

MUT1000-Engineering

MUT1000EL sensors represent the state of the art of BERMAD production for water cycle and process applications. The new structure for the generation of the magnetic field and the innovative route of the signal generated by the electrodes, provide a sensor with an extremely wide measurement range. These models are installed between two flanges surrounded by studs. For this reason they are also called "wafer sensors" EL= Extended Linearity This new sensors series follows the successful tradition of the MUT1000EL, introducing a measurement range of more than 1:1000 without linearization software. These kinds of performances allow very accurate measures on a wide flowrate range and to count lower flow rates that, before, would have been reset because of the effect of the converters cut off. This flanged sensors series bases its operation on the Faraday Principle, by which a conductor crossing a magnetic field generates a potential perpendicularly orientated to the same field. In this case the flow tube made in stainless steel AISI 304 is equipped with carbon steel or stainless steel flanges, two coils are installed on the top and inferior part; the magnetic field, generated by the electric current crossing the coil, induces in the electrodes a difference in the potential proportional to the flow rate. With the aim of measuring such potential of very low values, the interior of the flow tube is electrically insulated, thus the process liquid is no longer in contact neither with the material of the flow tube nor with that of the flange. The converter used generates the current supplying the coil, acquires the electrodes difference of potential, process the signal to calculate the flowrate and administers the communication with the exterior. The entire sensor, when installed in the separate version, has a degree of protection IP68 suitable for a permanent immersion in water up to a depth of 1.5m thanks to a welded plate structure containing the coil and the electrodes.



The electromagnetic flowmeter designed for the toughest applications



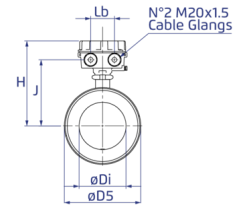
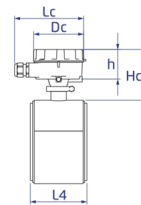
Modbus



Sensor Specifications

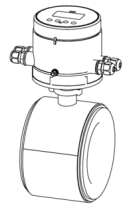
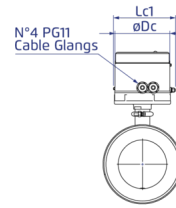
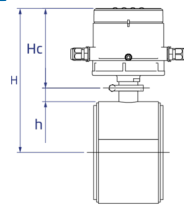
Pipe sizes inches/mm	1" - 12" Inch / DN25 - 300 mm	
Flanges Connections Available	EN1092-1, ANSI 150, ANSI 300, ANSI 600, ANSI 900, DIN 2501, BS 4504, AS 2129 (TABLE D - E - F), AS 4087, ISO 7005-1, KS 10K	
Maximum pressure	40 bar for diameters \leq DN150	16 bar for diameters \geq DN200
Internal lining and liquid temperature	Internal lining: PTFE Ebonite	Liquid temperature: Standard -40 /+130°C (up to +180° on request) -40°C / +80°C
Protection Degree	IP68 (EN 60529) permanents submersion at 1.5m (4.92ft)	
Electrical connections	Cableglands M20 x 1.5 + terminal box + sealing resin	

MUT1000 -Separate



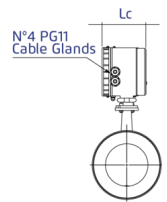
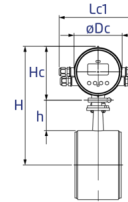
Size	L4 (mm)	D5 (mm)	Di (mm)	H (mm)	Hc (mm)	Lc (mm)	Lb (mm)	J (mm)	h (mm)	Weight (Kg)
1" ; DN25	86	74	24	163	126	144.7	63	108	74	2.1
1¼" ; DN32	87	83	32	186	126	144.7	63	112	74	-
1½" ; DN40	87	88	35	170	126	144.7	63	115	74	2.5
2" ; DN50	87	102	47	177	126	144.7	63	122	74	3.0
2½" ; DN65	96	114	63	183	126	144.7	63	128	74	4.5
3" ; DN80	90	127	75	190	126	144.7	63	134	74	6.5
4" ; DN100	109	161	99	207	126	144.7	63	151	74	7.5
5" ; DN125	110	186	124	219	126	144.7	63	164	74	9.5
6" ; DN150	130	216	152	234	126	144.7	63	179	74	11.5
8" ; DN200	169	267	201	260	126	144.7	63	204	74	17
10" ; DN250	169	319	255	286	126	144.7	63	230	74	21
12" ; DN300	195	371	308	312	126	144.7	63	256	74	26

MUT1000 - MC406 VERTICAL



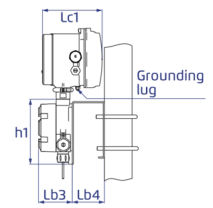
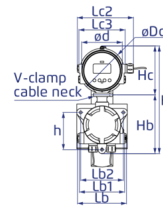
Size	H (mm)	Hc (mm)	Lc1 (mm)	Dc (mm)
1" ; DN25	234	126	126	112
1¼" ; DN32	239	126	126	112
1½" ; DN40	241	126	126	112
2" ; DN50	248	126	126	112
2½" ; DN65	254	126	126	112
3" ; DN80	261	126	126	112
4" ; DN100	278	126	126	112
5" ; DN125	290	126	126	112
6" ; DN150	305	126	126	112
8" ; DN200	331	126	126	112
10" ; DN250	357	126	126	112
12" ; DN300	383	126	126	112

MUT1000 - MC406 HORIZONTAL



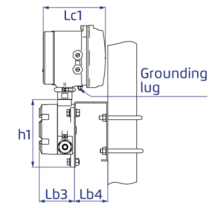
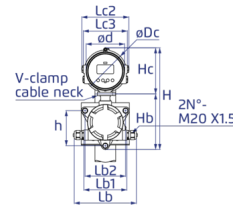
Size	H (mm)	Hc (mm)	Lc (mm)	Lc1 (mm)	Dc (mm)	h (mm)
1" ; DN25	233	125	102	183	113	71
1¼" ; DN32	238	125	102	183	113	71
1½" ; DN40	240	125	102	183	113	71
2" ; DN50	247	125	102	183	113	71
2½" ; DN65	253	125	102	183	113	71
3" ; DN80	260	125	102	183	113	71
4" ; DN100	277	125	102	183	113	71
5" ; DN125	289	125	102	183	113	71
6" ; DN150	304	125	102	183	113	71
8" ; DN200	330	125	102	183	113	71
10" ; DN250	356	125	102	183	113	71
12" ; DN300	382	125	102	183	113	71

MC406 Military connectors



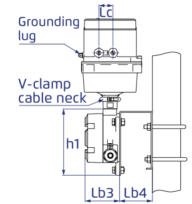
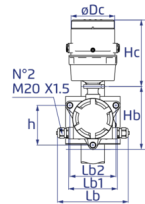
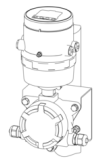
H (mm)	Hc (mm)	Lc1 (mm)	Lc2 (mm)	Lc3 (mm)	Dc (mm)	d (mm)	Hb (mm)	Lb (mm)	Lb1 (mm)	Lb2 (mm)	Lb3 (mm)	Lb4 (mm)	h (mm)	h1 (mm)	Weight (Kg)
296	134	130	155	128	123	112	161.5	136	125	118	73.5	70	102	141	0.6

MC406 Standard Separate



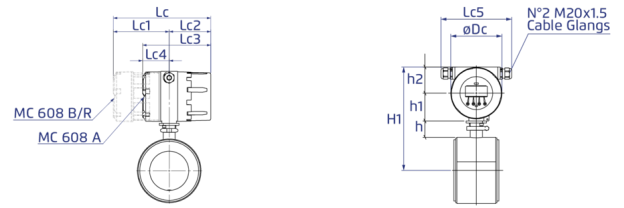
H (mm)	Hc (mm)	Lc1 (mm)	Lc2 (mm)	Lc3 (mm)	Dc (mm)	d (mm)	Hb (mm)	Lb (mm)	Lb1 (mm)	Lb2 (mm)	Lb3 (mm)	Lb4 (mm)	h (mm)	h1 (mm)	Weight (Kg)
296	134	130	128	137	123	112	161.5	181	125	118	73.5	70	102	141	0.6

MC406 Separate with GSM



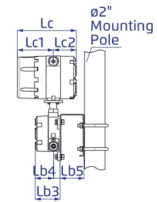
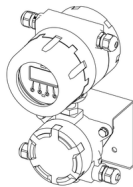
H (mm)	Hc (mm)	Lc (mm)	Dc (mm)	Hb (mm)	Lb (mm)	Lb1 (mm)	Lb2 (mm)	Lb3 (mm)	Lb4 (mm)	h (mm)	h1 (mm)	Weight (Kg)
332	170.5	30	112	161.5	181	125	118	73.5	70	102	141	0.9

MUT1000- MC608A-B-R



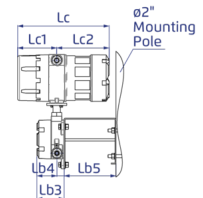
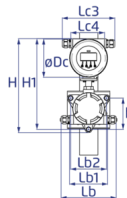
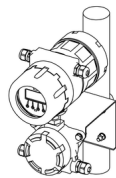
Size	H (mm)	Lc (mm)	Lc1 (mm)	Lc2 (mm)	Lc3 (mm)	Lc4 (mm)	Lc5 (mm)	Dc (mm)	h (mm)	h1 (mm)	h2 (mm)
1" ; DN25	222	247	142	106	173	68	171	125	53	68	64
1¼" ; DN32	227	247	142	106	173	68	171	125	53	68	64
1½" ; DN40	229	247	142	106	173	68	171	125	53	68	64
2" ; DN50	236	247	142	106	173	68	171	125	53	68	64
2½" ; DN65	242	247	142	106	173	68	171	125	53	68	64
3" ; DN80	249	247	142	106	173	68	171	125	53	68	64
4" ; DN100	266	247	142	106	173	68	171	125	53	68	64
5" ; DN125	278	247	142	106	173	68	171	125	53	68	64
6" ; DN150	293	247	142	106	173	68	171	125	53	68	64
8" ; DN200	319	247	142	106	173	68	171	125	53	68	64
10" ; DN250	345	247	142	106	173	68	171	125	53	68	64
12" ; DN300	371	247	142	106	173	68	171	125	53	68	64

MC608A



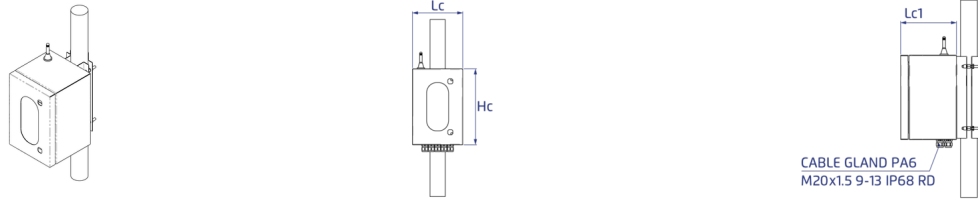
H (mm)	H1 (mm)	Lc (mm)	Lc1 (mm)	Lc2 (mm)	Lc3 (mm)	Lc4 (mm)	Dc (mm)	Lb (mm)	Lb1 (mm)	Lb2 (mm)	Lb3 (mm)	Lb4 (mm)	Lb5 (mm)	h (mm)
307	296	173	105.5	67.5	173	111	125	181	125	118	74	54	70	102

MC608B/R



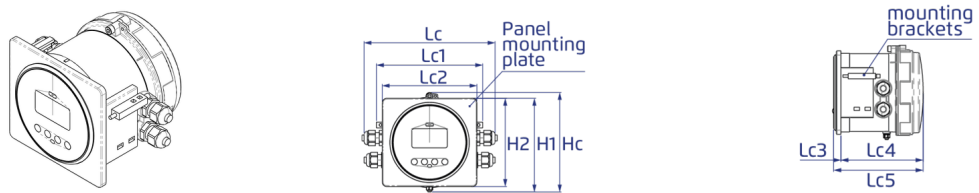
H (mm)	H1 (mm)	Lc (mm)	Lc1 (mm)	Lc2 (mm)	Lc3 (mm)	Lc4 (mm)	Dc (mm)	Lb (mm)	Lb1 (mm)	Lb2 (mm)	Lb3 (mm)	Lb4 (mm)	Lb5 (mm)	h (mm)
307	296	247	105.5	141.5	173	111	125	181	125	118	74	54	150	102

MC608I



Hc (mm)	Lc (mm)	Lc1 (mm)
300	200	200

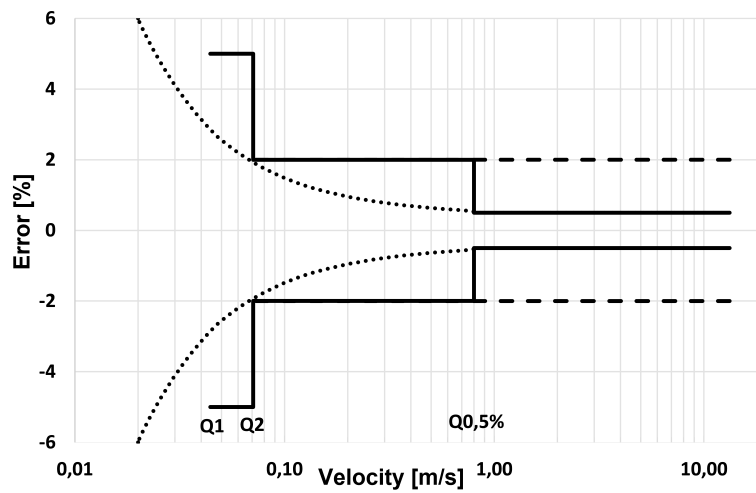
MC608P



H1 (mm)	H2 (mm)	Hc (mm)	Lc (mm)	Lc1 (mm)	Lc2 (mm)	Lc3 (mm)	Lc4 (mm)	Lc5 (mm)
127.5	120	135.5	180	146	130	10.5	119.5	130

Measuring Accuracy

Each flowmeter is standard wet calibrated under reference conditions by direct volume comparison. The performance of the flowmeter is defined and documented in an individual calibration certificate. Accuracy 0,2% +/- 2mm/s (0,2% +/- 1mm/s on request)

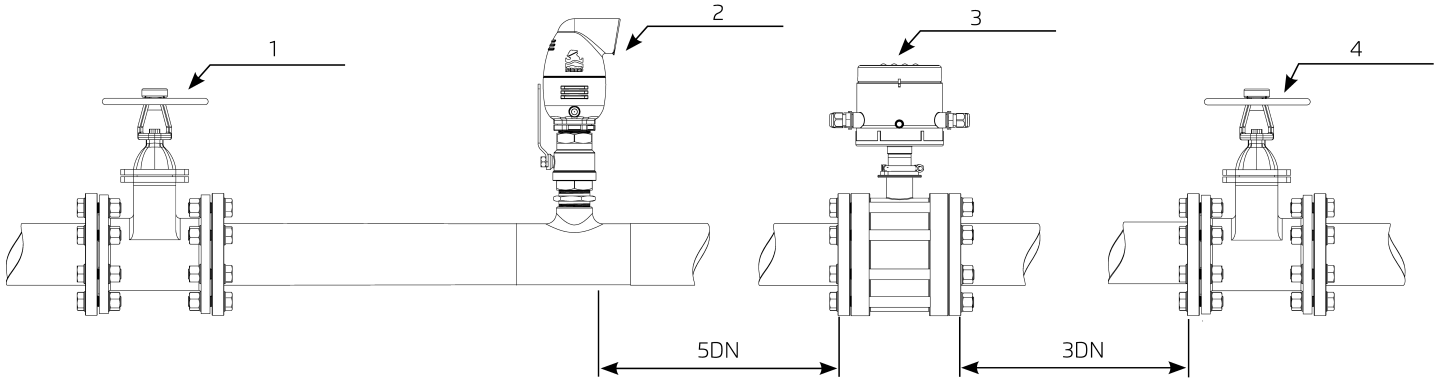
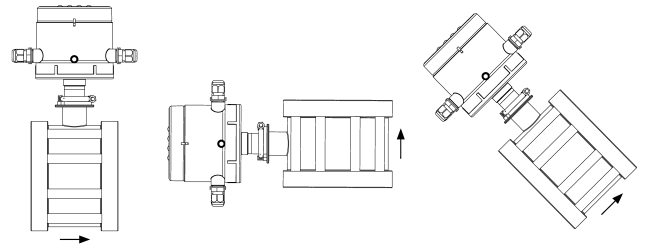


Flow Rate

Size Q @ (m³/h)	DN25 1"	DN32 1¼"	DN40 1½"	DN50 2"	DN65 2½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"
Q1 Minimum Flow	0.08	0.08	0.128	0.2	0.32	0.504	0.8	1.280	2	3.2	5.04	8
Q2 Transitional Flow	0.128	0.128	0.205	0.32	0.512	0.806	1.28	2.048	3.2	5.12	8.064	12.8
Q3 Permanent Flow	10	10	16	25	40	63	100	160	250	400	630	1000
Q4 Maximum Flow (Short Time)	12.5	12.5	20	31.25	50	78.75	125	200	312.5	500	787.5	1250

Installation Recommendations

- The water meter can be installed in any orientation without interfering with metrological performance.
- The arrow on water meter body must be in the same direction with the flow.
- Prior to installation, flush the line to remove debris.
- The water meter must be filled with water to operate.



[1] Isolation Valve

[2] Air Valve

[5DN] Unrestricted pipe,
minimum 5XDN

[3] MUT1000

[4] Isolation Valve

[3DN] Unrestricted pipe,
minimum 3XDN

