

27I SERIES



PED



SIL IEC 61508

27I series includes submersible electronic level transmitters for hydrostatic pressure sensing.

All 27 series versions are featured with analog electronic and have small sizes (typical housing Ø 27 mm) and fixed ranges.

APPLICATION FIELDS

27I Series transmitters are used in industrial and marine applications to measure level of liquids in wells, chests, lakes, water treatment plants, tanks, etc.

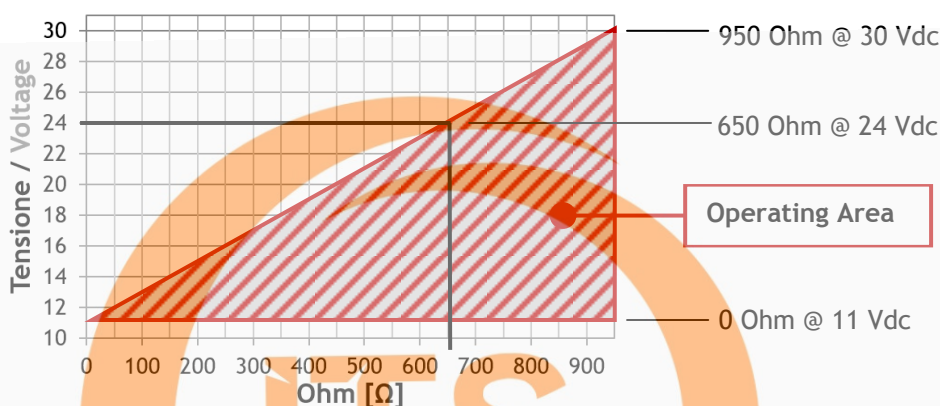
27I Series transmitter can operate in dirty water and in different types of waste water (white, black and grey).

For versions not considered in the specification ask our technical office.

TECHNICAL FEATURES

Electrical parameters

Supply:	2 wires: 11 ÷ 30 Vdc 3 wires: 16 ÷ 26 Vdc
Output signal:	2 wires: 4 ÷ 20 mA 3 wires: 0 ÷ 10 Vdc (min 30 mVdc) 0 ÷ 5 Vdc (min 30 mVdc)
Current consumption:	2 wires: 4 ÷ 20 mA 3 wires: < 5mA @10 KΩ carico \ load
Load resistance:	2 wires: $R_{\Omega} = (U_{\text{supply}} - 12 \text{ V}) / 0.02 \text{ A}$ 3 wires: $R_{\Omega} \geq 10 \text{ K}\Omega$
Max load:	As per chart



Measurement performance

Total accuracy (*):	< ± 0.25 % FS
Zero offset:	< ± 1 % FS
Temperature zero drift:	< ± 0.025 % FS / °C (-10 ÷ 60 °C)
Span thermal drift:	Piezo: < ± 0.02 % FS / °C Ceramic: < ± 0.01 % FS / °C
Long term stability:	Piezo: < ± 0.15 % FS / year Ceramic: < ± 0.12 % FS / year
Response time (63% FS):	Piezo: 10 ms Ceramic: 5 ms
Allowable de-range:	Piezo Sensors: down to 4 times the Nominal Range Ceramic Sensors: down to 2.5 times the Nominal Range

Notes

(*) Including hysteresis, non-linearity and non-repeatability (IEC 60770) Accuracy and drifts are given for instruments with integral sensor and diaphragm; they may vary according to sensor type and diameter, thickness and material of the diaphragm. Zero and Span factory setting < ± 0.6 % FS for not standard versions. Calibrations below 0.1 bar are to be considered not standard. Calibration available with different measuring units.

ENVIRONMENTAL FEATURES

Environmental Conditions

Ambient temperature:	-40 ÷ +85 °C ATEX T6, T85 °C: -40 °C ≤ Tamb ≤ 55 °C ATEX T5, T100 °C: -40 °C ≤ Tamb ≤ 70 °C
Process temperature:	-10 ÷ +80 °C
Storage temperature:	-40 ÷ +90 °C
Ingress protection degree:	IP68
Vibration Test:	in accordance with IEC 60068-2-6
Shock Test:	In accordance with MIL-STD-202F Method 213B
Relative Humidity:	< 98% RH not condensing

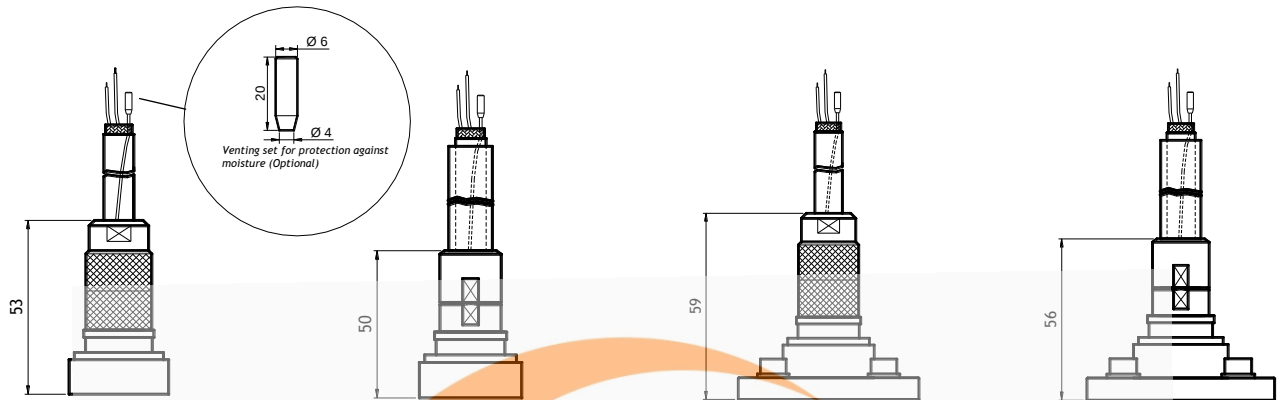
APPROVALS

Type approvals

Directive 2014/34/EU (ATEX)	 II 1G Ex ia IIC T6, T5 Ga and  II 1D Ex ia IIIC T85 °C, T100 °C Da or  II 1G Ex ia IIC T6, T5 Ga
Directive 2014/68/EU (PED)	Up to Category II, for fluids in Group 1
Directive 2014/30/EU (EMC)	Adequate level of electromagnetic compatibility
Functional Safety	SIL2 SFF = 75.00 % PFH [Hours ⁻¹] = 9.8059 · 10 ⁻⁸ DC = λ _{DD} / (λ _{DD} + λ _{DU}) = 82.5 %
Marine type approval	In compliance with applicable requirements of DNV GL type approval system

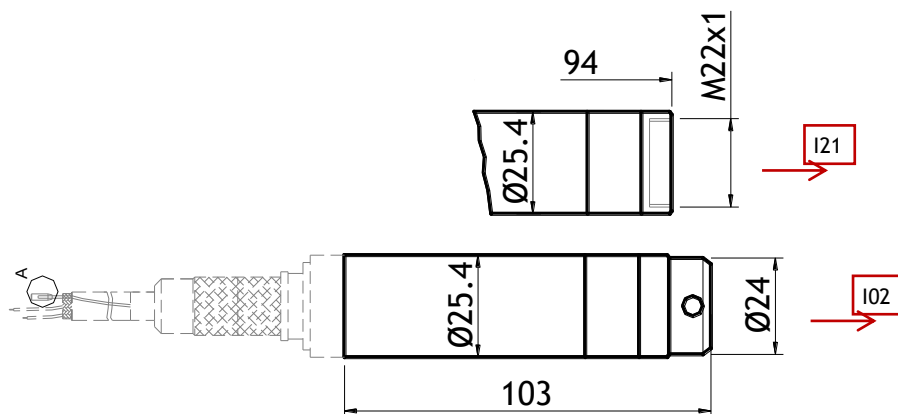
ELECTRICAL WIRING

Transmitters are protected against reverse polarity. The recommended wiring cable is a screened signal cable, with wires of min. section area of 0.2 mm² (AWG24) and shielding > 80 %.

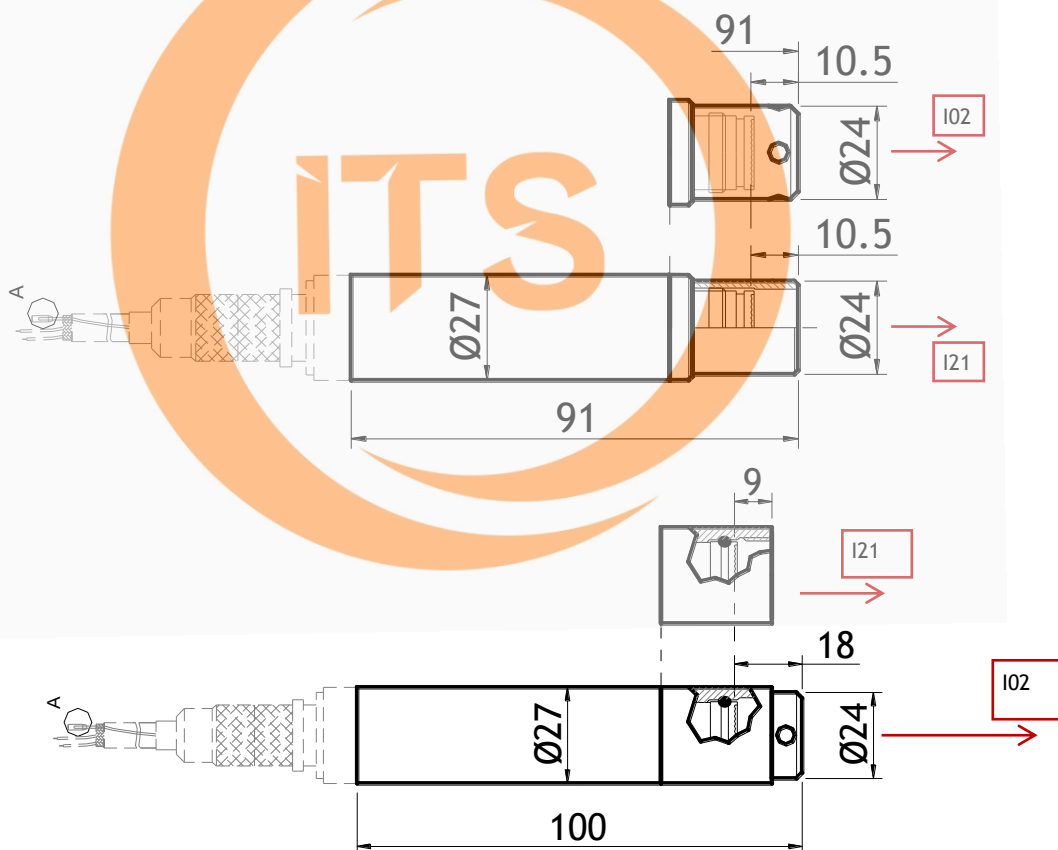


Code 17 AISI 316 Cable gland for output double sealing IP68	Code 18 AISI 316 Cable gland for output double sealing IP68 with protection tube Rilsan \PTFE	Code 56 Flangetta AISI 316 Ø 48 Flange AISI 316 Ø 48	Code 57 Flange AISI 316 SS with protection tube Rilsan\PTFE
Code 27 Titanium Cable gland for output double sealing IP68	Code 28 Titanium Cable gland for output double sealing IP68 with protection tube Rilsan \PTFE	Code 61 Flangetta Titanio Flange Titanium	Code 62 Flange Titanium with protection tube Rilsan\PTFE

HOUSING MATERIAL AND TYPE

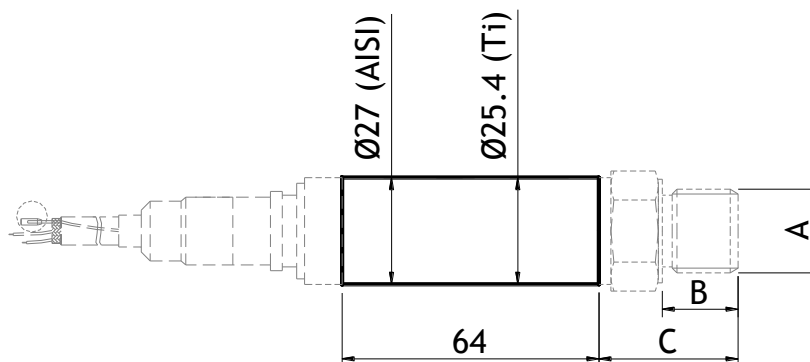


- Material: Titanium
 - Protection Degree: IP68
- Housing code T10 & Process connection I21 o I02



- Material: AISI 316
 - Zone: Ex II 1G
 - Protection Degree: IP68
- Housing code A04 Process connection I21 or I02

HOUSING MATERIAL AND TYPE

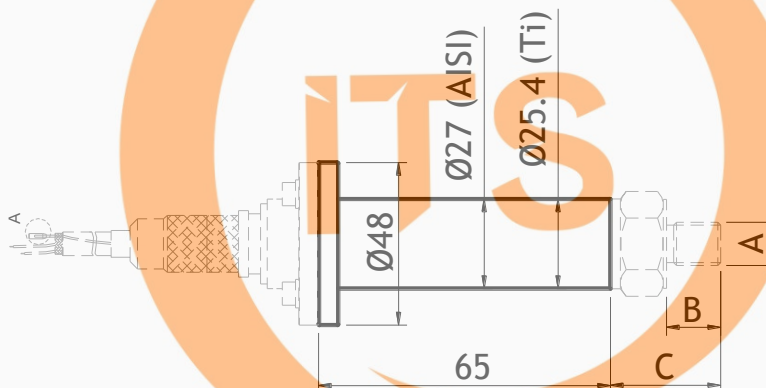


- Material: AISI 316
- Zone: Ex II 2G
- Protection Degree: IP68

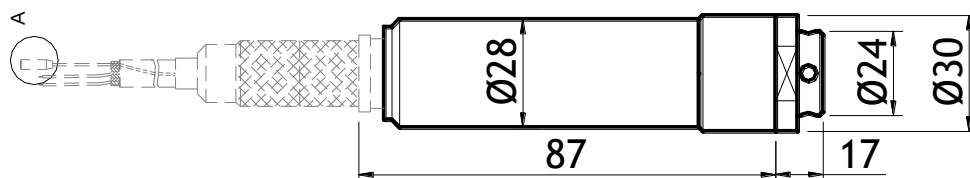
or

- Material: Titanium
- Zone: Ex II 1G II 2G
- Protection Degree: IP68

Housing code A04- AISI316 or T11 - Titanium
Process connection S26 AISI316 or S27 Titanium



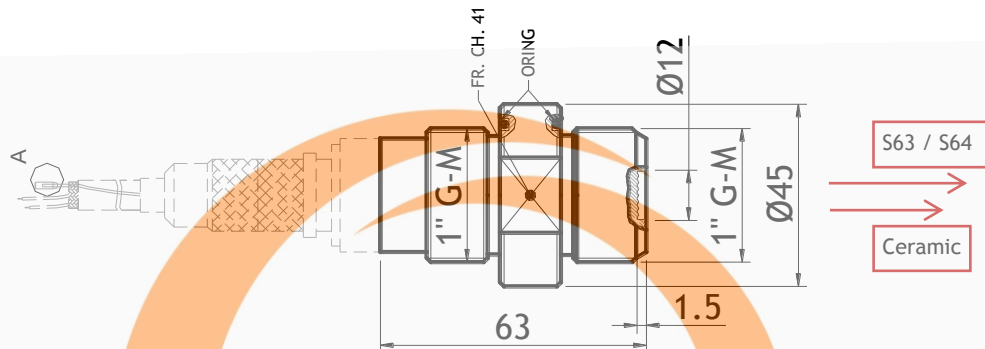
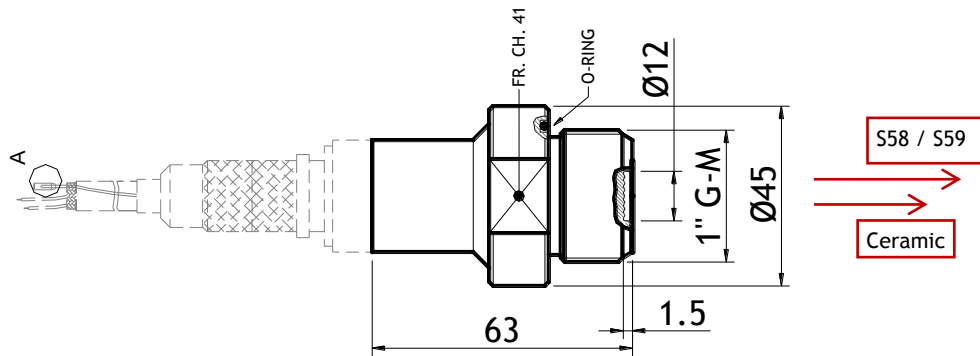
- Material: AISI 316
- Zone: Ex II 1G
- Protection Degree: IP68 Housing code A04 -Ø27



Ceramic

- Material: AISI 316
- Zone: Ex II 1G
- Protection Degree: IP68
Housing code A04 & Process connection I02

HOUSING MATERIAL AND TYPE

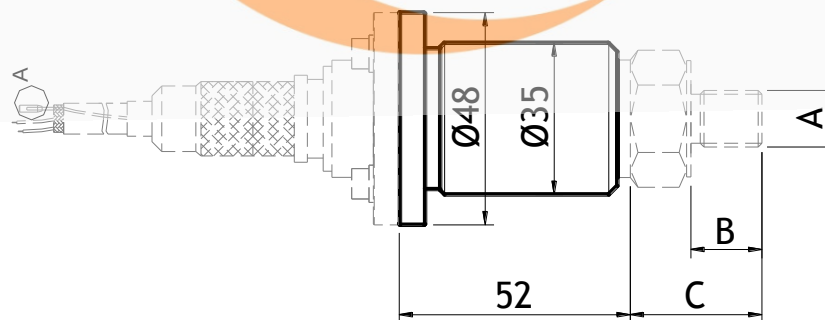


- **Material:** AISI 316 \ AISI 316
- **Zone:** II 1G
- **Protection Degree:** IP68

or

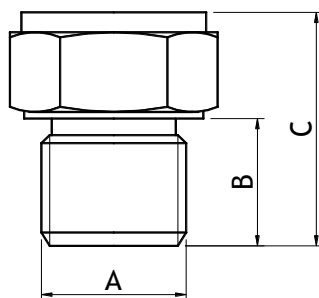
- **Material:** Titanium
- **Zone:** II 2G
- **Protection Degree:** IP68

Housing code A04- AISI316 or T11 - Titanium
Process connection S58 o S63 AISI316 or S59 o S64 Titanium



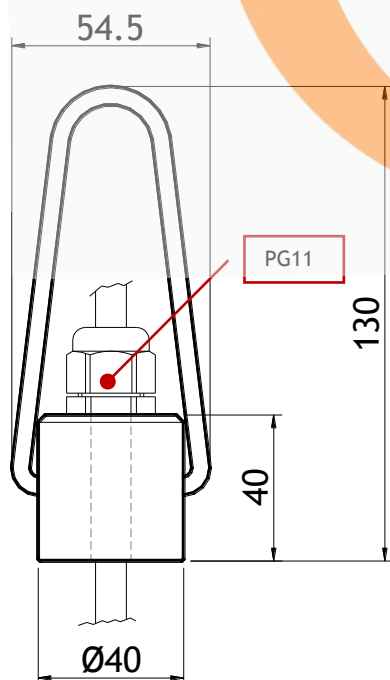
- **Material:** AISI 316 \ AISI 316
- **Zone:** II 1G
- **Protection Degree:** IP68
- **Housing code** A05 - Ø35

PROCESS CONNECTIONS



Code	A	B [mm]	C [mm]	Ex. Ch.
S06	1/4" G-M	14	38	27
S08	1/4" NPT-M	14	39	27
S22	3/8" G-M	16	41	27
S26	1/2" G-M	18	45	27
S30	1/2" NPT-M	20	45	27
S39	1/2" G-M Ø18.5 Flush diaphragm Ø18.5	16	32	27
S51	3/4" G-M	20	48	32
S56	1" G-M Flush diaphragm	20	33.5	41
S58	1" G-M	20	32	41

ACCESSORIES



Code 05 - Sliding bracket on submersible cable

ORDERING CODE

27I Submersible Electronic level Transmitter

01 Type of measure			
	A Absolute Pressure		
	C Relative Pressure		
02 Sensor type			
	CI Ceramic Integral		
	PI Piezoresistive Integral		
03 Measuring range			
	M01	0,35 bar	Piezo Overpressure: 0.7 bar
	M02	1 bar	Piezo Overpressure: 2 bar
	M03	2 bar	Piezo Overpressure: 4 bar
	M04	3.5 bar	Piezo Overpressure: 7 bar
	M05	10 bar	Piezo Overpressure: 20 bar
	M06	35 bar	Piezo Overpressure: 70 bar
	M07	100 bar	Piezo Overpressure: 150 bar
	M08	350 bar	Piezo Overpressure: 700 bar
	M09	1000 bar	Piezo Overpressure: 1500 bar
	C01	1 bar	Ceramic Overpressure: 2 bar
	C02	2 bar	Ceramic Overpressure: 4 bar
	C03	5 bar	Ceramic Overpressure: 10 bar
	C04	10 bar	Ceramic Overpressure: 15 bar
	C05	20 bar	Ceramic Overpressure: 35 bar
	C06	50 bar	Ceramic Overpressure: 100 bar
	C07	100 bar	Ceramic Overpressure: 200 bar
	C08	400 bar	Ceramic Overpressure: 650 bar
	N01	0,35 bar	Piezo Overpressure: 0.7 bar
	N02	1 bar	Piezo Overpressure: 2 bar
	N03	3,5 bar	Piezo Overpressure: 7 bar
	N04	10 bar	Piezo Overpressure: 20 bar
	N05	35 bar	Piezo Overpressure: 70 bar
04 Filling oil			
	8	Siliconic Oil -40/+200°C	
	N	No filling	
	Z	Special	
05 Process temperature limits			
	B	-40 ÷ 85°C	
06 Housing material and type			
	A04	AISI 316 Ø 27 mm	
	A05	AISI 316 Ø 35 mm	
	A24	AISI 316 Ø 31 mm	
	T04	Titanium Ø 31 mm	
	T10	Titanium Ø 25,4 mm	
	T11	Titanium Ø 27 mm	
	Z99	Special	

NOTES

1) Negative or compound ranges are possible

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ORDERING CODE

07	Process connection	
I01	Plug with front hole	
I21	Open diaphragm	
S25	Screwed 1/2" G/BSP/PF-M IN PVDF	
S54	Screwed 3/4" G-M front diaphragm	
S56	Screwed 1" G-M	
S57	Screwed 1" G-M in Titanium	
S61	Screwed 1" G-M back diaphragm	
S63	Screwed 1" G-M Double, flush diaphragm	
S64	Screwed 1" G-M Double Titanium CH41 flush diaphragm	
S30	Screwed 1/2" NPT-M	
S39	Screwed 1/2" G-M flush diaphragm Ø18,5	
S56	Screwed 1" G-M	
Z99	Special	
08	Extension length	
A01	Cable PE without ref.	(-30 / +60°C) L = 1 m
B01	Cable PE with ref.	(-30/+60°C) L = 1m
C01	Cable TPR with ref.	(-40 / +125°C) L = 1 m
E01	Cable PUR with ref.	(-30 / +80°C) L = 1 m
T14	Pipe AISI 316 Ø 12 mm	L < 2 m
XA2	Sondaflex DN16 5 / 8" AISI 316 OVP 25 bar < 2 m	(MAX 20 m)
Z99	Special	
09	Sensor material (diaphragm)	
A	AISI 316	
E	Ceramic	
Z	Special	
10	Process gasket material	
C	EPDM	
D	FKM Viton	
F	Silicon	
T	All welded	
Z	Special	
11	Wetted parts material	
A	AISI 316	
B	AISI 316L	
L	Titanium	
V	PTFE coating	
Z	Special	
12	Electrical connection	
17	AISI 316 Cable gland double sealing IP68	
18	AISI 316 Cable gland IP68 + Rilsan / PTFE	
27	Titanium Cable gland double sealing IP68	
28	Titanium Cable gland IP68 + Rilsan / PTFE	
56	Flange AISI 316 SS Ø48	
57	AISI 316 SS flange with Rilsan\PTFE protection	
61	Ø48 Titanium Flange	
62	Titanium flange with Rilsan\PTFE protection	
99	Special	

ORDERING CODE

13 Electrical output	
☐	1 Current 4 ÷ 20mA 2 wires
☐	6 Voltage output 0÷5 V 3 wires (No Atex)
☐	7 Voltage output 0÷10 V 3 wires (No Atex)
14 Ex type approval	
☐	A1  II 1G Ex ia IIC T6, T5 Ga and  II 1D Ex ia IIIC T85°C, T100°C Da
☐	A2  II 1G Ex ia IIC T6, T5 Ga
☐	N0 No Ex certification
15 Options and accessories	
☐	02 Marine type approval
☐	21 SIL Certificate
☐	10 Calibration report on 5 points
☐	01 Test and material report according to EN 10204
☐	05 Sliding bracket on submersible cable
☐	NN No options



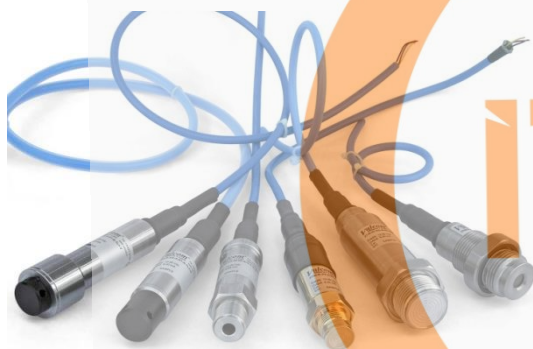
ACCESSORIES



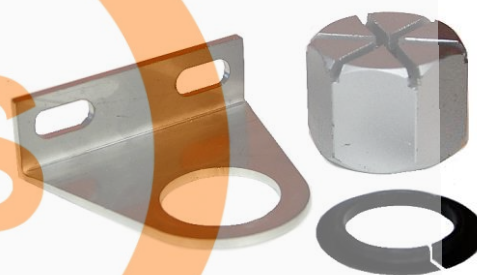
Cod. F01/F02/F03
ABS/PVC/PVDF submersible housing



Cod. 06
Housing with thermos-shrinkable sleeve protection



Cod. T72
HART Configurable submersible transmitter



Cod. S4 + Cod. I1/I2
1" Mounting Bracket with Delrin/Moplen protection Cap and isolating ring



Cod. JBX
AISI316 Junction Box

and MORE

- Junction Box with flanged process connection