

ThermoCOMP[®] – Quartz Pressure Sensor

Type 6061B...

Cylinder Pressure Sensor for Combustion Engines

Water-cooled precision cylinder pressure sensor with small dimensions, especially suited for small combustion engines and for thermo-dynamic investigations in the laboratory.

Fitting with or without water cooling in a bore M10x1. High sensitivity, high natural frequency and excellent zero point stability because of integrated water cooling. When a special wrench is used the sensor can be mounted in a bore of $\varnothing 14$ mm.

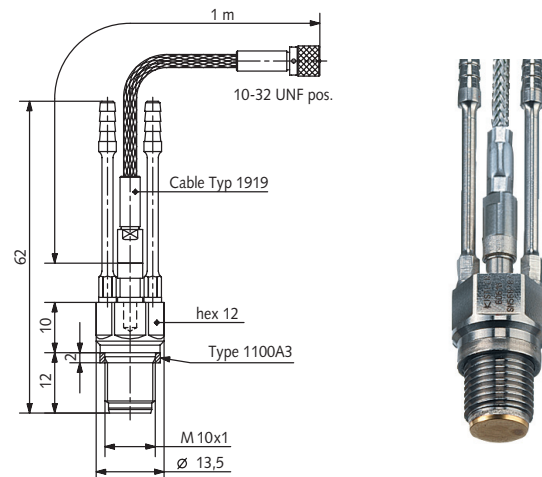
- Smallest water-cooled cylinder pressure sensor
- Thermo-shock optimized double diaphragm
- Long life thanks to TiN coating and metal cable

Description

The use of polystable quartz elements assures security against twinning even under high mechanical loading. As a result, the sensitivity remains largely constant from $-50 \dots 350 \text{ }^\circ\text{C}$ and the sensor continues to operate without damage even if the water cooling fails. Thanks to its anticorrosive effect, the TiN coating extends the life of the diaphragm.

Application

The miniature sensor Type 6061B... is well suited for thermo-dynamic measurements in small combustion engines. The low sensitivity to thermal shock and the excellent zero point stability, thanks to the built-in water cooling, yield precise measuring results. Moreover, the excellent linearity in the whole range and the high sensitivity allow gas exchange to be analyzed accurately.



Technical Data

| | | | |
|--|------------------------------|---------------------|----------------|
| Range | bar | 0 ... 250 | |
| Calibrated partial ranges | bar | 0 ... 50 | |
| | bar | 0 ... 2,5 | |
| Overload | bar | 300 | |
| Sensitivity | pC/bar | ≈ -25 | |
| Natural frequency | kHz | ≈ 90 | |
| Linearity, all ranges | % FSO | $\leq \pm 0,5$ | |
| Acceleration sensitivity | axial (with cooling) | bar/g | $< 0,01$ |
| | radial (with cooling) | bar/g | $< 0,001$ |
| Operating temperature range | $^\circ\text{C}$ | $< 50 \dots 350$ | |
| Cooling water flow | l/min. | 0,3 ... 0,5 | |
| Sensitivity shift | 50 \pm 35 $^\circ\text{C}$ | % | $\leq \pm 0,5$ |
| | 50 ... 350 $^\circ\text{C}$ | %/ $^\circ\text{C}$ | $\leq 0,01$ |
| | Thermo shock | | |
| bei 1 500 1/min, 9 bar p _{mi} | | | |
| Δp | bar | $< \pm 0,2$ | |
| Δp_{mi} | % | $< \pm 1$ | |
| Insulation resistance at 20 $^\circ\text{C}$ | T Ω | ≥ 10 | |
| Shock resistance | g | 2 000 | |
| Tightening torque | N·m | 10 | |
| Cooling water pressure | bar | ≤ 6 | |
| Capacitance, with cable | pF | 110 | |
| Weight | g | 18 | |
| Plug, ceramic insulator | Type | M4x0,35 | |

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This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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Mounting Examples

The sensor Type 6061B... may be screwed directly into a M10x1 hole. Fig. 1 shows flush mounting with the wall of the combustion chamber. Fig. 2 shows mounting with recessed diaphragm. Fig. 3 shows the sensor Type 6061B... fitted in a cylinder head using a special mounting sleeve (option). The flush mounting must always be preferred in order to avoid pipe resonances.

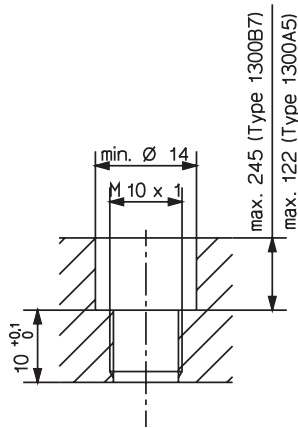


Fig. 1: Mounting bore

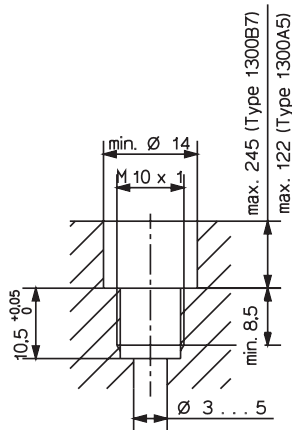


Fig. 2: Mounting dimensions

Accessories

| Accessories | Type |
|--|---------|
| • High temperature connecting cable M4x0,35 – 10-32 pos., L = 1 m | 1919 |
| • Coupling 10-32 neg. – BNC pos. | 1721 |
| • Coupling 10-32 neg. – BNC neg. | 1725 |
| • Cr-Ni-steel seal | 1100A3 |
| • Connecting tube for cooling water | 1225A1 |
| • Fluorelastomer hose for cooling water | 1203Csp |
| • Adapter for pressure generator Type 6905A | 6925 |
| • Adapter for pressure generator Type 6904 | 6583 |
| • Dummy sensor, like Type 6061B | 6442 |
| • Extraction tool for Type 6442 | 1319 |
| • Dismounting tool for cable | 1300A49 |

Mounting Accessories

| Mounting Accessories | Type |
|---|---------|
| • Torque wrench 8 ... 40 N·m | 1300A11 |
| • Tubular socket wrench hex. 12 mm for fitting hole $\varnothing \geq 16$ mm | 1300B7 |
| • Fork wrench hex. 16 mm for Type 1300B7 and torque wrench | 1300A33 |
| • Special key for fitting hole $\varnothing 14$ mm | 1300A5 |
| • Fork wrench hex. 12 mm for Type 1300A5 and torque wrench | 1300A13 |
| • Screw tap M10x1 | 1353 |

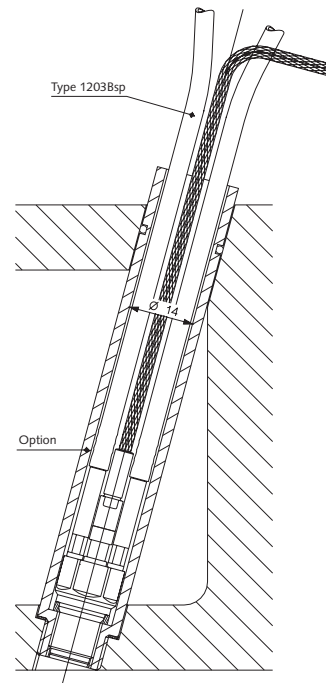
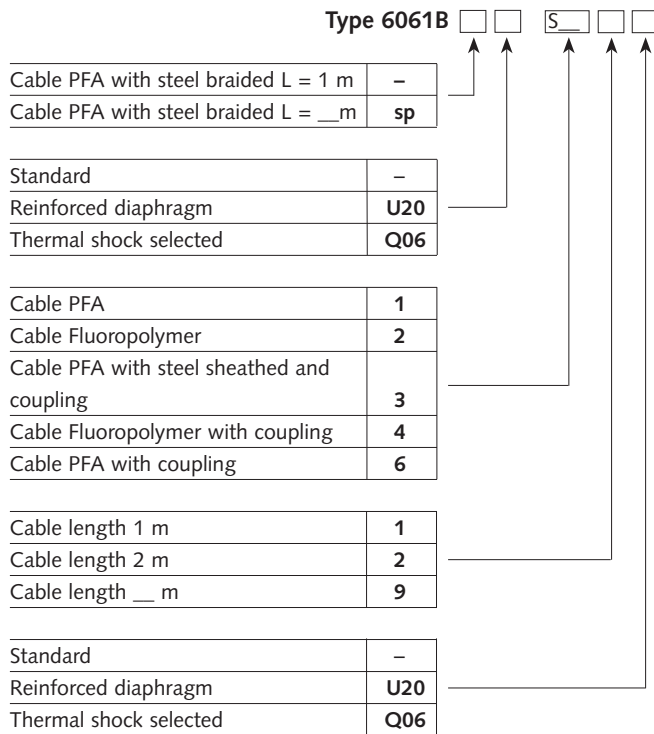


Fig. 3: Mounting with mounting sleeve

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Ordering Key



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