

High Temperature Pressure Sensor

- ✓ High temperature stability up to 700 °C (1250 °F)
- ✓ Outstanding signal quality during thermal gradients
- ✓ Highest durability and reliability
- ✓ Internal case insulation
- ✓ Active acceleration compensation available
- ✓ Proven in harsh conditions including hydrogen

For the most demanding applications in terms of reliability, extreme temperature capability and signal stability, Piezocryst offers a line of case insulated sensors with outstanding behavior. The sensors, which have a well proven design that collected millions of operating hours in numerous heavy duty and industrial gas turbines, are available in various configurations to fit all kind of measurement tasks. Suitable for R&D in the most extreme conditions or for long term monitoring applications.

The CP5x2, CP5x5 and CP5x6 were designed to directly measure pressure pulsations in a gas turbine combustor. The application in extremely high temperatures, heat flux and gradients during fast ramp-up and down cycles demands a robust sensor not affected by thermal impacts, high acceleration levels and does not show any degradation within its lifetime. Due to the GaPO₄ crystal elements and a very specific design, the CP-sensors proved to deliver a clear and reliable pressure signal from most challenging environments.



Specifications

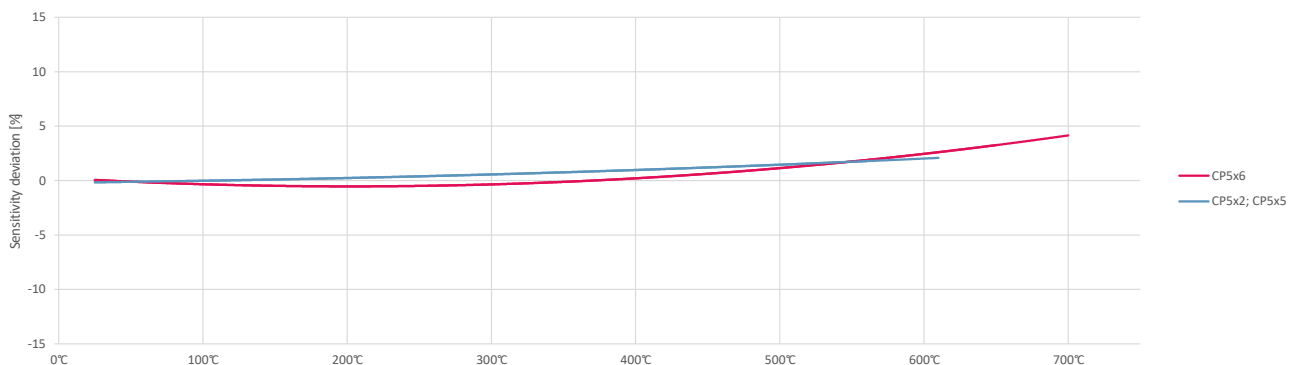
Name	CP5x2	CP5x5	CP5x6
Operating Principle	Piezoelectric charge output		
Sensing element	Industrially grown single-crystal GaPO ₄ (gallium phosphate)		
Dynamic measuring range	0 ... 50 bar (0 ... 725 psi)		
Overload pressure	> 100 bar (1450 psi)		
Sensitivity (nominal ± 5%)			
95 pC/bar (6.55 pC/psi)	•	•	
100 pC/bar (6,9 pC/psi)			•
Linearity	≤ 0.5 % FSO (0 ... 50 bar, 0 ... 725 psi)		
Operating temperature *			
-70°C ... +560°C (-94°F ... +1040°F)*	continuous	continuous	
-55°C ... +650°C (-67°F ... +1200°F)*			continuous
-55°C ... +700°C (-67°F ... +1250°F)*			short term
Internal insulation resistance	> 10 ¹⁰ Ω (25°C, 77°F), >10 ⁶ Ω (560°C, 1040°F) or >10 ⁶ Ω (650°C, 1200°F)		
Acceleration sensitivity			
Axial	≤ 2 mbar/g (0.03 psi/g)	≤ 0.3 mbar/g (0.004 psi/g)	
Radial	≤ 0.25 mbar/g (0.004 psi/g)		
Frequency range	1 Hz to 10 kHz (resonant frequency > 50 kHz)		
Capacitance (nominal, incl. 1m cable)	122 pF pole/pole, 157 pF pole/ground		
Mounting torque	see accessoires		
Housing material	Nimonic 90, hermetically welded		

* Temperature of sensor head and cable

Available Casings and Cable Configurations	CP5x2	CP5x5	CP5x6
Type 1	X = 38.8 mm	X = 44.8 mm	X = 44.8 mm
Type 2		•	•
Type 3		•	•
Type 4		•	•
Cable	2- pole MI Hardline Cable (double overbraided optional)		
Minimum bending radius cable	16mm (1 bend), 75mm (up to 20 bends)		
Connector	2-pin LEMO or High Temperature (7/16"-27UNS-2A)		
Max. temperature connector			
2-pin LEMO	165°C (330°F)		
2-pin High Temperature (7/16"-27UNS-2A)	600°C (1110°F)		

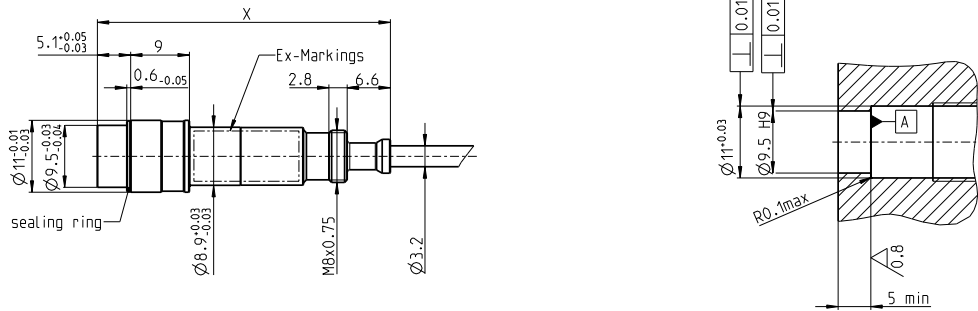
Piezocryst reserves the right to change specifications without notice.

Calibration and Thermal Sensitivity



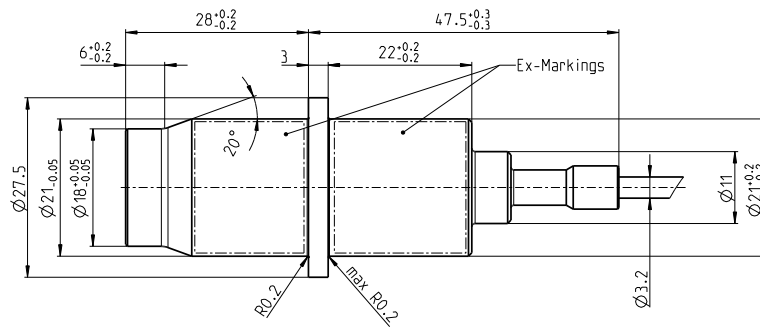
Sensor & Mount Dimensions

Type 1

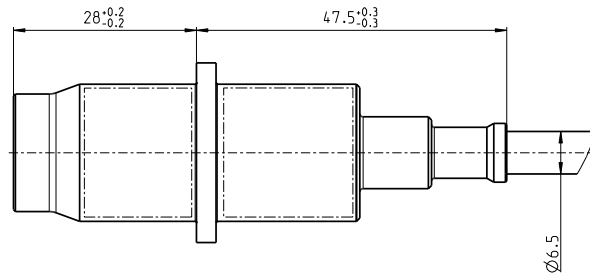


Type 2

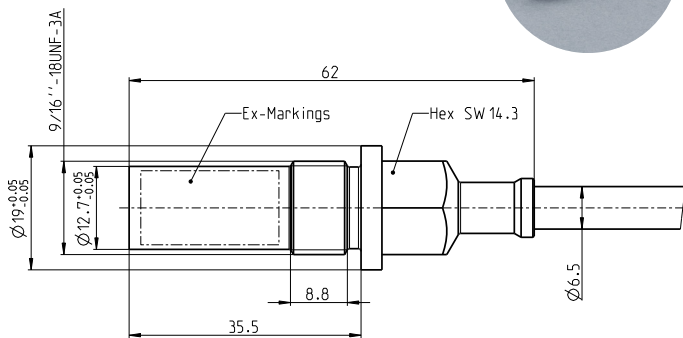
MI Hardline Cable



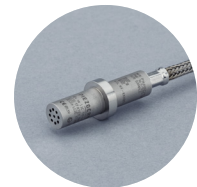
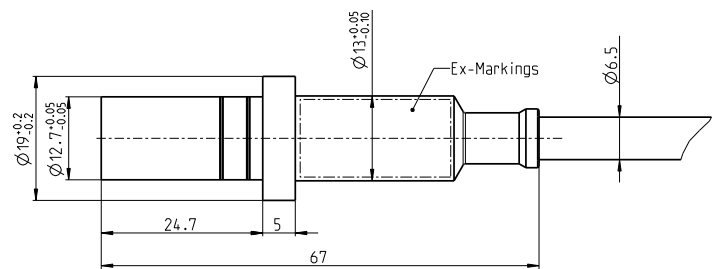
Double Overbraided
MI Hardline Cable



Type 3



Type 4

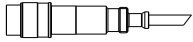


All dimensions are in mm.

Configurations and Connector Dimensions

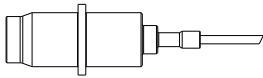
Type 1

CP5x2, CP5x5, CP5x6



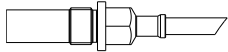
Type 2

CP5x5, CP5x6



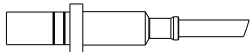
Type 3

CP5x5, CP5x6



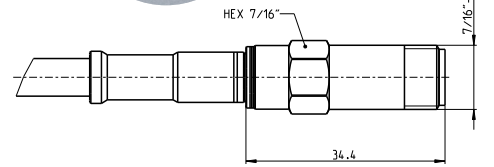
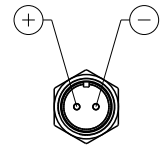
Type 4

CP5x5, CP5x6

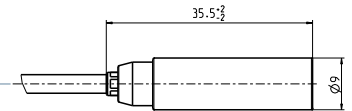
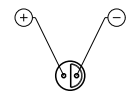


Double Overbraided
MI Hardline Cable

MI Hardline Cable



High Temperature
7/16"-27UNS-2A



2-Pin Lemo
PCA.0S.302.CLLC32

Scope of Supply

Sensor	CP5x2 or CP5x5 or CP5x6
Calibration sheet	✓
ATEX certificate	✓
Sealing ring	Type 1 only

ATEX Certification

The CP5xx series is Ex approved and therefore suitable for hazardous environments.

Europe	LCIE 17 ATEX 3007 X
International	IECEx LCIE 17.0002X
cCSAus	70130706
KGS	17-KA4BO-0433X
NEPSI	GYJ17.1244X

Piezocryst reserves the right to change specifications and accessories without notice.

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