Irrigation

BERMAD Meters

Merging monitoring & control

Sensor

MUT1100J

Euromag Electromagnetic Flowmeter

BERMAD

Sensor MUT1100J

EUROMAG INTERNATIONAL MUT1100J are flangeless sensors that cover all diameters from DN40 to DN150. When light weight and compact dimensions are required, the choice of sensors cannot be other than MUT1100J. These models are installed between two flanges surrounded by studs. For this reason they are also called "wafer sensors."

These performances allow to measure also low flow rates precisely and repeatable, even in difficult/ problematic applications with solid parts.

The MUT1100J sensor series bases its operation on the Faraday Principle, by which a conductor crossing a magnetic field generates an electrical potential perpendicular to the field itself. On the top and on the lower side of the stainless steel AISI 304 flow tube, two coils are installed; the magnetic field generated by the electric current crossing the coils, induces in the electrodes a potential difference 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 flanges.

The converter used generates the current supplying the coils, acquires the electrodes potential difference, process the signal to calculate the flow rate and manages all the communications. The entire sensor has an IP68 protection degree suitable for a permanent immersion in water up to a depth of 1.5m.

The electromagnetic flowmeter designed for irrigation

CE

DS130-3-ENG

Body and flange

The MUT1100J have a flow tube made in Noryl™ and fiber glass, the coils housing is in carbon steel acrylic painted.It is equipped with a junction box to connect the cables to the converter. The degree of protection is IP 67. It may be installed between flanges UNI 2223 from PN 16 to PN 40 or ANSI 150, 300. The sensor and the flange are sealed by two O-rings supplied with the sensor. It can be operated with pressures up to 16 bar.

Internal lining

The sensor body is in Noryl™ with fiber glass at 20%, thus the temperature of the liquid to be measured has to be between 0°C and + 60°C.

Electrodes and grounding

In the Standard version the MUT1100J has three electrodes in AISI 316L and, on request they can be supplied in other materials. It should be noted that if the sensor is installed in a plastic or lined pipe line, the liquid grounding does not require the use of grounding rings, because of the presence of the third electrode.

Coupling and connecting to sensor

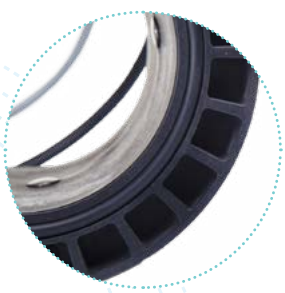
MUT1100J sensors can be coupled to all converters produced by EUROMAG. In the separate version the sensor is connected to the converter by means of two cables whose length should not exeed 100 meters on the mains powered version and 30 meters on the battery version.

Choice of diameter

The recommended full scale velocity, in normal applications, is around 2÷3 m/s. It should be noted that the full scale flowrate can be selected in the field through the converter keyboard. The maximum value that may be selected is the one corresponding to a velocity of 10 m/s.

Liquid temperature

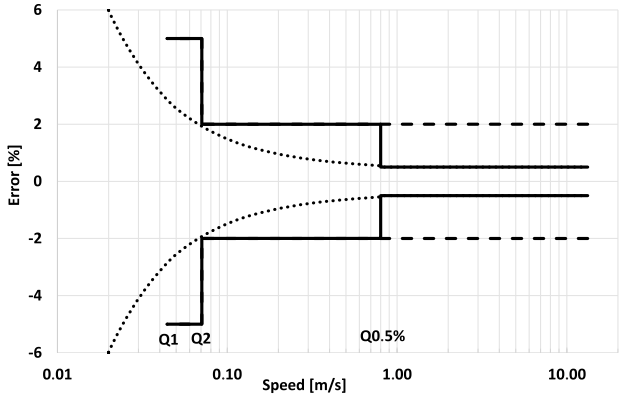
The maximum temperature the liquid can reach is +60 °C.



Calibration and maximum error

MUT1100J sensors belong to the reference Group B1 (ISO 11631). Each sensor is calibrated by a hydraulic bench equipped with a reference weighting system SIT certified. The uncertainty of the measure is equal to 0.2% of the read value, when the velocity of the liquid is more than 0.2 m/s. The repeatability of the measure is in the order of 0.1%.

Maximum Permissible Error is within the limits indicated in the following graph:



Reference standards

The Euromag magnetic meters are marked CE and are manufactured according to the following standards:

- 2014/35/EU - EN 61010-1:2013 (LVD)
- 2014/30/EU - EN 61326-1:2013 (EMC)

Standard diameters

millimeters (mm)	40	50	65	80	100	150
inches (")	1½"	2½"	2"	3"	4"	6"

Available electrodes

* AISI 316 L (standard)
* Titanio
* Hastelloy C
* Hastelloy B

Usable FLANGE, Diameter and Number of bolts and Tightening torque

DN		PN16			PN25			PN40			ANSI150			ANSI300			Length
[mm]	["]	Db	Nb	T [Nm]	Db	Nb	T [Nm]	Db	Nb	T [Nm]	Db	Nb	T [Nm]	Db	Nb	T [Nm]	MUT1100J
40	1½"	M16	4	30	M16	4	35	M16	4	41	½"	4	23	¾"	4	30	96 mm
50	2"	M16	4	35	M16	4	40	M16	4	47	⅝"	4	33	⅝"	8	23	86 mm
65	2½"	M16	4	48	M16	8	38	M16	8	38	⅝"	8	47	¾"	8	30	104 mm
80	3"	M16	8	35	M16	8	40	M16	8	47	⅝"	8	60	¾"	8	48	112 mm
100	4"	M16	8	48	M20	8	98	M20	8	116	⅝"	8	47	¾"	8	68	130 mm
150	6"	M20	8	85	M22	8	110	M22	8	131	¾"	8	81	¾"	12	90	196 mm

Bolt and nuts are considered new and duly lube.

General characteristics of MUT1100J sensors

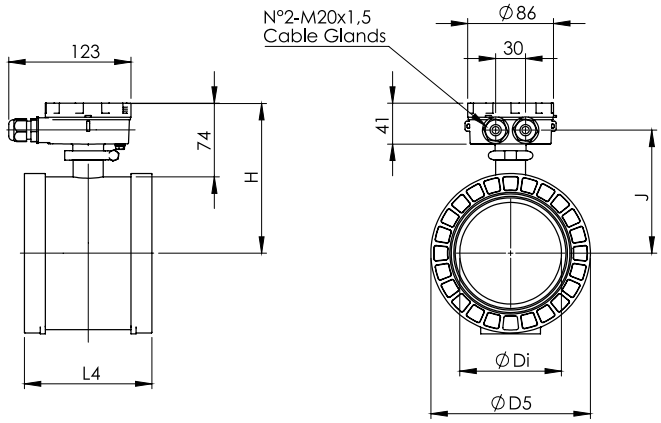
Available diameters	40 mm 1½"	50 mm 2"	65 mm 2½"	80 mm 3"	100 mm 4"	150 mm 6"
Connections: flanges [1]	EN1092-1/ANSI150					
Max pressure [1]	16 bar					
Max temperature	80°C					
Protection degree	IP67 (IP68 on request)					
Compatible converters [2]	MC608A/B/P/R/I			MC406		
Parts in contact with liquid	Flow tube: Noryl™ + Fiber glass			O - Ring: NBR		

Weight of MUT1100J sensors in the separate version without packing

DN	[mm]	40	50	65	80	100	150
DN	["]	1½"	2"	2½"	3"	4"	6"
WEIGHT	[kg]	1.5	1.8	2.5	3	4	6.5

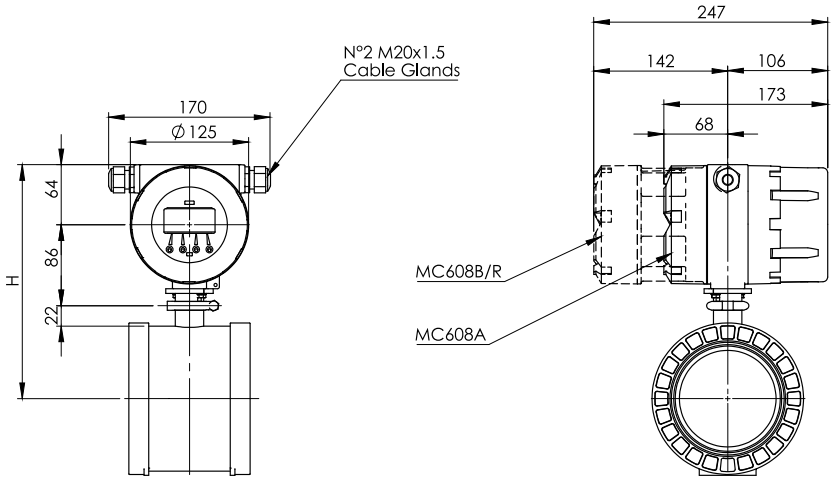
MUT1100J

DN	L4	Di	D5	H	J
40	96	37.6	86	113	87
50	86	45.9	103.2	122	95
65	104	62.5	122	131	105
80	112	78.0	134	137	111
100	128	102.0	160	150	124
150	196	147.0	220	180	154

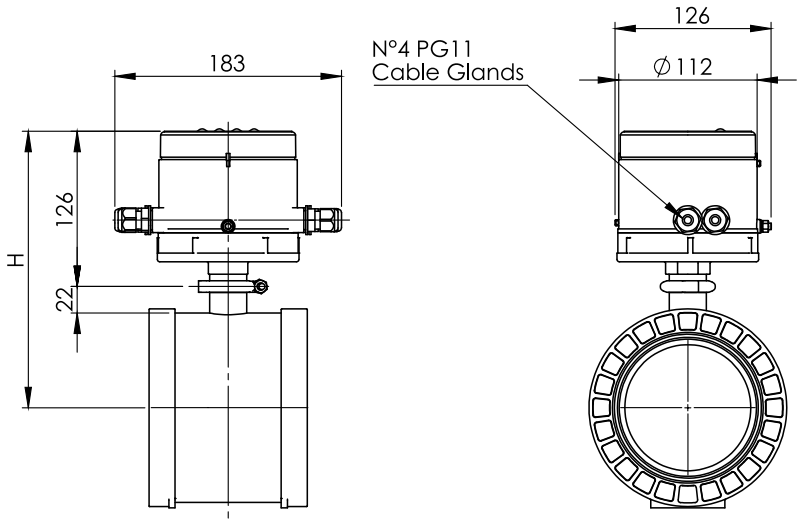


MUT1100J - MC608A/B/R

DN	H
40	211
50	220
65	229
80	235
100	248
150	278

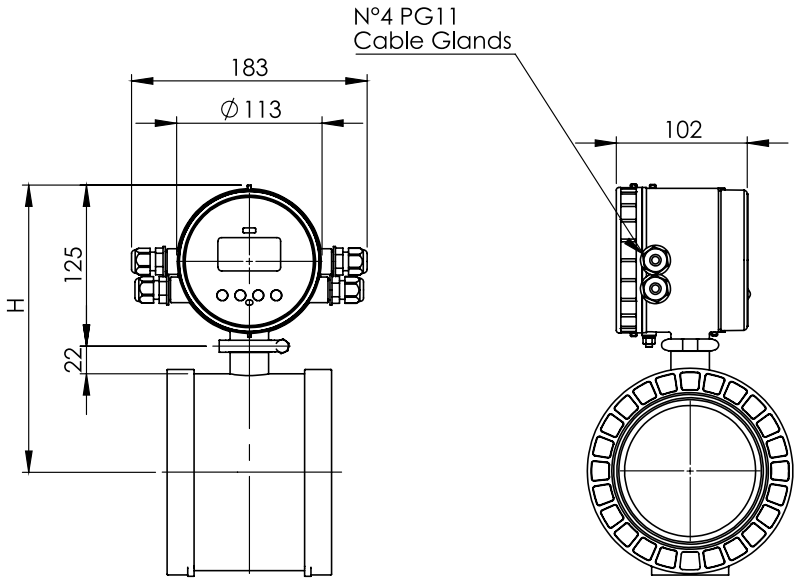


MUT1100J - MC406 VERTICAL



DN	H
40	187
50	196
65	205
80	211
100	224
150	254

MUT1100J - MC406 HORIZONTAL



DN	H
40	186
50	195
65	204
80	210
100	223
150	253

About BERMAD

BERMAD is a leading, privately-owned global company that designs, develops and manufactures tailor-made water & flow management solutions that include state-of-the-art hydraulic control valves, air valves and advanced metering solutions.

Founded in 1965, we have spent over 50 years interacting with the world's major end users, and accumulating knowledge and experience in multiple markets and industries. Today, we are recognized as a pioneer and established world-leading provider of water & flow management solutions that give our customers the unprecedented operational efficiency, and superior quality, durability and performance they need to meet the demanding challenges of the 21st century.