MP27

Electronic level, pressure and vacuum transmitter

The 27A series comprises electronic level, pressure and vacuum transmitters.
All versions are equipped with analogue electronics, enclosures characterised by small overall dimensions (typical enclosure Ø 27 mm) and the choice of fixed ranges (adjustability is possible within ± 10 % of the range).
The transmitters are designed for direct mounting on pipes (e.g. pressure measurements) or on flanges (level measurements). In the remote sensor version and in the case of a remotely mounted separator connected via a capillary, the transmitter is equipped with a stainless steel bracket for wall mounting.

Application areas

Series 27 transmitters are used in industrial and marine applications to measure the pressure of liquids, gases and vapours.
For special applications please consult our technical department.

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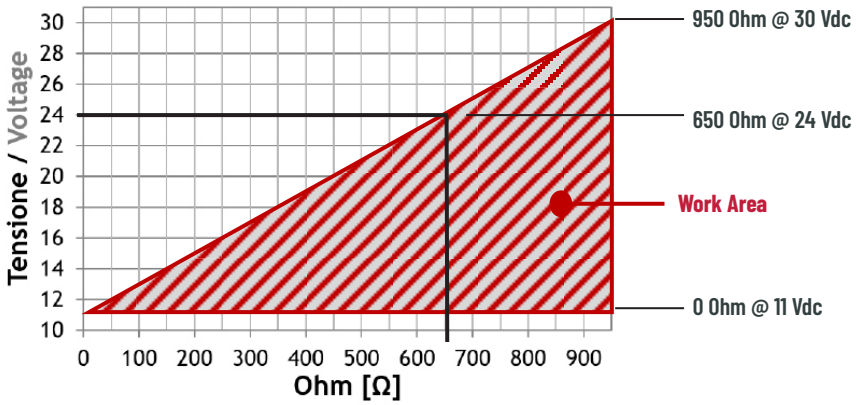
Technical specifications

ELECTRONICS

Power 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)
Consumption	2 wires: 4 ÷ 20 mA 3-wire: < 5mA @10 KΩ load
Load resistance	2 wires: RΩ = (Usupply -12V) / 0.02A 3 wires: RΩ ≥ 10 KΩ
Maximum load	As per the graph



MEASUREMENT PERFORMANCE

Total accuracy*	< ± 0.25 % FS
Zero offset	< ± 1 % FS
Zero-temperature-drift	< ± 0.025 % FS /°C (-10 ÷ 60°C)
Temperature span drift	< ± 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
De-range available	Piezo Sensors: up to 4 times Nominal Range; Ceramic Sensors: up to 2.5 times Nominal Range

**Includes hysteresis, non-linearity and non-repeatability (IEC 60770). Accuracy and drifts refer to instruments with integral sensor and membrane; they may vary depending on the type of sensor used and the diameter, thickness and material of the membrane. Zero and Span adjustment error < ± 0.6 % FS for non-standard designs. Calibrations below 0.1 bar should be considered non-standard. Calibrations also available with different units of measurement.*

CERTIFICATIONS

Directive 2014/34/UE (ATEX)	Ⓔx II 1G Ex ia IIC T6, T5 Ga e Ⓔx II 1D Ex ia IIIC T85°C, T100°C Da o Ⓔx II 1G Ex ia IIC T6, T5 Ga
PED DIRECTIVE 2014/68/EU	Up to Category II, for Group 1 fluids
Directive 2014/30/EU (EMC)	Adequate level of electromagnetic compatibility
Functional Safety	SIL2 — PFH [Hours^{-1}] = 9.8059•10^{-8} SFF = 75.00 % — DC = λ_{DD} / (λ_{DD} + λ_{DU}) = 82.5 %
Marine Equipment Certificate	In accordance with the applicable requirements of the DNV GL approval system

ENVIRONMENTAL CHARACTERISTICS

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	-40 to +85°C; Finned body: -40 to 130°C; Capillary: -40 ÷ 280°C
Storage temperature	-40 ÷ +90°C
Protection against intrusion	Ø 27 and Ø 50 enclosure: IP65; Enclosure Ø 35 and Ø 55: IP67
Vibration Testing	according to IEC 60068-2-6
Shock Testing	According to MIL-STD-202F Method 213B
Relative Humidity	< 98% RH non-condensing

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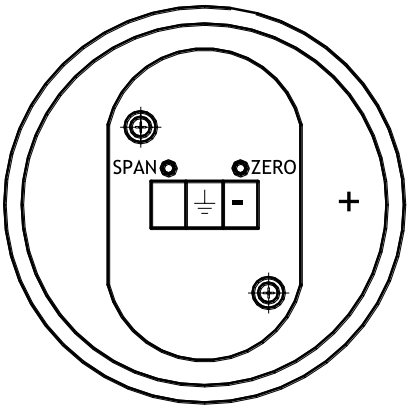
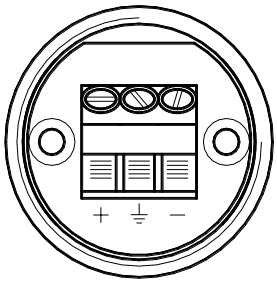
Electrical connections

The instruments are protected against reverse polarity. A twisted and shielded signal cable with a minimum conductor cross-section of 0.2 mm2 (AWG24) and > 80 % shielding is recommended for connection.



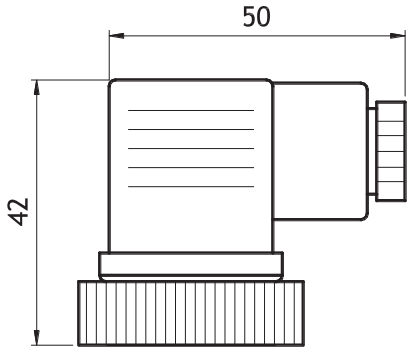
Code 10

For Ø 50 and 55 IP65/IP67 enclosure



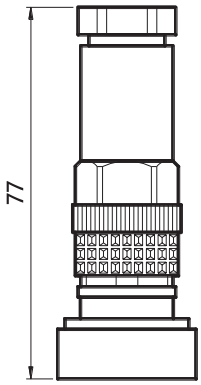
Code 10

For Ø 35 IP67 enclosure



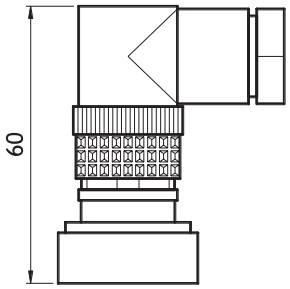
Code 04

DIN 175301 PG9/PG13 3+1 poles IP65



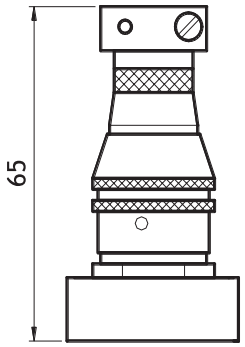
Code 01

M12 connectorstraight way IP67



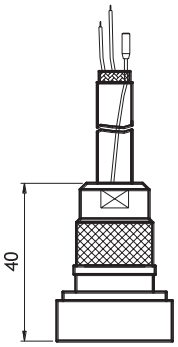
Code 02

IP67 angled M12 connector



Code 08

MIL connector



Code 16

AISI 316 cable gland single seal IP67

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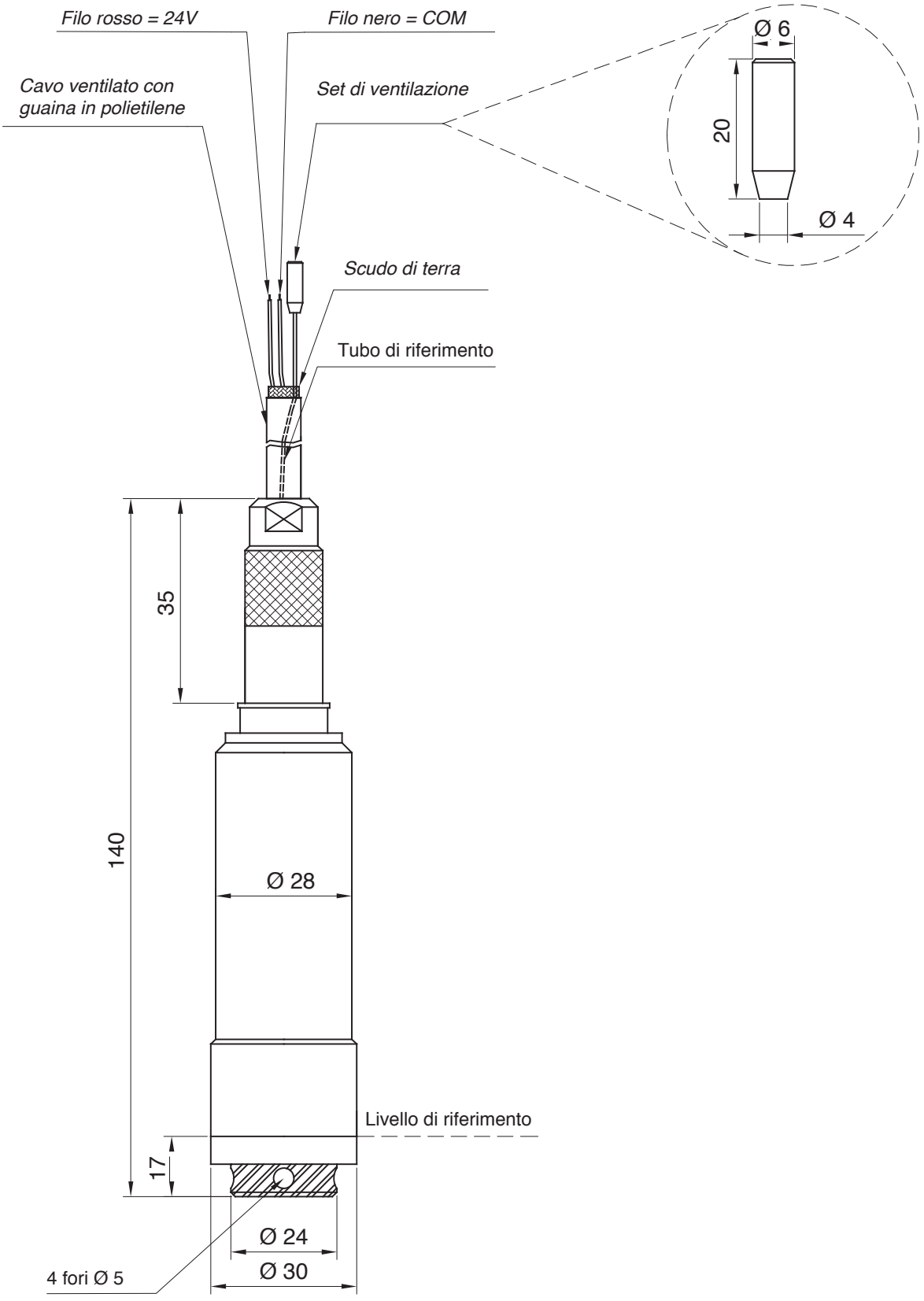
Dimensions



Versione in ceramica
con cappuccio di protezione

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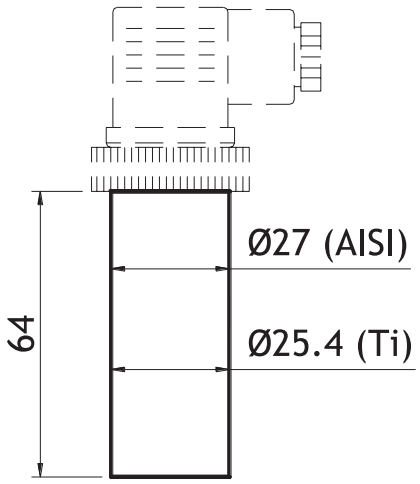
Materials and type of enclosure

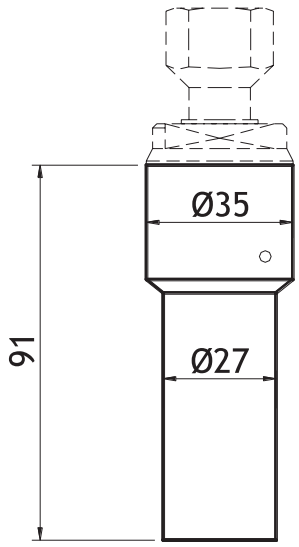


Code A04 - AISI 316

- **Material:** AISI 316 (Ø 27)
- **Zone:** Ex II 1G
- **Protection Rate:** IP65

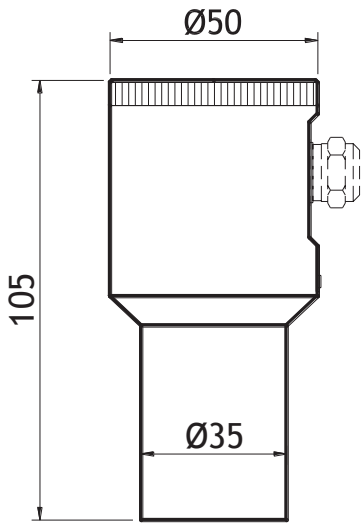
Code T04 - Titanium

- **Material:** Titanium (Ø 25.4)
- **Zone:** Ex II 2G
- **Protection Rate:** IP65



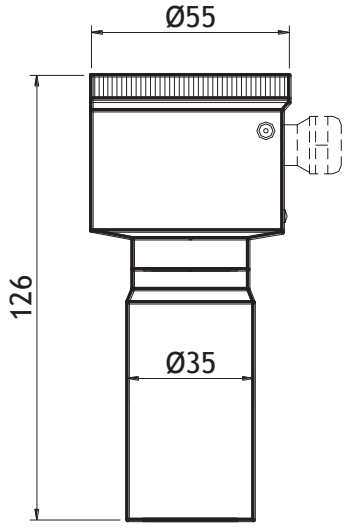
Code A05 - AISI 316

- **Material:** AISI 316 (Ø 35)
- **Zone:** Ex II 1GD
- **Protection Rate:** IP67



Code A06 - AISI 316

- **Material:** AISI 316 (Ø 50)
- **Protection rating:** IP65



Code A08 - AISI 316

- **Material:** AISI 316 (Ø 55)
- **Zone:** Ex II 1GD
- **Protection Rate:** IP67

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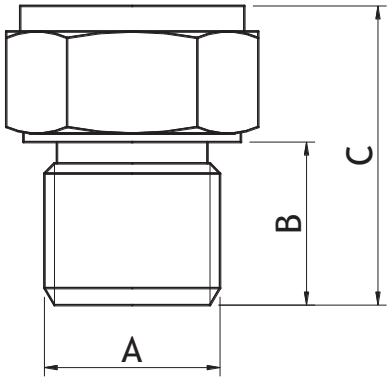
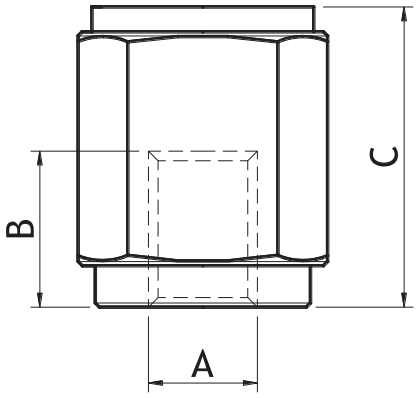
Process connections

Standard threads





MODEL	B [mm]	C [mm]	Ex Ch.
1/4" G-M	14	38	27
1/4" G-F	14	35	27
1/4" NPT-M	14	39	27
1/4" NPT-F	14	35	27
3/8" G-M	16	41	27
1/2" G/BSP/ F-M in PVDF	20	52	32
1/2" G-M	18	45	27
1/2" G-F	20	41	27
1/2" NPT-M	20	45	27
1/2" NPT-F	20	43	27
1/2" G-M Flush diaphragm Ø 18.5	16	32	27
3/4" G-M	20	48	32
¾" NPT-M	20	54	32
1" G-M Flush diaphragm	20	33.5	41
1" G-M	20	32	41
2" G-M	25	44	41

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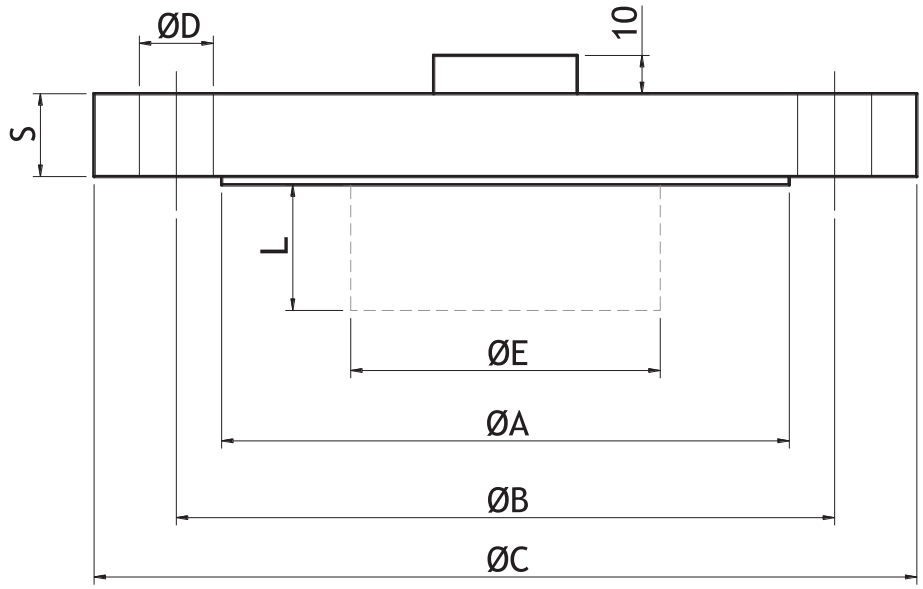
Flange standard



DN	PN	2ØA [mm]	ØB [mm]	ØC [mm]	ØD [mm]	S [mm]
15	10/16	45	65	95	14	14
15	25/40	45	65	95	14	16
20	10/40	58	75	105	14	18
25	10/16	68	85	115	14	16
25	25/40	68	85	115	14	18
40	10/16	88	110	150	18	16
40	25/40	88	110	150	18	18
50	10/16	102	125	165	18	18
50	25/40	102	125	165	18	20
50	10/25	102	125	165	18	20
65	10/40	122	145	185	18	22
80	6	128	150	190	18	16
80	10	13	160	200	18	20
80	10/16	138	160	200	18	20
80 1"	25/40 ANSI 150	138 51	160 79.5	200 108	18 16	24 14.5
1" 1/2	ANSI 150	73	98.5	127	16	17.5
2"	ANSI 150	92	120.5	152	19	19
3"	ANSI 150	127	152.5	191	19	24
3"	ANSI 300	127	168.3	210	22	28.6

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Electronic transmitter for pressure, level, vacuum

TYPE OF MEASUREMENT

Absolute Pressure
Barometric Pressure
Relative Pressure

TYPE OF SENSOR

Integral Ceramic
Remote Ceramic
Piezoresistive Integral
Piezoresistive Remote

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 bars
C03	5 bars	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
P51	0.01 bar	Piezo	No overpressure
P52	0.055 bars	Piezo	No overpressure
P53	0.206 bar	Piezo	No overpressure
ZZZ	Special		

**NOTE: 1) Negative fields are permitted for all ranges.*

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FILLING OIL

08	Silicone oil -40/+200°C
N	No oil
L	Special

PROCESS TEMPERATURE LIMITS

B	-40 to 85°C Standard
D	-40 to 120°C Finned body w/piezo sensor
F	-40 to 130°C Finned body with ceramic sensor
H	-40 to 280°C Capillary

MATERIAL AND ENCLOSURE TYPE

A04	AISI 316 Ø 27 mm
A05	AISI 316 Ø 35 mm
A06	AISI 316 Ø 50 mm
A08	AISI 316 Ø 55 mm
T04	Titianium Ø 25.4 mm
Z99	Special

PROCESS CONNECTION

...	See "Process connection" section
Z99	Special

EXTENSION LENGTH

L04	Membrane extension < 200 mm
L10	Membrane extension < 500 mm
Z99	Special

SENSOR MATERIAL (MEMBRANE)

UNTO	AISI 316
B	AISI 316 L
AND	Ceramic
L	Special

PROCESS-SIDE GASKET

A	EPDM
D	FKM Viton
F	Silicone
C	Fully welded
L	Special

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WET PARTS MATERIALS

UNTO	AISI 316
B	AISI 316 L
V	PTFE coating
L	Special

ELECTRICAL CONNECTION

01	Straight-through M12 connector IP67
02	IP67 angled M12 connector
04	Connector DIN 175301 PG9/PG13 3+1 poles IP65
08	MIL connector
09	Lumberg RSF connector 4-pin
19	Cable gland AISI 316 PG9 IP67 for cable ø 5 ÷ 7 mm
20	Cable gland AISI 316 PG13 IP67 for cable ø 8 ÷ 12 mm
36	AISI 316 1/2" G-F fitting
37	AISI 316 1/2" NPT-F fitting
39	AISI 316 M20 x 1.5 F fitting
99	Special

ELECTRICAL OUTPUT

1	Current 4÷20 mA 2-wire	
6	6 Voltage 0÷5 V 3-wire	(No Atex)
7	7 Voltage 0÷10 V 3-wire	(No Atex)

EX CERTIFICATION

A1	Ⓔx II 1G Ex ia IIC T6, T5 Ga and Ⓔx II 1D Ex ia IIIC T85°C, T100°C From
A2	Ⓔx II 1G Ex ia IIC T6, T5 Ga
NO	No Ex certification

OPTIONS AND ACCESSORIES

02	Marine Equipment Certificate
22	PED Certificate
21	SIL certificate
10	5-point calibration report
01	Test report and materials according to EN 10204
R4	HTx4 finned coupling (T<150°C)
R5	HTx11 finned fitting (T<280°C)
R7	Loop Sch Std in AISI 316 Tmax=235°C
R8	Loop Sch 80 in AISI 316 Pmax=100bar or Tmax=450°C
NO	No option

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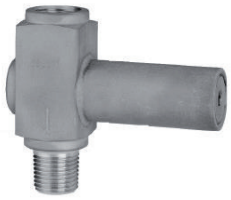
Accessories

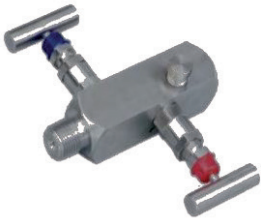
Code R7/R8 - Cooling siphon

Code S3 - Pulsation damper



Code OV - Overpressure protection

Code N0/N1/N2 - Welding nipple



Code M2 - Manifold 2-way and 1 or 2 valves

Code Z9 - Clamp bracket for wall mounting

Code D20 - Local Universal Viewer

Mounting bracket

Sliding Ring

ADDITIONAL
Bracket for wall mounting
AISI 316 separation capillary L=...m
Reinforced capillary

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