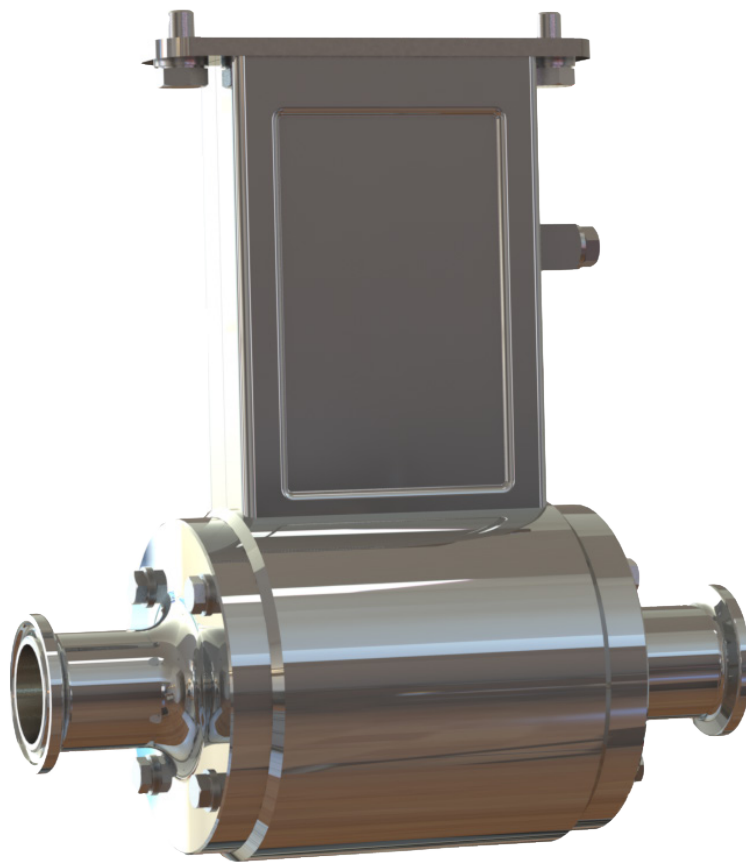


ISOMAG ®
The friendly magmeter

DATA SHEET



MS 2420

Official Isoil dealer in The Netherlands:

UFM

ISOIL 
I N D U S T R I A

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TECHNICAL DATA

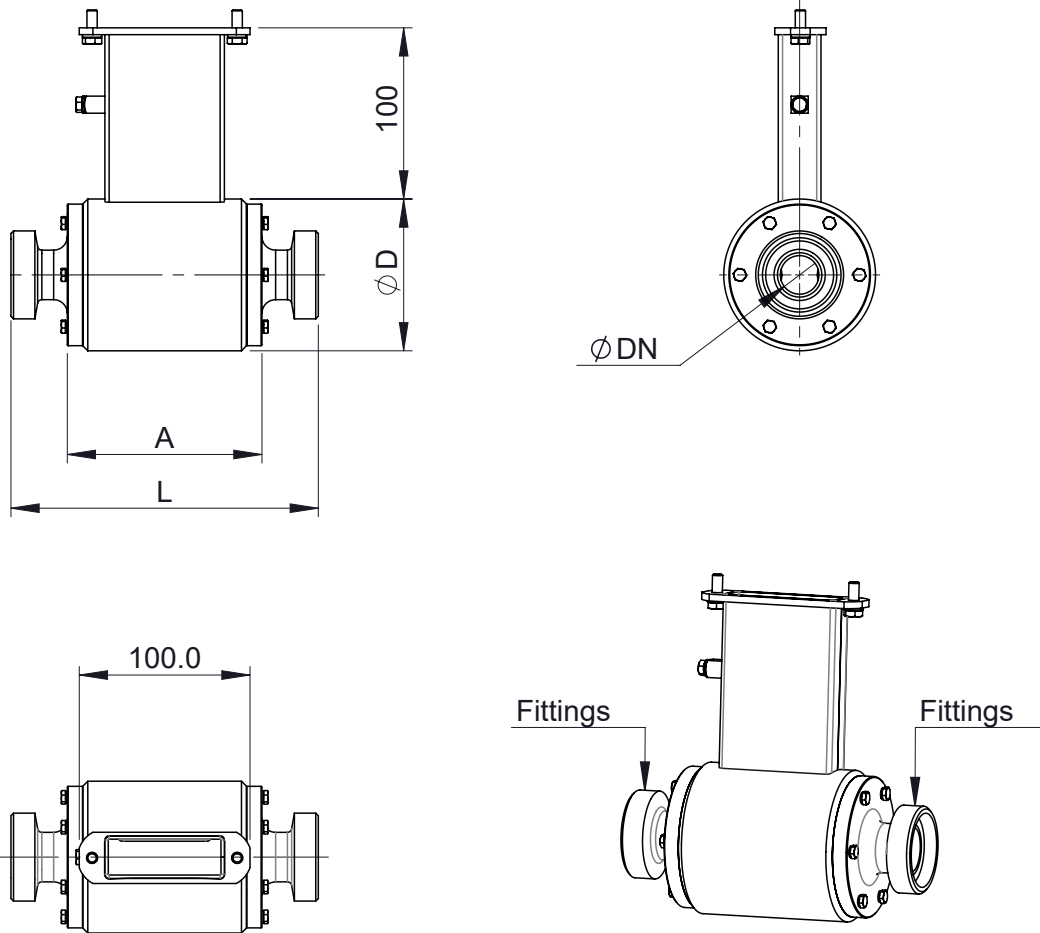
OVERALL FEATURES	
Nominal diameter	<input type="checkbox"/> DN 25 ÷ 100
Minimum conductivity	<input type="checkbox"/> 5 µS/cm
Humidity Range	<input type="checkbox"/> 0÷100% (IP 67)
Accuracy	<input type="checkbox"/> See relevant converter data sheet
CE Certification	<input type="checkbox"/> Yes

STANDARD FEATURES	
Body material	<input type="checkbox"/> AISI 304
Nominal pressure	<input type="checkbox"/> 1600 kPa
Process connections	<input type="checkbox"/> Sanitary DIN 11851 <input type="checkbox"/> SMS 1146 (C.O.P. for 3A) <input type="checkbox"/> Clamp ISO 2852 <input type="checkbox"/> Clamp BS 4825
Version – protection rating	<input type="checkbox"/> Compact IP67
Connections material	<input type="checkbox"/> AISI 316
Lining material	<input type="checkbox"/> PTFE
Gasket material	<input type="checkbox"/> FPM
Liquid temperature	<input type="checkbox"/> -20 ÷ 110°C - Compact Version <input type="checkbox"/> -20 ÷ 150°C - Separate Version
Ambient Temperature resistance	<input type="checkbox"/> -20 ÷ 60°C
Vacuum	<input type="checkbox"/> 20 Kpa absolute at 100 °C
Electrodes material	<input type="checkbox"/> AISI 316L

OPTIONAL FEATURES (CHECK FOR MORE DETAILS 'HOW TO ORDER' ON LAST PAGE)	
Body material	<input type="checkbox"/> Stainless steel 316
Gasket material	<input type="checkbox"/> EPDM
Process connection	<input type="checkbox"/> Others on request
Electrodes material	<input type="checkbox"/> Others On request
Version – protection rating	<input type="checkbox"/> Separate (max 20m) – IP 68 <input type="checkbox"/> Separate (max 500m) with pre-amp IP 67 (IP 68 optional)

OVERALL DIMENSIONS

Threaded connections



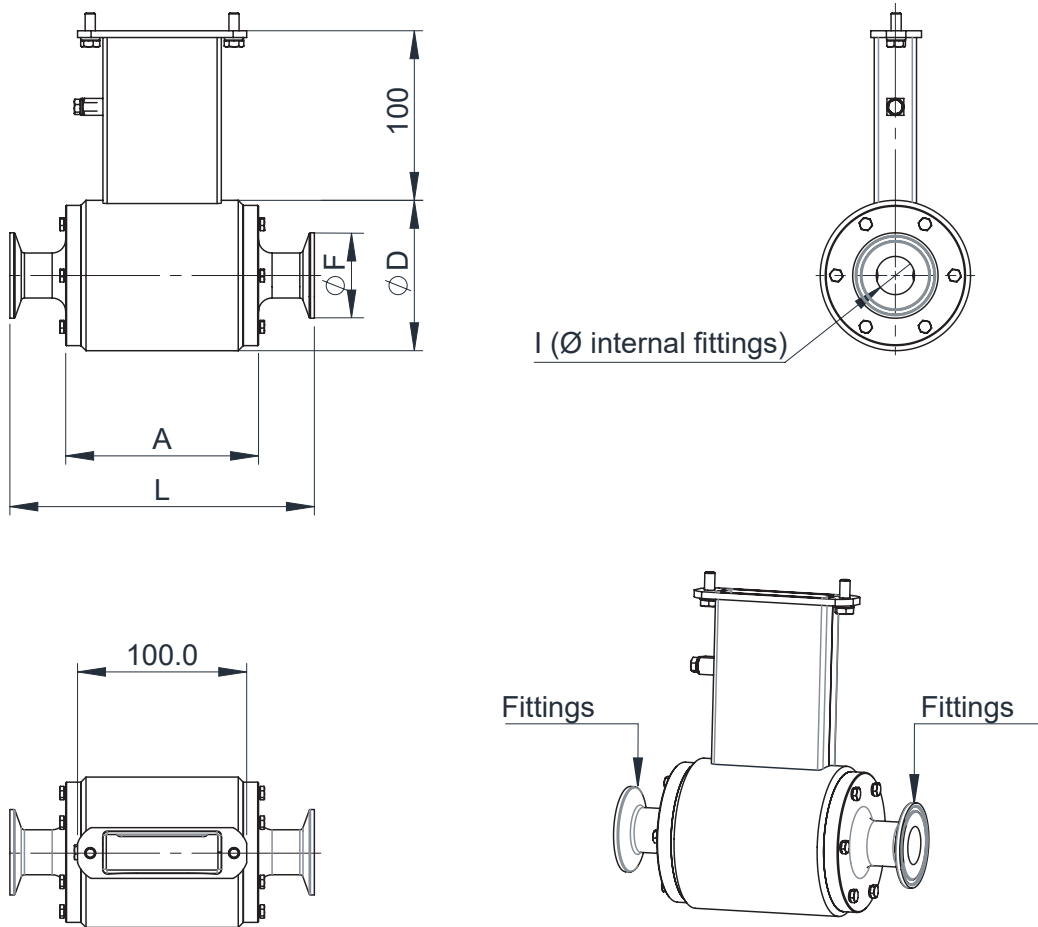
DIN 1851

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	180					200	
D	89		108	129	140	156	168
CONNECTIONS	25	32	40	50	65	80	100

SMS-1146

DIMENSIONS mm (inches)	DN					
	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	25	38	51	63	76	104

Clamp connections



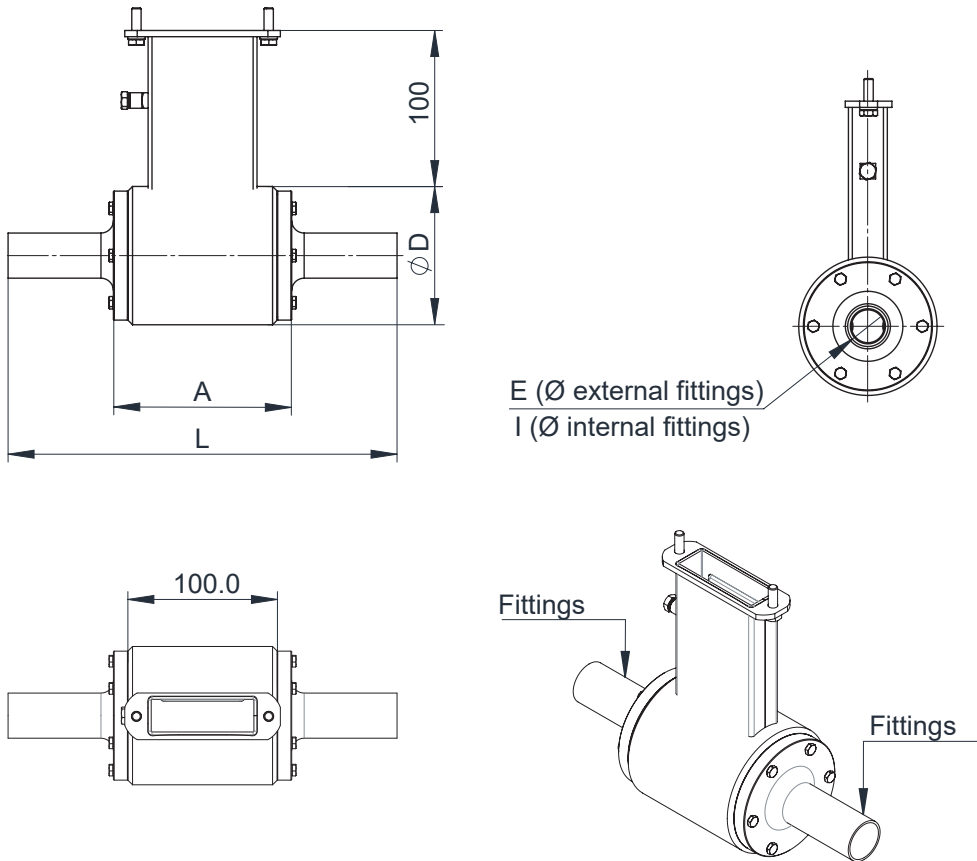
CLAMP ISO2852

DIMENSIONS mm (inches)	DN					
	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

CLAMP BS4825 PART3

DIMENSIONS mm (inches)	DN					
	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	22.2	34.9	47.6	60.3	73	97.6
F	50.5		64	77.5	91	119



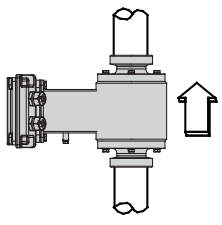
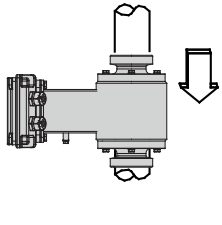


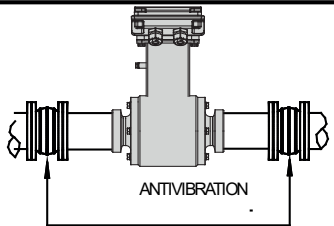
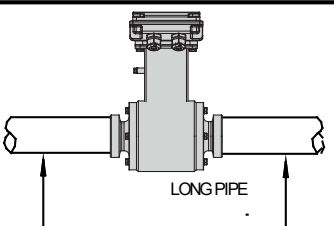


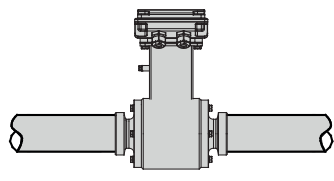
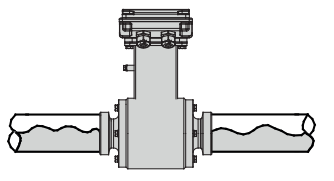


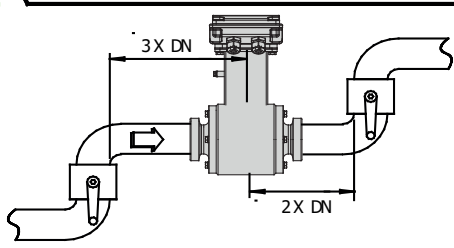
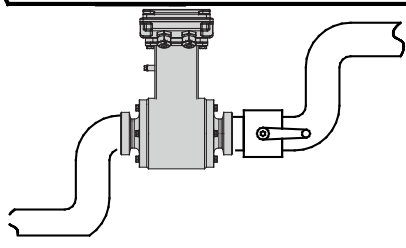


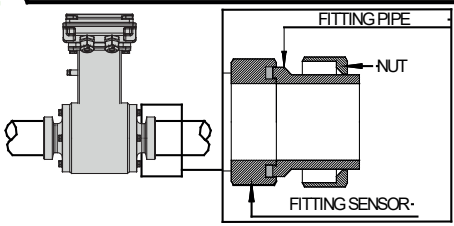
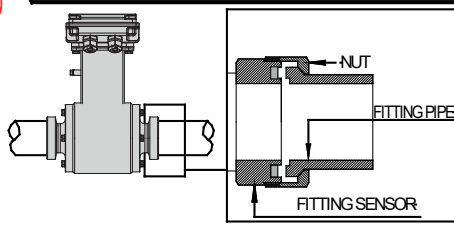
Welded connections



DIN11850 RANGE 2

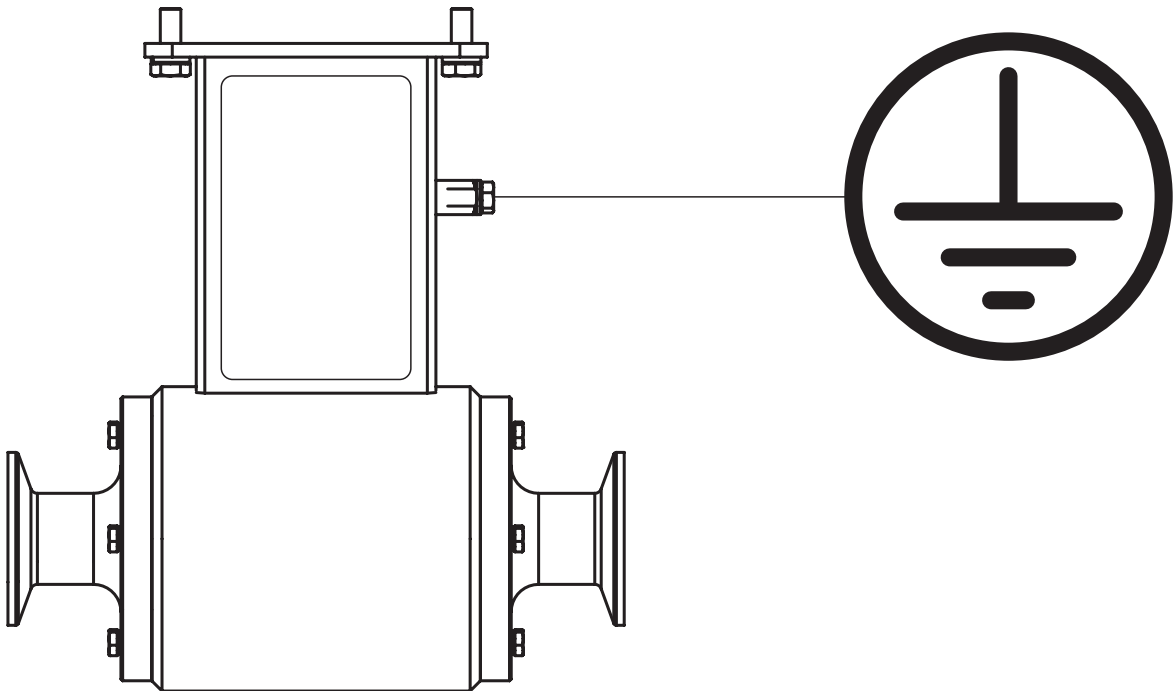
DIMENSIONS mm (inches)	DN						
	25 (1")	32 (1" 1/4")	40 (1" 1/2")	50 (2")	65 (2" 1/2")	80 (3")	100 (4")
A	115		121				
L	250					258	
D	89		108	129	140	156	168
E	29.0	35.0	41.0	53.0	70.0	85.0	104.0
I	26.0	32.0	38.0	50.0	66.0	81.0	100.0

GENERAL INFORMATIONS ON THE SENSOR INSTALLATION

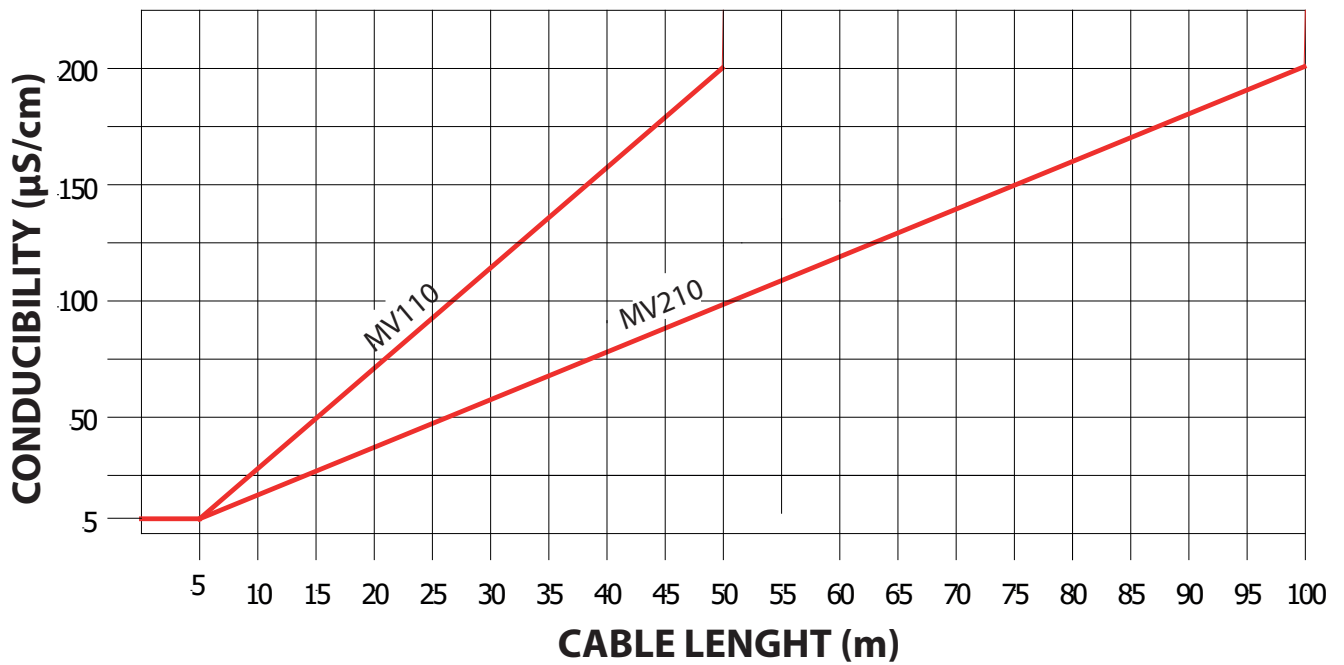
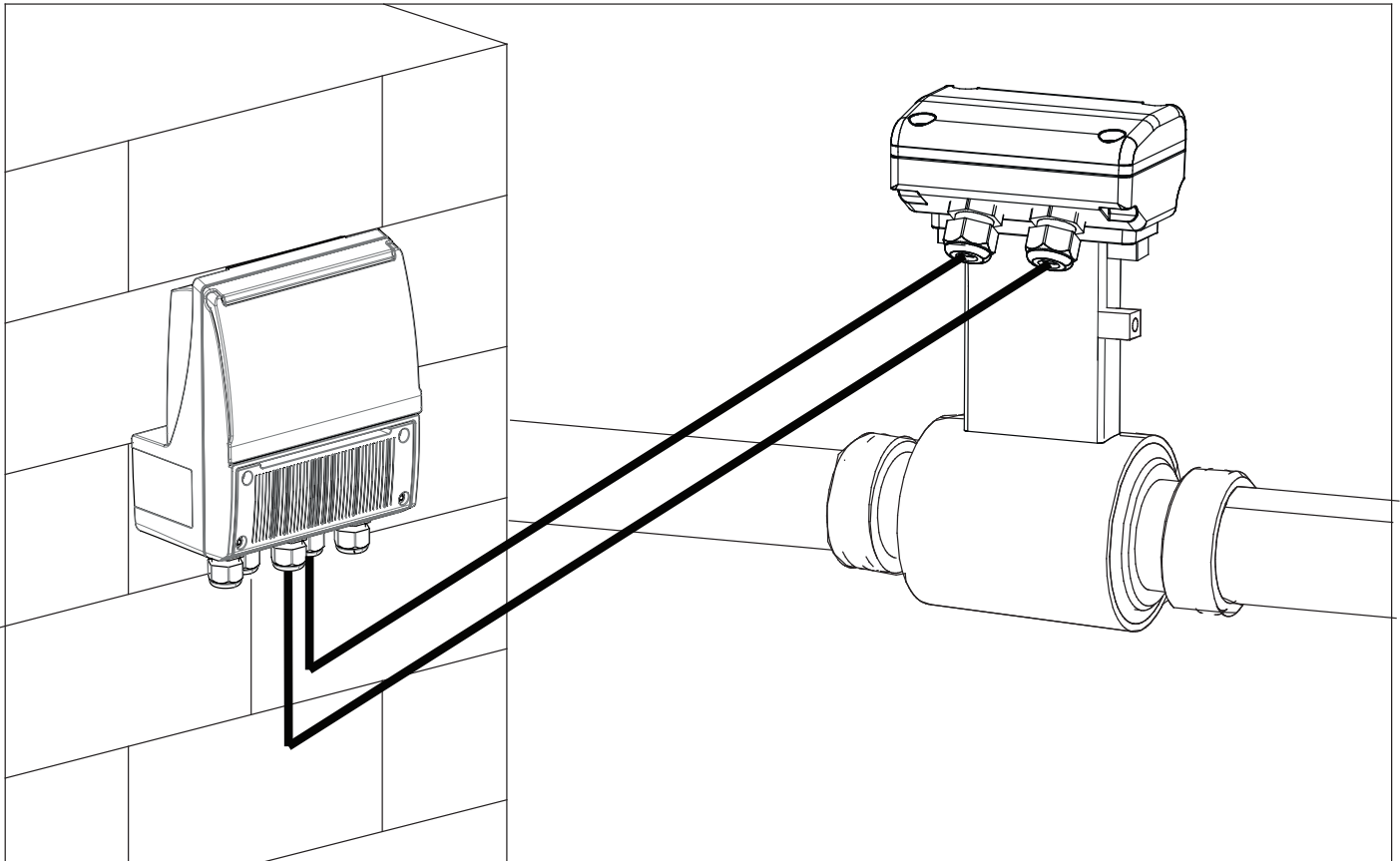
<p>In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer</p>	
	
	
<p>For installations in long pipe lines, please use anti vibration joints</p>	
	
	
<p>Avoid a partially empty pipe, during operation the pipe must 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>	
	
	

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:



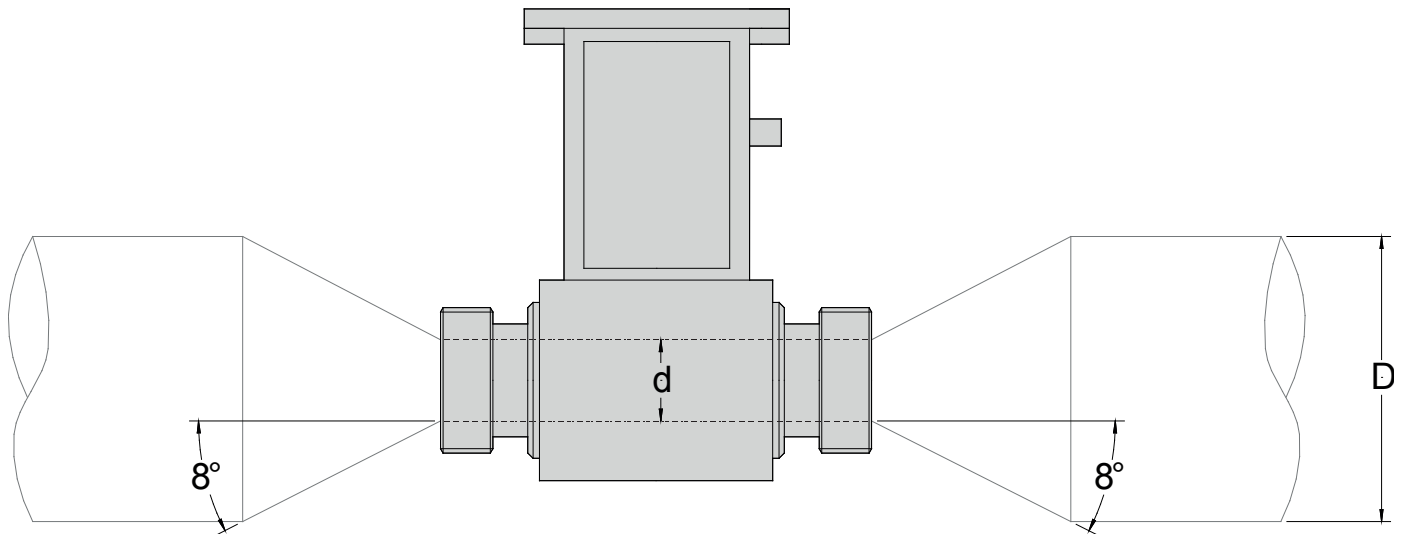
SEPARATE VERSION



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 µS/cm

PRESSURE LOSS CALCULATION (CONES 8° ANGLES)



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

Dove:

- Δp = Pressure loss in [Pa]
 ρ = Fluid density [kg/m³] typical value $\rho = 1000$ [kg/m³]
 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]								
$d/D \backslash u$	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	26.6	38.3	52.1	68
0.6	0.9	3.6	8.2	14.6	22.7	32.7	44.6	58.2
0.7	0.8	3	6.8	12.2	19	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:

- $\rho = 1000$ [kg/m³] 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].

NOTES FOR PED DIRECTIVE FOR SENSOR

Here below the tables of products subject to Directive Pressure Equipment Device 2014/68/UE (PED) implemented by legislative decree February 15, 2016, n. 26

The tables show which category of PED is applicable according to the water operating temperature (TAB A T <110 ° C TAB B T > = 110 ° C), sensor's DN and its nominal pressure.

DN / PN CORRELATION TABLE AND PED DIRECTIVE

ONLY FOR FAMILY MS2410-2420 AND PN MAX 25 Bar
ONLY FOR METER WITH LINING IN PTFE

ONLY FOR T. > 110°C		
DN	PN	
	PN16	PN25
25	OUT OF PED	
32		
40	CAT. I	
50		
65		
80		
100		

CONDITIONS TO SATISFY FOR T.> 110 ° C:

VAPOR PRESSURE $p > 1.5 \text{ ATA}$

CATI I	
$32 > \text{DN} \leq \text{DN}100 + \text{PS} * \text{DN} > 1000 \leq 3500$	
CAT II	
$100 > \text{DN} \leq 250 + \text{PS} * \text{DN} > 3500 \leq 5000$	
CATI III	
$\text{DN} > 250 + \text{PS} * \text{DN} > 5000$	

MEANING OF TABLES CODE

OUT OF PED	
CAT. I	

The products in Category II and III are supplied with a specific declaration of conformity for each instrument

HOW TO ORDER

CODE EXAMPLE	CODE/DESCRIPTION	
Nominal Diameter / Measuring range		
T25	T25	DN25, measuring range 0 ... 0,72 / 0 ... 18 m3/h
	T32	DN32, measuring range 0 ... 1,6 / 0 ... 29 m3/h (only for DIN 11851)
	T40	DN40, measuring range 0 ... 1,8 / 0 ... 45 m3/h
	T50	DN50, measuring range 0 ... 2,88 / 0 ... 72 m3/h
	T65	DN65, measuring range 0 ... 4,8 / 0 ... 120 m3/h
	T80	DN80, measuring range 0 ... 7,2 / 0 ... 180 m3/h
	T100	DN100, measuring range 0 ... 11,2 / 0 ... 280 m3/h
Gasket material (internal tightness)		
2	2	O-Ring : Epdm (FDA1770)
	3	O-Ring : FKM (FDA1770)
Process connection type		
A	A	DIN11851-852 sanitary connection (*)
	B	Clamp connection, ISO2852
	C	SMS-1146 connection (**)
	D	Clamp GB special connections
	E	Clamp connection, BS 4825
	F	DIN11850-Range 2 (Welding)
	Z	Connection: other
Number and electrodes material		
1	1	n. 2 measure electrodes in AISI316
Version / Protection rate		
A	A	Compact Version, IP67 protection rate
	K	Separate version, AISI 304 JB POLISCHED, protection rate IP68, standing immersion with 1,5 m of head water - (DEFINE THE CABLE LENGHT - ADD THE COST)
	*	Compact Version Customized
Approvals		
1	0	ANY
	1	3A

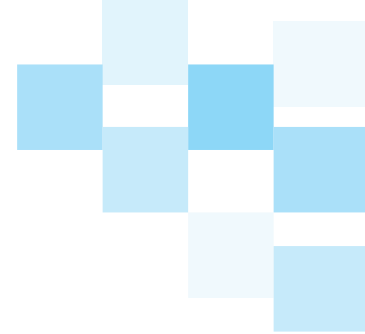
Complete code
example for
order



MS2420-T25-3A1A1

(*) : Use suitable gasket for cleaning in place (CIP) applications

(**): With this option the process connection is only suitable for cleaning out of place (COP)



Due to the constant technical development and improvement of its products, the manufacturer reserves the right to make changes and/or modify the information contained in this document without prior notice.