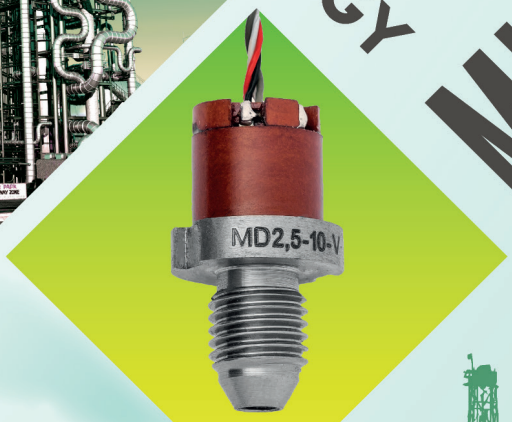
PRODUCT
OVERVIEW



"SILICON-ON-SAPPHIRE" TECHNOLOGY

MD MICROTENSOR

www.microtensor.com

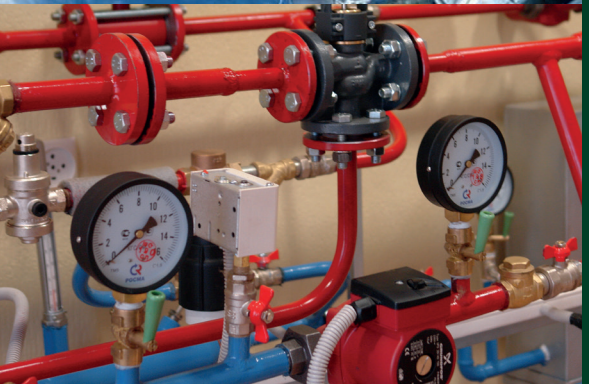
OIL AND GAS
INDUSTRY

MINING
INDUSTRY

CHEMICAL
INDUSTRY

ATOMIC
POWER ENGINEERING

SATELLITE ON-BOARD
EQUIPMENT



HEAT METERING

OUR PRODUCTS

Microtensor is a designer and manufacturer of microelectronic pressure and force sensors and microelectronic pressure transmitters on the base of “Silicon-on-Sapphire” structures. Production was founded in 1980.

Pressure sensors

Pressure transmitters

Force sensors

“SILICON-ON-SAPPHIRE” TECHNOLOGY

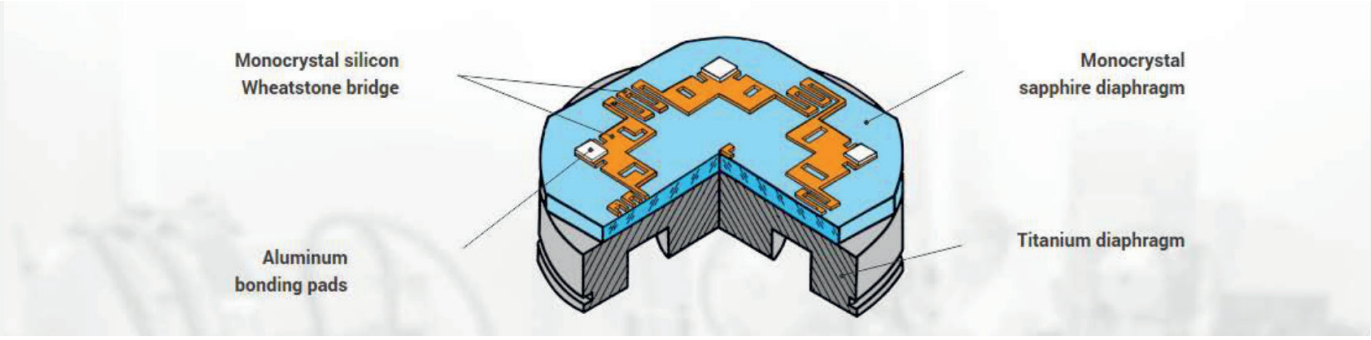
The production of company made on the “Silicon-on-Sapphire” Technology has variety of advantages:

- Wide operating pressure range from 0-0,06 to 0-500 MPa
- Wide operating temperature range from -200 to +200 °C
- Miniature dimensions
- High accuracy parameters

DESIGN AND PRODUCTION OF PRESSURE SENSORS AT CUSTOMER’S REQUIREMENTS

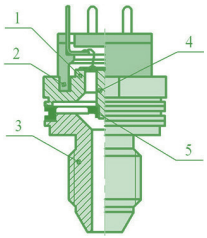
- Technical requirements approval
- New sensor design
- Samples testing by customer
- Start of the cooperation

DESIGN FEATURES OF PRESSURE SENSORS



- Sensitive element of pressure sensors is a double-layer sapphire-titanium diaphragm with monocrystal silicon resistance strain gauges.
- Exceptional insulating properties and radiation resistance of sapphire enable to use the sensitive element within temperature range from -200 to +350°C under the effect of high electromagnetic interferences and radiation.
- Monocrystal sapphire diaphragm is a perfect elastic element that due to connection with titanium acquires the best quality as to the deformation level, and preserves its elastic properties up to 400°C.
- Monocrystal silicon resistance strain gauges are automatically connected with sapphire (heteroepitaxy method) and provide almost no hysteresis or fatigue effects.
- Strain gauges elements are manufactured in groups by solid-state microelectronic methods and provide high quality and good repeatability of the output parameters.

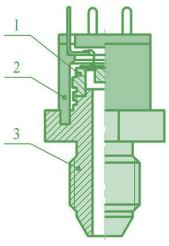
Strain gauge pressure sensors are divided into three types.



Double-diaphragm pressure sensors (from 0-0.6 to 0-1 MPa)

Double-diahragm pressure sensor consists of strain gauge diaphragm and intermediate titanium diaphragm which are rigidly connected by a stem.

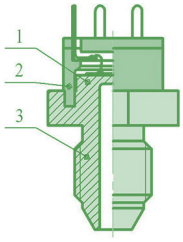
The intermediate diaphragm is effected by the measured medium pressure. The intermediate diaphragm converses the measured medium pressure into the force. The force is transmitted on the solid center of the strain-sensitive membrane by the stem.



Single diaphragm welded pressure sensors (from 0-1,6 to 0-10 MPa)

Single diaphragm welded pressure sensor consists of strain-sensitive diaphragm welded to the body.

The internal cavity of strain-sensitive diaphragm is effected by the measured medium pressure.



One-piece pressure sensors with single diaphragm (from 0-16 to 0-500 MPa)

This sensor is designed without welding connections and is very stable at the influence of impulse or high pressures.

1.strain-sensitive diaphragm; 2.dielectrical collector; 3.titanium body; 4.stem; 5.intermediate titanium diaphragm

MICROELECTRONIC GAUGE PRESSURE SENSORS ON THE BASE OF "SILICON-ON-SAPPHIRE" STRUCTURES

Standard datasheet

1 Accuracy parameters

1.1 Resolution, % FS — **0,01**

1.2 Non-linearity, % FS — **±0,15**

1.3 Variation, % FS — **0,05**

1.4 Output signal repeatability, % FS — **±0,05**

1.5 Long-term stability of the output signal range within 12 months, %

1.5.1 Pressure sensors with operating pressure range from 0-0,06 to 0-1 MPa — **±0,25**

1.5.2 Pressure sensors with operating pressure range from 0-1,6 to 0-500 MPa — **±0,15**

1.6 Complementary error due to the ambient temperature influence, % FS/1°C — **±0,05**

2 Electrical parameters

2.1 Output signal at room temperature at stabilized DC voltage 10 V

2.1.1 Zero output signal, mV — **±10**

2.1.2 Output signal range (FS), mV — **150±50**

2.2 Strain gauge bridge resistance at room temperature, kOhm — **3,40-4,85**

2.3 Insulation resistance at room temperature, MOhm — **100**

2.4 Electrical insulation strength (AC voltage), V

2.4.1 Pressure sensors HP, HP-P, MD, MC, PT, P, TM, HPL, HPL-P, HD, MP, MP-P Series — **700**

2.4.2 Pressure sensors D, H, H-P Series — **500**

Insulation strength is available up to 1500 V at customer's request.

2.5 Power supply

2.5.1 Stabilized DC voltage, V — **1-10**

2.5.2 Stabilized DC, mA — **0,2-2**

3 Mechanical parameters

3.1 Vibration resistance:

Frequency range, Hz — **from 10 to 5000**

Acceleration amplitude, m/s^2 — **500**

3.2 Shock resistance (multiple mechanical shocks):

Shock acceleration peak, m/s^2 — **1000**

Shock pulse width, ms — **2**

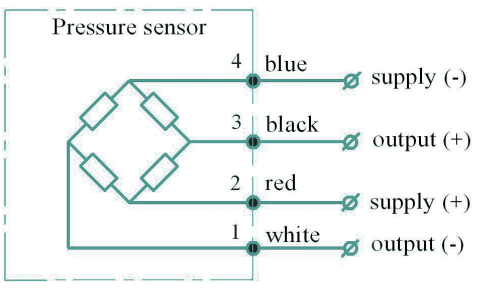
4 Operating conditions

4.1 IP level — **IP40**

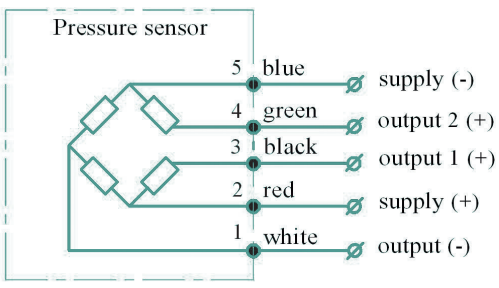
4.2 Sensor body and diaphragm are made of 87 % of Titanium.

5 Connection wiring diagrams

Electrical connection – flexible wires (0,09mm^2 section) in Teflon insulation.



1 "Closed bridge" diagram



2 "Open bridge" diagram

PRESSURE SENSORS
D SERIES

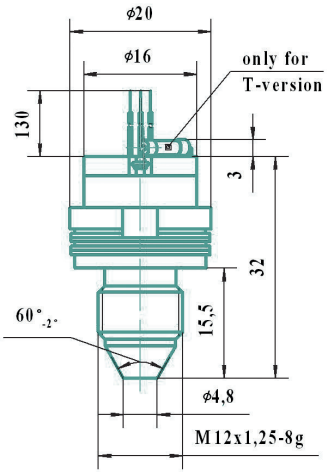
TECHNICAL DATA

Operating pressure range, MPa **D** **DD**	 from 0-0,25 to 0-150 from 0-2,5
Operating temperature range, °C	from -50 to +85
Connecting threads **D** **DD**	 M12x1,25 threadless
Weight, g **D** **DD**	 16 12

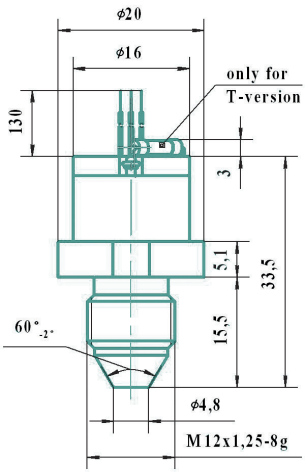
DESIGN FEATURES

- High output signal 270-420 mV
- 2 versions: ordinary and temperature compensated (T-version)
- DD 2,5 series has threadless end seal
- DC power supply
- Closed bridge

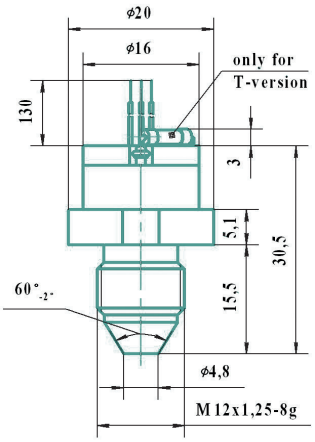
D 0,25 ... D 1,6 / D 0,25-T ... D 1,6-T



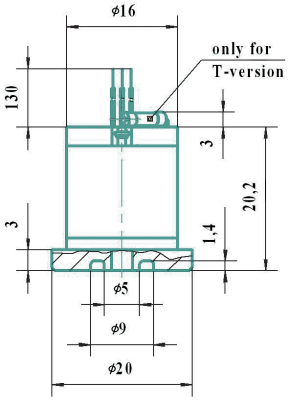
D 2,5 ... D16 / D 2,5-T ... D16-T



D 25 ... D 150 / D 25-T ... D 150-T



DD 2,5 / DD 2,5-T



PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
D 0,25; D 0,25-T	from 0 to 0,25	from -0,1 to 0,5	0,8
D 0,4; D 0,4-T	from 0 to 0,4	from -0,1 to 0,8	1
D 0,6; D 0,6-T	from 0 to 0,6	from -0,1 to 1,2	1,5
D 1; D 1-T	from 0 to 1	from -0,1 to 1,6	2
D 1,6; D 1,6-T	from 0 to 1,6	from -0,1 to 2,6	3,2
D 2,5; D 2,5-T DD 2,5; DD 2,5-T	from 0 to 2,5	from -0,1 to 4	5
D 4; D 4-T	from 0 to 4	from -0,1 to 6	8
D 6; D 6-T	from 0 to 6	from -0,1 to 10	12
D 10; D 10-T	from 0 to 10	from -0,1 to 16	20
D 16; D 16-T	from 0 to 16	from -0,1 to 26	32
D 25; D 25-T	from 0 to 25	from -0,1 to 40	50
D 40; D 40-T	from 0 to 40	from -0,1 to 60	80
D 60; D 60-T	from 0 to 60	from -0,1 to 90	120
D 100; D 100-T	from 0 to 100	from -0,1 to 125	150
D 150; D 150-T	from 0 to 150	from -0,1 to 165	225

TYPE DESIGNATION

D D XXX — X

Series

End seal code

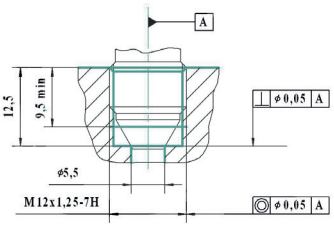
Upper gauge pressure limit

0,25; 0,4; 0,6; 1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60;
100; 150 MPa (D)
2,5 MPa (DD)

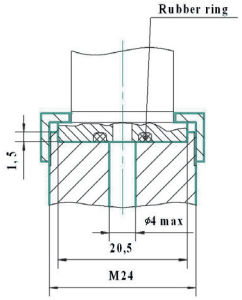
Version

T – temperature compensated
O – ordinary – not specified

MOUNTING DIAGRAM



D 0,25 — D 150
D 0,25-T — D 150-T



DD 2,5
DD 2,5-T

PRESSURE SENSORS MD, MC SERIES

TECHNICAL DATA

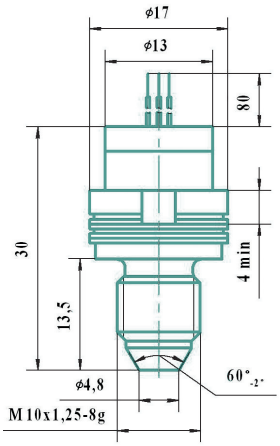
Operating pressure range, MPa **MD** **MC**	 from 0-0,25 to 0-150 from 0-1,6 to 0-150
Operating temperature range, ˚C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting thread	M10x1,25
Weight,g	10

DESIGN FEATURES

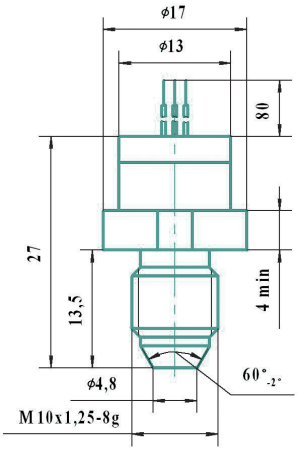
- MD and MC series are available with wires and pins.

  Pin version enables to place the electronic board on the pins.
- DC (C type) or voltage (V type) power supply.
- Closed or open bridge.

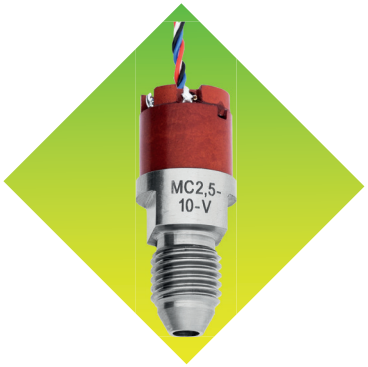
MD 0,25(0,4 ... 1) — ...

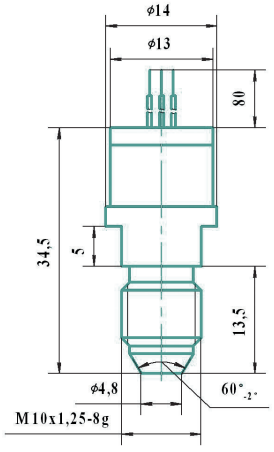


MD 1,6(2,5 ...150) — ...

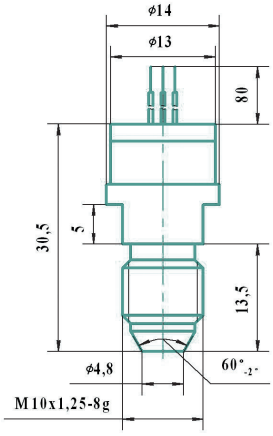


MC 1,6(2,5 ... 10) — ...





MC 16(25 ... 150) — ...



PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
MD 0,25-...	from 0 to 0,25	from -0,1 to 0,5	0,75
MD 0,4 -...	from 0 to 0,4	from -0,1 to 0,8	1,2
MD 0,6-...	from 0 to 0,6	from -0,1 to 1,2	1,8
MD 1-...	from 0 to 1	from -0,1 to 2	3
MD (MC) 1,6-...	from 0 to 1,6	from -0,1 to 3,2	4,8
MD (MC) 2,5-...	from 0 to 2,5	from -0,1 to 5	7,5
MD (MC) 4-...	from 0 to 4	from -0,1 to 8	12
MD (MC) 6-...	from 0 to 6	from -0,1 to 12	18
MD (MC) 10-...	from 0 to 10	from -0,1 to 20	30
MD (MC) 16-...	from 0 to 16	from -0,1 to 32	48
MD (MC) 25-...	from 0 to 25	from -0,1 to 50	75
MD (MC) 40-...	from 0 to 40	from -0,1 to 80	120
MD (MC) 60-...	from 0 to 60	from -0,1 to 120	180
MD (MC) 100-...	from 0 to 100	from -0,1 to 150	250
MD (MC) 150-...	from 0 to 150	from -0,1 to 165	300

TYPE DESIGNATION

XX XXX — X X — X — X

Series
MD, MC

Upper gauge pressure limit
0,25; 0,4; 0,6; 1; 1,6; 2,5; 4; 6; 10;
16; 25; 40; 60; 100; 150 MPa

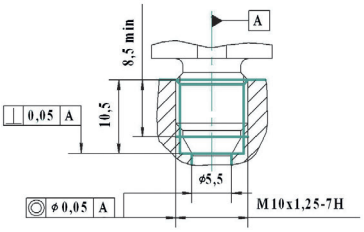
Operating ambient temperature range
version 1 - from -45 to +125 °C
version 2 - from -45 to +155 °C
version 3 - from -45 to +200 °C

Circuit type
0 – closed bridge
1 – open bridge

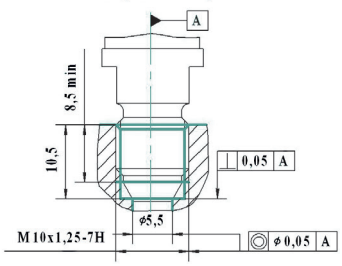
Power supply
V – stabilized DC voltage (1-10 V)
C – stabilized DC (0,2-2 mA)

Electrical connection
L – flexible wires 80 mm long
P – pins 4,5 mm high

MOUNTING DIAGRAM



MD 0,25(0,4 ... 150) — ...



MC 1,6(2,5 ... 150) — ...

PRESSURE SENSORS HP, HP-P SERIES

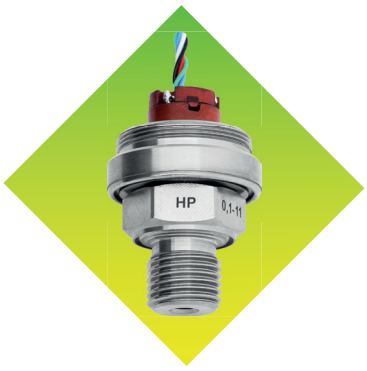
TECHNICAL DATA

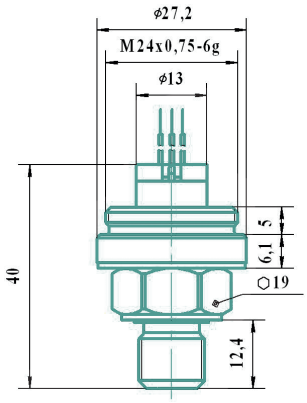
Operating pressure range, MPa	from 0-0,06 to 0-150	
Operating temperature range, ˚C	HP	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
	HP-P	version 1 from -45 to +125 version 3 from 0 to +200
Connecting thread	1/4-18 NPT; G1/4; M12x1,25	
Weight, g **HP** **HP-P**	38 70	

DESIGN FEATURES

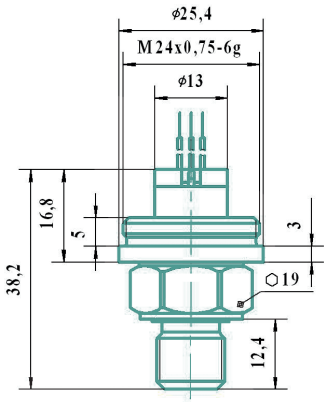
- Pressure sensors HP series are available with M24x0,75 thread to mount electronic module on pressure sensor.
- Pressure sensors HP-P series are available with flexible cable (0,5-2 m) to use remote electronic, protection level IP54.
- Various thread options for pressure connecting piece.
- DC (C type) or voltage (V type) power supply.
- Closed or open bridge.

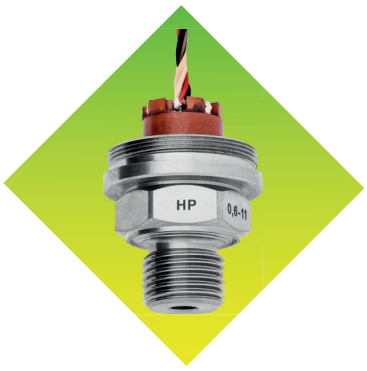
HP 0,06(0,1; 0,16) — ...



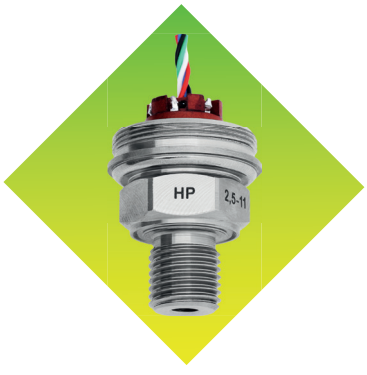


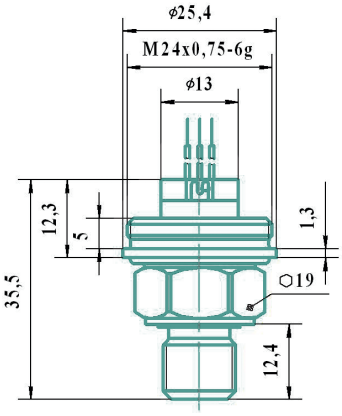
HP 0,25(0,4 ... 1) — ...



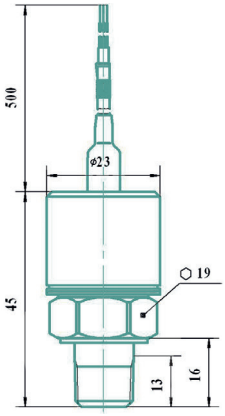


HP 1,6(2,5 ... 150) — ...





HP-P



PRESSURE RANGES

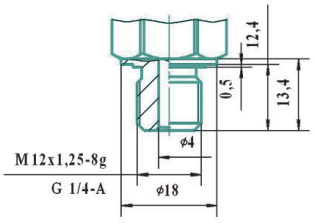
Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
HP (HP-P) 0,06 - ...	from 0 to 0,06	from -0,1 to 0,12	0,18
HP (HP-P) 0,1 - ...	from 0 to 0,1	from -0,1 to 0,2	0,3
HP (HP-P) 0,16 - ...	from 0 to 0,16	from -0,1 to 0,32	0,48
HP (HP-P) 0,25 - ...	from 0 to 0,25	from -0,1 to 0,5	0,75
HP (HP-P) 0,4 - ...	from 0 to 0,4	from -0,1 to 0,8	1,2
HP (HP-P) 0,6 - ...	from 0 to 0,6	from -0,1 to 1,2	1,8
HP (HP-P) 1 - ...	from 0 to 1	from -0,1 to 2	3
HP (HP-P) 1,6 - ...	from 0 to 1,6	from -0,1 to 3,2	4,8
HP (HP-P) 2,5 - ...	from 0 to 2,5	from -0,1 to 5	7,5
HP (HP-P) 4 - ...	from 0 to 4	from -0,1 to 8	12
HP (HP-P) 6 - ...	from 0 to 6	from -0,1 to12	18
HP (HP-P) 10 - ...	from 0 to 10	from -0,1 to 20	30
HP (HP-P) 16 - ...	from 0 to 16	from -0,1 to 32	48
HP (HP-P) 25 - ...	from 0 to 25	from -0,1 to 50	75
HP (HP-P) 40 - ...	from 0 to 40	from -0,1 to 80	120
HP (HP-P) 60 - ...	from 0 to 60	from -0,1 to 120	180
HP (HP-P)100 - ...	from 0 to 100	from -0,1 to 150	250
HP (HP-P) 150 - ...	from 0 to 150	from -0,1 to 165	300

TYPE DESIGNATION

XXX XXX – X X – X – XX – X

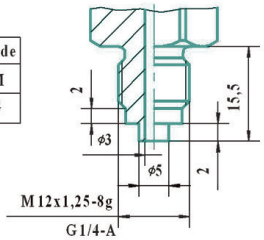
Series
HP, HP-P
Upper gauge pressure limit
0,06; 0,1; 0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5; 4; 6;
10; 16; 25; 40; 60; 100; 150 MPa
Operating ambient temperature range
version 1 - from -45 to +125 °C (for HP, HP-P series)
version 2 - from -45 to +155 °C (for HP series)
version 3 - from -45 to +200 °C (for HP series)
from 0 to +200 °C (for HP-P series)
Circuit type
0 – closed bridge
1 – open bridge (for HP series)
Power supply
V – stabilized DC voltage (1-10 V)
C – stabilized DC (0,2-2 mA)
Thread code
K – 1/4-18 NPT
M – M12x1,25-8g
G – G1/4-A
MA –M12x1,25-8g, end seal
GA – G1/4-A, end seal
Electrical connection
L – flexible wires 80 mm (for HP series)
or flexible cable 500 mm long (for HP-P series)

THREAD DESIGN



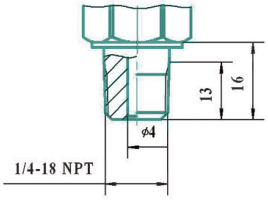
Thread	Code
M12x1,25-8g	M
G1/4-A	G

HP(HP-P) 0,06(0,1...100) - ... - M(G)



Thread	Code
M12x1,25-8g	MA
G1/4-A	GA

HP(HP-P) 0,06(0,1...150) - ... - MA(GA)

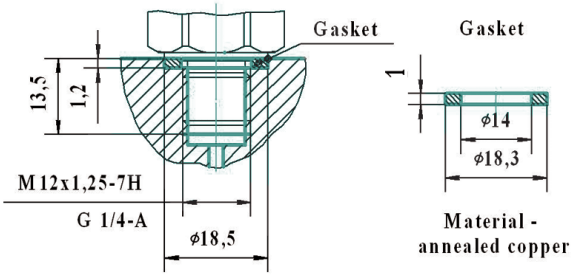


Thread	Code
1/4-18 NPT	K

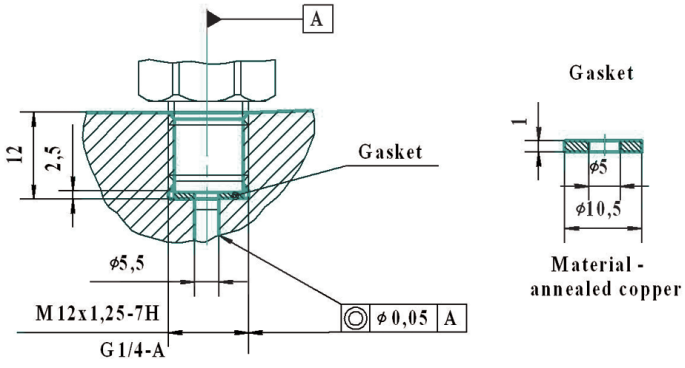
(in accord with DIN 3866)

HP(HP-P) 0,06(0,1...100) - ... - K

MOUNTING DIAGRAM



HP(HP-P) 0,06(0,1...100) - ... - M(G)



HP(HP-P) 0,06(0,1...150) - ... - MA(GA)

PRESSURE SENSORS P SERIES

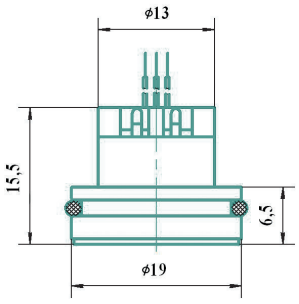
TECHNICAL DATA

Operating pressure range, MPa	from 0-0,16 to 0-40
Operating temperature range, °C	version 1 from -40 to +100 version 2 from -20 to +155 version 3 from -20 to +200
Connecting thread	Threadless
Weight, g	8

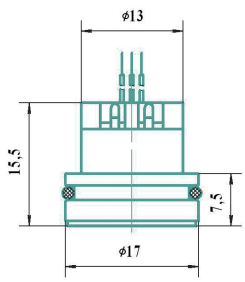
DESIGN FEATURES

- Pressure sensors P series are available with wires and pins. Pin version enables to place the electronic board on the pins.
- Threadless body with O-ring.
- DC (C type) or voltage (V type) power supply.
- Closed or open bridge.

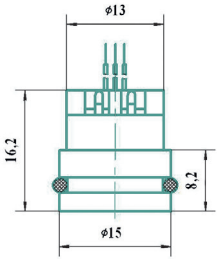
P 0,16(0,25 ... 1) — ... — D19-L



P 0,25(0,4 .. .40) — ... — D17-L



P 1,6(2,5 ... 40) — ... — D15-L



PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
P 0,16-...	from 0 to 0,16	from -0,1 to 0,32	0,48
P 0,25-...	from 0 to 0,25	from -0,1 to 0,5	0,75
P 0,4 -...	from 0 to 0,4	from -0,1 to 0,8	1,2
P 0,6-...	from 0 to 0,6	from -0,1 to 1,2	1,8
P 1-...	from 0 to 1	from -0,1 to 2	3
P 1,6-...	from 0 to 1,6	from -0,1 to 3,2	4,8
P 2,5-...	from 0 to 2,5	from -0,1 to 5	7,5
P 4-...	from 0 to 4	from -0,1 to 8	12
P 6-...	from 0 to 6	from -0,1 to 12	18
P 10-...	from 0 to 10	from -0,1 to 20	30
P 16-...	from 0 to 16	from -0,1 to 32	48
P 25-...	from 0 to 25	from -0,1 to 50	75
P 40-...	from 0 to 40	from -0,1 to 80	120

TYPE DESIGNATION

P XX – X X X – X – XXX – X

Series

Upper gauge pressure limit

0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5;
4; 6; 10; 16; 25; 40 MPa

Operating ambient temperature range

version 1 – from - 40 to + 100 °C;
version 2 – from - 20 to + 155 °C;
version 3 – from - 20 to + 200 °C

Circuit type

0 – closed bridge
1 – open bridge

Design option

1 – flush diaphragm (D17, D19)

Power supply

V – stabilized DC voltage (1-10 V)
C – stabilized DC (0,2-2 mA)

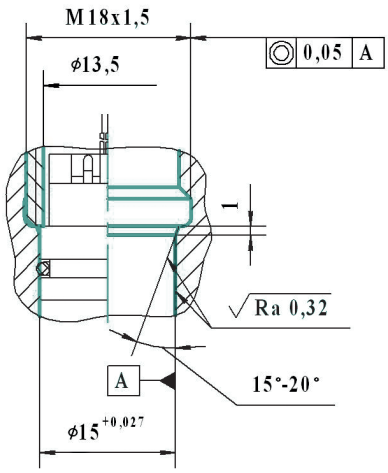
Connecting part code

D15 - diameter 15 mm (1,6 - 40 MPa);
D17 - diameter 17 mm (0,25 - 40 MPa),
flush diaphragm (0,25-10 MPa);
D19 - diameter 19 mm (0,16 - 1 MPa)

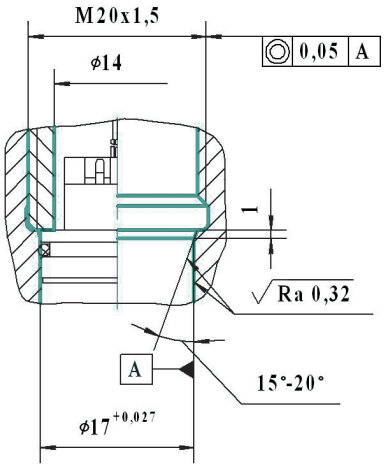
Electrical connection

L – flexible wires 80 mm long
P – pins 4,5 mm high

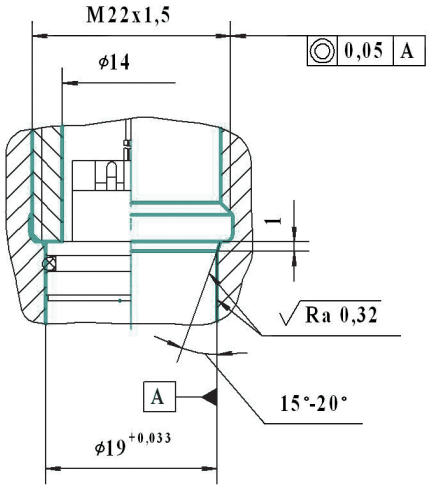
MOUNTING DIAGRAM



P 1,6(2,5...40) -...- D15 -...



P 0,25(0,4...40) -...- D17 -...



P 0,16(0,25...1)-...-D19 -...

PRESSURE SENSORS TM SERIES

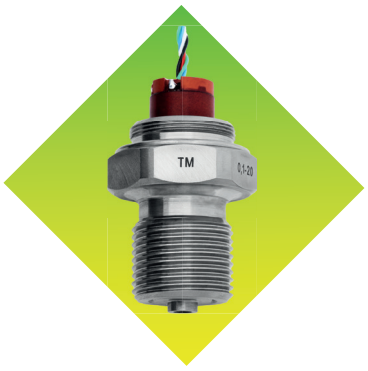
TECHNICAL DATA

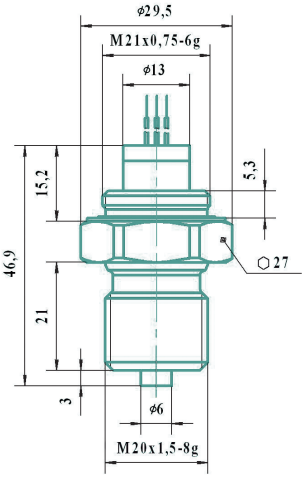
Operating pressure range, MPa	from 0-0,1 to 0-100
Operating temperature range, ˚C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting thread	M20x1,5
Weight, g	50

DESIGN FEATURES

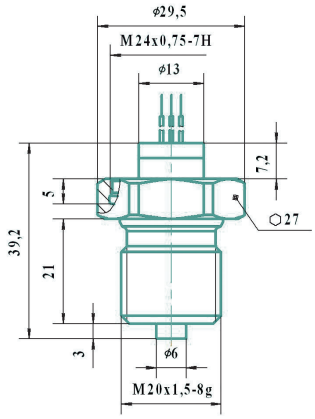
- Pressure sensors TM series are available with wires and pins. Pin version enables to mount electronics board on the sensor pins.
- Threads M24x0,75 or M21x0,75 to mount electronic module on the sensor.
- Pressure connecting piece M20x1,5.
- DC voltage power supply.
- Closed or open bridge.

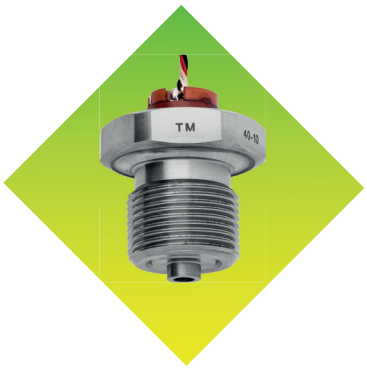
TM 0,1(0,16) — ...





TM 0,25(0,4 ...100) — ...





PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
TM 0,1-...	from 0 to 0,1	from -0,1 to 0,2	0,3
TM 0,16-...	from 0 to 0,16	from -0,1 to 0,32	0,48
TM 0,25-...	from 0 to 0,25	from -0,1 to 0,5	0,75
TM 0,4 -...	from 0 to 0,4	from -0,1 to 0,8	1,2
TM 0,6-...	from 0 to 0,6	from -0,1 to 1,2	1,8
TM 1-...	from 0 to 1	from -0,1 to 2	3
TM 1,6-...	from 0 to 1,6	from -0,1 to 3,2	4,8
TM 2,5-...	from 0 to 2,5	from -0,1 to 5	7,5
TM 4-...	from 0 to 4	from -0,1 to 8	12
TM 6-...	from 0 to 6	from -0,1 to 12	18
TM 10-...	from 0 to 10	from -0,1 to 20	30
TM 16-...	from 0 to 16	from -0,1 to 32	48
TM 25-...	from 0 to 25	from -0,1 to 50	75
TM 40-...	from 0 to 40	from -0,1 to 80	120
TM 60-...	from 0 to 60	from -0,1 to 120	180
TM 100-...	from 0 to 100	from -0,1 to 150	250

TYPE DESIGNATION

TM XXX — X X — X

Series

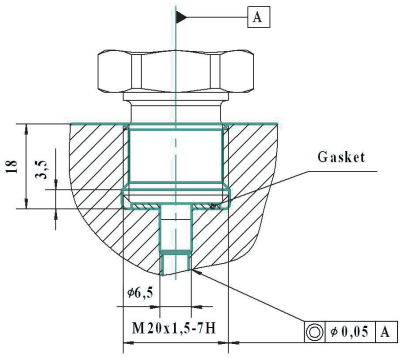
Upper gauge pressure limit
0,1; 0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5;
4; 6; 10; 16; 25; 40; 60; 100 MPa

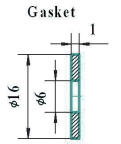
Operating ambient temperature range
Version 1 – from -45 to +125 °C
Version 2 - from -45 to +155 °C
Version 3 – from -45 to +200 °C

Circuit type
0 – closed bridge
1 – open bridge

Electrical connection
L – flexible wires 80 mm long
P – pins 4,5 mm high

MOUNTING DIAGRAM





Material -
annealed copper

PRESSURE SENSORS HD SERIES

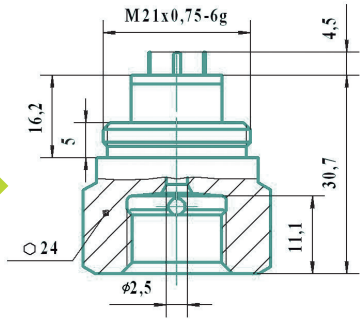
TECHNICAL DATA

Operating pressure range, MPa	from 0-100 to 0-500
Operating temperature range, ˚C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting threads	M16x1,5; M18x1,5; 9/16-18UNF
Weight, g	34

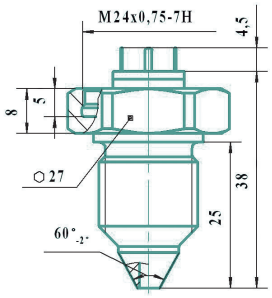
DESIGN FEATURES

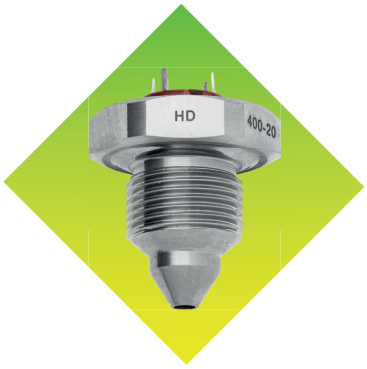
- High pressure range from 0-100 to 0-500 MPa.
- Pressure sensors are available with wires and pins. Pin version enables to mount electronic board on the sensor pins.
- Threads M24x0,75 or M21x0,75 to mount electronic module on the sensor.
- Pressure connection with male and female threads.
- DC voltage power supply.
- Closed or open bridge.

HD 100(160 ... 500) — ...
with connecting piece 2M(2U)

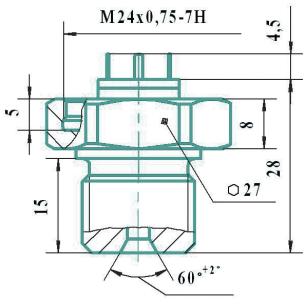


HD 100(160 ... 500) — ...
with connecting piece MH





HD 100(160 ... 500) — ...
with connecting piece MB



PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
HD 100 - ...	from 0 to 100	from -0,1 to 150	250
HD 160 - ...	from 0 to 160	from -0,1 to 240	400
HD 200 - ...	from 0 to 200	from -0,1 to 300	450
HD 250 - ...	from 0 to 250	from -0,1 to 375	500
HD 400 - ...	from 0 to 400	from -0,1 to 500	600
HD 500 - ...	from 0 to 500	from -0,1 to 600	750

TYPE DESIGNATION

HD XXX — X X — XXX — X

Series

Upper gauge pressure limit
100; 160; 200; 250; 400; 500 MPa

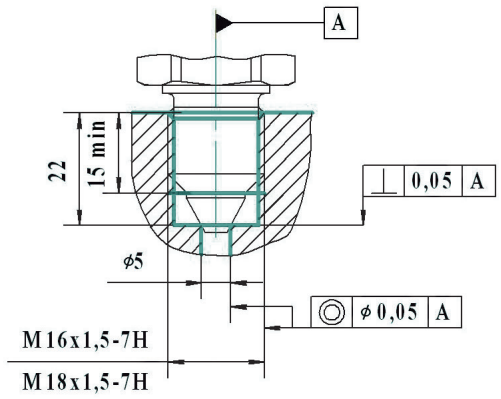
Operating ambient temperature range
version 1 - from -45 to +125 °C
version 2 – from -45 to +155 °C
version 3 – from -45 to +200 °C

Circuit type
0 – closed bridge
1 – open bridge

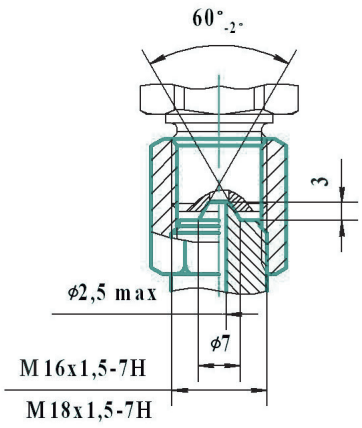
Thread code
MH1 – M16x1,5-8g – external with male cone
MH2 – M18x1,5-8g – external with male cone
MB1 – M16x1,5-8g – external with female cone
MB2 – M18x1,5-8g – external with female cone
2M - 16x1,5-8g – female
2U – 9/16-18UNF-2B – female

Electrical connection
L – flexible wires 80 mm long
P – pins 4,5 mm high

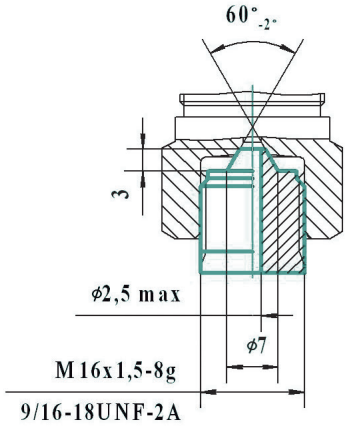
MOUNTING DIAGRAM



HD 100(160 ... 500) — ... — MH1(MH2) ...



HD 100(160 ... 500) — ... — MB1(MB2) ...



HD 100(160 ... 500) — ... — 2M(2U) ...

PRESSURE SENSORS MP, MP-P SERIES

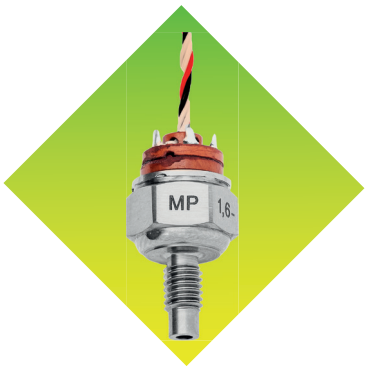
TECHNICAL DATA

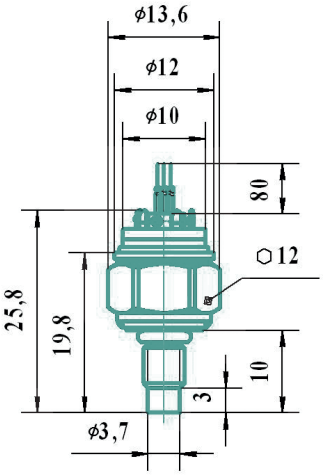
Operating pressure range, MPa	from 0-1 to 0-150
Operating temperature range,˚C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting threads	M10x1-8g; 3/8-24UNJF-3A; 3/8-24UNF-2A; M8x1-8g; 5/16-24UNF-2A; M5x0,8-8g; 10-32UNF-2A
Weight, g **MP** **MP-P**	 7,7 28

DESIGN FEATURES

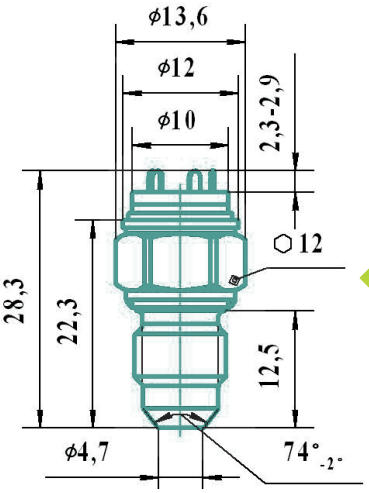
- Pressure sensors MP series are available with wires and pins. Pin version enables to mount electronic board on the pins.
- Pressure sensors MP-P series are available with flexible cable (0,5-2 m) to use remote electronic, protection level IP54.
- Various thread options for pressure connecting piece.
- DC voltage power supply.
- Closed or open bridge.

MP 1(1,6 ...10) — ...

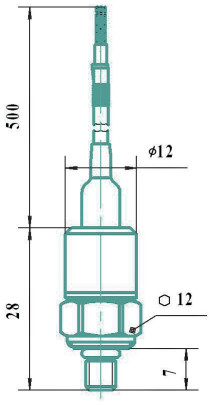




MP 1(1,6 ...150) — ...



MP-P 1(1,6 ...10) — ...



PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
MP(MP-P) 1- ...	from 0 to 1	from -0,1 to 2	3
MP(MP-P) 1,6 - ...	from 0 to 1,6	from -0,1 to 3,2	4,8
MP(MP-P) 2,5 - ...	from 0 to 2,5	from -0,1 to 5	7,5
MP(MP-P) 4 - ...	from 0 to 4	from -0,1 to 8	12
MP(MP-P) 6 - ...	from 0 to 6	from -0,1 to 12	18
MP(MP-P) 10 - ...	from 0 to 10	from -0,1 to 20	30
MP(MP-P) 16 - ...	from 0 to 16	from -0,1 to 32	48
MP(MP-P) 25 - ...	from 0 to 25	from -0,1 to 50	75
MP(MP-P) 40 - ...	from 0 to 40	from -0,1 to 80	120
MP(MP-P) 60 - ...	from 0 to 60	from -0,1 to 120	180
MP(MP-P) 100 - ...	from 0 to 100	from -0,1 to 150	250
MP(MP-P) 150 - ...	from 0 to 150	from -0,1 to 165	300

TYPE DESIGNATION

XXX XXX – X X – XX – X

Series
MP, MP-P

Upper gauge pressure limit
1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60;
100; 150 MPa

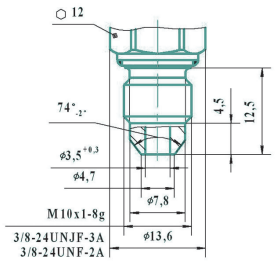
Operating ambient temperature range
version 1 - from -45 to +125 °C
version 2 – from -45 to +155 °C
version 3 – from -45 to +200 °C

Circuit type
0 – closed bridge
1 – open bridge

Tread code
M1 - M10x1-8g (1-150 MPa)
U1 - 3/8-24UNJF-3A (1-150 MPa)
U2 - 3/8-24UNF-2A (1-150 MPa)
M2 - M8x1-8g (1-25 MPa)
U3 - 5/16-24UNF-2A (1-25 MPa)
M3, M4, M5, M6 - M5x0,8-8g (1-10 MPa)
U4, U5, U6, U7 - 10-32UNF-2A (1-10 MPa)

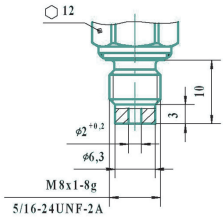
Electrical connection
L – flexible wire 80 mm (for MP)
or cable 500 mm (for MP-P)
P – pins 2,3-2,9 mm (for MP)

THREAD DESIGN



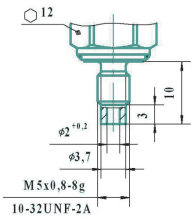
Thread	Code
M10x1-8g	M1
3/8-24UNJF-3A	U1
3/8-24UNF-2A	U2

MP(MP-P) 1(1,6...150) -...- M1(U1, U2) -...



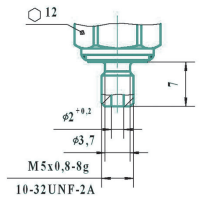
Thread	Code
M8x1-8g	M2
5/16-24UNF-2A	U3

MP(MP-P) 1(1,6...25) -...- M2(U3) -...



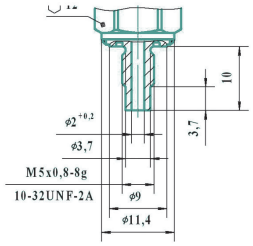
Thread	Code
M5x0,8-8g	M3
10-32UNF-2A	U4

MP(MP-P) 1(1,6...10) -...- M3(U4) -...



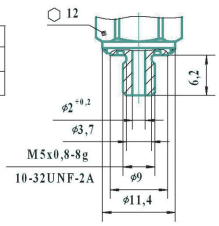
Thread	Code
M5x0,8-8g	M4
10-32UNF-2A	U5

MP(MP-P) 1(1,6...10) -...- M4(U5) -...



Thread	Code
M5x0,8-8g	M5
10-32UNF-2A	U6

MP(MP-P) 1(1,6...10) -...- M5(U6) -...

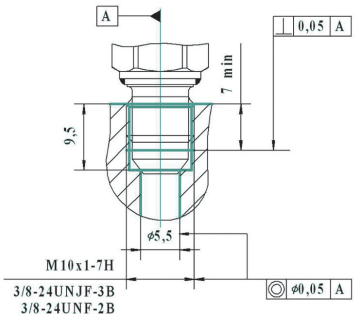


Thread	Code
M5x0,8-8g	M6
10-32UNF-2A	U7

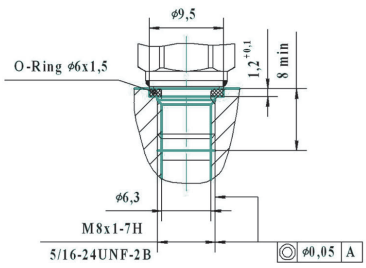
MP(MP-P) 1(1,6...10) -...- M6(U7) -...

PRESSURE SENSORS MP, MP-P SERIES

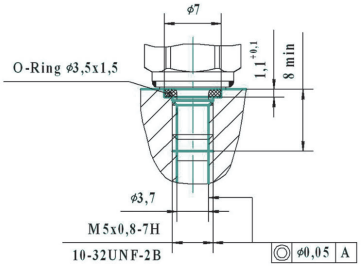
MOUNTING DIAGRAM



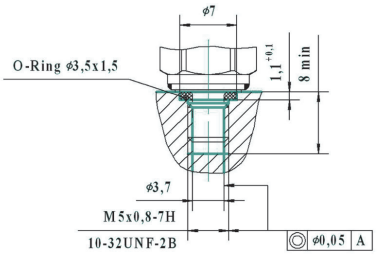
MP(MP-P) 1(1,6...150) -...- M1(U1, U2) -...



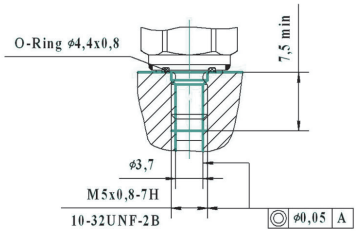
MP(MP-P) 1(1,6...25) -...- M2(U3) -...



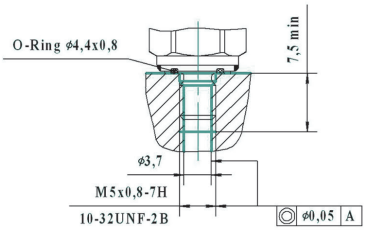
MP(MP-P) 1(1,6...10) -...- M3(U4) -...



MP(MP-P) 1(1,6...10) -...- M4(U5) -...



MP(MP-P) 1(1,6...10) -...- M5(U6) -...



MP(MP-P) 1(1,6...10) -...- M6(U7) -...

PRESSURE SENSORS PT SERIES

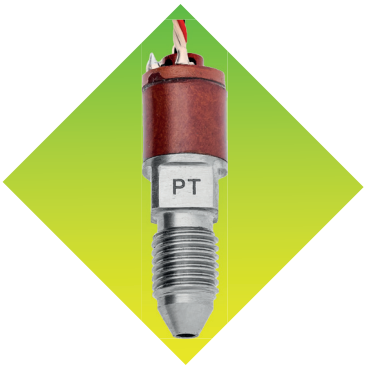
TECHNICAL DATA

Operating pressure range, MPa	from 0-4 to 0-150
Operating temperature range, °C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting thread	M8x1
Weight, g	7

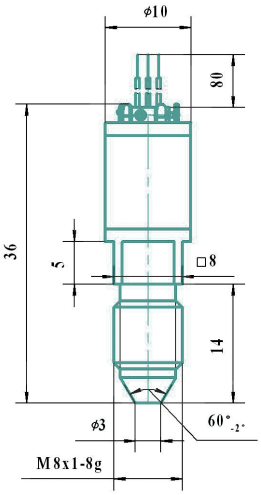
DESIGN FEATURES

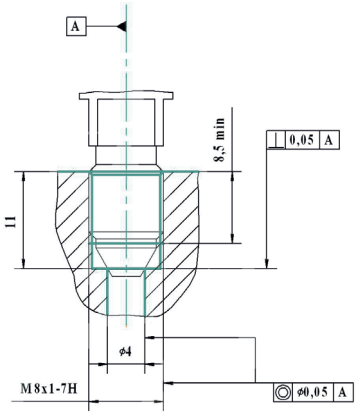
- Pressure sensors PT series are available with wires.
- Small sensor diameter 10 mm.
- DC voltage power supply.
- Closed or open bridge.

PT



MOUNTING DIAGRAM





PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
PT 4 - ...	from 0 to 4	from -0,1 to 8	12
PT 6 - ...	from 0 to 6	from -0,1 to 12	18
PT 10 - ...	from 0 to 10	from -0,1 to 20	30
PT 16 - ...	from 0 to 16	from -0,1 to 32	48
PT 25 - ...	from 0 to 25	from -0,1 to 50	75
PT 40 - ...	from 0 to 40	from -0,1 to 80	120
PT 60 - ...	from 0 to 60	from -0,1 to 120	180
PT 100 - ...	from 0 to 100	from -0,1 to 150	250
PT 150 - ...	from 0 to 150	from -0,1 to 165	300

TYPE DESIGNATION

PT XXX – X X

Series

Upper gauge pressure limit

4; 6; 10; 16; 25; 40; 60; 100; 150 MPa

Operating ambient pressure range

Version 1 - from -45 to +125 °C

Version 2 – from -45 to +155 °C

Version 3 – from -45 to +200 °C

Circuit type

0 – closed bridge

1 – open bridge

PRESSURE SENSORS HPL, HPL-P SERIES

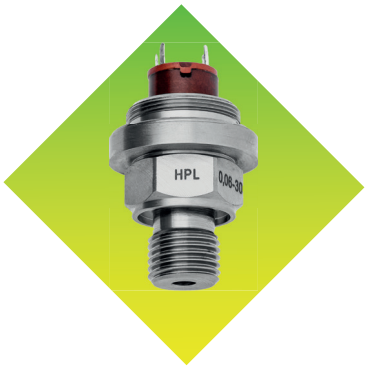
TECHNICAL DATA

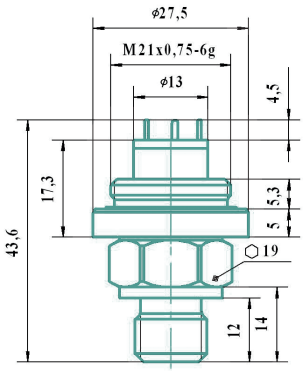
Operating pressure range, MPa **HPL** **HPL-P**		from 0-0,06 to 0-150 from 0-1,6 to 0-25
Operating temperature range, °C	HPL HPL-P	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200 version 4 from -200 to +25
Connecting threads **HPL** **HPL-P**		G1/4; M12x1,25; M14x1,5; 1/4-18 NPT 1/4-18 NPT
Weight, g **HPL** **HPL-P**		35 49

DESIGN FEATURES

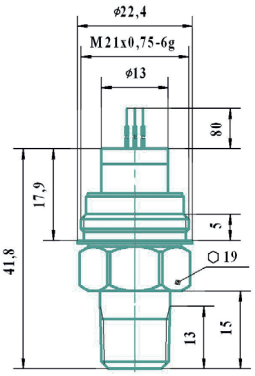
- Pressure sensors HPL series are available with wires and pins. Pin version enables to mount electronics board on the sensor pins.
- Pressure sensors HPL series are available with thread M21x0,75 to mount electronic module on pressure sensor.
- Pressure sensors HPL-P series are available with flexible cable (0,5-2 m) to use remote electronic, protection level IP54.
- Pressure sensors HPL series have various thread options for pressure connection piece.
- DC voltage power supply.
- Closed or open bridge.

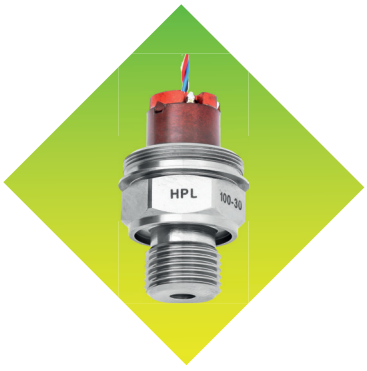
HPL 0,06(0,1; 0,16) — ...



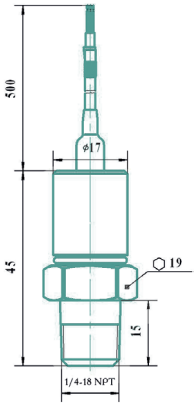


HPL 0,25(0,4 ... 150) — ...





HPL-P 1,6(2,5 ... 25) — ...



PRESSURE SENSORS

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
HPL 0,06 - ...	from 0 to 0,06	from -0,1 to 0,12	0,18
HPL 0,1 - ...	from 0 to 0,1	from -0,1 to 0,2	0,3
HPL 0,16 - ...	from 0 to 0,16	from -0,1 to 0,32	0,48
HPL 0,25 - ...	from 0 to 0,25	from -0,1 to 0,5	0,75
HPL 0,4 - ...	from 0 to 0,4	from -0,1 to 0,8	1,2
HPL 0,6 - ...	from 0 to 0,6	from -0,1 to 1,2	1,8
HPL 1 - ...	from 0 to 1	from -0,1 to 2	3
HPL(HPL-P) 1,6 - ...	from 0 to 1,6	from -0,1 to 3,2	4,8
HPL(HPL-P) 2,5 - ...	from 0 to 2,5	from -0,1 to 5	7,5
HPL(HPL-P) 4 - ...	from 0 to 4	from -0,1 to 8	12
HPL(HPL-P) 6 - ...	from 0 to 6	from -0,1 to 12	18
HPL(HPL-P) 10 - ...	from 0 to 10	from -0,1 to 20	30
HPL(HPL-P) 16 - ...	from 0 to 16	from -0,1 to 32	48
HPL(HPL-P) 25 - ...	from 0 to 25	from -0,1 to 50	75
HPL 40 - ...	from 0 to 40	from -0,1 to 80	120
HPL 60 - ...	from 0 to 60	from -0,1 to 120	180
HPL 100 - ...	from 0 to 100	from -0,1 to 150	250
HPL 150 - ...	from 0 to 150	from -0,1 to 165	300

TYPE DESIGNATION

XXXX XXX — X X — XX — X

Series
HPL, HPL-P

Upper gauge pressure limit
0,06; 0,1; 0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5;
4; 6; 10; 16; 25; 40; 60; 100; 150 MPa (HPL)
1,6; 2,5; 4; 6; 10; 16; 25 MPa (HPL-P)

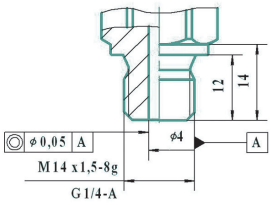
Operating ambient temperature range
for HPL
version 1 – from -45 to +125 °C
version 2 – from -45 to +155 °C
version 3 – from -45 to +200 °C
for HPL-P
version 4 – from -200 to +25 °C

Circuit type
0 – closed bridge
1 – open bridge

Thread code (for HPL)
K – 1/4-18 NPT (for HPL, HPL-P)
MFA - M14x1,5-8g, form A
GFA - G1/4-A, form A
MFE - M14x1,5-8g, form E
GFE - G1/4-A, form E
MK1 - M12x1,25-8g
GK1 - G1/4-A
MA1 - M12x1,25-8g, end seal
GA1 - G1/4-A, end seal
MT1 - M12x1,25-8g, cone seal
GT1 - G1/4-A, cone seal

Electrical connection
L – flexible wires 80 mm (for HPL)
or cable 500 mm (for HPL-P);
P – pins 4,5 mm

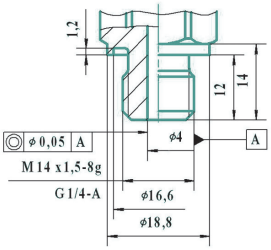
THREAD DESIGN



Thread	Code
M14x1,5-8g	MFA
G1/4-A	GFA

(in accord with DIN 3852)

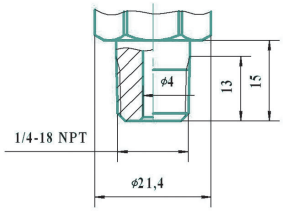
HPL 0,06(0,1...100) -...- MFA(GFA) -...



Thread	Code
M14x1,5-8g	MFE
G1/4-A	GFE

(in accord with DIN 3852)

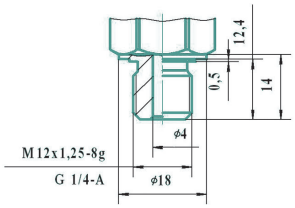
HPL 0,06(0,1...100) -...- MFE(GFE) -...



Thread	Code
1/4-18 NPT	K

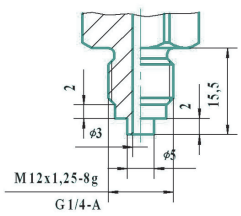
(in accord with DIN 3866)

HPL 0,06(0,1...100) -...- K -...
HPL-P 1,6(2,5...25) -...- K -...



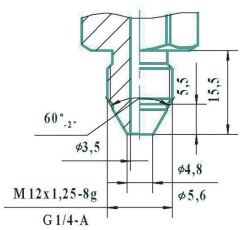
Thread	Code
M12x1,25-8g	MK1
G1/4-A	GK1

HPL 0,06(0,1...100) -...- MK1(GK1) -...



Thread	Code
M12x1,25-8g	MA1
G1/4-A	GA1

HPL 0,06(0,1...150) -...- MA1(GA1) -...

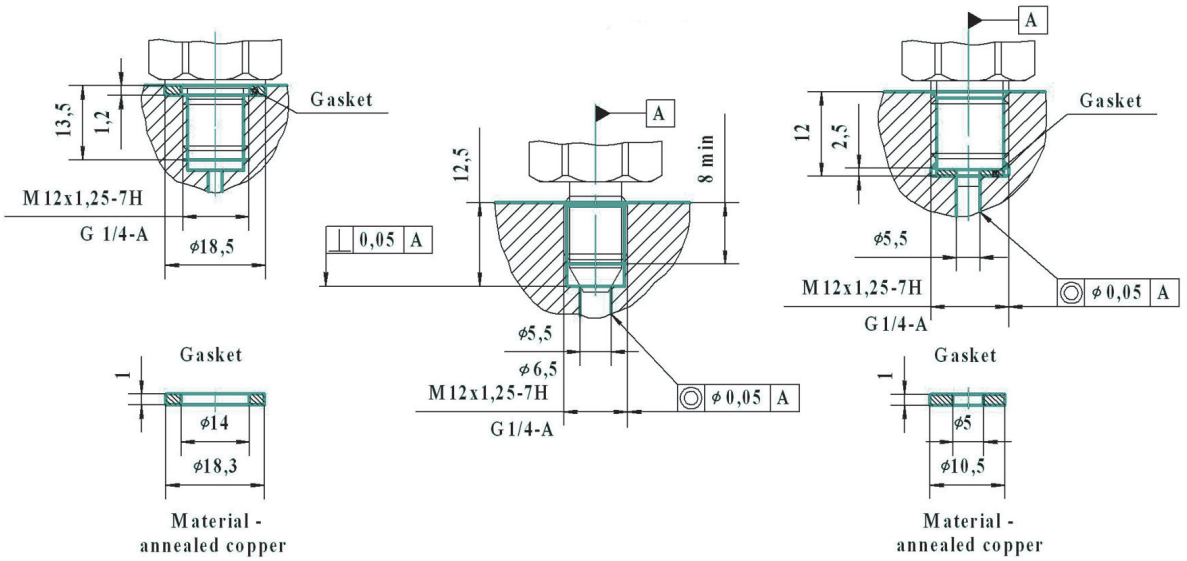


Thread	Code
M12x1,25-8g	MT1
G1/4-A	GT1

HPL 0,06(0,1...100) -...- MT1(GT1) -...

PRESSURE SENSORS HPL, HPL-P SERIES

MOUNTING DIAGRAM



HPL 0,06(0,1...100) -...- MK1(GK1) -...

HPL 0,06(0,1...100) -...- MT1(GT1) -...

HPL 0,06(0,1...150) -...- MA1(GA1) -...

FORCE SENSORS H, H-P, C SERIES

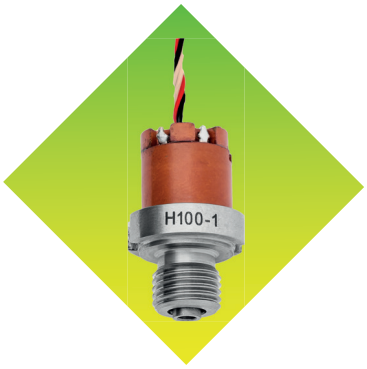
TECHNICAL DATA

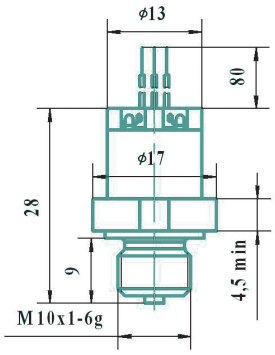
Operating force range, N **H** **H-P** **C**	from 0 - 100 to 0 - 300 from 0 to 200 from -2,5 - 5 to -25 - 50	
Operating temperature range, ˚C	H, C	from -50 to +80
	H-P	version 1 from-45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting threads **H** **H-P** **C**	M10x1; M20x1 M8x1 threadless	
Weight, g **H** **H-P** **C**	10 28 27	

DESIGN FEATURES

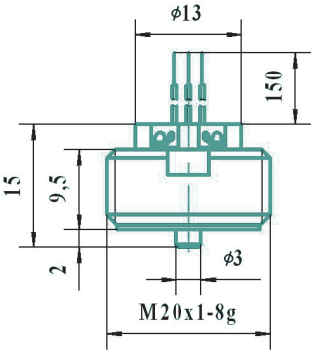
- Force sensors H, C series are available with wires.
- Force sensors H-P series are available with flexible cable (0,5-2 m) to use remote electronic, protection level IP54.
- DC power supply for H,C series, DC voltage – for H-P series.
- Closed bridge for H,C series, closed or open bridge – for H-P series.

H 100(200; 300)-1

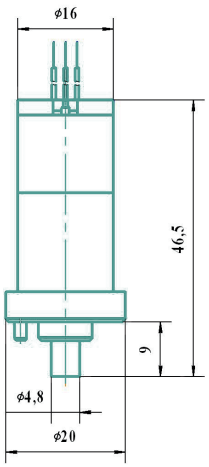




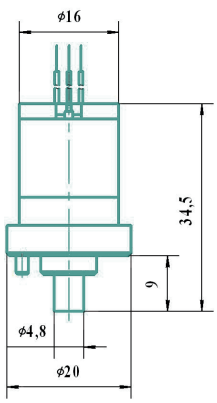
H 100(200; 300)-2



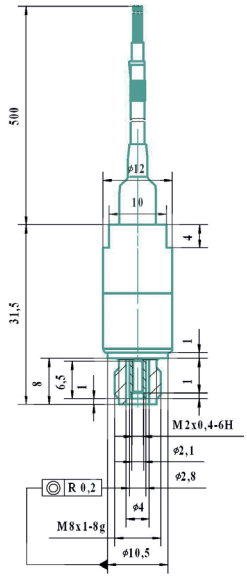
C05



C50



H-P



FORCE RANGES

Designation	Nominal force range, N	Limit operating force, N	Overforce, N
H 100-1; H 100-2	100	0 — 100	0 — 200
H 200-1; H 200-2	200	0 — 200	0 — 400
H 300-1; H 300-2	300	0 — 300	0 — 600
H-P 200	200	0 — 200	0 — 400
C05	5	-2,5 — 5	±8
C10	10	-5 — 10	±16
C40	40	-20 — 40	±64
C50	50	-25 — 50	±80

DESIGNATION TYPE

XXXX XXX — X X — X — X — X — X — X

Series
H, H-P, C

Upper force limit
100; 200; 300 N – for H series
200 N – for H-P series
5; 10; 40; 50 N – for C series

Operating ambient temperature range
for H-P series
version 1 - from -45 to +125 °C
version 2 – from -45 to +155 °C
version 3 – from -45 to +200 °C

Circuit type for H-P series
0 – closed bridge
1 – open bridge

Design type for H-P series
3 – two-plane flattened surfaces

Design type for H series
1 – connecting piece thread M10x1
2 – connecting piece thread M20x1

Power supply type for H-P series
V – stabilized DC voltage (1-10 V)

Electrical connection
L – flexible cable

MICROELECTRONIC PRESSURE TRANSMITTER PTM, PTM-M SERIES

Standard datasheet

1 Accuracy parameters

1.1 Main error, % FS — **±0,25; ±0,5**

1.2 Variation, % FS — **±0,15**

1.3 Additional ambient temperature error, % FS/10°C — **±0,25; ±0,45**

2 Electrical parameters

2.1 Output signals:

2.1.1 for PTM1, PTM1-M, mA — **4-20**

2.1.2 for PTM2, V — **0-5**

2.1.3 for PTM3-M, V — **0,5-4,5 ratiometric**

2.2 Insulation resistance at room temperature, MOhm — **20**

2.3 Electrical insulation strength (AC voltage) — **100**

2.4 Voltage supply, V

2.4.1 For PTM1, PTM1-M, PTM2 — **9-30**

2.4.2 For PTM3-M — **4,5-5,5**

3 Mechanical parameters

3.1 Vibration resistance

Frequency range, Hz — **from 10 to 150**

Acceleration amplitude, m/s^2 — **50**

4 Operating conditions

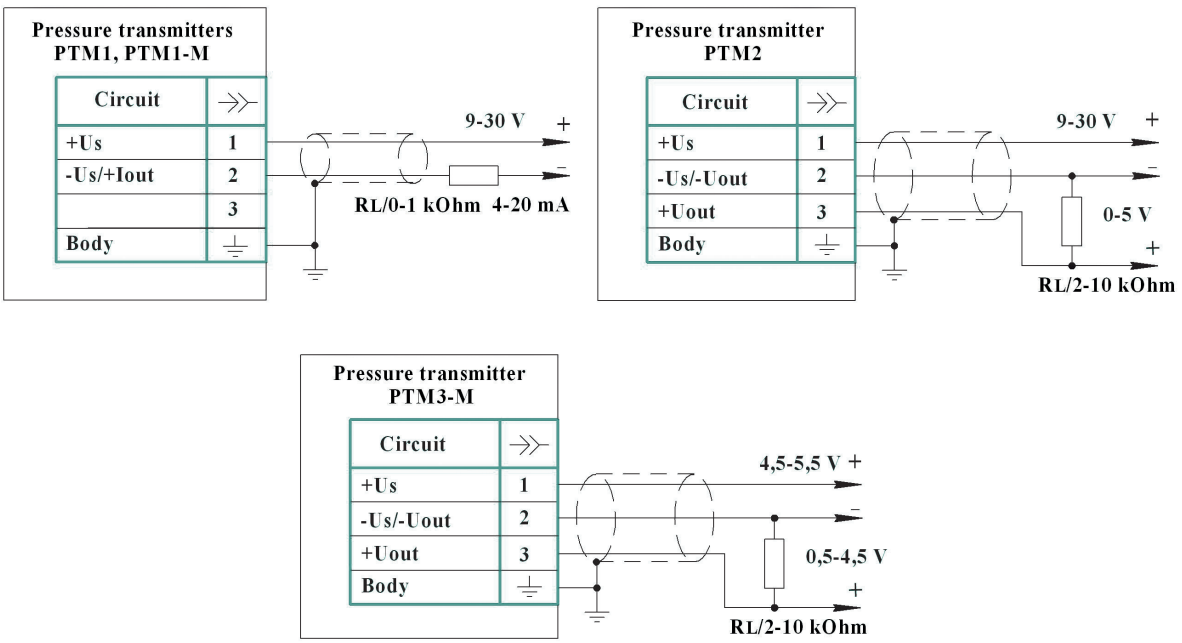
4.1 Protection level — **IP65**

4.2 Materials in contact with measured medium:

PTM – stainless steel and titanium alloy with 87% of titanium;

PTM-M – titanium alloy with 87% of titanium.

5 Connection wiring diagrams



PRESSURE TRANSMITTER PTM, PTM-M SERIES

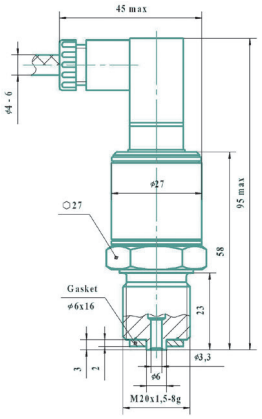
TECHNICAL DATA

Operating pressure range, MPa **PTM** **PTM-M**	from 0-0,16 to 0-100 from 0-1 to 0-250	
Operating temperature range, ˚C	PTM	version 1 from -40 to + 85 version 2 from +5 to +50
	PTM-M	from -40 to + 85
Connecting threads	1/4-18 NPT; G1/4; M12x1,25; M14x1,5 (only for PTM series); M20x1,5	
Output signal **PTM** **PTM-M**	4-20 mA; 0-5 V 4-20 mA; 0,5-4,5 V (ratiometric)	
Weight, g **PTM** **PTM-M**	150 120	

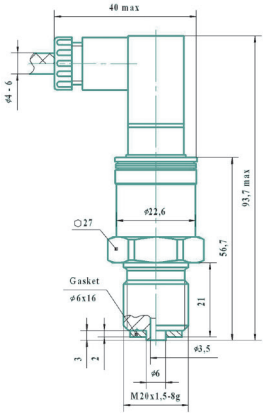
DESIGN FEATURES

- Pressure transmitters PTM series are available with connectors P2 and GDM series. Protection level IP65.
- Various thread options for pressure connecting piece.
- Connecting pieces of pressure transmitters PTM series are made of stainless steel, PTM-M – of titanium.

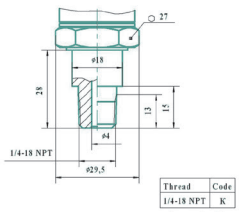
PTM



PTM-M



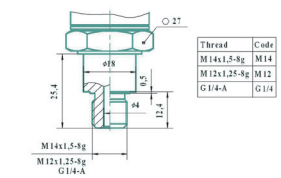
THREAD DESIGN



Thread	Code
1/4-18 NPT	K

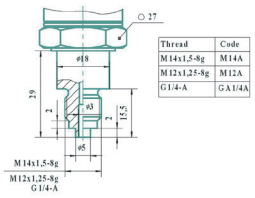
(in accord with DIN 3866)

PTM...-K



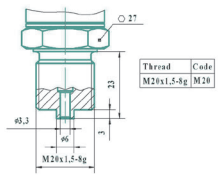
Thread	Code
M14x1,5-8g	M14
M12x1,25-8g	M12
G1/4-A	G1/4

PTM...-M14, PTM...-M12, PTM...-G1/4



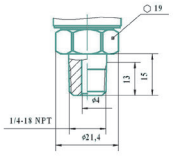
Thread	Code
M14x1,5-8g	M14A
M12x1,25-8g	M12A
G1/4-A	GA1/4A

PTM...-M14A, PTM...-M12A, PTM...-G1/4A

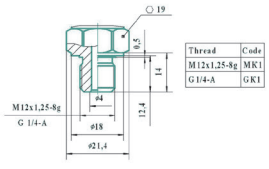


Thread	Code
M20x1,5-8g	M20

PTM (PTM-M)...-M20

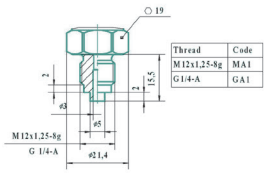


PTM-M...-K



Thread	Code
M12x1,25-8g	MK1
G1/4-A	GK1

PTM1-M...-MK1, PTM1-M...-GK1,
PTM3-M...-MK1, PTM3-M...-GK1



Thread	Code
M12x1,25-8g	MA1
G1/4-A	GA1

PTM1-M...-MA1, PTM1-M...-GA1,
PTM3-M...-MA1, PTM3-M...-GA1

PRESSURE RANGES

Designation	Nominal pressure, MPa	Overload pressure, MPa	Burst pressure, MPa
PTM-M 0,1-...	from 0 to 0,1	from -0,1 to 0,3	0,4
PTM(PTM-M) 0,16-...	from 0 to 0,16	from -0,1 to 0,48	0,64
PTM(PTM-M) 0,25-...	from 0 to 0,25	from -0,1 to 0,75	1
PTM(PTM-M) 0,4 -...	from 0 to 0,4	from -0,1 to 1,2	1,6
PTM(PTM-M) 0,6-...	from 0 to 0,6	from -0,1 to 1,8	2,4
PTM(PTM-M) 1-...	from 0 to 1	from -0,1 to 3	4
PTM(PTM-M) 1,6-...	from 0 to 1,6	from -0,1 to 4,8	6,4
PTM(PTM-M) 2,5-...	from 0 to 2,5	from -0,1 to 7,5	10
PTM(PTM-M) 4-...	from 0 to 4	from -0,1 to 12	16
PTM(PTM-M) 6-...	from 0 to 6	from -0,1 to 18	24
PTM(PTM-M) 10-...	from 0 to 10	from -0,1 to 30	40
PTM(PTM-M) 16-...	from 0 to 16	from -0,1 to 48	64
PTM(PTM-M) 25-...	from 0 to 25	from -0,1 to 75	100
PTM(PTM-M) 40-...	from 0 to 40	from -0,1 to 100	160
PTM(PTM-M) 60-...	from 0 to 60	from -0,1 to 120	150
PTM(PTM-M) 100-...	from 0 to 100	from -0,1 to 150	200
PTM-M 160-...	from 0 to 160	from -0,1 to 175	240
PTM-M 200-...	from 0 to 200	from -0,1 to 220	300
PTM-M 250-...	from 0 to 250	from -0,1 to 275	375

DESIGNATION TYPE

XXX X-M — X X — XX — X

Series

PTM, PTM-M

Output signal version

1 – 4-20 мА for PTM, PTM-M series

2 – 0-5 V for PTM series

3 – 0,5-4,5 V ratiometric for PTM-M series

Upper gauge pressure limit

0,1; 0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5; 4; 6;
10; 16; 25; 40; 60; 100; 160; 200; 250 MPa

Limit error for PTM series

0,25 % - main error (for pressure transmitters with operating temperature range from +5 to +50 °C);

0,5 % - main error (for pressure transmitters with operating temperature range from -40 to +85 °C) for PTM, PTM-M series;

1 % - main error for PTM-M 0,1-... with operating temperature range from -40 to +85 °C;

0,7 % - total error (for pressure transmitters with operating temperature range from +5 to +50 °C)

Electrical connection for PTM series

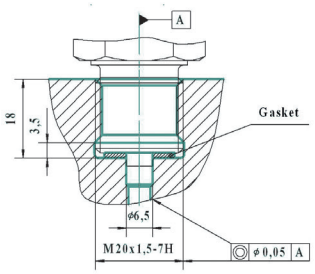
C1 – connector P2

C2 – connector GDM

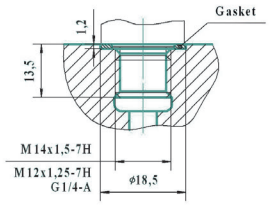
Thread code

K –1/4-18 NPT; M20 – M20x1,5-8g; M14 – M14x1,5-8g for PTM series;
M12(MK1) – M12x1,25-8g;
G1/4(GK1) – G1/4-A;
M14A – M14x1,5-8g for PTM series;
M12A(MA1) – M12x1,25-8g;
G1/4A(MA1) – G1/4-A

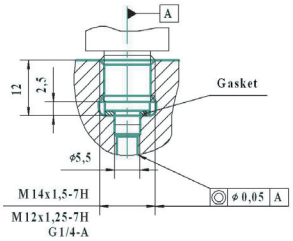
MOUNTING DIAGRAM



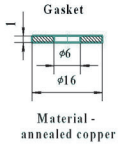
PTM (PTM-M)...-M20

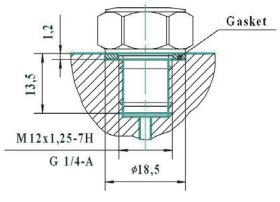


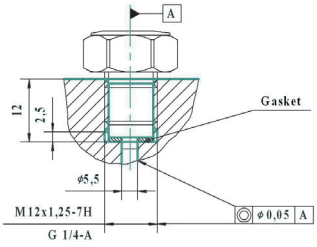
PTM...-M14, PTM...-M12, PTM...-G1/4

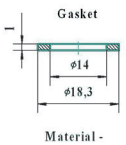


PTM...-M14A, PTM...-M12A, PTM...-G1/4A

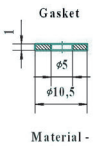








PTM1-M...-MK1, PTM1-M...-GK1,
PTM3-M...-MK1, PTM3-M...-GK1



PTM1-M...-MA1, PTM1-M...-GA1,
PTM3-M...-MA1, PTM3-M...-GA1

FLUSH DIAPHRAGM PRESSURE SENSORS P SERIES

TECHNICAL DATA

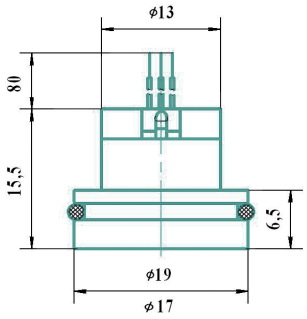
Operating pressure range, MPa **with connecting part D19** **with connecting part D17**	 from 0-0,16 to 0-1 from 0-0,25 to 0-10
Operating temperature range, °C	version 1 from -40 to +100 version 2 from -20 to +155 version 3 from -20 to +200
Connecting thread	Threadless
Weight, g	8

DESIGN FEATURES

- Flush diaphragm.
- Threadless body with O-ring.
- Available with wires and pins. Pin version enables to place the electronic board on the sensors pins.
- DC (C type) and voltage (V type) power supply.
- Closed or open bridge.

P 0,16(0,25 ... 1) — ... — D19 — ...

P 0,25(0,4 ... 10) — ... — D17 — ...



STAINLESS STEEL PRESSURE SENSORS MDX SERIES

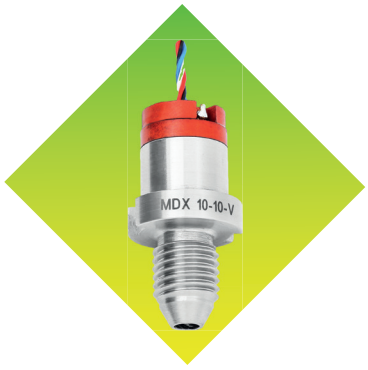
TECHNICAL DATA

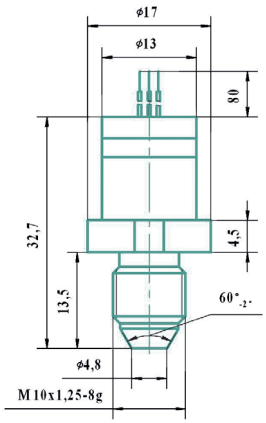
Operating pressure range, MPa	from 0-2,5 to 0-10
Operating temperature range, ˚C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting thread	M10x1,25-8g
Weight, g	19

DESIGN FEATURES

- Sensor body and diaphragm are made of stainless steel which enables to use them in spark-proof pressure transmitters.
- Available with wires and pins. Pin version enables to place the electronic board on the pins.
- DC (C type) and voltage (V type) power supply.
- Closed or open bridge.

MDX 2,5(4 … 10) — …





FLUSH DIAPHRAGM PRESSURE SENSORS PF SERIES

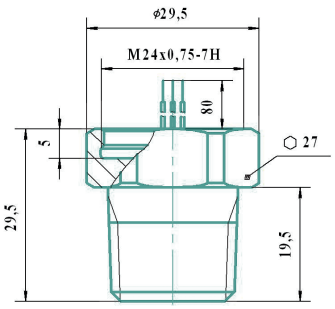
TECHNICAL DATA

Operating pressure range, MPa	from 0-1 to 0-40
Operating temperature range, °C	version 1 from -40 to +125 version 2 from -20 to +155 version 3 from -20 to +200
Connecting threads **PF 1(1,6...10)-...** **PF 16(25; 40)-...**	 M20x1,5-8g; G1/2;K1/2 M14x1,5-8g; 9/16-18UNF-2A
Weight, g **PF 1(1,6...10)-...** **PF 16(25; 40)-...**	 37 16

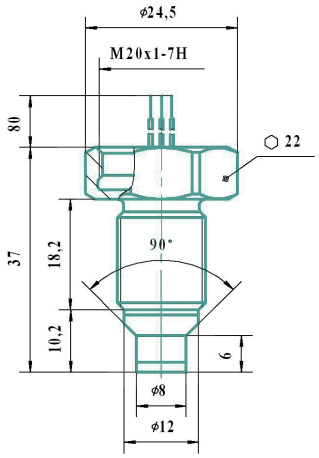
DESIGN FEATURES

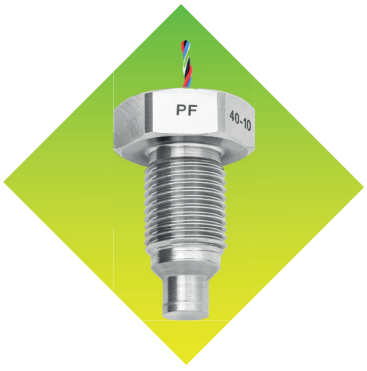
- Thread connecting piece with flush diaphragm.
- Various thread options for pressure connection piece.
- Available with wires and pins. Pin version enables to place the electronic board on the sensors pins.
- DC (C type) and voltage (V type) power supply.
- Closed or open bridge.

PF 1(1,6 ... 10) — ...



PF 16(25; 40) — ...





PRESSURE SENSORS MP-PT SERIES WITH TEMPERATURE SENSOR

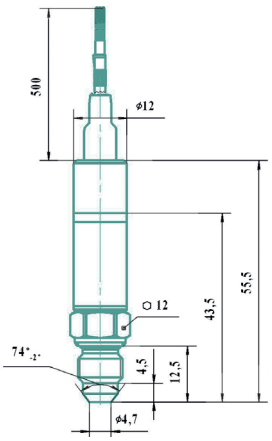
TECHNICAL DATA

Operating pressure range, MPa	от 0-1 до 0-150
Operating temperature range, ˚C	version 1 from -45 to +125 version 2 from -45 to +155 version 3 from -45 to +200
Connecting threads	M10x1-8g; 3/8-24UNJF-3A; 3/8-24UNF-2A; M8x1-8g; 5/16-24UNF-2A; M5x0,8-8g; 10-32UNF-2A
Weight, g	34

DESIGN FEATURES

- Pressure sensors MP-PT series are intended for control of pressure and temperature and provide continuous conversion of gas and liquid media pressure and temperature into electric signals.
- Available with flexible cable (0,5-2 m) to use remote electronic, protection level IP65.
- Various thread options for pressure connection pieces.
- DC voltage supply.
- Closed bridge.

MP-PT 1(1,6 ... 150) — ....

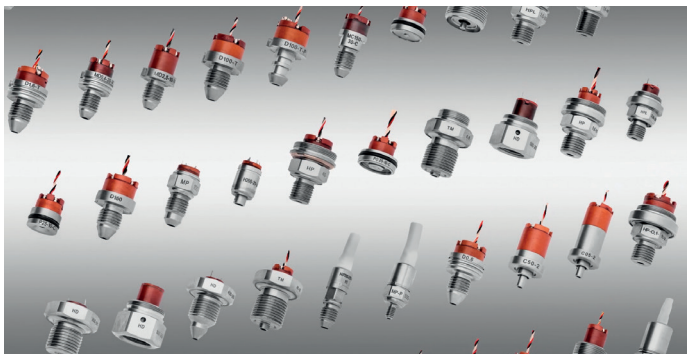


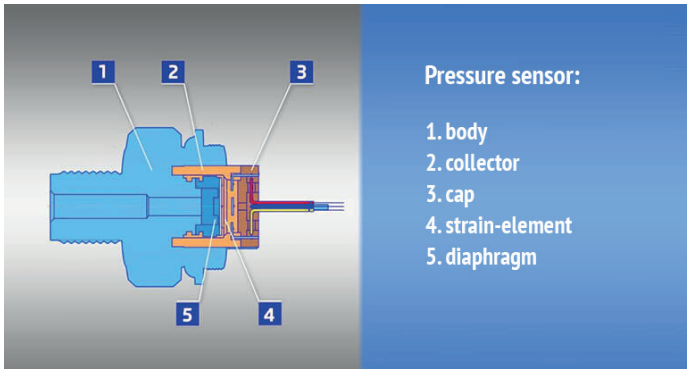
PRESSURE SENSORS MANUFACTURE

Pressure sensors are intended for continuous proportional conversion of pressure or force into electric signal.

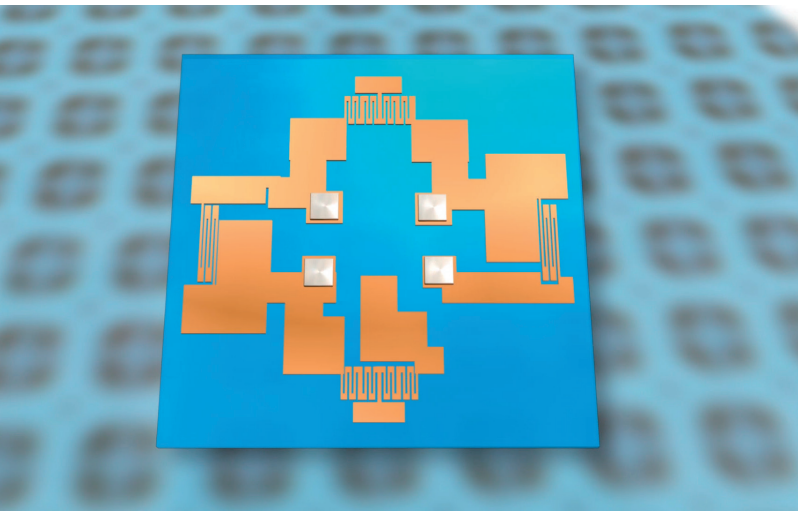
Pressure sensors are designed to be applied in pressure transmitters and pressure and force systems in oil and gas industry, mining industry, atomic power engineering, heat metering, industrial automation, hydraulic/ pneumatic, pumping stations, compressor, satellite on-board equipment.

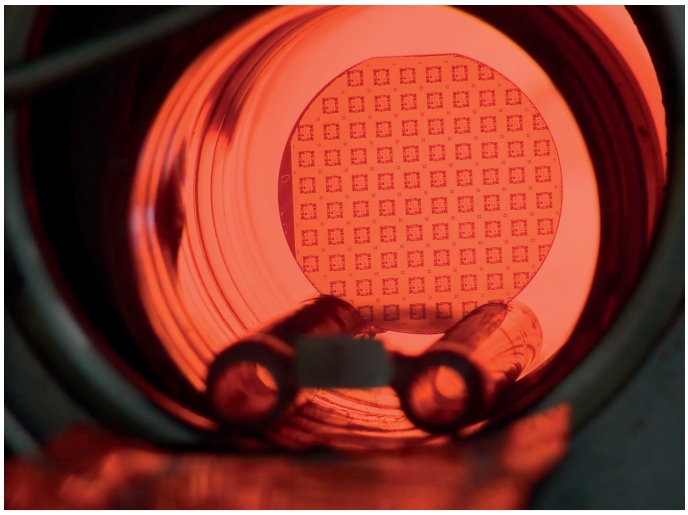
Pressure sensor consists of body, collector, cap, strain-element and diaphragm.

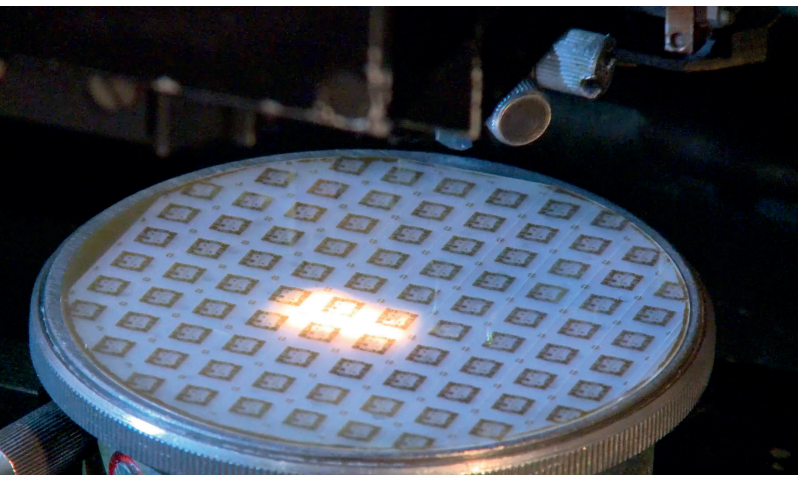


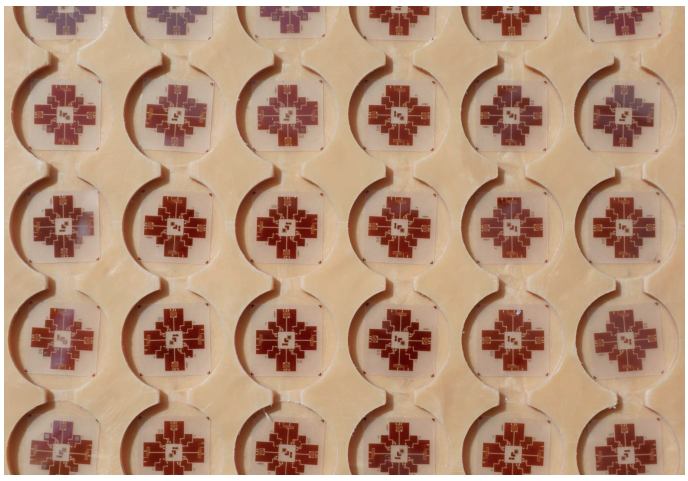


STRAIN-ELEMENT MANUFACTURE



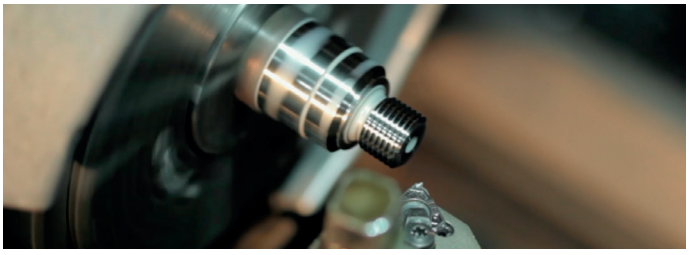




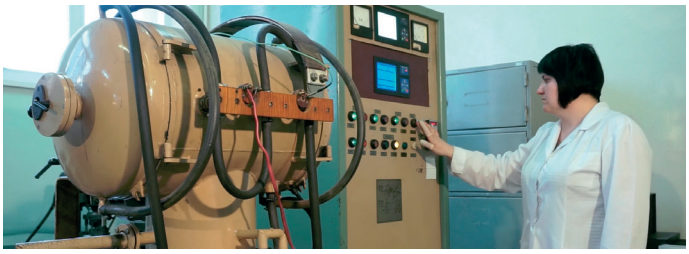
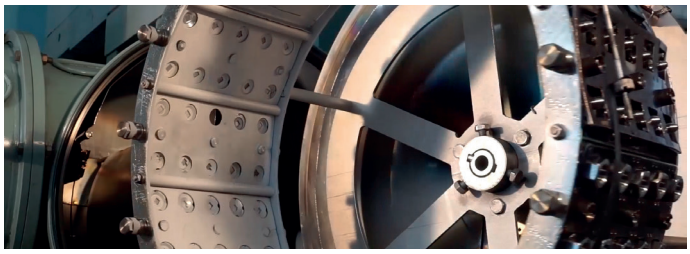


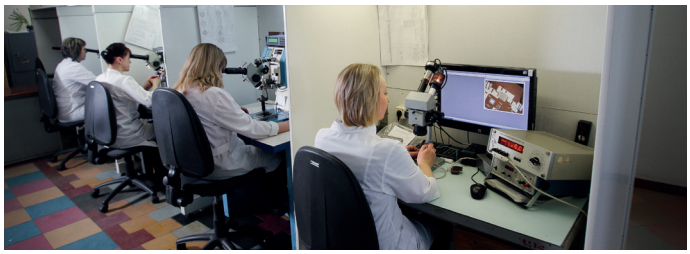
DIAPHRAGM AND BODY MANUFACTURE






SENSORS MANUFACTURE



Company has about 100 employees who are constantly upgrading their qualification, improving technology process and using new advanced equipment, which enables to produce new sensors not only of own design but at the customers technical requirements as well.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