

ELECTROMAGNETIC FLOW METER



INSTALLATION MANUAL OF “INSERTION” SENSORS

□ INTRODUCTION

- This manual is integral part of the product. Read carefully the instructions contained in it since it contains important indications for the safety of use and of maintenance.
- The technical information and the relative products of this manual could undergo modifications 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 in used in his original configuration.
- It's forbidden the reproduction of the present manual and of possible

□ START UP AND MAINTENANCE OF THE INSTRUMENTS

- Before starting up the instrument, always make a sure connection to ground as suitable to page 5
- verify periodically: the integrity of the power supply cables, the tightening of the sealing elements (cable glands, covers, etc.), the mechanical fixing of the instrument on the pipe or on the wall stand.

□ SAFETY



Before using the instrument, always make a sure connection to ground



Avoid any attempt to repair the instrument. If the instrument is not functioning properly, please call the nearest assistance service



Pay maximum attention during the operations



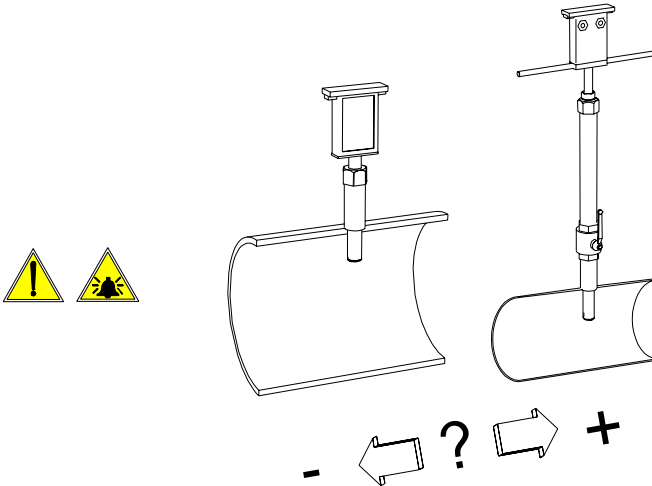
ATTENTION !!!



DANGER !!!

□ GENERAL INFORMATION ON THE SENSORS

○ 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 it's from **- to +** as printed on the tag plate.

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

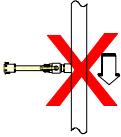
□ OPERATIVE TEMPERATURES



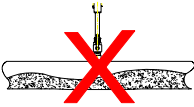
PTFE LINING				
Liquid Temp.		Ambient Temp.		
	Min.	Max	Min.	Max
° C	-20	150	-10	60
° F	-4	302	14	140

Shrewdnesses and precautions

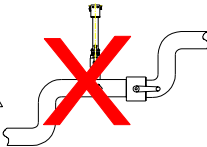
NO



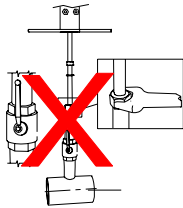
For vertical installations with descending flow contact the manufacturer



Avoid the partially full condition

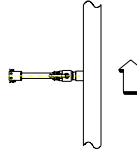


Avoid installation near curves or hydraulic accessories

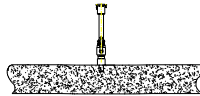


Warnig : do not remove the safety tools and check them before open the valve

YES

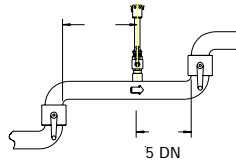


For vertical installations is preferable the ascending flow

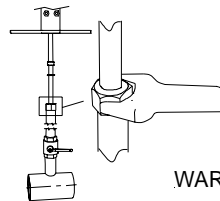


The pipe must be completely full or completely empty (avoid partially full situation by the installation)

SEE TABLE ON LAST PAGE



INSTALL THE SENSOR AWAY FROM FLOW DISTURBANCE (LIKE CURVE, T)



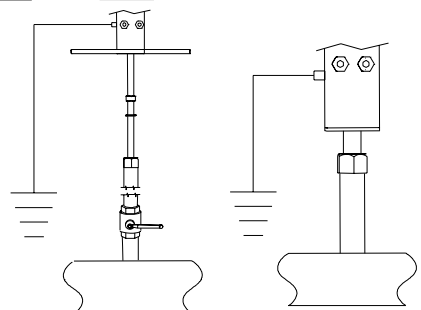
BEFORE TO OPEN THE VALVE CHECK THE SAFETY TOOLS

WARNING !!!

□ GROUNDING INSTRUCTION



For correct operation of the meter is **NECESSARY** that the sensor and the liquid are equipotential, so **ALWAY** connect the sensor and converter to ground.
For grounding with chatode protection pipe contact the manufacturer.

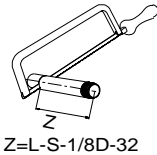


❑ **Sensor Installation – Model For Mounting In Not Pressurized Pipe**

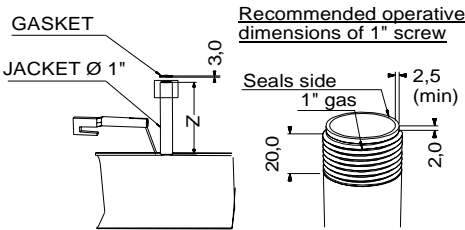
Install the sensor following the order of the pictures

Pic. 1

Cut the jacket \varnothing 1" like in picture 1.
(SEE PIC. 6)
ATTENTION: consider the necessary over-metal for welding

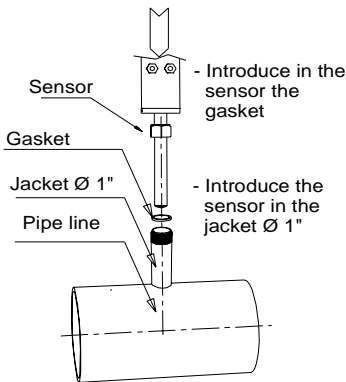


Pic. 2

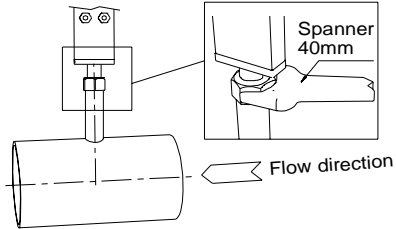


weld the jacket to the pipe line

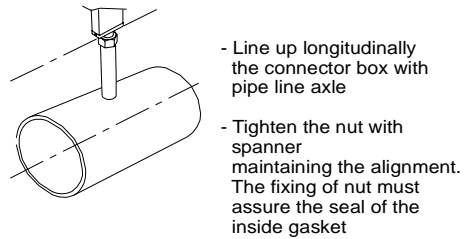
Pic. 3



Pic. 4



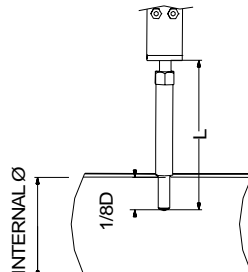
Pic. 5



Pic. 6

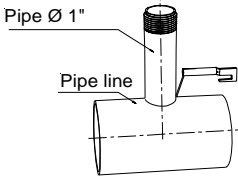
SIZE	ND RANGE	L
SIZE 1	DN 80 UP TO DN 500	176
SIZE 2	DN 80 UP TO DN 1000	244
SIZE 3	DN 80 UP TO DN 2000	462

Sensor installed



❑ Sensor Installation – Model For Mounting In Pressurized Pipe

Pic. 1



- Weld to the pipeline a pipe $\varnothing 1"$.
ATTENTION: verify "X" dimension (pic. 2 and 6)

Pic. 2

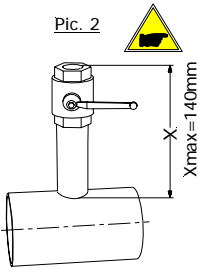
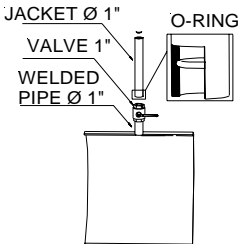
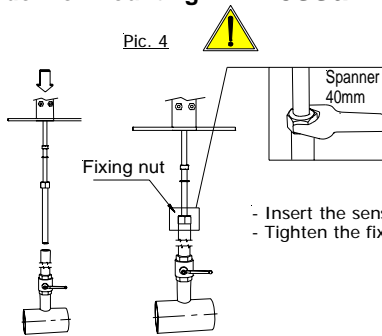


Fig. 3



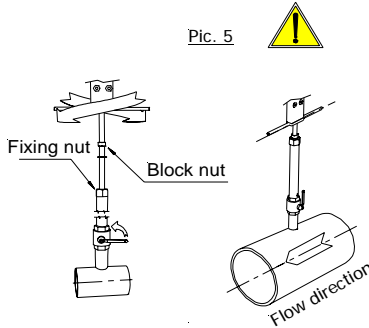
- Screw the 1" jacket to the valve
ATTENTION: the O-Ring in the jacket must be place underside (near valve)

Pic. 4



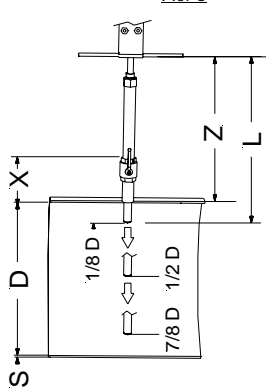
- Insert the sensor with close valve
- Tighten the fixing nut with spanner

Pic. 5



- Open the valve
- Screw the sensor up to "Z" dimension
- Verify the line up
- Tighten the block nut mantening the alignment

Pic. 6



AVAILABLE INSERTION DEEP

	1/8D	1/2D	7/8D
Z=	L-S-1/8D	L-S-1/2D	L-S-7/8D

SIZE	Z min	MAX DEPTH
SIZE 1	X + 260	220 - X
SIZE 2	X + 335	285 - X
SIZE 3	X + 465	415 - X

SIZE	ND RANGE	L
SIZE 1	from ND 80 up to ND 500	480
SIZE 2	from ND 80 up to ND 1000	621
SIZE 3	from ND 80 up to ND 2000	880

S = THIKNESS OF PIPE

D = INTERNAL DIAMETER OF PIPE

Z = VALUE TO REACH FOR RIGHT INSERTION DEEP

❑ **Sensor Installation – Model For Mounting In Pressurized Pipe**

INSTALLATION STEPS

1) Define and block on Z value the reference ring

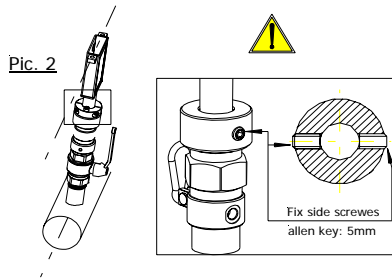
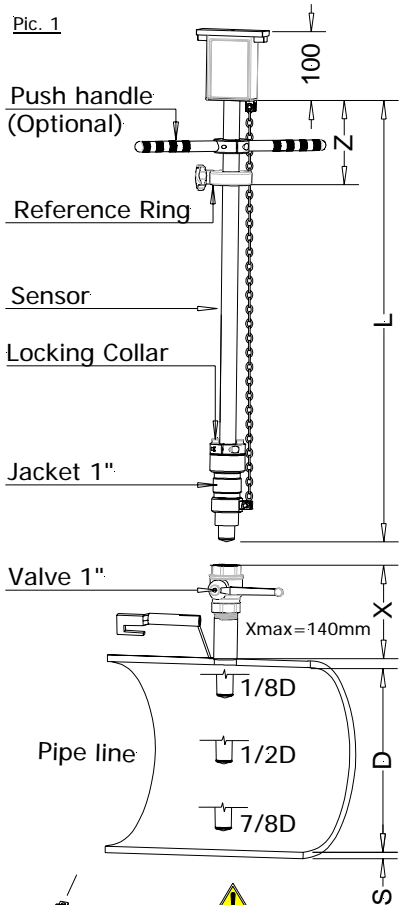
AVAILABLE INSERTION DEEP	
Insertion	"Z" VALUE
1/8D	$L-(X+S+1/8D+110)$
1/2D	$L-(X+S+1/2D+110)$
7/8D	$L-(X+S+7/8D+110)$

S = THICKNESS OF PIPE
 D = INTERNAL DIAMETER OF PIPE
 Z = VALUE TO REACH FOR RIGHT INSERTION DEEP

- 2) Weld to the pipeline the Ø 1" hose-coupling .
 ATTENTION: "X" dimension max 140 mm
- 3) Screw the 1" sensor's jacket to the 1" valve
- 4) Open slowly the valve
- 5) Push the sensor up to the reference ring touching the Locking collar ("Z" dimension)
- 6) Verify the lineup (Pic. 2) : the sensor's junction box MUST be aligned with the pipe axis
- 7) Tighten the two screws of Locking collar

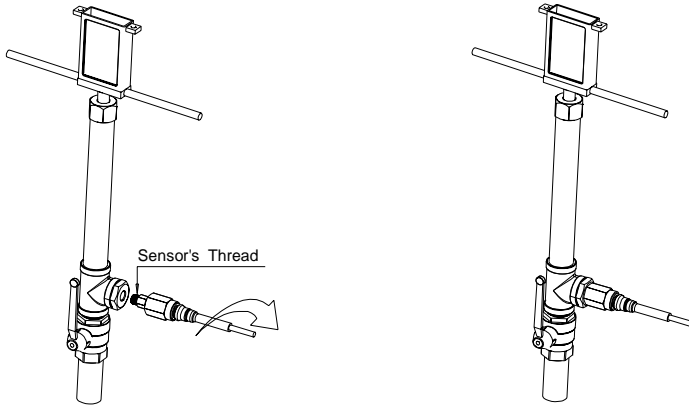
SIZE	L	MAX DEPTH
SIZE 1	650	300 (X<140)
SIZE 2	850	500 (X<140)
SIZE 3	1050	700 (X<140)
SIZE 4	1350	1000 (X<140)

Dimensions in mm

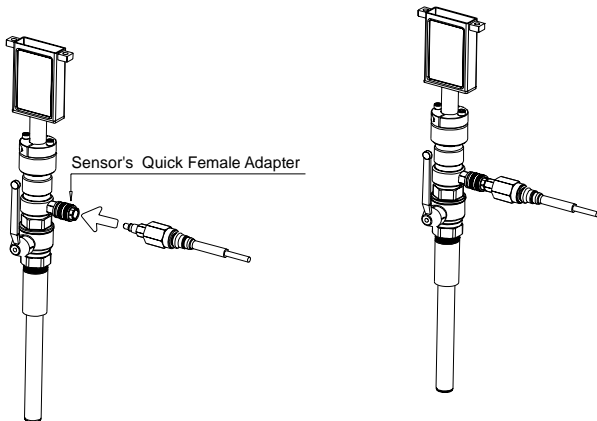


WARNING FOR YOUR SAFETY : DON'T REMOVE OR MODIFY THE LOCK CHAIN

□ Pressure sensor Installation



Roll the ptfе tape on tread and screw it in the sensor



Plug the sensor pressure in the quick joint

	Min upstream straight length expressed in multiples of the diameter of the conduit.	
Disturbance upstream from the measuring point	Valid for a measurement at the point of mean axial velocity	Valid for a measurement on the axis of the pipe
90° elbow or a t-bend	50	25
Several 90° coplanar bends	50	25
Several 90° non- coplanar bends	80	50
Total angle convergent 18 to 36°	30	10
Total angle divergent 14 to 28°	55	25
Fully opened butterfly valve	45	25
Fully opened plug valve	30	15

According to data from UNI1072700_1998