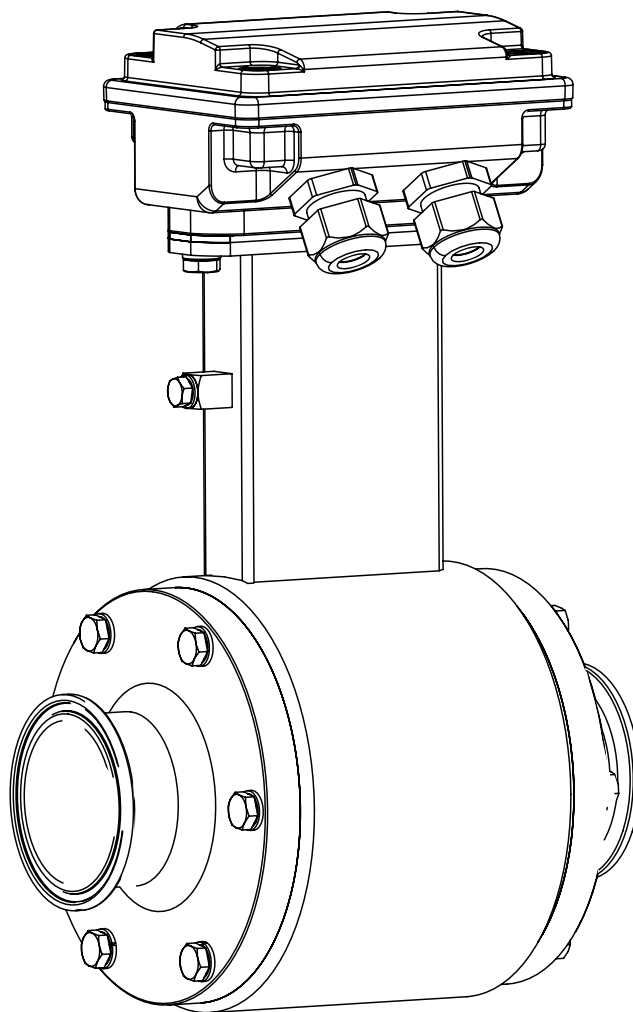


ISOMAG 

The friendly magmeter



**OPERATING AND MAINTENANCE
MANUAL**



MS2420

CE

ISOIL 
I N D U S T R I A



Release number: MAN_MS2420_IT_EN_IS_R03

The characters of file name in bold type indicate the software version which the manual refers to; it is visualized at the instrument start up, or by specific function on DIAGNOSTIC menu.

The reproduction of this manual and any supplied software is strictly forbidden.

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INTRODUCTION

- ❑ These operating instructions and description of device functions are provided as part of the scope of supply.
- ❑ They could be modified without prior notice. The improper use, possible tampering of the instrument or parts of it and substitutions of any components not original, renders the warranty automatically void.
- ❑ The flow meter realizes a measure with liquids of conductivity greater than 5µS/cm in closed conduits, and is composed of a sensor (described in this manual) and a converter (refer to the specific manual).
- ❑ The converter could be coupled directly on the sensor (compact version) or coupled to the sensor by cable supplied with it (remote version).

SAFETY INFORMATION

Any use other than described in this manual affects the protection provided by the manufacturer and compromises the safety of people and the entire measuring system and is, therefore, not permitted. The manufacturer is not liable for damaged caused by improper or non-designated use.

- ❑ Transport the measuring device to the measuring point in the original packaging. Do not remove covers or caps until immediately before installation. In case of cartons packaging it is possible to place one above the other but no more than three cartons.
- ❑ Disposal of this product or parts of it must be carried out according to the local public or private waste collection service regulations.
- ❑ The converter must only be installed, connected and maintained by qualified and authorized specialists (e.g. electrical technicians) in full compliance with the instructions in this Operating Instruction, the applicable norms, legal regulations and certificates (depending on the application).
- ❑ The specialists must have read and understood these Operating Instructions and must follow the instructions it contains. The Operating Instructions provide detailed information about the sensor. If you are unclear on anything in these Operating Instructions, you must call the ISOIL service department.
- ❑ The sensor should only be installed after have verified technical data provided in these operating instructions and on the data plate.
- ❑ Specialists must take care during installation and use personal protective equipment as provided by any related security plan or risk assessment.
- ❑ Never mount or wire the converter while it is connected to the power supply and avoid any liquid contact with the instrument's internal components. To connect remove the terminals from the terminal block.
- ❑ Before connecting the power supply check the functionality of the safety equipment.
- ❑ Repairs may only be performed if a genuine spare parts kit is available and this repair work is expressly permitted.
- ❑ For the cleaning of the device use only a damp cloth, and for the maintenance/repairs contact the service center (for details see the last page).

Before starting up the equipment please verify the following:

- Power supply voltage must correspond to that specified on the data plate
- Electric connections must be completed as described
- Ground (earth) connections must be completed as specified

Verify periodically (every 3-4 months):

- The power supply cables integrity, wiring and other connected electrical parts
- The suitable tightness of the sealing elements
- The mechanical fixing of the sensor to the pipe line

SAFETY CONVENTION

 DANGER ELECTRIC SHOCK	 WARNING	 PRECAUTIONS	 ATTENTION
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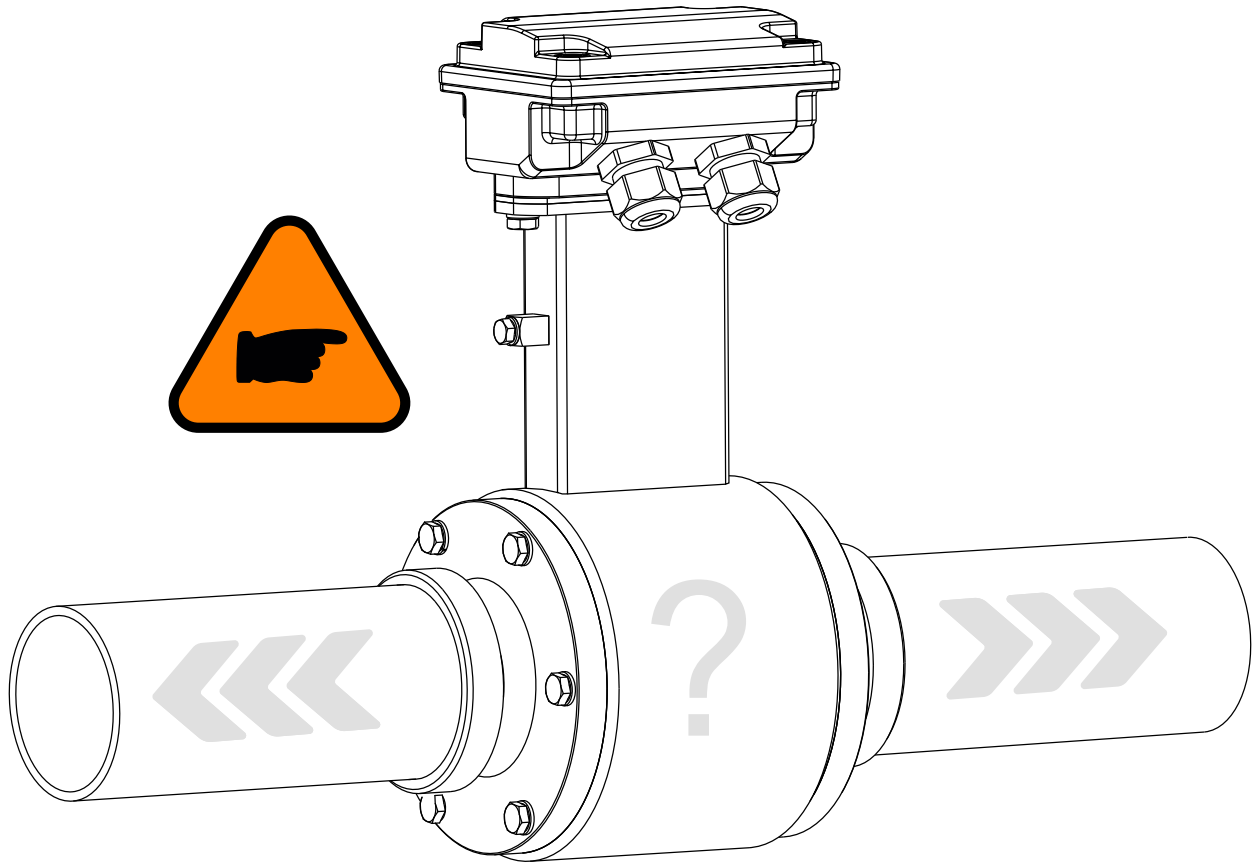
GENERAL INFORMATION ON THE SENSORS INSTALLATION

FLOW DIRECTION



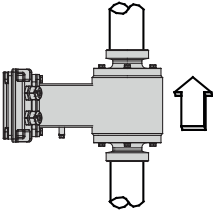
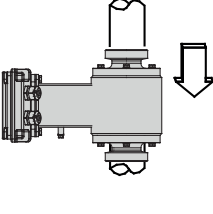


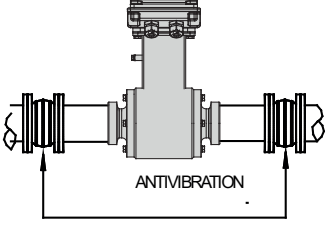
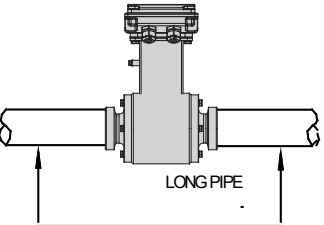


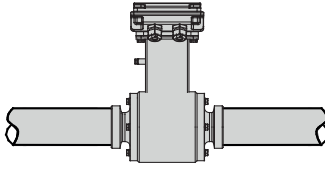
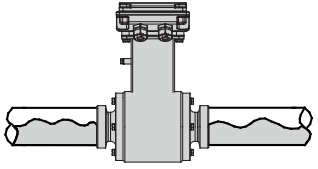


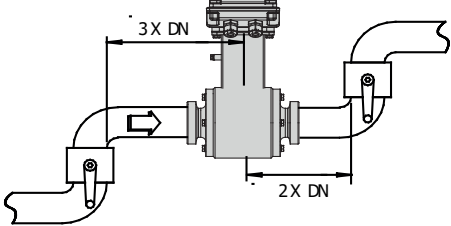
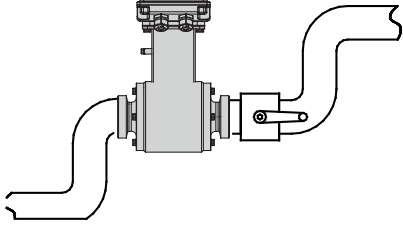


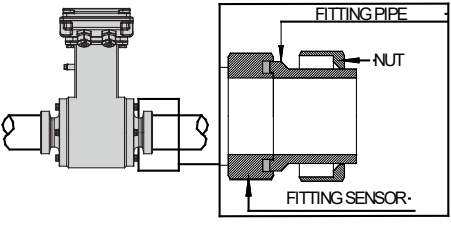
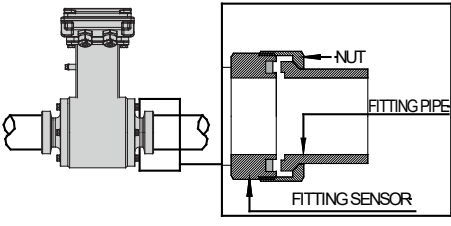
Before install the sensor locate the direction of the liquid in the piping

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

<p>In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer</p>	
	
	
<p>For installations in long pipe lines, please use anti vibration joints</p>	
	
	
<p>Avoid a partially empty pipe, during operation the pipe must be either completely full of liquid or completely empty</p>	
	
	
<p>Install the sensor away from bends and hydraulic accessories</p>	
	
	
<p>Avoid positioning fittings by tightening the clamps.</p>	
	
	

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

DEGREE OF PRODUCT CLEANLINESS

The degree of cleaning of the product has been determined in accordance with the following standards

ASTM G 93-03: Cleaning Methods and Cleanliness Levels for Material and Equipment Used in Oxygen-Enriched Environments;

ASTM F331-05: Standard Test Method for Nonvolatile Residue of Solvent Extract from Aerospace Components (Using Flash Evaporator);

ASTM G 144-01: Standard Test Method for Determination of Residual Contamination of Materials and Components by Total Carbon Analysis Using a High Temperature Combustion Analyzer.

Par. 11.4.2.2 Total Organic Carbon:

When water is used as a quantitative verification, the ultrasonic extraction in aqueous phase is used to release organic substances and particulate from the surfaces of the fittings and from the piece to determine the total organic carbon.

G 136: Practice for Determination of Soluble Residual Contaminants in Materials by Ultrasonic Extraction

Non Volatile Residue (NVR)

Gravimetric test

From the evaluation of the NVR parameter, as gravimetric determination of processing residues, there is a level of cleaning of D band level for diameters up to DN 20 mm

For $DN > 20$ mm it is less than 33 mg / m² classifiable as band B.

Consequently, for $DN < 20$ mm, an additional washing cycle may be required by the user, according to methods considered suitable for the use to which the product is destined and with liquids that are compatible with the materials of the product

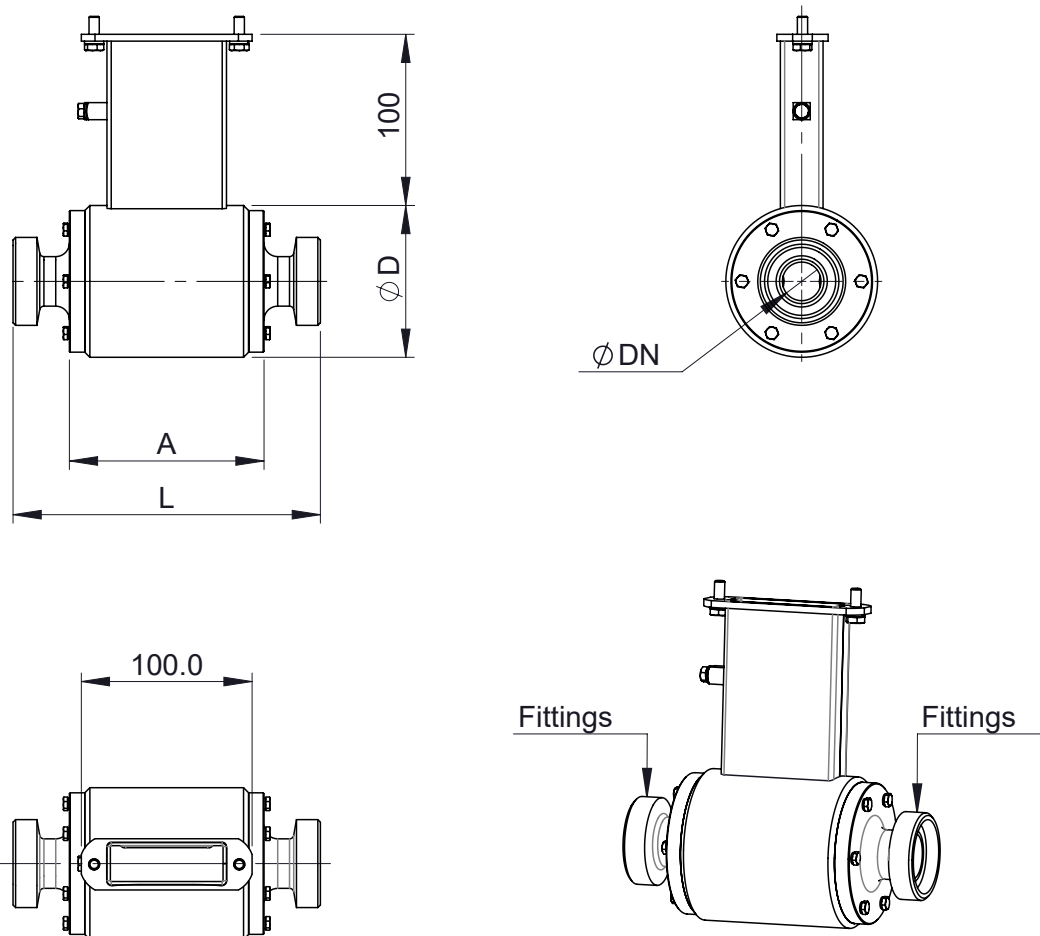
Non Volatile Residue (NVR) - TOC

From the evaluation of the NVR parameter, such as determination of organic residues, the level of cleanliness is of band A, therefore the cleaning process carried out can be considered adequate and sufficient.

In any case, it is left to the discretion of the user to provide for additional cleaning deemed suitable for the use to which the product is destined and with liquids that are compatible with the materials of the product

OVERALL DIMENSIONS

THREADED CONNECTIONS



DIN 1851

DIMENSIONS mm (inches)							
	25 (1")	32 (1" 1/4")	40 (1" 1/2")	50 (2")	65 (2" 1/2")	80 (3")	100 (4")
A	115			121			
L	180				200		
D	89	108	129	140	156	168	
CONNECTIONS	25	32	40	50	65	80	100

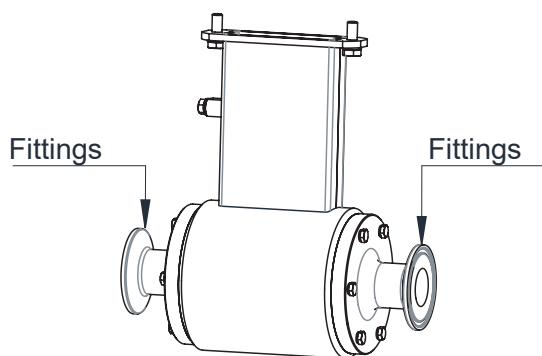
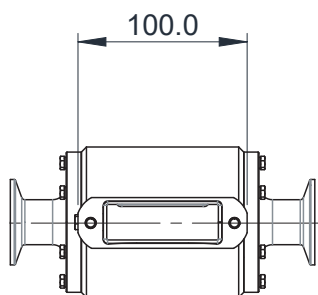
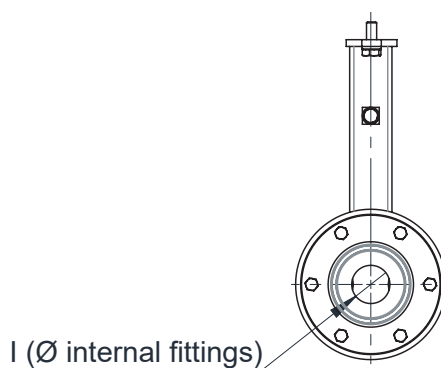
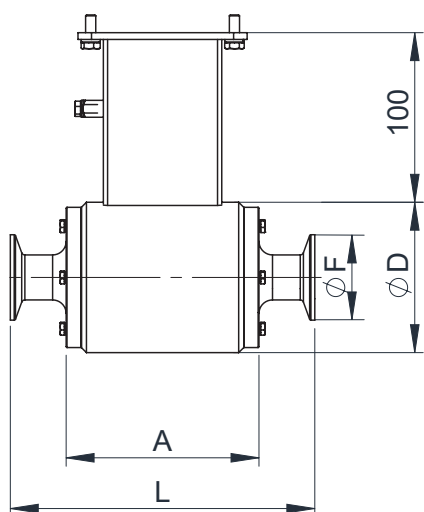
 **NB: WITH DIN 11851 CONNECTION USE SUITABLE GASKET FOR CLEANING IN PLACE (CIP) APPLICATION**

SMS-1146

DIMENSIONS mm (inches)						
	25 (1")	40 (1" 1/2")	50 (2")	65 (2" 1/2")	80 (3")	100 (4")
A	115	121				
L	180			200		
D	89	108	129	140	156	168
CONNECTIONS		38	51	63	76	104

 **NB: SMS 1146 CONNECTION IS ONLY SUITABLE FOR CLEANING OUT OF PLACE (COP)**

CLAMP CONNECTIONS



CLAMP ISO2852

DIMENSIONS mm (inches)						
	25 (1")	40 (1" 1/2")	50 (2")	65 (2" 1/2")	80 (3")	100 (4")
A	115	121				
L	180			200		
D	89	108	129	140	156	168
I	22.6	35.6	48.6	60.3	72.9	97.6
F	50.5		64	77.5	91	119

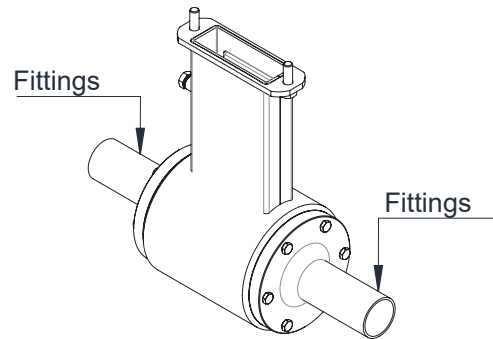
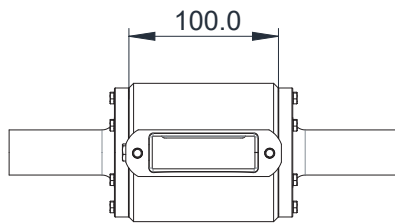
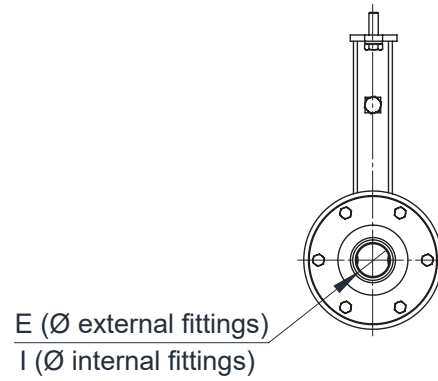
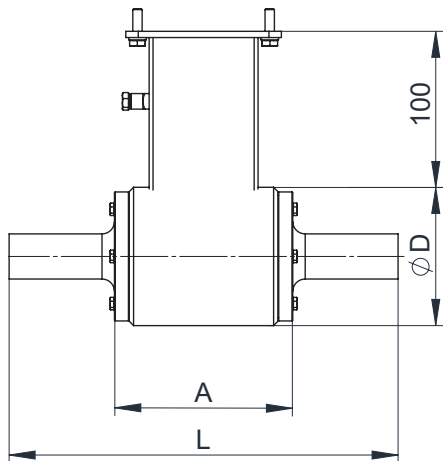
 **NB: WITH ISO2852 CONNECTION USE SUITABLE GASKET FOR CLEANING IN PLACE (CIP) APPLICATION**

CLAMP BS4825 PART3

DIMENSIONS mm (inches)						
	25 (1")	40 (1" 1/2")	50 (2")	65 (2" 1/2")	80 (3")	100 (4")
A	115	121				
L	180			200		
D	89	108	129	140	156	168
I		34.9	47.6	60.3	73	97.6
F			64	77.5	91	119

 **NB: WITH BS4825 CONNECTION USE SUITABLE GASKET FOR CLEANING IN PLACE (CIP) APPLICATION**

Welded connections

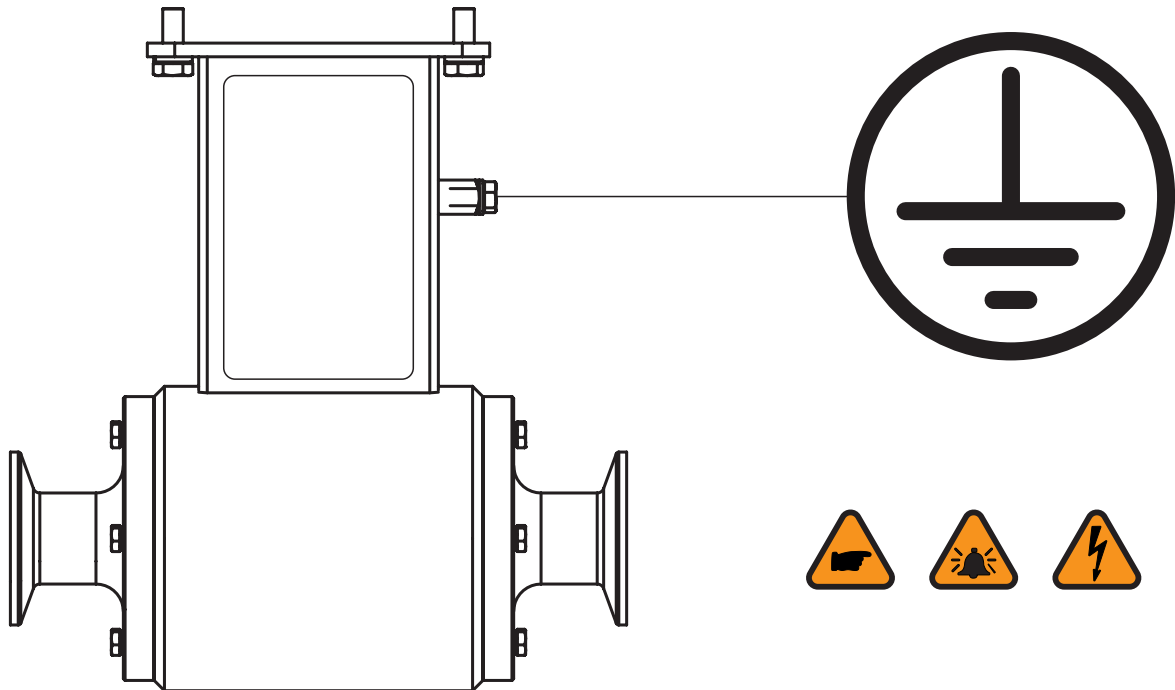


DIN11850 RANGE 2

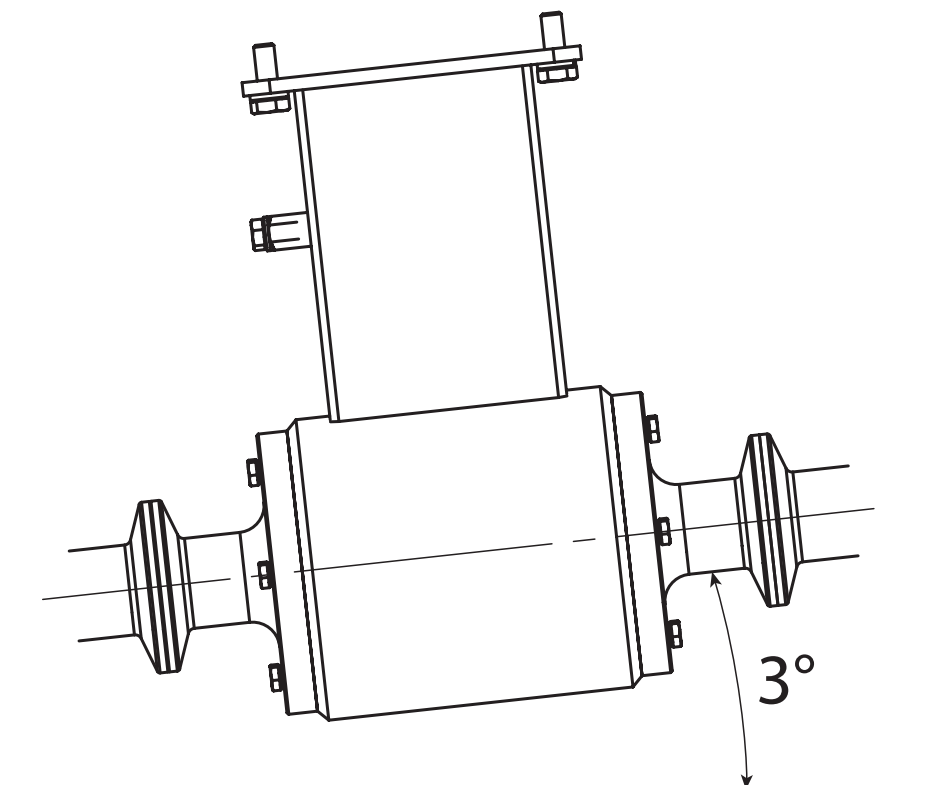
DIMENSIONS mm (inches)	DN						
	25 (1")	32 (1" 1/4")	40 (1" 1/2")	50 (2")	65 (2" 1/2")	80 (3")	100 (4")
A	115		121				
L	250					258	
D	89		108	129	140	156	168
E	29.0	35.0	41.0	53.0	70.0	85.0	104.0
I	26.0	32.0	38.0	50.0	66.0	81.0	100.0

GROUNDING CONNECTIONS

For correct operation of the meter is NECESSARY that the sensor and the liquid are equipotential, so ALWAYS connect the sensor and converter to ground:



SENSOR SELF-DRAINING



When flow meter is installed horizontally, ensure minimum angle of 3° for self-draining purposes

OPERATIVE TEMPERATURE

VERSION	LIQUID TEMPERATURE	AMBIENT TEMPERATURE
COMPACT	-20°C ÷ 110°C -4°F ÷ 230°F	-20 °C ÷ 60 °C 4°F ÷ 140°F
SEPARATE	-20°C ÷ 150°C -4°F ÷ 302°F	

CLEANING AND MATERIAL

CIP CLEANING	MAXIMUM CLEANING TEMPERATURE		AMBIENT TEMPERATURE
	MAX TEMPERATURE	MAX TIME	
STEAM CLEANING	130°C 266°F	60 min.	25°C 77°F
FLUIDS	130°C 266°F	60 min.	

If the ambient temperature is > 25 °C, the difference must be subtracted from the max. cleaning temperature

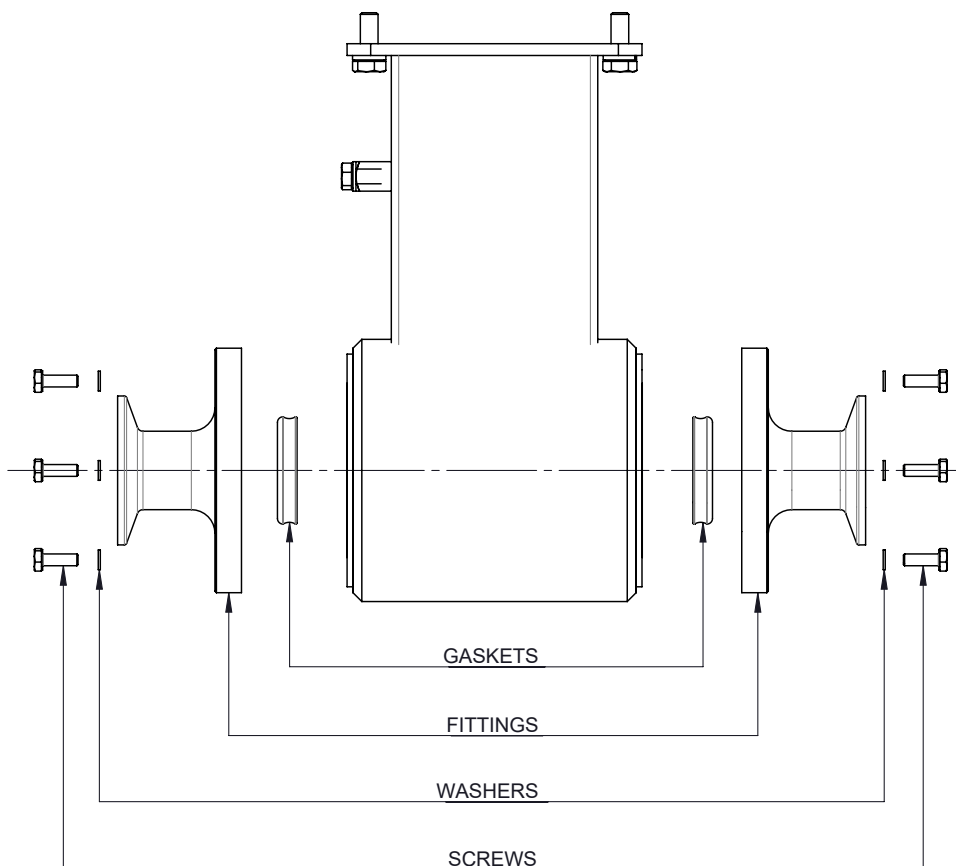
MATERIALS	IN CONTACT WITH LIQUID	NOT IN CONTACT WITH LIQUID
AISI 316 (fittings, electrodes)	✓	
FKM 3 A-SSI 18-03 CLASS 1 (internal sealings) EPDM 3 A-SSI 18-03 CLASS 2 (internal sealings)	✓	
PTFE (lining)	✓	
AISI 304 (external closing)		✓

Care must be taken to ensure cip or cop cleaning and disinfection chemicals are suitable for the expected soil removal and compatible with the equipment construction materials as suitable in the table above

FITTINGS: REMOVAL AND ASSEMBLY

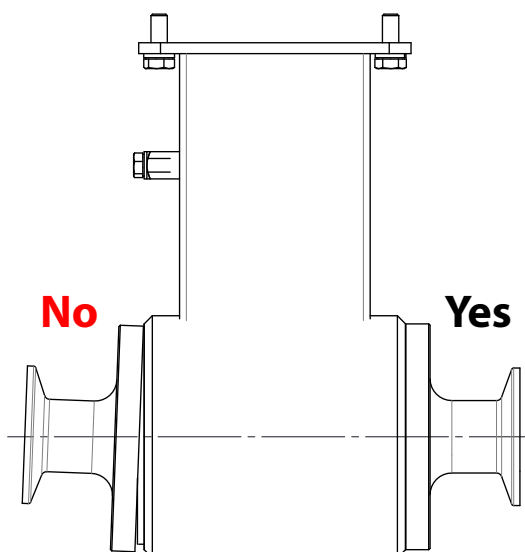
The MS2420 sensor connections can be disassembled for inspection or replacement of spare parts (gaskets, connections, screws, washers).

To disassemble the parts shown in the drawing, simply unscrew the fixing screws of the connections



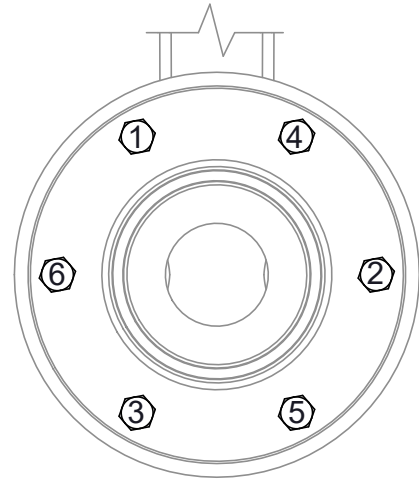
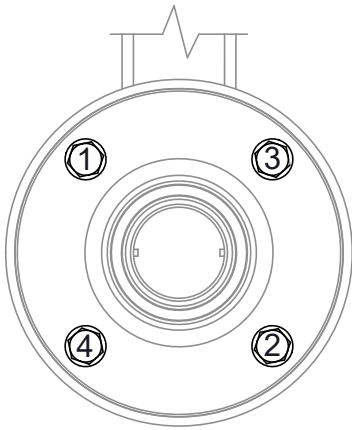
To assemble the parts shown in the drawing, proceed as follows:

- clean all parts and check for the absence of foreign bodies
- Assemble the gasket to the connection (the shape of the gasket must match the shape of the connection)



- Assemble the connections to the sensor body checking the full contact

- ❑ Tighten the screws following the order shown in the picture; apply the tightening torque as follow in the table



DN	SCREW	N. SCREW	WRENCH	TIGHTENING TORQUE IN Nm
25	M4X12	6	6	4
32				
40	M6X16		10	8
50				
60				
80				
100				

PED CERTIFIED INSTRUMENTS

These devices will be delivered with specific indications, in particular:

- On the instrument Label plate: a reference to the notified body (PED II only)
- On the Declaration of Conformity: a reference to the PED directive, to the harmonized standard connected to it and also a reference to the notified body (only if it's a PED II device)
- Addendum: The Risk analysis, a document to which it's important to pay the utmost attention

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.

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

MANUAL REVIEWS

REVIEW	DATE	DESCRIPTION
2420 IT_EN_R0	05/06/19	First edition
2420 IT_EN_R1	29/12/20	Added Dn 32 table DIN1851
MAN_MS2420_IT_EN_IS_R02	23/03/21	Added PED note, screw lenght modified, DN 3-20 deleted,clamps tables modified and Degree of cleaning of the product added INTEGRATION: nomenclature update
MAN_MS2420_IT_EN_IS_R03	18/06/21	Added fittings DIN 11850 range 2

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

<http://www.isoil.it/en>



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