



ISOMAG

The friendly magmeter

DATA SHEET



CE

ISOIL 
I N D U S T R I A



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TECHNICAL DATA

OVERALL FEATURES

Nominal diameter	☐ DN 3 ÷ 20
Minimum conductivity	☐ 5 µS/cm
Humidity Range	☐ 0÷100% (IP 67)
Accuracy	☐ See relevant converter data sheet
CE Certification	☐ Yes

STANDARD FEATURES

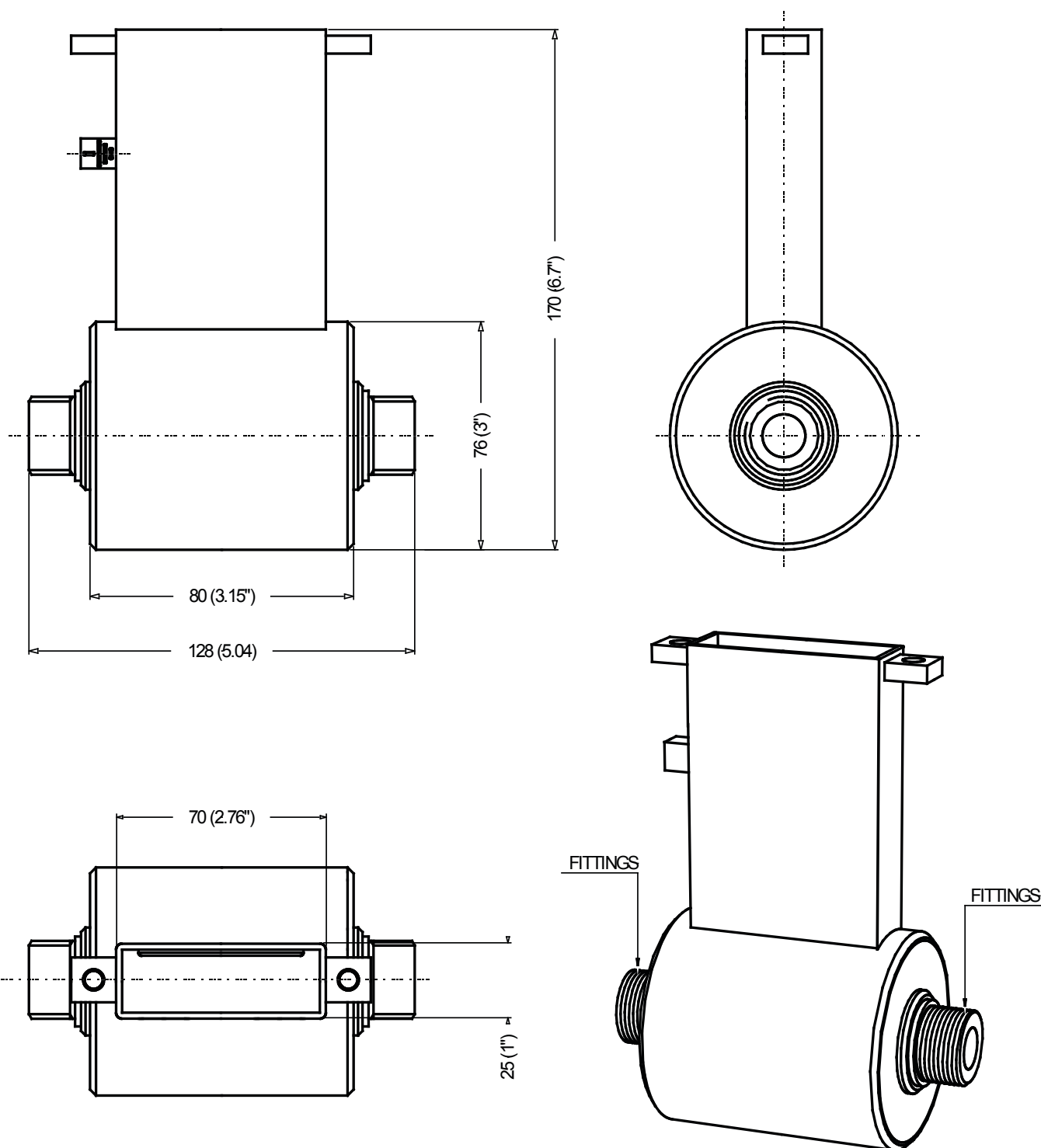
Body material	☐ AISI 304
Nominal pressure	☐ 1600 kPa
Process connections	☐ Threaded UNI 338 ☐ Threaded NTP ☐ Flanged UNI 2278 ☐ Flanged ANSI 150 ☐ Sanitary DIN 11851 ☐ Clamp ISO 2852 ☐ Clamp BS 4825 ☐ SMS
Version – protection rating	☐ Compact IP67
Connections material	☐ AISI 316
Lining material	☐ PTFE
Gasket material	☐ FPM
Liquid temperature	☐ -20°C ÷ 100°C comp. (130°C only with ML4F-1) ☐ -20°C ÷ 130°C separate
Vacuum resistance	☐ 20 Kpa absolute at 100 °C
Electrodes material	☐ AISI 316L ☐ Hastelloy C ☐ Platinum – rhodium ☐ Titanium ☐ Tantalum

OPTIONAL FEATURES

(CHECK FOR MORE DETAILS 'HOW TO ORDER' ON LAST PAGE)

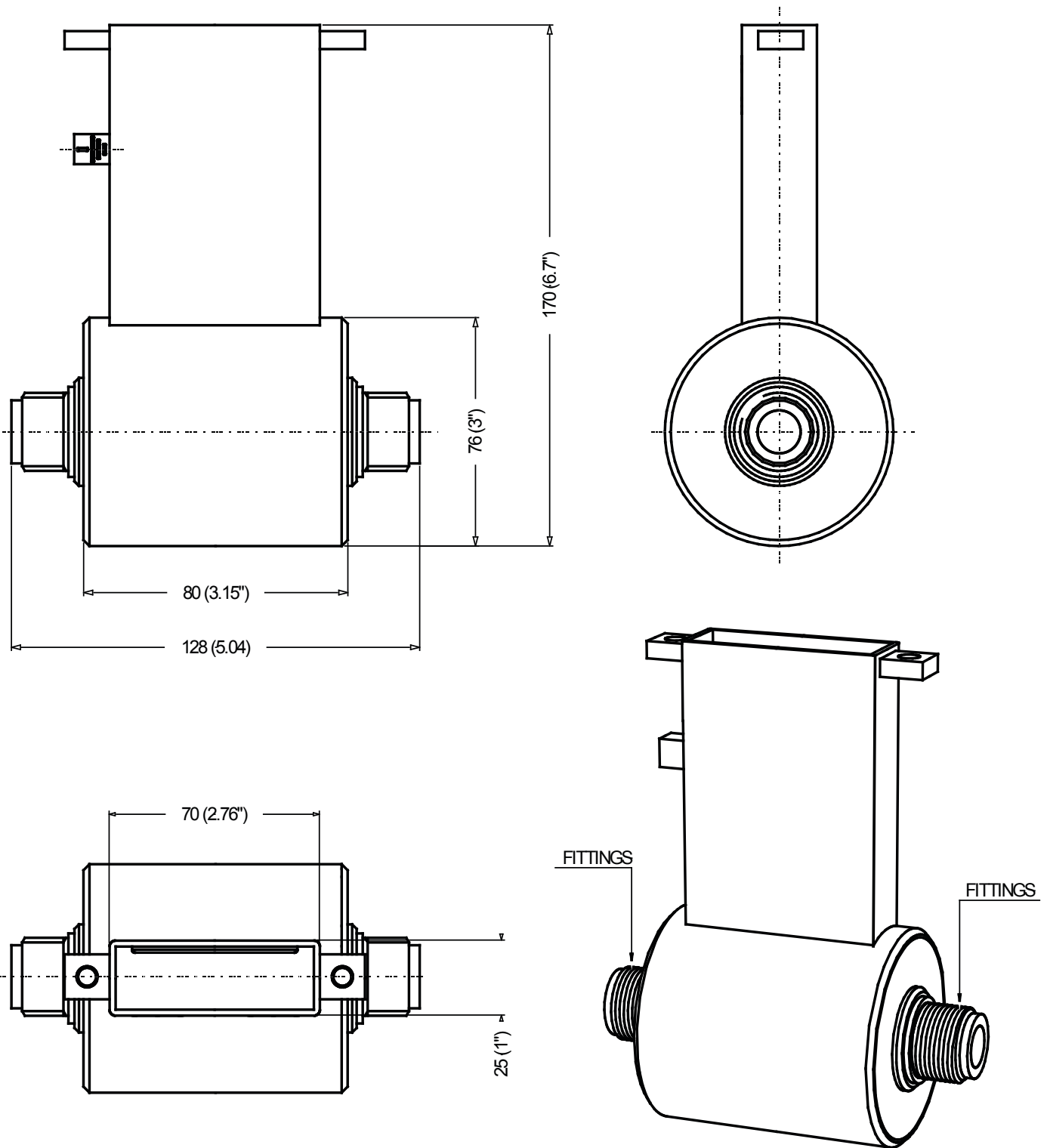
Body material	☐ Stainless steel 316
Gasket material	☐ EPDM
Nominal pressure	☐ 4000kPa
Process connection	☐ Others on request
Connections material	☐ AISI 304 with lining in PTFE ☐ Other on request
Electrodes material	☐ Others On request
Version – protection rating	☐ Separate (max 20m) – IP 68 ☐ Separate (max 500m) with pre-amp IP 67 (IP 68 optional)

OVERALL DIMENSIONS **GAS/NPT WITHOUT LINING**



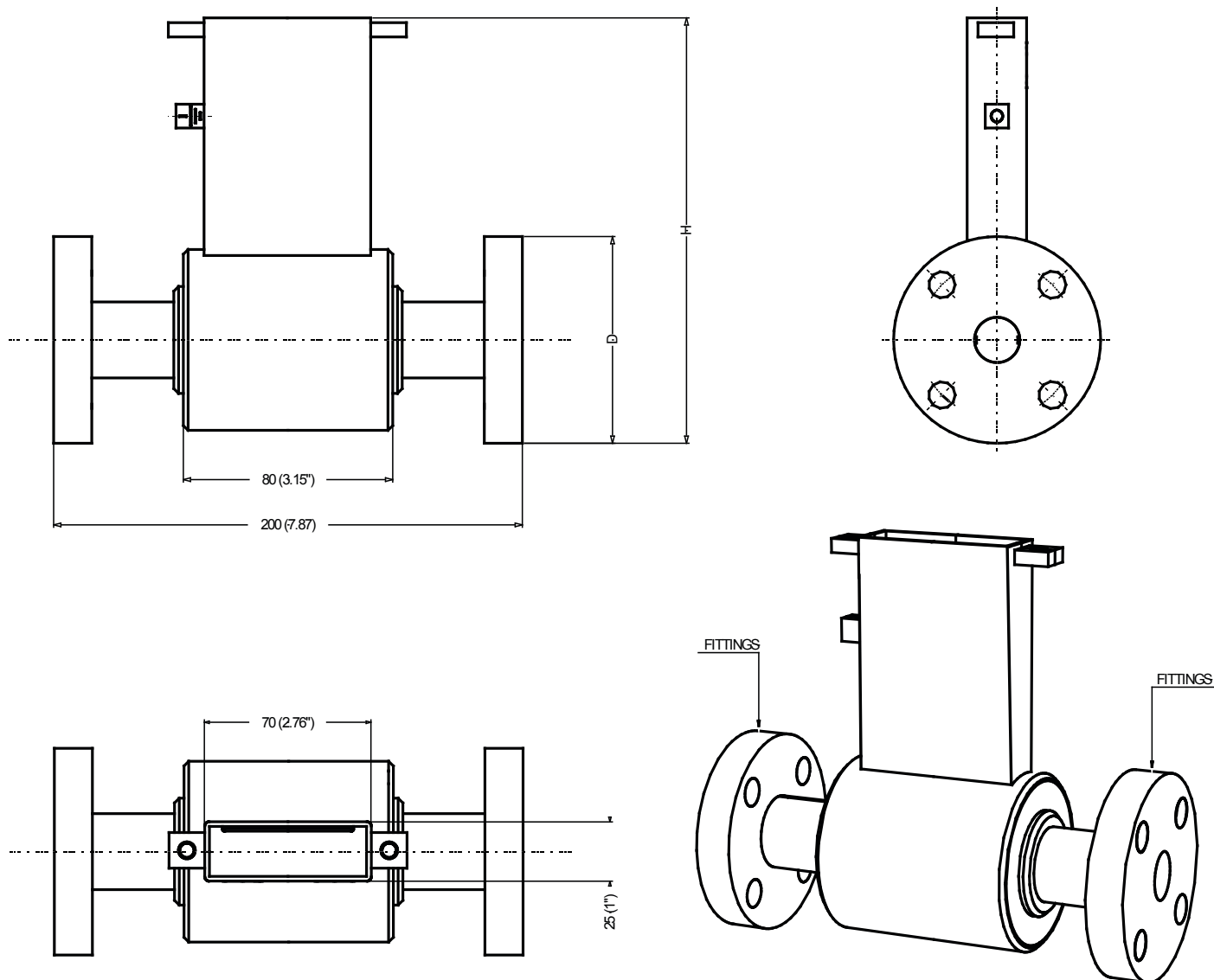
CONNECTIONS GAS/NPT (STAINLESS STEEL WITHOUT LINING)					
DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
FITTINGS	1/4"	3/8"	1/2"	3/4"	1"

GAS/NPT WITH LINING



CONNECTIONS GAS/NPT (STAINLESS STEEL LINING)					
DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
FITTINGS	1/2"	1/2"	3/4"	1"	1"1/4

FLANGED WITHOUT LINING



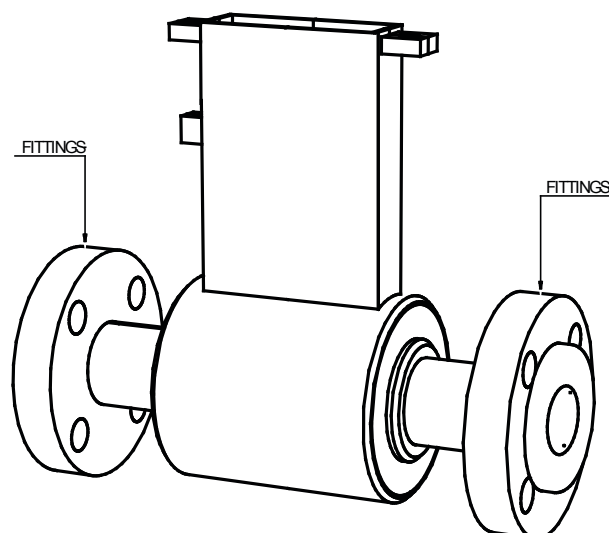
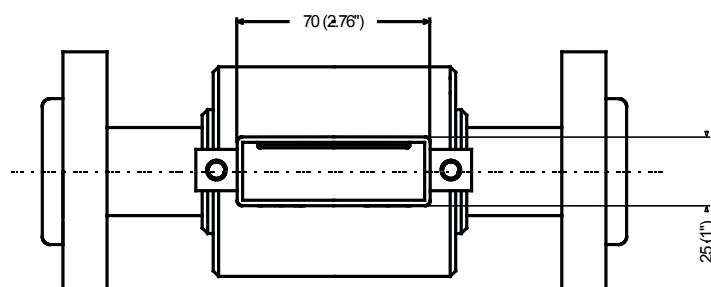
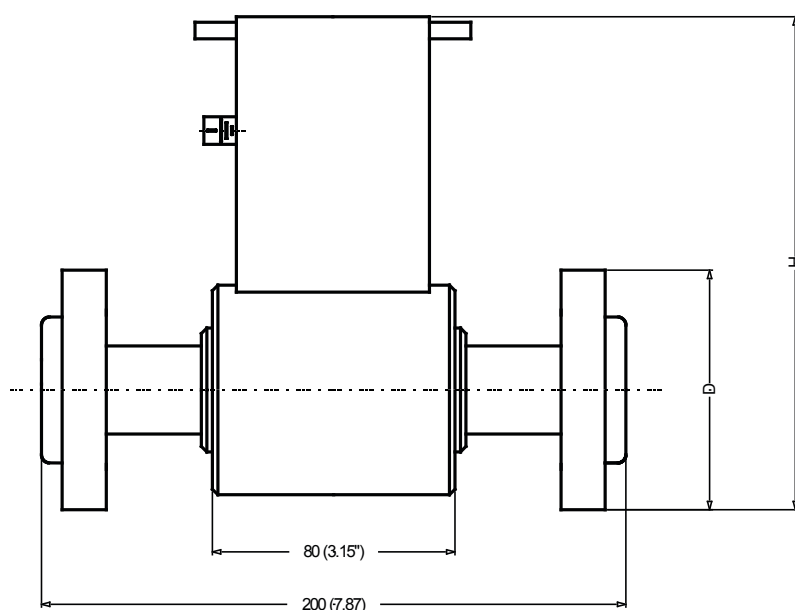
FLANGES CONNECTIONS UNI (STAINLESS STEEL WITHOUT LINING)

DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
D	90 (3.54)	90 (3.54)	90 (3.54)	95 (3.74)	105 (4.13)
H	183 (7.20)	183 (7.20)	183 (7.20)	186 (7.30)	191 (7.5)
FITTINGS	DN 10	DN 10	DN 10	DN 15	DN 20

FLANGES CONNECTIONS ANSI (STAINLESS STEEL WITHOUT LINING)

DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
D	88.9 (3.5)	88.9 (3.5)	88.9 (3.5)	88.9 (3.5)	98.4 (3.87)
H	183 (7.20)	183 (7.20)	183 (7.20)	183 (7.20)	188 (7.37)
FITTINGS	1/2"	1/2"	1/2"	1/2"	3/4"

FLANGED WITH PTFE LINING



UNI FLANGES CONNECTIONS (PTFE LINING)

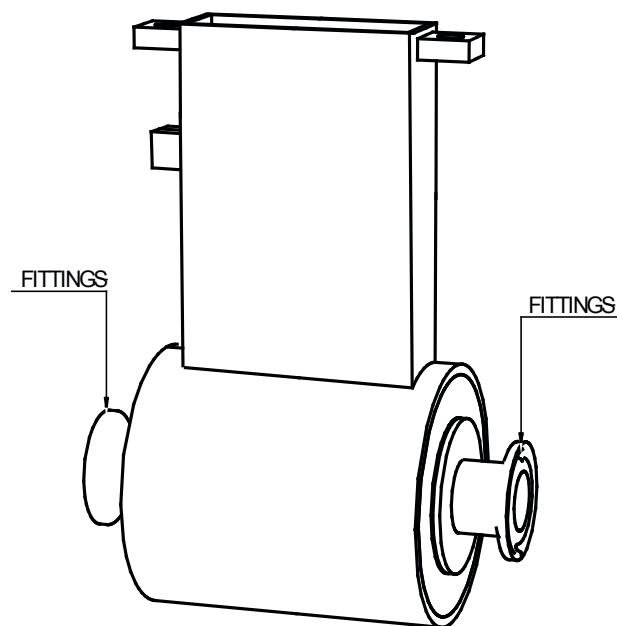
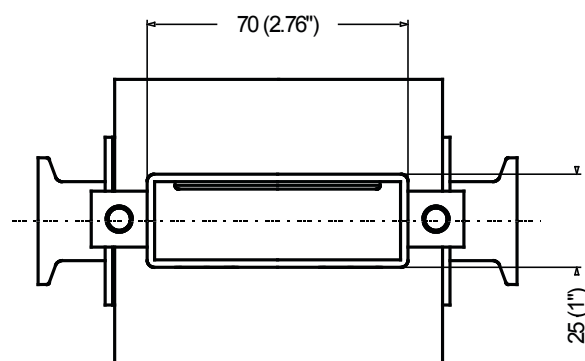
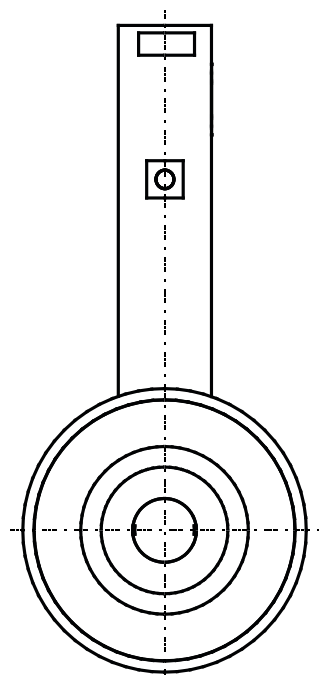
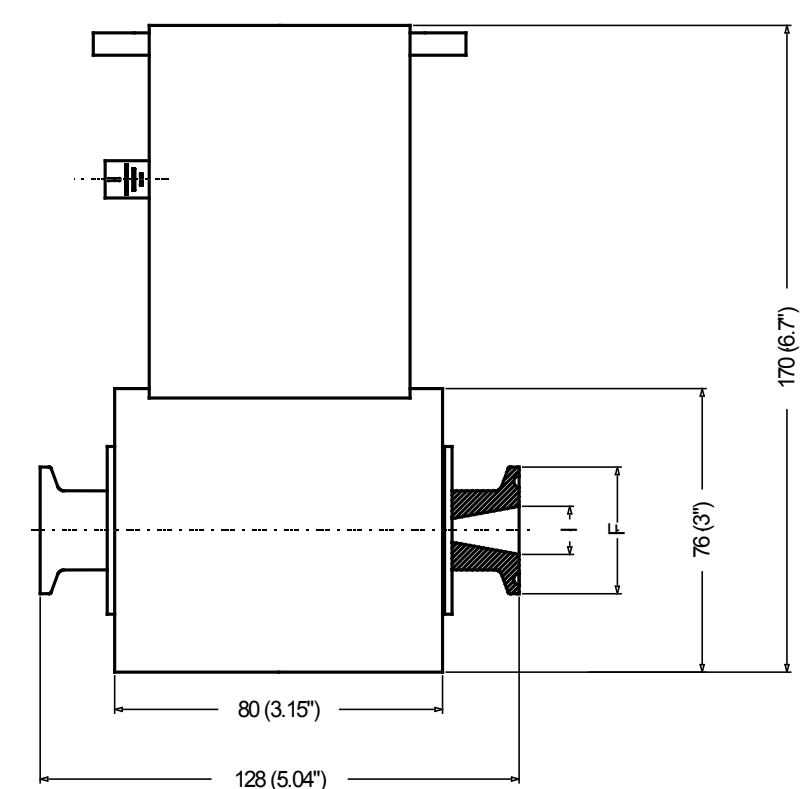
DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
D	90 (3.54)	90 (3.54)	90 (3.54)	95 (3.74)	105 (4.13)
H	183 (7.20)	183 (7.20)	183 (7.20)	186 (7.30)	191 (7.5)
FITTINGS	DN 10	DN 10	DN 10	DN 15	DN 20

ANSI FLANGES CONNECTIONS (PTFE LINING)

DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
D	88.9 (3.5)	88.9 (3.5)	88.9 (3.5)	88.9 (3.5)	98.4 (3.87)
H	183 (7.20)	183 (7.20)	183 (7.20)	183 (7.20)	188 (7.37)
FITTINGS	1/2"	1/2"	1/2"	1/2"	3/4"

SANITARY CLAMP CONNECTIONS

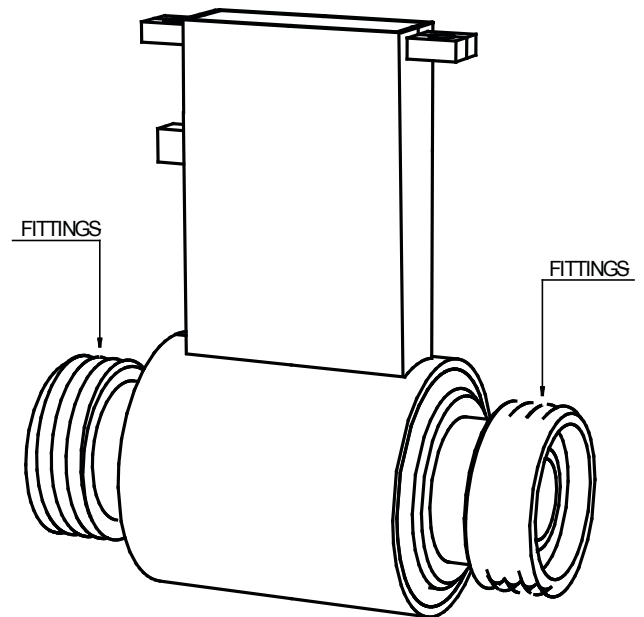
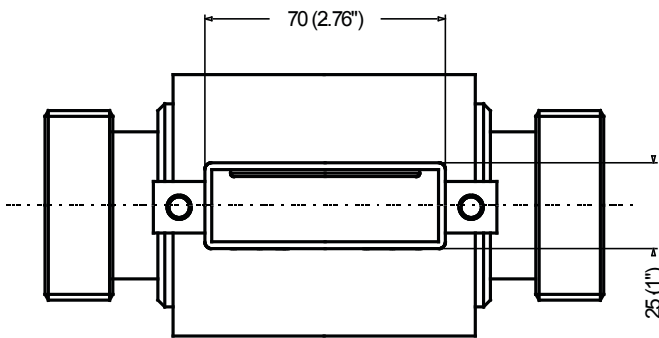
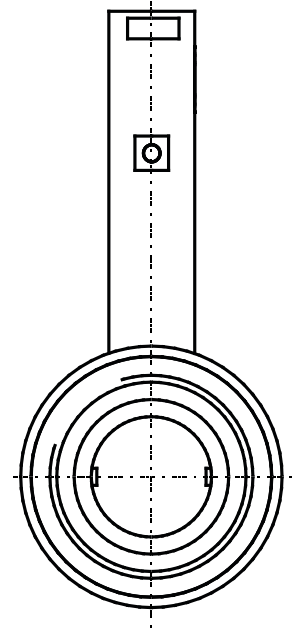
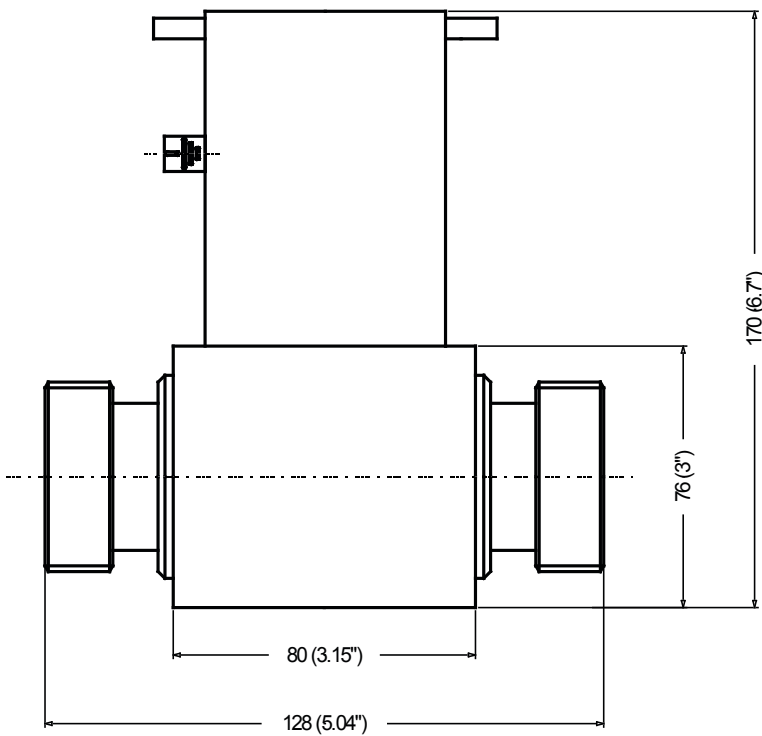
The manufacturer guarantees only English text available on our web site www.isomag.com



CLAMP ISO 2852					
DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
I	12.7(0.5)	12.7(0.5)	12.7(0.5)	17.2(0.68)	21.3 (0.84)
F	34 (1.34)	34 (1.34)	34 (1.34)	34 (1.34)	34 (1.34)

CLAMP BS 4825					
DIMENSIONS mm (inches)	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
I	9.5 (0.37)	9.5 (0.37)	9.5 (0.37)	15.85 (0.62)	22.2 (0.87)
F	25.4 (1)	25.4 (1)	25.4 (1)	25.4 (1)	50.5 (1.99)

SANITARY DIN/SMS

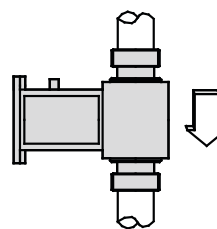
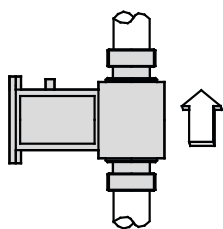


DIN 11851					
DIMENSIONS	DN				
	3 (1/8")	6 (1/4)	10 (3/8)	15 (1/2")	20 (3/4")
FITTINGS	DN 10	DN 10	DN 10	DN 15	DN 20

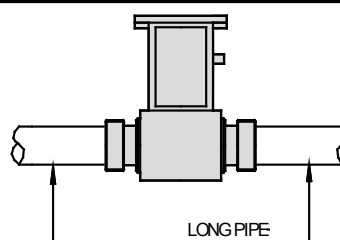
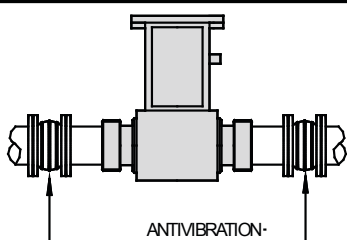
SMS			
DIMENSIONS			
	10 (3/8)	15 (1/2")	20 (3/4")
FITTINGS	DN 25	DN 25	DN 25

INSTALLATION RECOMMENDATIONS

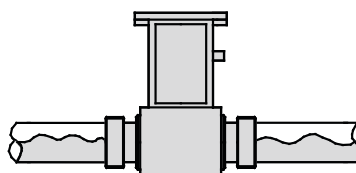
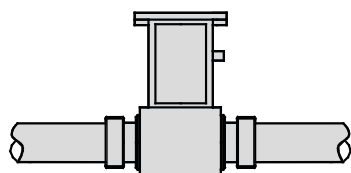
In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer



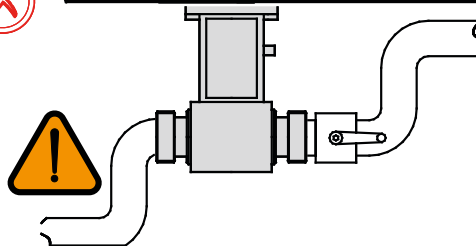
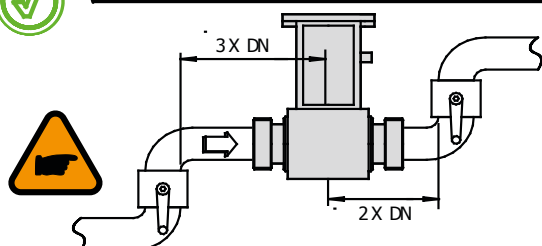
For installations in long pipe lines, please use anti vibration joints



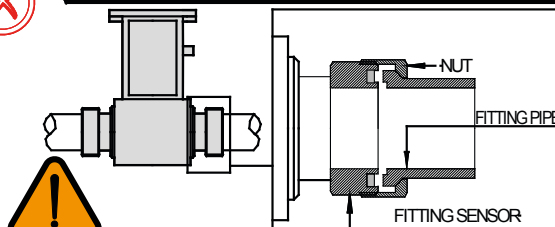
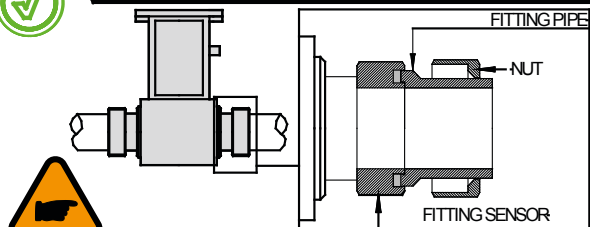
Avoid a partially empty pipe, during operation the pipe must be either completely full of liquid or completely empty



Install the sensor away from bends and hydraulic accessories



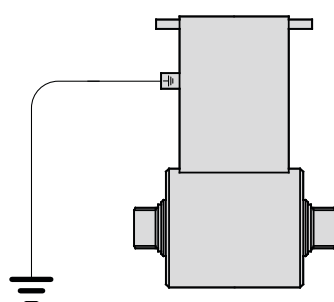
Avoid positioning fittings by tightening the clamps.



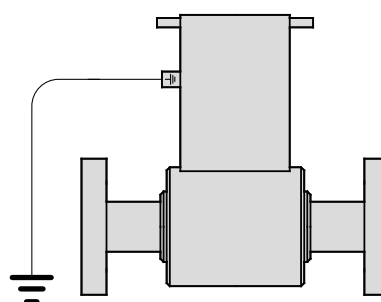
GROUND CONNECTIONS

METALLIC PIPE

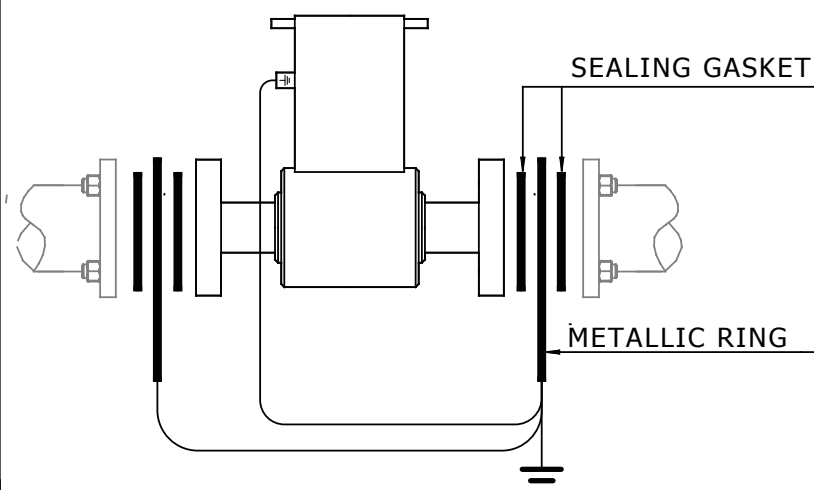
THREADED SENSOR



FLANGED SENSOR



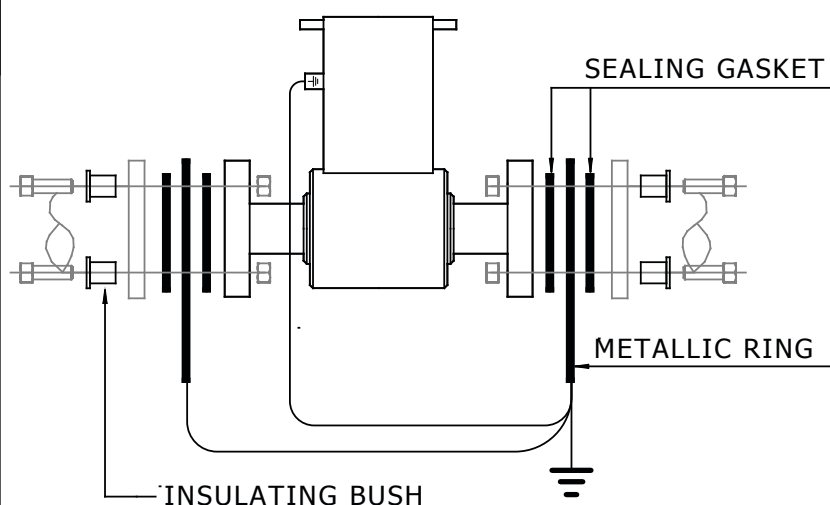
INSULATED PIPE



If the sensor has to be installed in a pipe made of an insulating material, the following are necessary:

- Inserting two metallic rings between the sensor flanges and the pipe line counter flanges or:
- Using a sensor with the additional grounding electrode

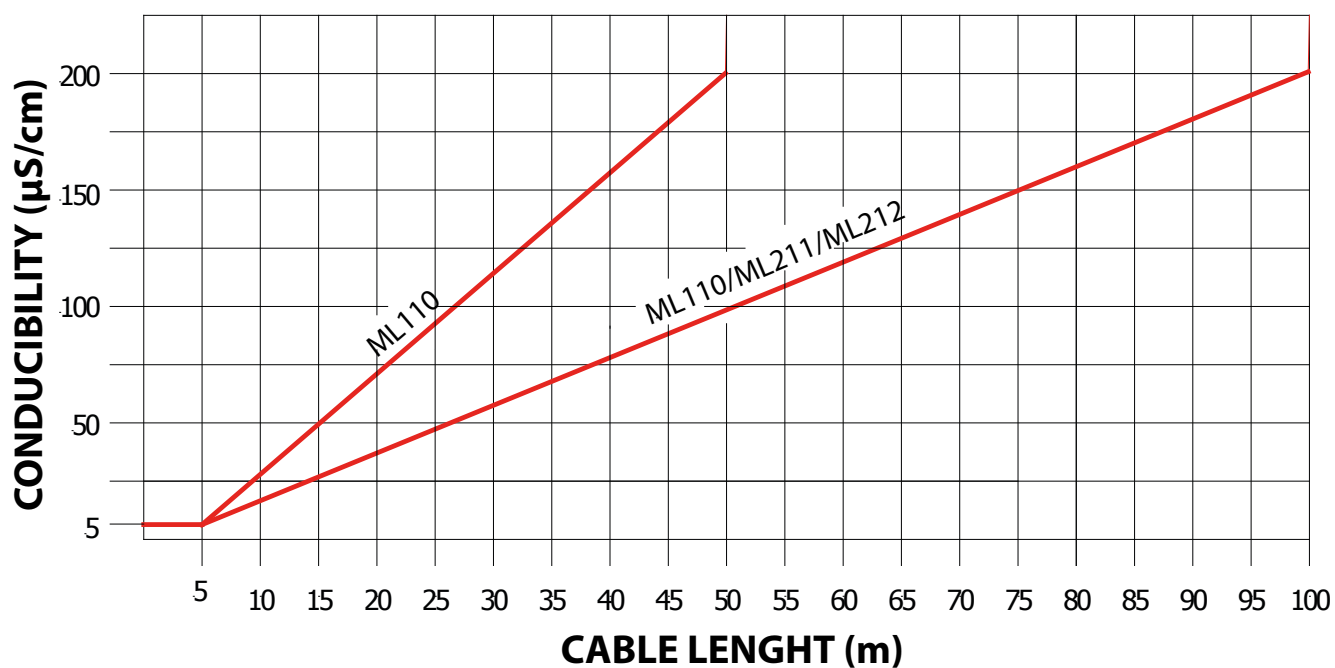
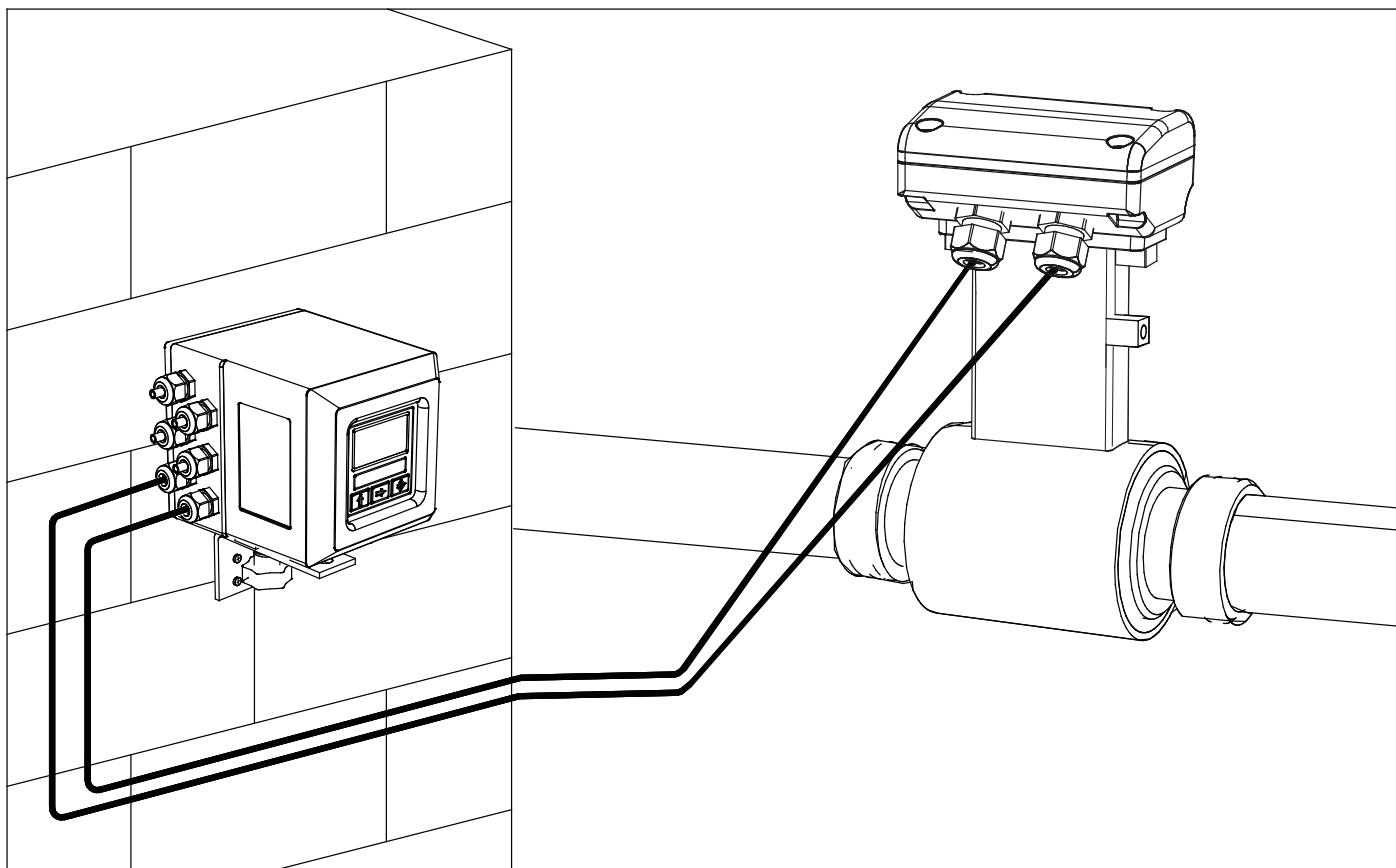
PIPE WITH CATHODIC PROTECTION



If the sensor has to be installed in the pipe with a cathodic protection, the following are necessary:

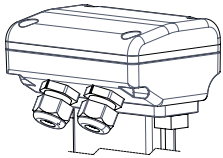
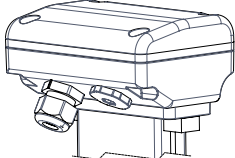
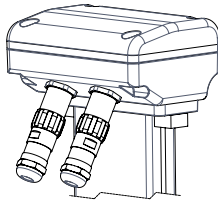
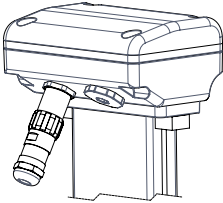
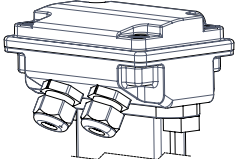
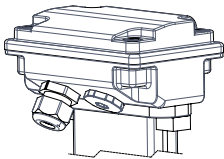
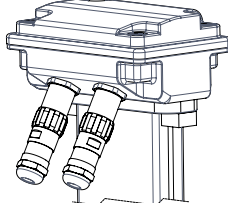
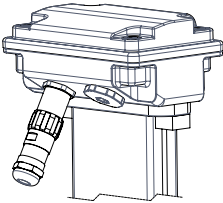
- using insulating bushes to isolate the bolts
- Metallic grounding rings should be provided to ground the liquid using insulating gaskets between the rings

SEPARATE VERSION



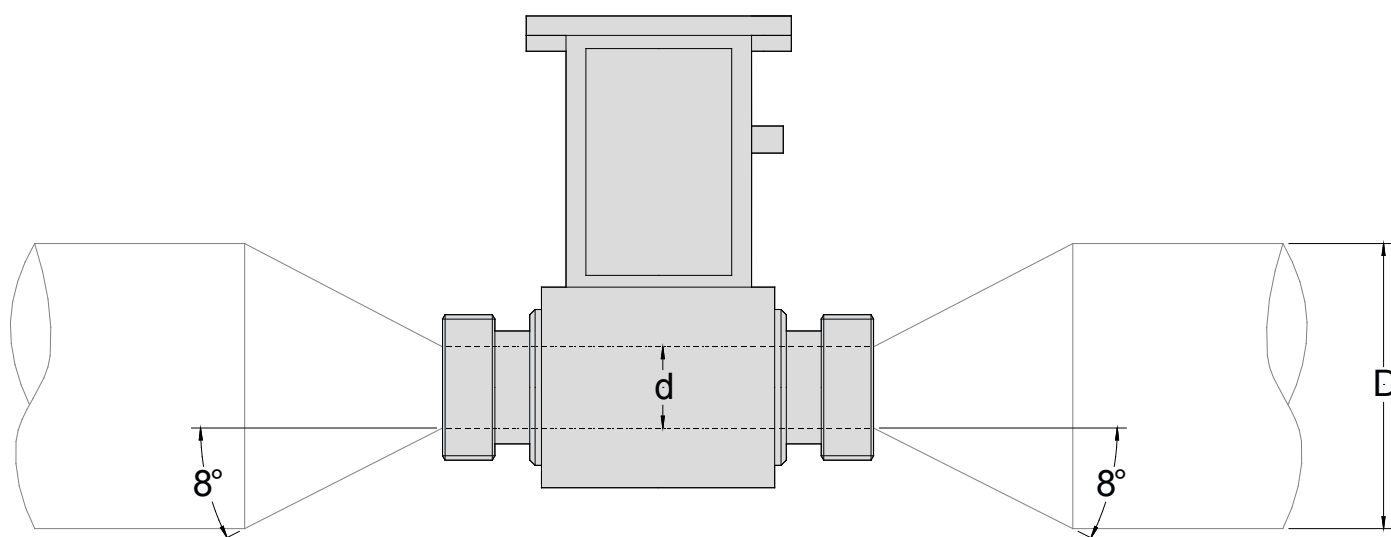
Notes:

- It is recommended to install the connection cables away from, or protect against sources of electromagnetic noise.
- The minimum conductivity of the liquid medium to ensure correct functionality of the empty pipe detection is 20 $\mu\text{S/cm}$

	1	2	3	4
A PAINTED ALUMINIUM				
B AISI 304				

PRICE LIST OPTIONS	JUNCTION BOX TYPE (surface finish)
A	Without junction box, converter connected on the connections box
B	A-1 A-2 only for ML110
G	A-4
F	A-3
N	A-2 with preamplifier
Q	A-4 with preamplifier
U	B-1 (raw) B-2 only for ML110 (raw)
S	B-4 (raw)
T	B-3 (raw)
P	B-2 with preamplifier (raw)
R	B-4 with preamplifier (raw)
K	B-1 (polished) B-2 only for ML110 (polished)
Y	B-4 (polished)
W	B-3 (polished)
V	B-2 with preamplifier (polished)
J	B-4 con preamplificatore (finitura lucidata)

PRESSURE LOSS CALCULATION (CONES 8° ANGLES)



$$\Delta p = \left[0.10 + 0.20 \left(\left(\frac{d}{D} \right)^{-2} - 1 \right)^2 \left(\frac{d}{D} \right)^4 \right] \left(\rho \frac{u^2}{2} \right)$$

Dove:

Δp = Pressure loss in [Pa]

ρ = Fluid density [kg/m³] typical value $\rho = 1000$ [kg/m³]

d = sensor diameter [m]

D = pipe diameter (greater than sensor diameter) [m]

u = Mean flow velocity in sensor diameter [m/s]

Calculation examples Δp [mbar]								
$\frac{d}{D} \backslash u$	1 [m/s]	2 [m/s]	3 [m/s]	4 [m/s]	5 [m/s]	6 [m/s]	7 [m/s]	8 [m/s]
0.5	1.1	4.3	9.6	17	26.6	38.3	52.1	68
0.6	0.9	3.6	8.2	14.6	22.7	32.7	44.6	58.2
0.7	0.8	3	6.8	12.2	19	27.4	37.2	48.6
0.8	0.6	2.5	5.7	10.1	15.7	22.7	30.9	40.3
0.9	0.5	2.1	4.8	8.6	13.4	19.3	26.3	34.3

Note:

- $\rho = 1000$ [kg/m³] as goodness approximation of water density in common use.
- Inner diameter of sensor is used for d , express in meters.
- Indeed pressure loss equation is dimensionally correct in [Pa]. The equation results in table are show in [mbar].

HOW TO ORDER

Nominal Diameter / Lining / Maximum temperature / Measuring range		
T03	T03	DN3 (1/8 "), PTFE lining, measuring range 0.. 10 / 0...250 l/h
	T06	DN6 (1/4 "), PTFE lining, measuring range 0...40/0...1000 l/h
	T10	DN10 (3/8 "), PTFE lining, measuring range 0..120/0...3000 l/h
	T15	DN15 (1/2 "), PTFE lining, measuring range 0.. 240/0...6000 l/h
	T20	DN20 (3/4 "), PTFE lining, measuring range 0.. 500/0...12500 l/h
Flange type		
1	1	O-Ring : FKM
	2	O-Ring : Epdm
	4	O-Ring : FFKM
	9	Gasket material: to be specified
Nominal Pressure		
A	A	Nominal pressure: PN16
	B	Nominal pressure: PN40
	Z	Nominal pressure: others on request
Process connection type		
1	1	Male threaded UNI338 (FOR THE DIMENSIONS CONSULT THE OVERALL DIMENSIONS DRAWING)
	2	Male threaded NPT(FOR THE DIMENSIONS CONSULT THE OVERALL DIMENSION DRAWING)
	3	Clamp connection, ISO2852
	4	DIN11851-852 sanitary connection
	5	SMS connection (only for DN10,15,20)
	6	EN1092 flanges connection (FOR THE DIMENSIONS CONSULT THE OVERALL DIMENSION DRAWING)
	7	ANSI 150 flange connection(FOR THE DIMENSIONS CONSULT THE OVERALL DIMENSION DRAWING)
	8	Clamp connection, BS 4825
	9	JIS flanges (10 k)
	0	Connection: other
Connection material		
A	A	Connection material: AISI316
	C	Connection material: AISI304, PTFE internal lining (only connection 1-2-6-7)
	9	Connection material: to be specified
Number and electrodes material		
1	1	n. 2 measure electrodes in AISI316
	4	n. 4 (2 measure + 2 for ground) electrodes in Hastelloy C
	5	n. 4 (2 measure + 2 for ground) electrodes in Titanium
	6	n. 4 (2 measure + 2 for ground) electrodes in Tantalum
	7	n. 4 (2 measure +2 for ground) electrodes in Platinum
	0	Electrode material: to be specified
Number and electrodes material		
A	A	Compact version , IP67 protection rate
	B	Separate version, Painted Aluminum JB, protection rate IP68, standing immersion with 1,5 m of head water - (DEFINE THE CABLE LENGHT - ADD THE COST)
	G	Separate version, Painted Aluminum JB, N° 1 connectors IP 68 suitable for fast cable connections - (DEFINE THE CABLE LENGHT - ADD THE COST)
	F	Separate version, Painted Aluminum JB, N° 2 connectors IP 68 suitable for fast cable connections - (DEFINE THE CABLE LENGHT - ADD THE COST)
	N	Separate version, Painted Aluminum JB , PREAMPLIFIRE*, protection rate IP67 - (DEFINE THE CABLE LENGHT MAX 500 m-ADD THE COST)
	Q	Separate version, Painted Aluminum JB, PREAMPLIFIRE*, N° 1 connectors IP 68 suitable for fast cable connection - (DEFINE THE CABLE LENGHT MAX 500 m-ADD THE COST)
	U	Separate version, AISI 304 JB RAW, protection rate IP68, standing immersion with 1,5 m of head water - (DEFINE THE CABLE LENGHT - ADD THE COST)
	S	Separate version, AISI 304 JB RAW, with N° 1 connectors IP 68 suitable for fast cable connections - (DEFINE THE CABLE LENGHT - ADD THE COST)

T	Separate version, AISI 304 JB RAW, N° 2 connectors IP 68 suitable for fast cable connections - (DEFINE THE CABLE LENGHT - ADD THE COST)
P	Separate version, AISI 304 JB RAW, PREAMPLIFIRE*, protection rate IP67 - (DEFINE THE CABLE LENGHT MAX 500 m-ADD THE COST)
R	Separate version, AISI 304 JB RAW, PREAMPLIFIRE* N° 1 connectors IP 68 suitable for fast cable connections to - (DEFINE THE CABLE LENGHT MAX 500 m-ADD THE COST)
K	Separate version, AISI 304 JB POLISCHED, protection rate IP68, standing immersion with 1,5 m of head water - (DEFINE THE CABLE LENGHT - ADD THE COST)
Y	Separate version, AISI 304 JB POLISCHED, with N° 1 connectors IP 68 suitable for fast cable connections - (DEFINE THE CABLE LENGHT - ADD THE COST)
W	Separate version, AISI 304 JB POLISCHED, N° 2 connectors IP 68 suitable for fast cable connections - (DEFINE THE CABLE LENGHT - ADD THE COST)
V	Separate version, AISI 304 JB POLISCHED, PREAMPLIFIRE*, protection rate IP67 - (DEFINE THE CABLE LENGHT MAX 500 m-ADD THE COST)
J	Separate version, AISI 304 JB POLISCHED, PREAMPLIFIRE* N° 1 connectors IP 68 suitable for fast cable connections to - (DEFINE THE CABLE LENGHT MAX 500 m-ADD THE COST)



MS501-T03-1A1A1A (Example of Complete code for order)

ISOIL INDUSTRIA S.p.A.

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If you want to find the complete list of our distributors access at the following link:

http://www.isoil.com/u_vendita.asp



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