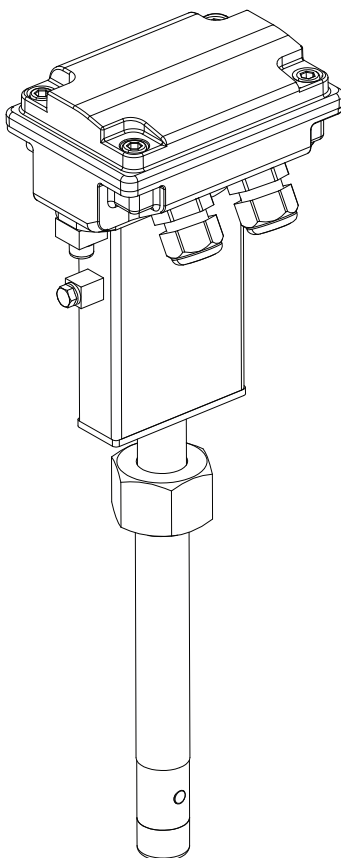


INSTRUCTION MANUAL

MS 3780



CE

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INTRODUCTION

- ❑ This manual is integral part of the product. Read carefully the instructions contained since it contains important indications for the safety of use and of maintenance.
- ❑ The technical information and the relative products of this manual could be modified without any previous notice.
- ❑ The flow meter must be used for the use it has been built for. The improper use, possible tampering of the instrument or parts of it and substitutions of any components not original, makes the warranty to decay automatically.
- ❑ The manufacturer is considered responsible only if the instrument is used in its original configuration and setting.
- ❑ The flowmeter makes measures of liquids with conductivity greater than $5\mu\text{S}/\text{cm}$; it consists of a sensor (described in this manual) and a converter, for it see the manual provided.
- ❑ If the sensor is supplied in compact version to the converter, consider the operating temperatures more restrictive, otherwise refer to the respective manuals (page 10).
- ❑ When transporting, unpacking and handling the flowmeter, be careful and care.
- ❑ In the case of prolonged storage and of transport, use and store in the original container in a dry place, do not place more than 3 packs one above the other.
- ❑ It is possible pallets storage and transport (in case of wooden crates do not place one above the other).
- ❑ For the cleaning of the device use only a damp cloth, and for the maintenance/repairs, contact the customer service.
- ❑ For the disposal of the device and of the packaging make strict reference to the regulations.
- ❑ It is forbidden the reproduction of the present manual and of possible software supplied with the instrument

START UP AND MAINTENANCE OF THE INSTRUMENTS

- ❑ Before starting up the instrument, always make a sure connection to ground

- ❑ Verify periodically: the cables integrity, the tightening of the sealing elements (cable glands, covers, etc.), the mechanical fixing of the instrument on the pipe or on the wall stand

SYMBOLS USED IN THIS MANUAL



ATTENTION



DANGER ELECTRIC SHOCK

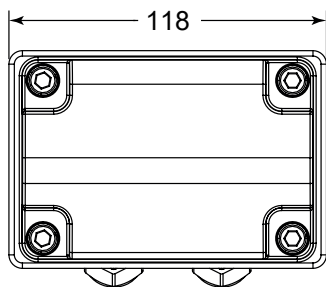
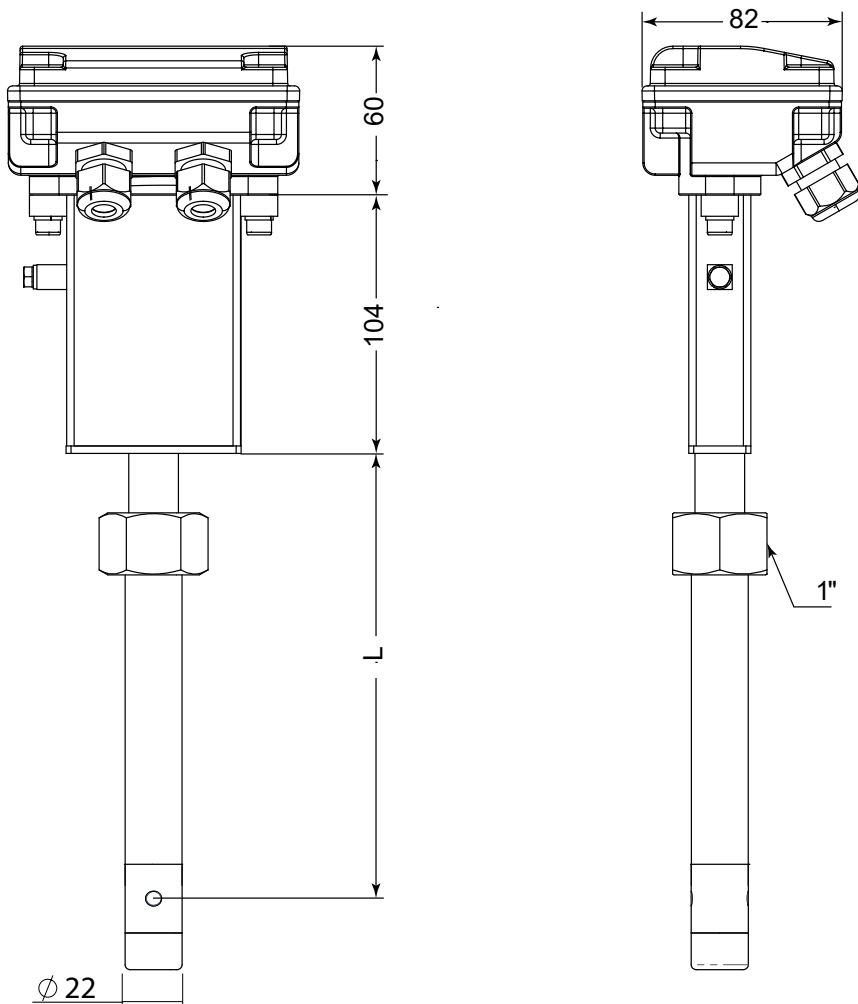


WARNING





PRECAUTIONS

OVERALL DIMENSIONS



SIZE	DN	L
SIZE 1	Da DN80 a DN500	176
SIZE 2	Da DN80 a DN1000	244
SIZE 3	Da DN80 a DN2000	462

OPERATIVE TEMPERATURE

 	PTFE LINING			
	Liquid temperature		Ambient temperature	
	Min.	Max	Min.	Max
° C	-20	100	-10	60
° F	-4	212	14	140

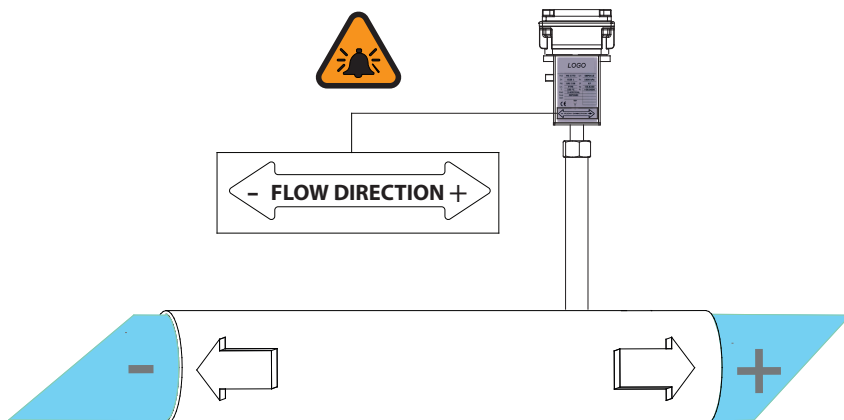
GENERAL INFORMATION ON THE SENSORS INSTALLATION

FLOW DIRECTION

Before install the sensor locate the direction of the liquid in the piping

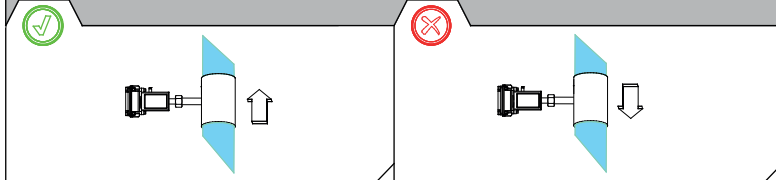
The sign of the flow rate is positive, when the flow direction is from - to + as printed on the tag plate.

If after the installation, for plant request becomes necessary reverse the sign of the flow, it is enough reverse the sign of the coefficient KA

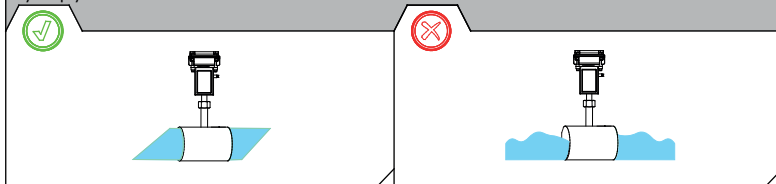


SHREWDNESS AND PRECAUTIONS

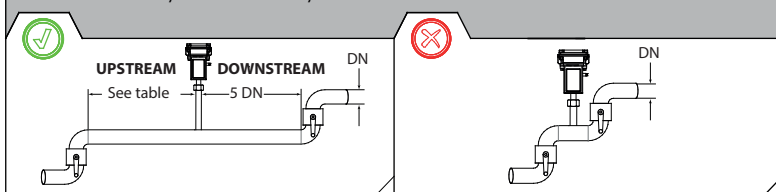
In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer



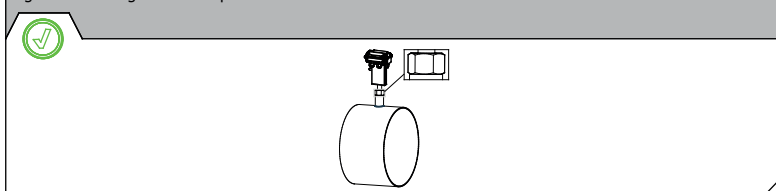
Avoid a partially empty pipe, during operation the pipe must be either completely full of liquid or completely empty



Install the sensor away from bends and hydraulic accessories

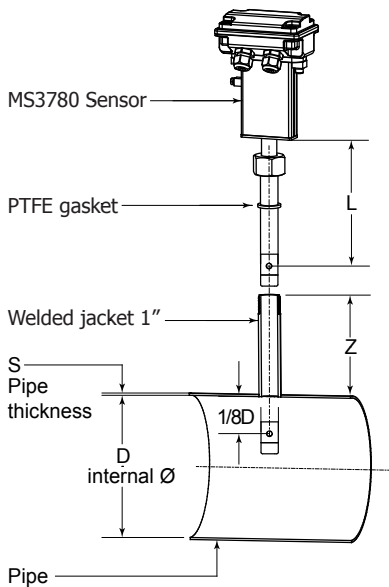


Tighten the fixing nut before pressurized the line.



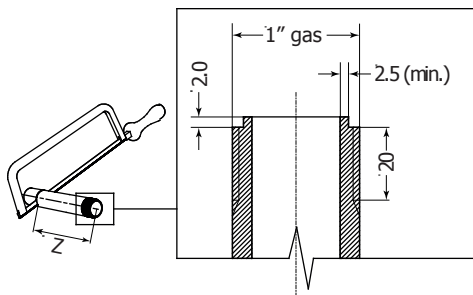
Disturbance upstream from the measuring point	Table according data from UNI10727_1998 (Fluid flow rate in a circular closed pipeline, speed measuring method at only one point of the section)	
	Min upstream straight length expressed in multiples of the diameter of the conduit.	
	Valid for a measurement at the point of mean axial velocity	Valid for a measurement on the axis of the pipe
90° elbow or t-bend	50	25
Several 90° coplanar bends	50	25
Several 90° non-coplanar bends	80	50
Total angle convergent from 18° to 36°	30	10
Total angle divergent from 14° to 28°	55	25
Fully opened butterfly valve	45	25
Fully opened cap valve	30	15

SENSOR INSTALLATION

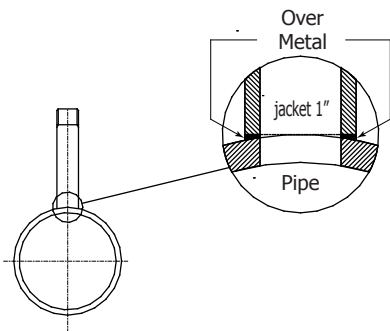


SIZE	DN RANGE	L
SIZE 1	from DN 80* up to DN 500	176
SIZE 2	from DN 80* to DN 1000	244
SIZE 3	from DN 80* to DN 2000	462

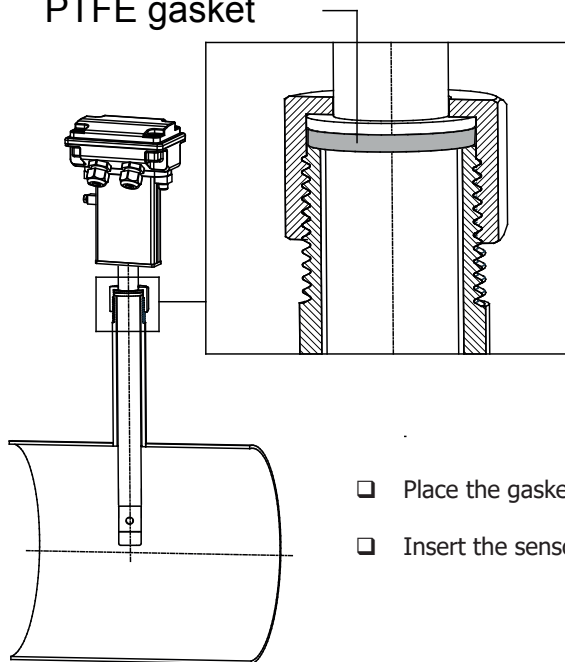
*Installations from DN 80 up to 200 are recommended for special uses



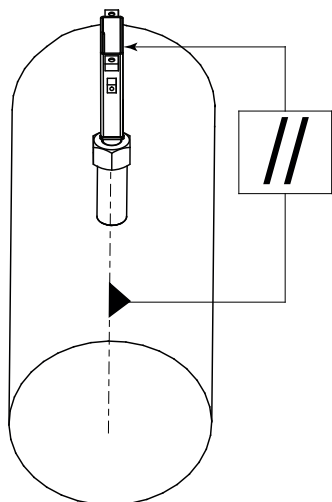
- ❑ Cut a jacket \varnothing 1", length $Z=L-S-1/8D-32$
ATTENTION: consider the over-metal necessary for the welding.
- ❑ Weld the jacket \varnothing 1" to the pipe.



PTFE gasket



- Place the gasket on to the sensor shaft.
- Insert the sensor in to the Ø 1" jacket



- Line up longitudinally the connector box with the pipe line axis
- Tighten the nut with a 38mm spanner. The tightness of the nut must ensure the internal gasket provides a seal at the full operating conditions.

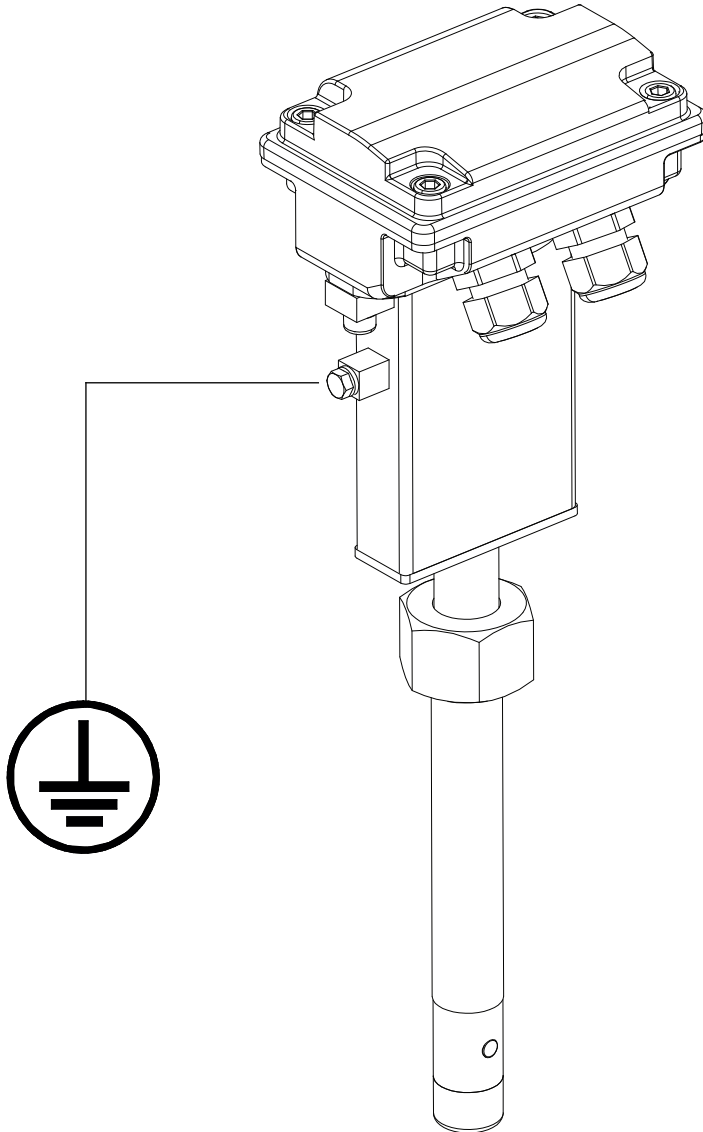
GROUNDING INSTRUCTIONS



For correct meter operation it is **NECESSARY** that the sensor and the liquid are equipotential, **ALWAYS** connect the sensor and converter to ground as indicated in the below figure.

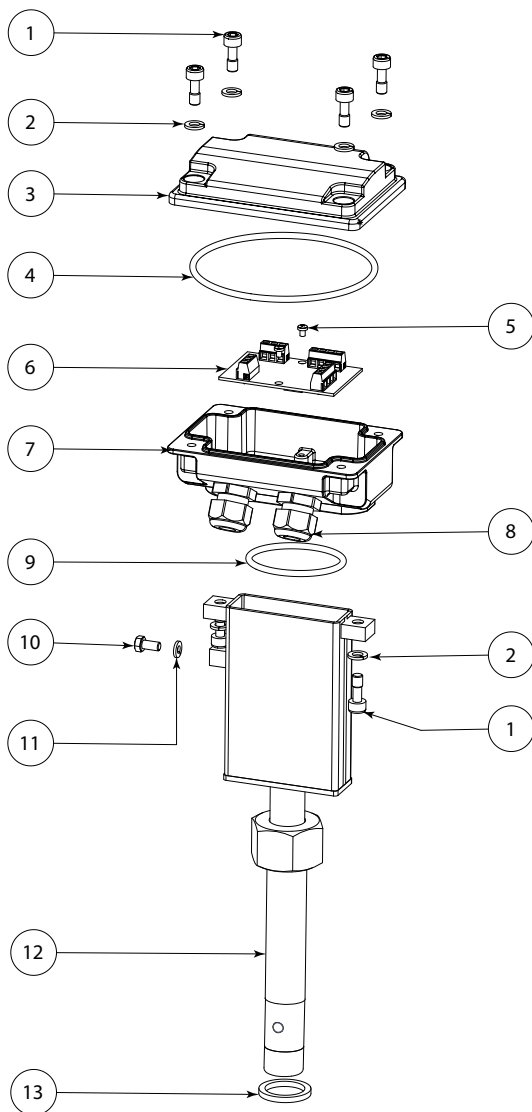


For grounding with cathodic protection pipe contact the manufacturer.



LAYOUT

POS.	DESCRIPTION
1	SCREW M6x16
2	GROWER Ø6
3	JUNCTION BOX COVER
4	O-RING 4400
5	SCREW M4x6
6	PCB FOR SEPARATE VERSION (NORMAL OR PREAMPLIFIER)
7	JUNCTION BOX MAIN HOUSING
8	CABLEGLANDE PG9
9	O-RING 155
10	SCREW M5x10
11	GROWER Ø5
12	SENSOR MS3780
13	GASKET PTFE



MANUAL REVIEW

REVIEW	DATE	DESCRIPTION
MAN_MS3780_IT_EN_NL_R00	26/05/21	INTEGRATION: nomenclature update

At the end of its lifetime, this product shall be disposed of in full compliance with the environmental regulations of the state in which it is located.

