

ISOMAG ™

The friendly magmeter

MS 5000

CIAO SENSOR



**EXTREMELY EASY TO INSTALL THANKS TO PATENTED WRAPPER
FIXING SYSTEM**

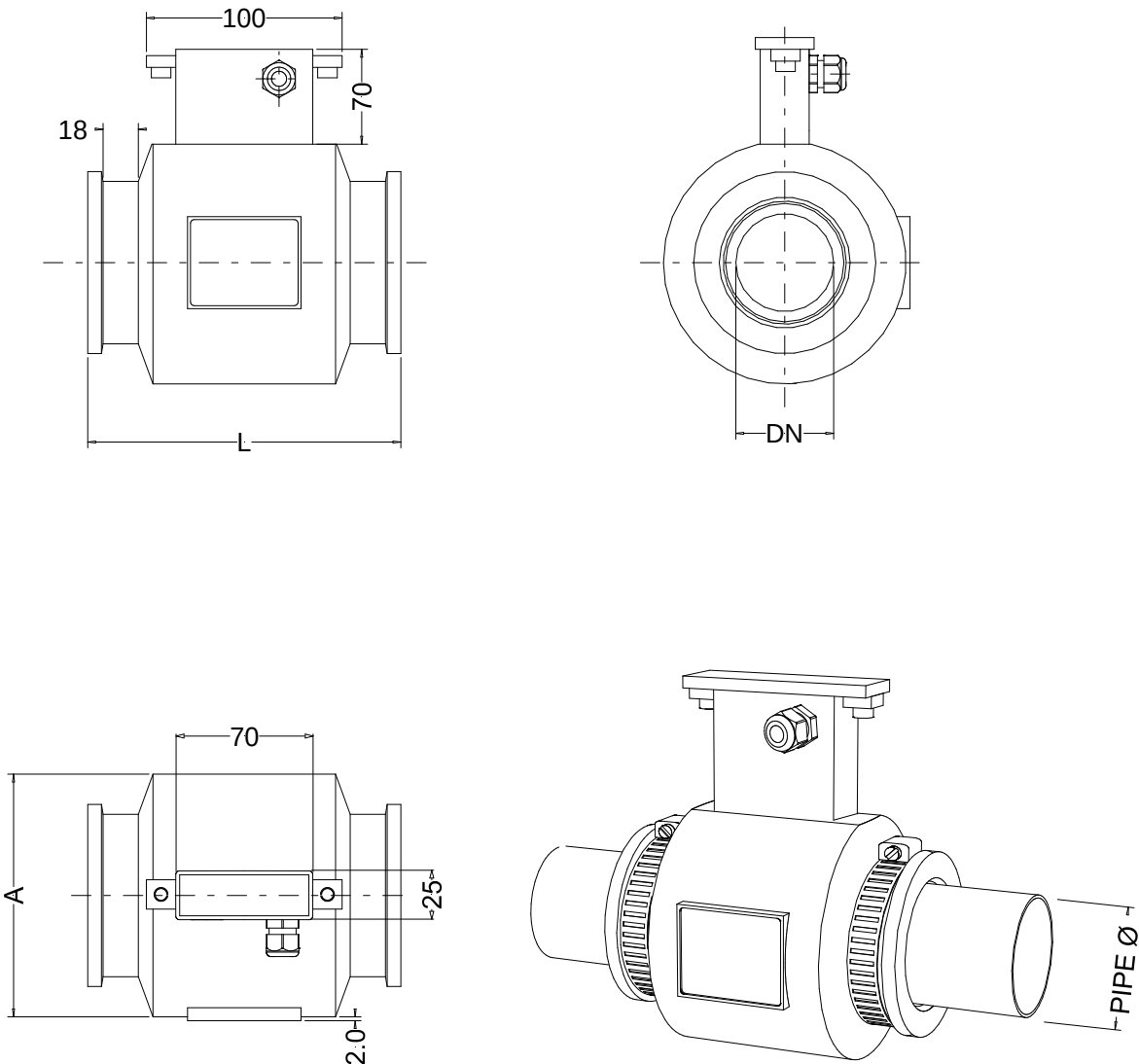
Warranty conditions are available on this website:
www.isomag.eu only in English version

ISOIL 
INDUSTRIA
The solutions that count

TECHNICAL DATA

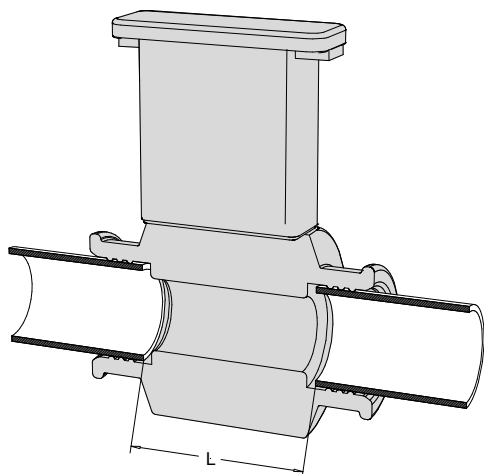
Body material	☐ Polyurethane rubber
Nominal diameter	☐ DN 25 – 50 – 80
Nominal pressure	☐ PN 6
Process connection	☐ Wrapper fixing
Liquid temperature	☐ 0°C ÷ 50°C
Vacuum resistance	☐ 20 Kpa a 50 °C
Lining material	☐ Polyurethane rubber
Gasket material	☐ FPM ☐ EPDM
Electrodes material	☐ SS AISI 316L ☐ Hastelloy C ☐ Titanium
Version – protection rating	☐ Compact – IP 67 ☐ Separate (max 20m) – IP 68
Accuracy	☐ See table below

OVERALL DIMENSIONS

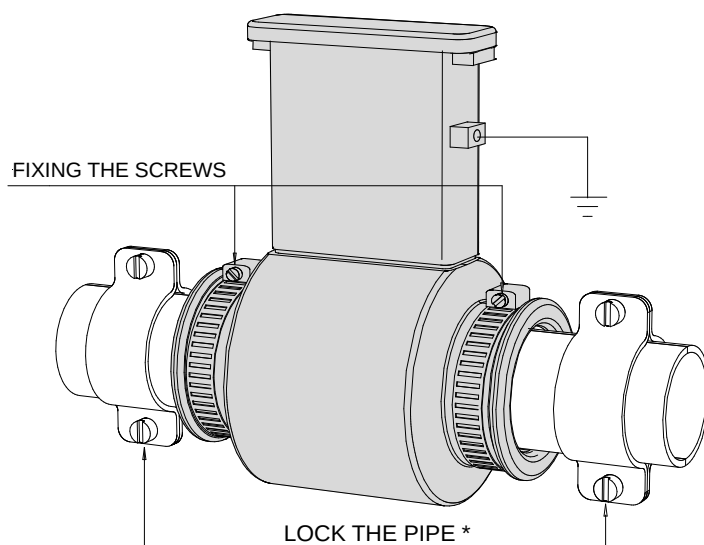


DIMENSIONS mm			
	25 (1")	50 (2")	80 (3")
A	80	124	154
L	135	160	190
PIPE Ø (ISO)	33.7	60.3	88.9

INSTALLATION



DN	L (mm)	L (inches)
25	92	3.62
50	108	4.25
80	138	5.43

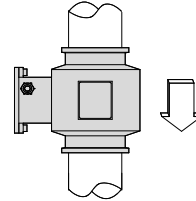
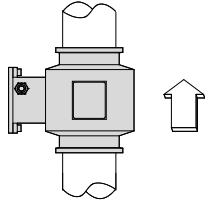


* Lock the pipe to a fixed support

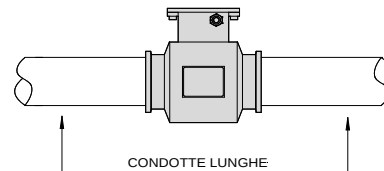
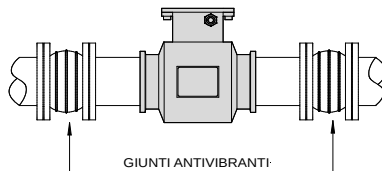
- ☐ Verify the flow direction
- ☐ Assemble the sensor to the pipe
- ☐ Tighten the wrapper to avoid possible leakages
- ☐ Connect the instrument to ground by the screw attachment on sensor

INSTALLATION RECOMMENDATION

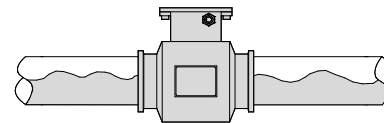
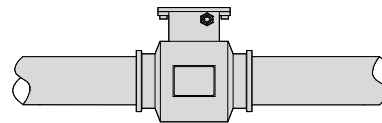
In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer.



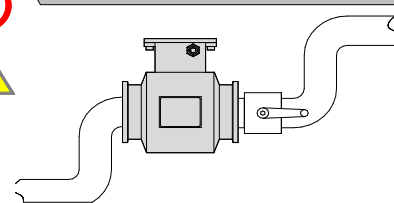
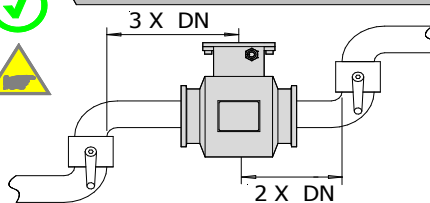
For installations in long pipe lines, please use anti vibration joints



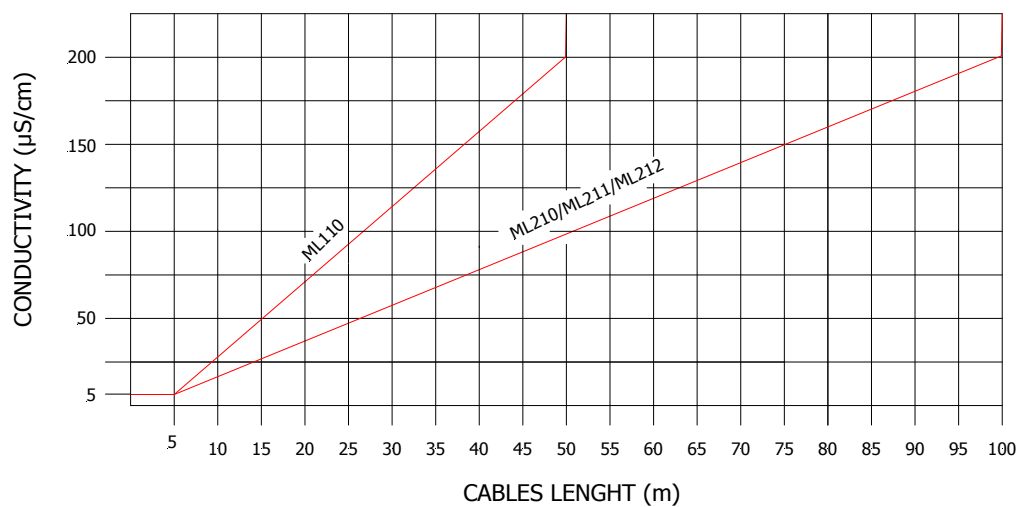
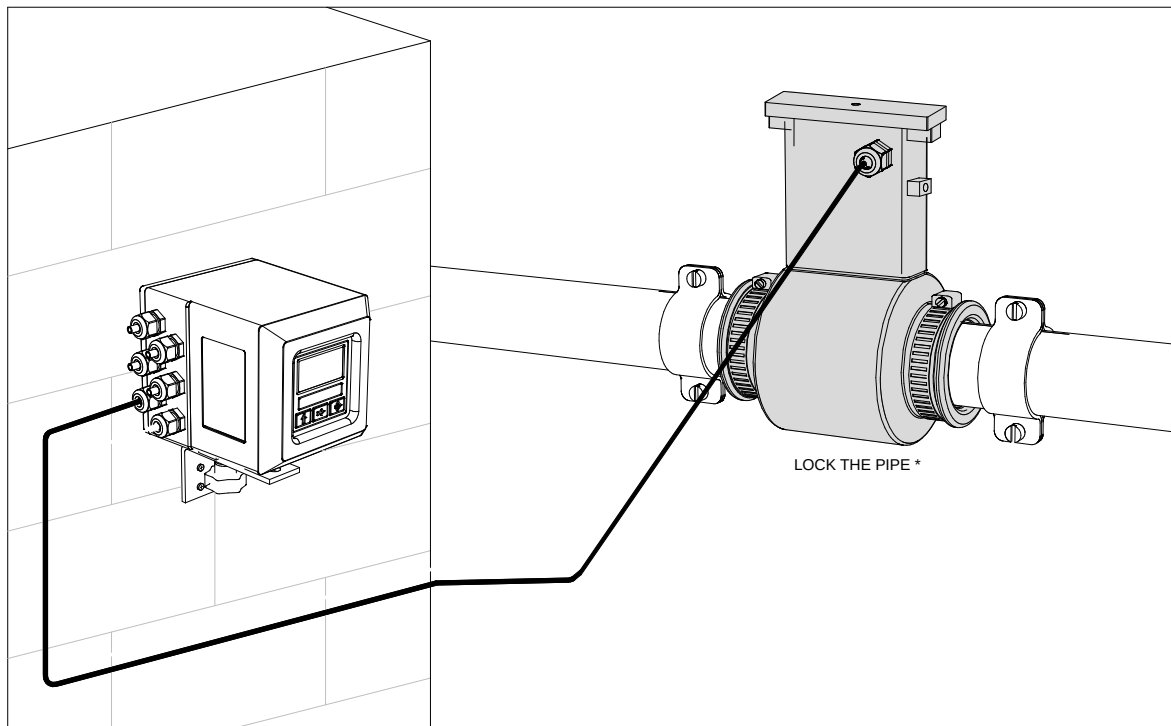
Avoid the functioning with partially empty pipe, during the functioning the pipe must be either completely full of liquid or completely empty



Install the sensor away from bends and hydraulic accessories



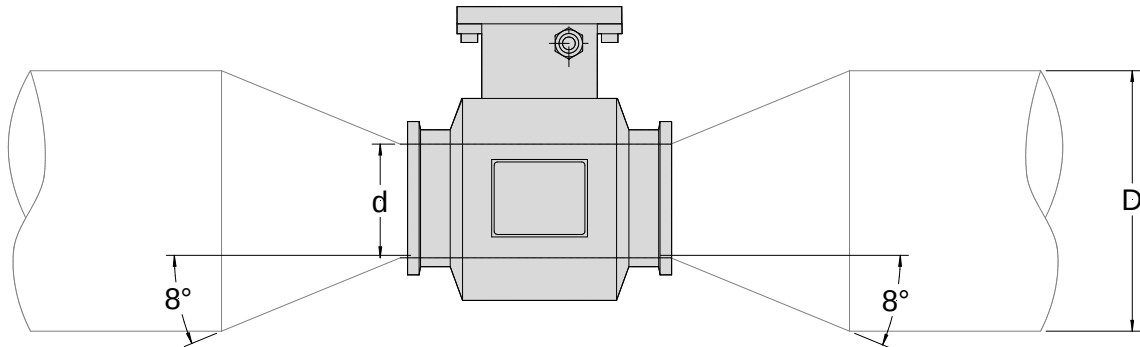
SEPARATE VERSION



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 $\mu\text{S}/\text{cm}$

PRESSURE LOSS CALCULATION (CONES 8° ANGLES)



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

Where:

Δp = Pressure loss in [Pa]

ρ = Fluid density [kg/m^3] typical value $\rho = 1000[\text{kg} / \text{m}^3]$

d = sensor diameter [m]

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

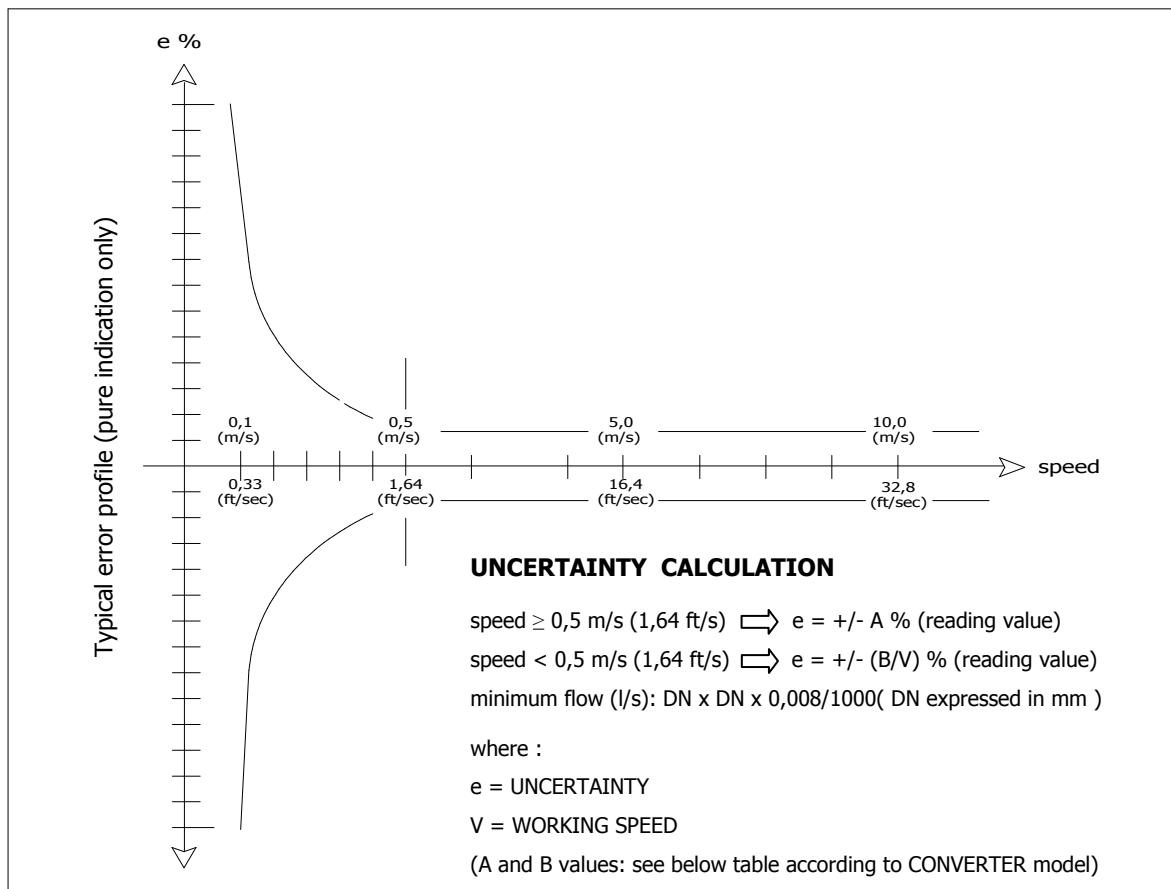
u = Mean flow velocity in sensor diameter [m/s]

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	17.0	26.6	38.3	52.1	68.0
0.6	0.9	3.6	8.2	14.6	22.7	32.7	44.6	58.2
0.7	0.8	3.0	6.8	12.2	19.0	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 :

- $\rho = 1000[\text{kg} / \text{m}^3]$ 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].

ACCURACY TABLE



AC/DC POWERED CONVERTERS

ML 51			ML 110 – STD			ML 110 – SA*			ML210/211/212			ML4F1		
A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)
2,0	1,0	3,28	2,0	1,0	3,28	2,0	1,0	3,28	2,0	1,0	3,28	2,0	1,0	3,28

* SPECIAL ACCURACY

FLOWIZ™ BATTERY POWERED CONVERTERS

ML 250			ML 252		
A	B (m/s)	B (ft/s)	A	B (m/s)	B (ft/s)
2,0	1,0	3,28	2,0	1,0	3,28

Reference conditions :

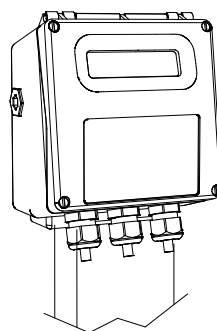
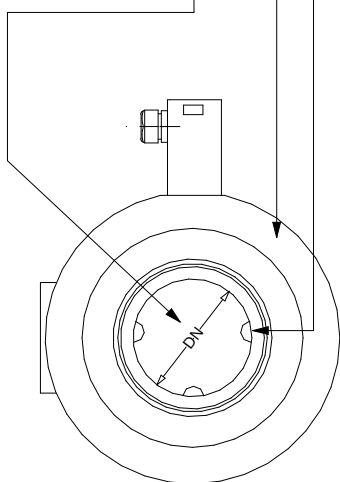
- ☐ Constant flow rate during the test
- ☐ Pressure: > 30 Kpa
- ☐ Flow condition : fully developed flow profile
- ☐ Zero stability $\pm 0,005$ %

HOW TO ORDER

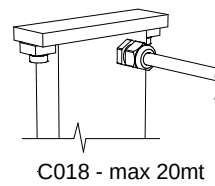
MS 5000	Nominal DN / Lining / Max. Temp.
C25 ÷ C80	DN25 (1") - DN 50 (2") - DN 80 (3"), in POLIURHETANE, max. liquid temperat 50 °C
Gasket Material	
A	O-Ring : FPM
B	O-Ring : Epdm
Z	O-Ring : other O-Ring
Number and material of electrodes	
2	n. 3 electrodes in AISI316 L (2 measure + 1 ground)
4	n. 3 electrodes in Hastelloy C 276 (2 measure + 1 ground)
5	n. 3 electrodes in Titanium (2 measure + 1 ground)
Version - Protection degree	
A	Compact version IP65, max liquid temp. 50 °C
B	Separate version (max lenght see table) , max liquid temperature 50 °C, IP68
M	Compact version, IP67 protection rate , with the possibility to turn the converter 90°

MS 5000	P25	A	2	A
---------	-----	---	---	---

EXAMPLE OF ORDER CODE



Compact



Separate

The manufacturer reserves the right to make design improvements without notice.