	earthing ring/sensor	DN250/10"	stainless steel	
X	XX special/on request			
	Tread-adaptor ceramic/PFA version	Process connection	Material/accessories	
A	DN10 - G½ male	G½ male	stainless steel/incl. seal in PTFE and mounting material	
B	DN10 - ½" NPT	½" NPT	stainless steel/incl. seal in PTFE and mounting material	
C	DN10 - G1½	G½ male	Hastelloy®/incl. seal in PTFE and mounting material	
D	DN10 - ½" NPT	½" NPT	Hastelloy®/incl. seal in PTFE and mounting material	
X	XX special/on request			