

SENSOR

MS 1000



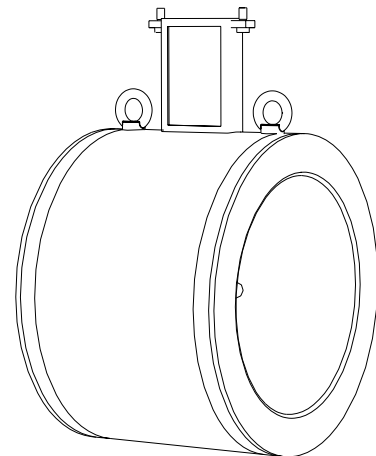
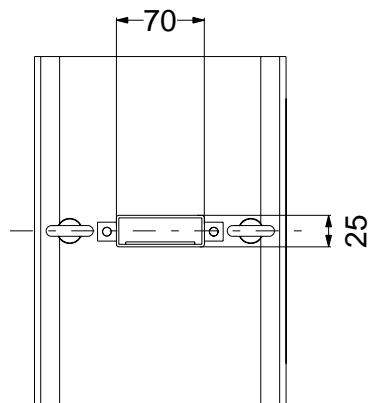
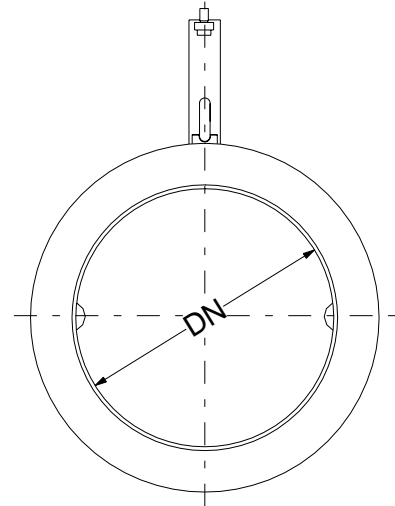
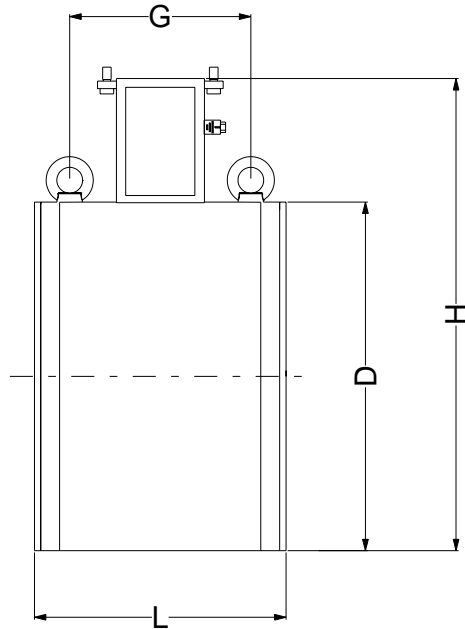
WAFER TYPE SENSOR

"WAFER" TYPE SENSOR: SUITABLE FOR SEVERAL FLANGES TYPE

TECHNICAL DATA

Body material	<input type="checkbox"/> Carbon steel painted <input type="checkbox"/> Stainless steel AISI 304/316 (optional)
Nominal diameter	<input type="checkbox"/> DN 25 ÷ 400
Nominal pressure	<input type="checkbox"/> 1600 kPa : all with PP lining & Ebonite/ptfe, from DN 200 up to DN 400 <input type="checkbox"/> 4000 kPa : PTFE lining up to ND 150
Process connection	<input type="checkbox"/> Wafer Type
Liquid temperature	<input type="checkbox"/> 0 °C ÷ 60 °C with PP lining <input type="checkbox"/> 0 °C ÷ 80 °C with Ebonite lining <input type="checkbox"/> -20 ÷ 100 °C with PTFE lining in compact version <input type="checkbox"/> -20 ÷ 150 °C with PTFE lining in separate version
Vacuum resistance	<input type="checkbox"/> 20 Kpa at 100 °C
Lining material	<input type="checkbox"/> Polypropylene (max PN 16 for DN 25÷150) <input type="checkbox"/> Ebonite (DN 200 – 400) <input type="checkbox"/> PTFE (DN 25 – 400) <input type="checkbox"/> Other on request
Gasket material	<input type="checkbox"/> Without gasket with lining PTFE-EBONITE <input type="checkbox"/> FPM with Polypropylene lining
Electrode material	<input type="checkbox"/> Stainless steel AISI 316L <input type="checkbox"/> Hastelloy C 276 <input type="checkbox"/> Platinum-rhodium 90-10 <input type="checkbox"/> Tantalum <input type="checkbox"/> Other on request
Version – protection rate	<input type="checkbox"/> Compact version – IP 67 <input type="checkbox"/> Separate version (max 20m) – IP 68 <input type="checkbox"/> Separate version (max 500 m), with preamplifier – IP 67 (OPT. IP 68)
Precision	<input type="checkbox"/> See Table Below
Repeatability	<input type="checkbox"/> See Table Below

OVERALL DIMENSIONS

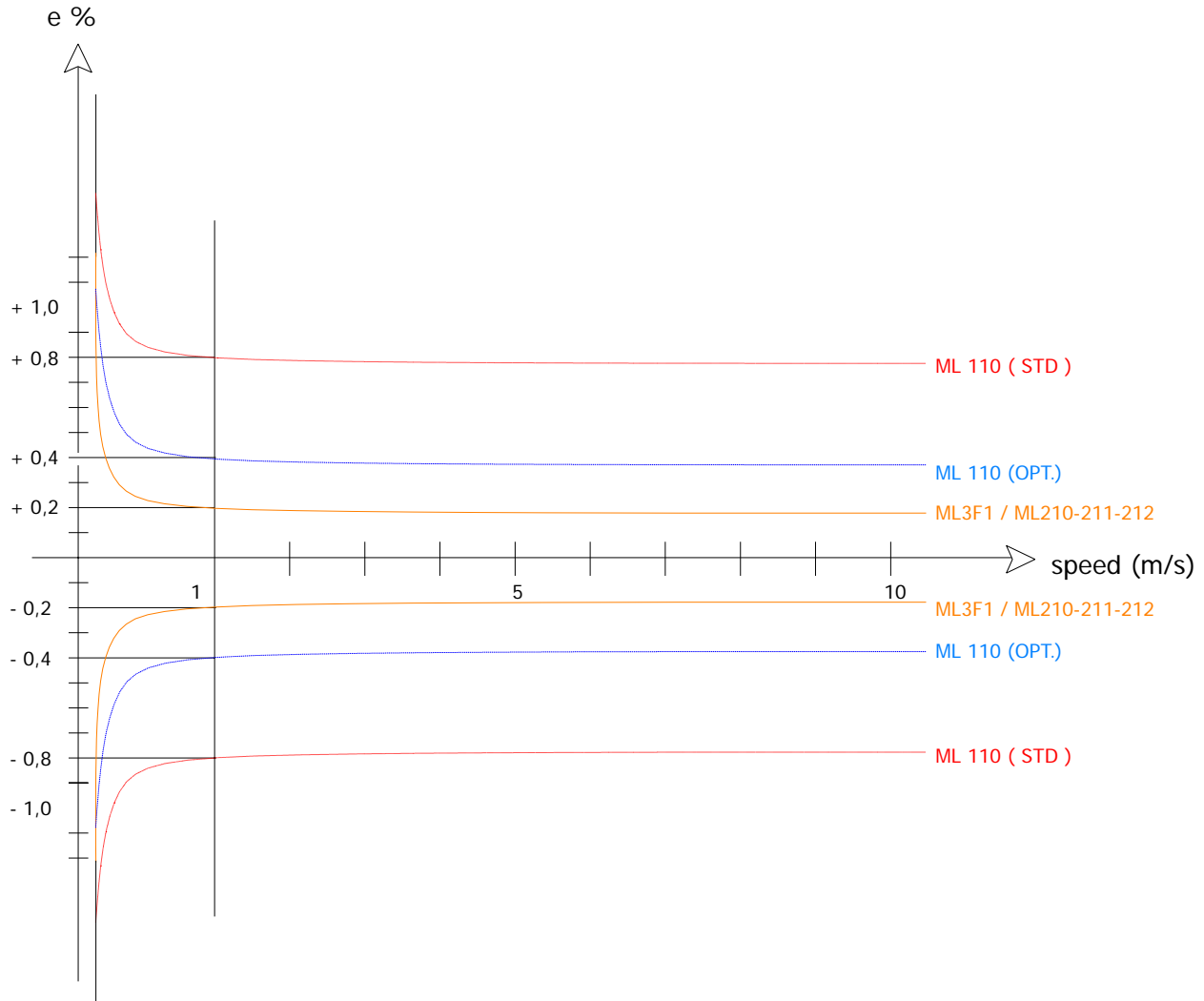


DIMENSIONS mm (inches)	DN														
	25 (1")	32 (1" 1/4)	40 (1" 1/2)	50 (2")	65 (2" 1/2)	80 (3")	100 (4")	125 (5")	150 (6")	200 (8")	250 (10")	300 (12")	350 (14")	400 (16")	
L	⁺⁰ / _{-3 (-0.12)} 100 (3.94)	⁺⁰ / _{-3 (-0.12)} 100 (3.94)	⁺⁰ / _{-3 (-0.12)} 100 (3.94)	⁺⁰ / _{-3 (-0.12)} 100 (3.94)	⁺⁰ / _{-3 (-0.12)} 150 (5.90)	⁺⁰ / _{-3 (-0.12)} 150 (5.90)	⁺⁰ / _{-3 (-0.12)} 150 (5.90)	⁺⁰ / _{-3 (-0.12)} 180 (7.09)	⁺⁰ / _{-3 (-0.12)} 180 (7.09)	⁺⁰ / _{-3 (-0.12)} 200 (7.87)	⁺⁰ / _{-5 (-0.20)} 250 (9.84)	⁺⁰ / _{-5 (-0.20)} 300 (11.81)	⁺⁰ / _{-5 (-0.20)} 350 (13.78)	⁺⁰ / _{-5 (-0.20)} 400 (15.75)	
H	147 (5.79)	153 (6.02)	161 (6.34)	177 (6.97)	199 (7.83)	209 (8.23)	235 (9.25)	263 (10.35)	291 (11.46)	362 (14.25)	417 (16.42)	467 (18.39)	527 (20.75)	579 (22.80)	
D	56 (2.20)	62 (2.44)	70 (2.76)	86 (3.39)	108 (4.25)	118 (4.65)	144 (5.67)	172 (6.77)	200 (7.87)	271 (10.67)	326 (12.83)	376 (14.80)	436 (17.17)	488 (19.21)	
G	-	-	-	-	-	-	-	-	-	144 (5.67)	194 (7.64)	244 (9.60)	294 (11.57)	344 (13.54)	
Weight kg (lbs)	1.2 (2.64)	1.6 (3.52)	1.8 (3.96)	2 (4.4)	3.6 (7.92)	3.8 (8.36)	5 (11)	7.8 (17.16)	8.2 (18)	18.2 (40)	24 (53)	27 (59)	32 (70)	39 (86)	
Usable flanges	PTFE-EBONITE: PN10, PN16, PN25, PN40, ANSI150, ANSI,300 PN10, PN16, ANSI150									PP:	PTFE-EBONITE: PN10, PN16, ANSI150				

ACCURACY TABLE

- Reference conditions

- Water temperature: 20°C
- Ambient temperature: 25 °C
- Test time: > 60 sec.
- Converter warm-up: > 60'
- Constant flow rate during the test
- Pressure: 50 Kpa
- liquid speed > 1m/s



REPEATABILITY:

- ML 210-211-212 / ML3F1 = +/- 0,1%
- ML 110 = +/- 0,2%

NOTE :

- Between 0,02 and 0,4 m/s the accuracy becomes TWICE the accuracy declared on the above diagram
- Between 0,4 and 1,0 m/s the accuracy becomes 1,5 times the accuracy declared on the above diagram

TORQUES (Nm)

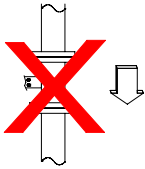
Kpa psi	OPERATING PRESSURE									
	1000		1600			2500		4000		6400
ND	PTFE	EBON.	PTFE	EBON.	PP	PTFE	EBON.	PTFE	EBON.	EBON.
25			25		19	25		25		39
32			43		28	43		43		53
40			53		36	53		53		72
50			68		52	68		68		81
65			90		75	45		45		58
80			53		41	53		53		62
100			59		56	83		83		87
125			77		71	112		112		148
150			108		106	135		135		217
200	148	123	99	82		134	112	178	149	233
250	123	103	140	117		204	170	267	223	321
300	142	119	175	146		201	168	278	232	317
350	172	143	205	171		324	270	422	352	481
400	217	181	282	235		426	355	619	516	623
450	194	161	281	234						
500	224	186	382	318						
600	323	269	568	474						

- Tighten uniformly in diagonally opposite sequence
- The torque listed in the tab is applicable to the following flanges types:
UNI 2223, DIN 2501, BS 4504, ANSI B16.5
- The use of gaskets DIN 2690 is recommended

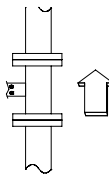
INSTALLATION RECCOMANDATIONS

AVOID

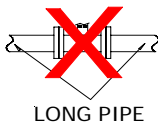
RECOMMENDED



For vertical installations with descending flow direction contact the manufacturer



In vertical installations an ascending flow is preferable

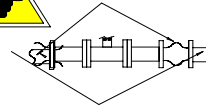


LONG PIPE

Avoid the installation of the sensor in a long pipe line, without any support for the sensor itself

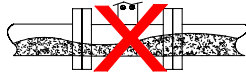


ANTI VIBRATION JOINTS

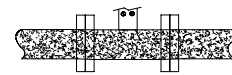


LONG PIPE

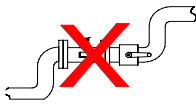
For installations in long pipe lines, please use anti vibration joints



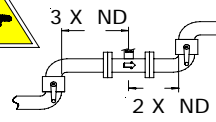
Avoid the functioning with partially empty pipe



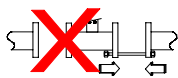
During the functioning the pipe must be either completely full of liquid or completely empty



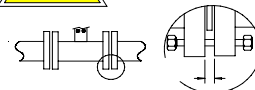
Avoid the installation near bends or hydraulic accessories



Install the sensor away from bends and hydraulic accessories



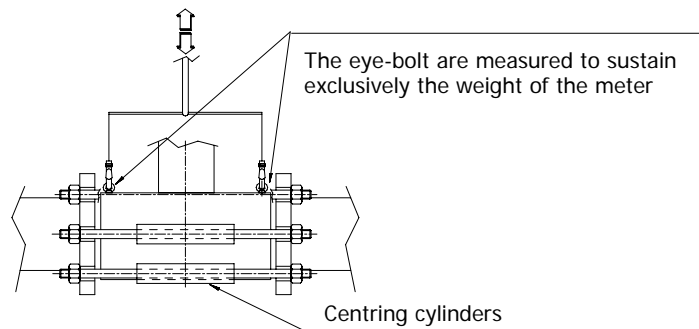
Avoid closing flange and couter flange by using the nuts closing for



GASKET THICKNESS + 4mm

Before tightening the nuts close pipe and sensor flanges as much as possible

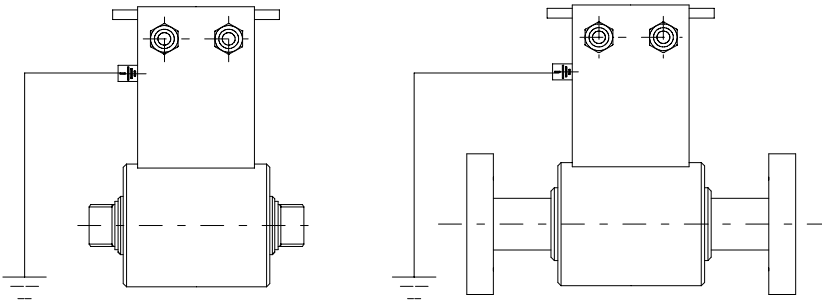
Method of upheaval recommended for ALL THE SENSOR EQUIPPED WITH EYEBOLT



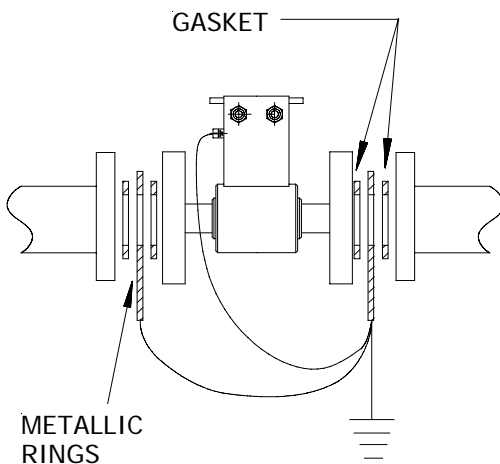
N.B.: For sensor MS 1000 we recommend the use of centring cylinders

SENSOR GROUNDING

METALLIC PIPE



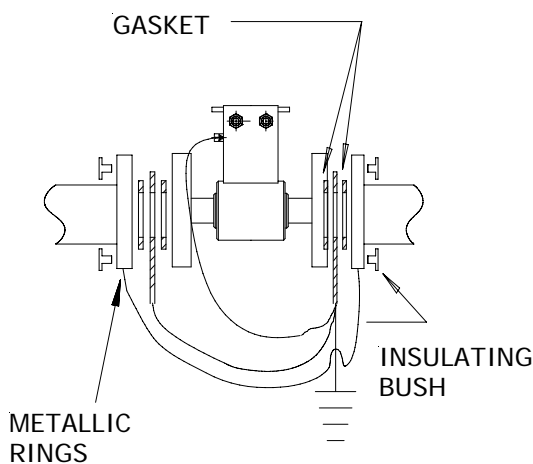
INSULATED PIPE



-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



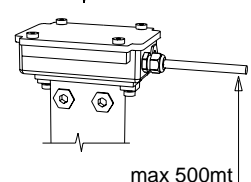
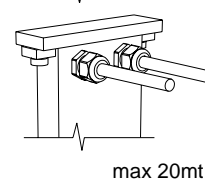
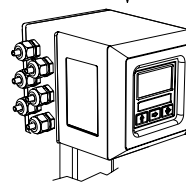
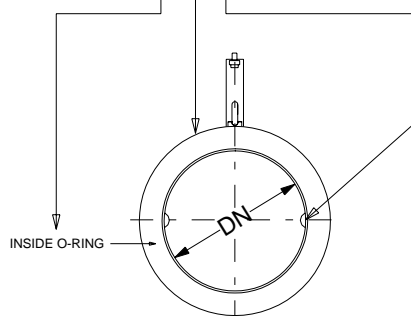
If the sensor has to be installed in the pipe with a cathodic protection, the following are necessary:

- using insulating bushes to isolate the bolts
- Grounding metallic rings should be provided to ground the liquid using insulating gasket between the rings

HOW TO ORDER

MS 1000	Nominal Diameter - Lining - Maximum temperature - Measuring range
T25 ÷ T400	From ND 25 (1") up to ND 400 (16"), PTFE lining, liquid maximum temperature 150 °C, Measuring range 0...0,72/0...4500 m3/h
P25 ÷ P150	From ND 25 (1") up to ND 150 (6"), Polypropilene lining, liquid maximum temperature 60 °C, Measuring range 0...0,72/0...640 m3/h
E200 ÷ E400	From ND 200 (8") up to ND 400 (16"), Ebonite lining, liquid maximum temperature 80 °C, Measuring range 0...45,2/0...4500 m3/h
Gasket material (internal tightness, only for polypropilene lining)	
0	No O-Ring (ONLY FOR PTFE/EBANITE LINING)
1	O-Ring : FPM
2	O-Ring : Epdm
9	Other
Body material	
A	Body in carbon steel ,RAL6028 painted
B	Body in AISI304 (only with PTFE lining)
C	Body in AISI316 (only with PTFE lining)
Z	Other
Number and electrodes material	
1	n. 2 measure electrodes in AISI316
2	n. 3 (2 measure + 1 for ground) electrodes in AISI316
4	n. 3 (2 measure + 1 for ground) electrodes in Hastelloy C
5	n. 3 (2 measure + 1 for ground) electrodes in Titanium
6	n. 3 (2 measure + 1 for ground) electrodes in Tantalum; not available with Polypropilene
7	n. 3 (2 measure + 1 for ground) electrodes in Platinum; not available with Polypropilene
0	Other
Execution - Protection rate	
A	Compact execution, IP67 protection rate, liquid maximum temperature 100 °C
B	Separate execution "C", maximum length 10 m (20m, see note 1), liquid maximum temperature 150 °C, protection rate IP68
C	Separate execution "L" (in Carbon Steel), with preamplifier (maximum length 500 m), liquid maximum temperature 100 °C, protection rate IP67
D	Separate execution "L" (in AISI304), with preamplifier (maximum length 500 m.), liquid maximum temperature 100 °C, protection rate IP67

MS 1000 T25 0 A 1 A **EXAMPLE OF ORDER CODE**



In accordance with a continuous evolution of the Product, the company reserves the right to modify without warning the information contained in this document