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

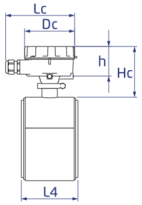
OIML MID CE Modbus Bluetooth

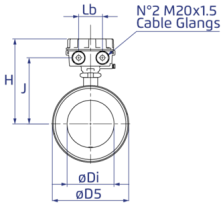
All images in this catalog are for illustration only

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 ≤ DN150 16 bar for diameters ≥ DN200
Internal lining and liquid temperature	Internal lining: Liquid temperature: PTFE Standard -40 /+130°C (up to +180° on request) Ebonite -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

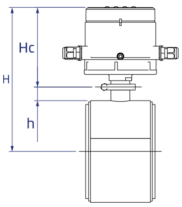
MUT1000 -Separate

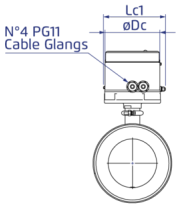


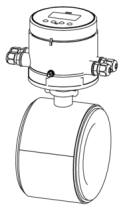


Size	L4 (In)	D5 (In)	Di (In)	H (In)	Hc (In)	Lc (In)	Lb (In)	J (In)	Weight (Lb)
1" ; DN25	3.39	2.91	0.94	6.42	4.96	5.7	2.48	4.25	4.63
1¼" ; DN32	3.43	3.27	1.26	7.32	4.96	5.7	2.48	4.41	-
1½" ; DN40	3.43	3.46	1.38	6.69	4.96	5.7	2.48	4.53	5.51
2" ; DN50	3.43	4.02	1.85	6.97	4.96	5.7	2.48	4.8	6.61
2½" ; DN65	3.78	4.49	2.48	7.2	4.96	5.7	2.48	5.04	9.92
3" ; DN80	3.54	5	2.95	7.48	4.96	5.7	2.48	5.28	14.33
4" ; DN100	4.29	6.34	3.9	8.15	4.96	5.7	2.48	5.94	16.53
5" ; DN125	4.33	7.32	4.88	8.62	4.96	5.7	2.48	6.46	20.94
6" ; DN150	5.12	8.5	5.98	9.21	4.96	5.7	2.48	7.05	25.35
8" ; DN200	6.65	10.51	7.91	10.24	4.96	5.7	2.48	8.03	37.48
10" ; DN250	6.65	12.56	10.04	11.26	4.96	5.7	2.48	9.06	46.3
12" ; DN300	7.68	14.61	12.13	12.28	4.96	5.7	2.48	10.08	57.32

MUT1000 - MC406 VERTICAL

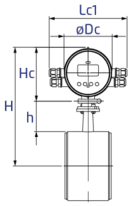


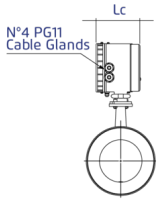




Size	H (In)	Hc (In)	Lc1 (In)	Dc (In)
1" ; DN25	9.21	4.96	4.96	4.41
1¼" ; DN32	9.41	4.96	4.96	4.41
1½" ; DN40	9.49	4.96	4.96	4.41
2" ; DN50	9.76	4.96	4.96	4.41
2½" ; DN65	10	4.96	4.96	4.41
3" ; DN80	10.28	4.96	4.96	4.41
4" ; DN100	10.94	4.96	4.96	4.41
5" ; DN125	11.42	4.96	4.96	4.41
6" ; DN150	12.01	4.96	4.96	4.41
8" ; DN200	13.03	4.96	4.96	4.41
10" ; DN250	14.06	4.96	4.96	4.41
12" ; DN300	15.08	4.96	4.96	4.41

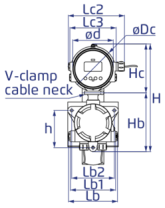
MUT1000 - MC406 HORIZONTAL

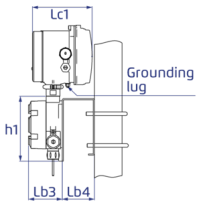




Size	H (In)	Hc (In)	Lc (In)	Lc1 (In)	Dc (In)
1" ; DN25	9.17	4.92	4.02	7.2	4.45
1¼" ; DN32	9.37	4.92	4.02	7.2	4.45
1½" ; DN40	9.45	4.92	4.02	7.2	4.45
2" ; DN50	9.72	4.92	4.02	7.2	4.45
2½" ; DN65	9.96	4.92	4.02	7.2	4.45
3" ; DN80	10.24	4.92	4.02	7.2	4.45
4" ; DN100	10.91	4.92	4.02	7.2	4.45
5" ; DN125	11.38	4.92	4.02	7.2	4.45
6" ; DN150	11.97	4.92	4.02	7.2	4.45
8" ; DN200	12.99	4.92	4.02	7.2	4.45
10" ; DN250	14.02	4.92	4.02	7.2	4.45
12" ; DN300	15.04	4.92	4.02	7.2	4.45

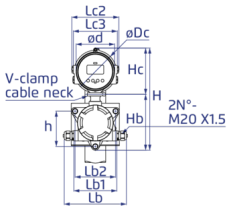
MC406 Military connectors

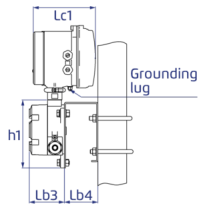




H (In)	Hc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Dc (In)	d (In)	Hb (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	h1 (In)	Weight (Lb)
11.65	5.28	5.12	6.1	5.04	4.84	4.41	6.36	5.35	4.92	4.65	2.89	2.76	5.55	1.32

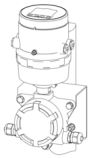
MC406 Standard Separate

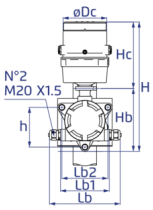


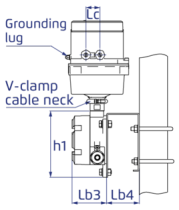


H (In)	Hc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Dc (In)	d (In)	Hb (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	h1 (In)	Weight (Lb)
11.65	5.28	5.12	5.04	5.39	4.84	4.41	6.36	7.13	4.92	4.65	2.89	2.76	5.55	1.32

MC406 Separate with GSM

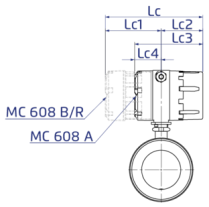


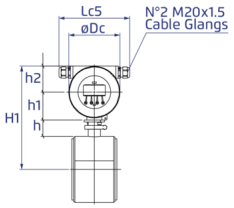




H (In)	Hc (In)	Lc (In)	Dc (In)	Hb (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	h1 (In)	Weight (Lb)
13.07	6.71	1.18	4.41	6.36	7.13	4.92	4.65	2.89	2.76	5.55	1.98

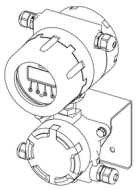
MUT1000- MC608A-B-R

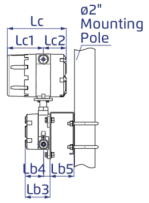




Size	H (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Lc5 (In)	Dc (In)	h1 (In)	h2 (In)
1" ; DN25	8.74	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
1¼" ; DN32	8.94	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
1½" ; DN40	9.02	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
2" ; DN50	9.29	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
2½" ; DN65	9.53	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
3" ; DN80	9.8	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
4" ; DN100	10.47	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
5" ; DN125	10.94	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
6" ; DN150	11.54	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
8" ; DN200	12.56	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
10" ; DN250	13.58	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52
12" ; DN300	14.61	9.72	5.59	4.17	6.81	2.68	6.73	4.92	2.68	2.52

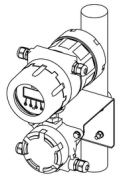
MC608A

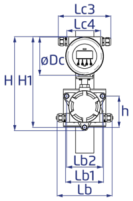


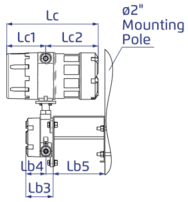


H (In)	H1 (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Dc (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	Lb5 (In)	h1 (In)	h2 (In)
12.09	11.65	6.81	4.15	2.66	6.81	4.37	4.92	7.13	4.92	4.65	2.91	2.13	2.76	0.48	0.46

MC608B/R



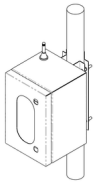


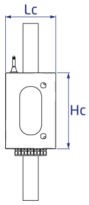


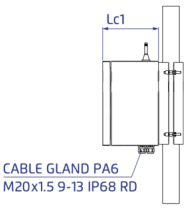
H (In)	H1 (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Dc (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	Lb5 (In)	h1 (In)	h2 (In)
12.09	11.65	9.72	4.15	5.57	6.81	4.37	4.92	7.13	4.92	4.65	2.91	2.13	5.91	0.48	0.46

All images in this catalog are for illustration only

MC608I

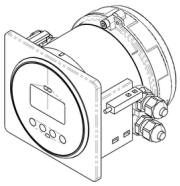


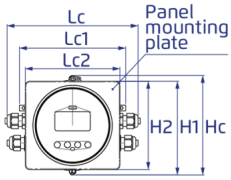


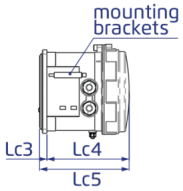


Hc (In)	Lc (In)	Lc1 (In)
11.81	7.87	7.87

MC608P



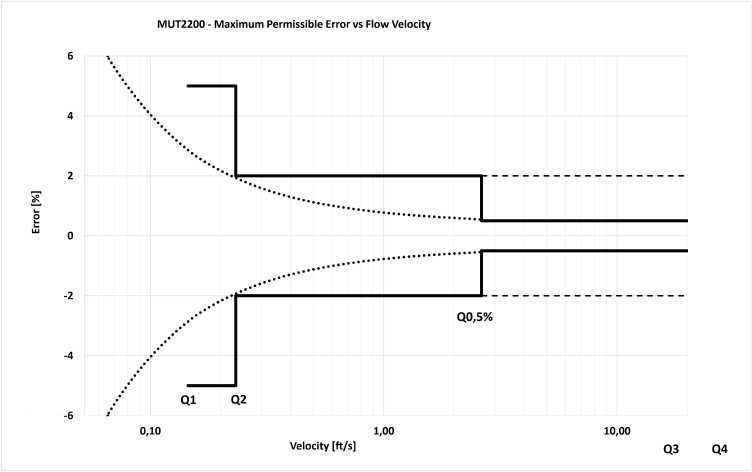




H1 (In)	H2 (In)	Hc (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Lc5 (In)	h2 (In)	h3 (In)
5.02	4.72	5.33	7.09	5.75	5.12	0.41	4.70	5.12	0.20	0.19

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% ± 0.0066 ft/s (±0.2% ± 0.0033 ft/s on request).

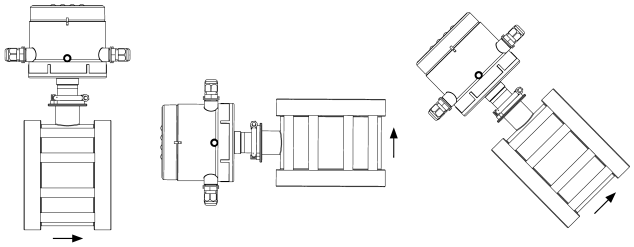


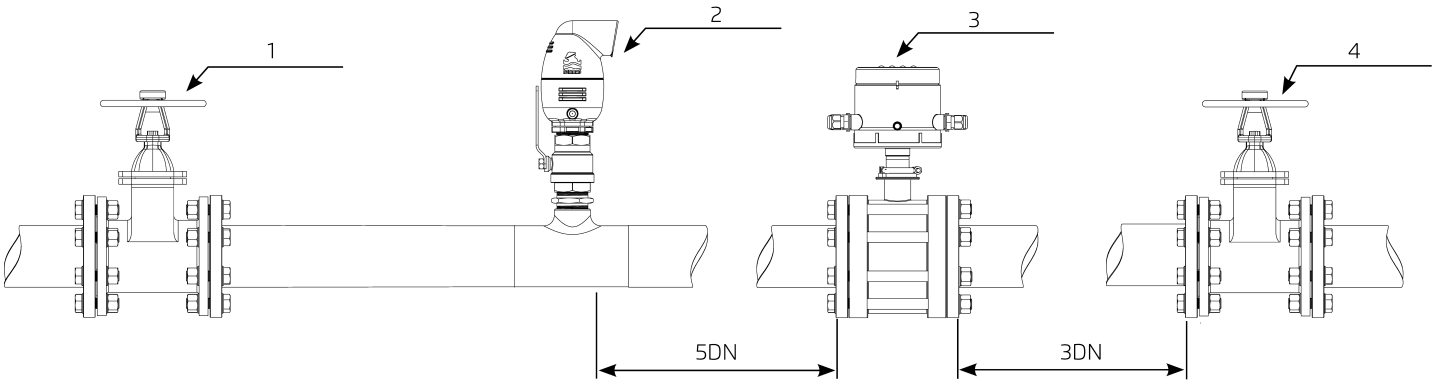
Flow Rate

Size Q @ (gpm)	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	0.35	0.35	0.56	0.88	1.41	2.22	3.52	5.64	8.81	14.09	22.19	35.22
Q2 Transitional Flow	0.56	0.56	0.9	1.41	2.25	3.55	5.64	9.02	14.09	22.54	35.50	56.36
Q3 Permanent Flow	44.03	44.03	70.45	110.07	176.11	277.38	440.29	704.46	1,100.72	1,761.15	2,773.81	4,402.87
Q4 Maximum Flow (Short Time)	55.04	55.04	88.06	137.59	220.14	346.73	550.36	880.57	1,375.90	2,201.43	3,467.26	5,503.58

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

[3DN] Unrestricted pipe, minimum 3XDN

[3] MUT1000

[4] Isolation Valve