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Cylinder Pressure Transmitter

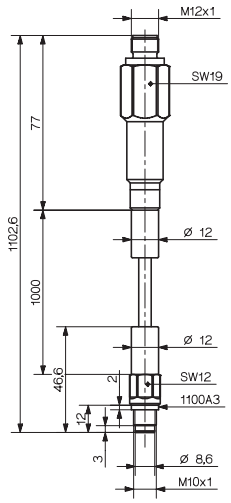
Type 6613CA

for Continuous Monitoring

Sensor designed with optimum service life for continuous cylinder pressure monitoring in diesel and gas engines. Because of its low thermal shock and high stability over the long term, this sensor is suitable for demanding monitoring and control tasks.

- Small thermal shock
- Long life
- Insensitive to integral mounting





Description

The quartz measuring element and the charge amplifier incorporated in the plug are interconnected by an integral cable. The charge amplifier has two measuring ranges and selectable time constants. The short time constant guarantees stability of the output signal even with rapid changes in load and speed. The long time constant allows static calibration of the measuring chain. The measuring range and/or time constants are selected by appropriate interconnection of the plug pins. As a result of its patented «antistrain» design, the measuring element is insensitive to integral mounting, and largely insensitive to dirt and contamination. The rugged diaphragm permits the sensor to be used for knock detection.

The life expectancy of the sensor has been designed so that a life of >16'000 h can be achieved in a gas engine running. With heavy-oil operation, the service life depends very much on the corrosion occurring, while extreme contamination can reduce measuring accuracy.

Application

Type 6613CA has been specially developed for the monitoring and control of medium and large size diesel and gas engines. Cylinder pressure measurements can be made with high precision because of its very good thermodynamic characteristics.

Technical data

Measuring range		
Range I	bar	0 ... 250
Range II	bar	0 ... 100
Sensitivity		
Range I (± 0,5%)	mV/bar	10
Range II (± 0,5%)	mV/bar	25
Overload	bar	300
Linearity	% FSO	≤±1%
Sensitivity to acceleration	bar/g	0,001
Operating temperature range		
Sensor	°C	-50 ... 350
Plug with charge amplifier	°C	-10 ... 110
Thermal shock at 1'500 rpm, p_{mi} = 9 bar	bar	≤±0,5
Change in sensitivity		
200 ±150 °C	%	≤±2
200 ±50 °C	%	≤±1
Frequency range (-3 dB)	Hz	0,032 ... 20'000
Output voltage (with 1 mA load)		
max.	V	4,4 ... 5
min.	V	>0
Signal range	V	2,5
Zero point	V	2 ... 2,2
Supply voltage	VDC	7 ... 32
Output impedance	Ω	100
Plug DIN	M12 x 1	IP67
Weight	g	140
Tightening torque	Nm	15
Connector	8-pin	M12 x 1

000-404e-05.03 (DB03.6613CAe)

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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Installation

In order to minimize thermal stress on the sensor, it should be located so that good heat dissipation to colder components is possible. This can normally be achieved by a set-back location. Optimum sensor life is achieved at an average temperature of 200 … 300 °C in the sensor body. An angled gas channel can also reduce the effect of flame on the diaphragm, and thereby minimize the short term drift of the sensor. In order to prevent singing oscillations, the lengths of the gas channel should not exceed 30 mm. Strong gas oscillations occur when the gas column between sensor and combustion chamber resonates. Superimposed on the cylinder pressure, these pressure oscillations impose an additional load on the sensor, resulting in reduced life of the sensor.

Accessories Included	Type
• Cr-Ni seal	1100A3

Optional Accessories	Type
• Torque wrench 8 … 40 Nm*	1300A11
• Fork wrench SW 12 for 1300A11*	1300A13
• Adapter M14 x 1,25	6582A1
• Adapter BSP R1/2"	6582A2
• Adapter G1/2"	7523A10
• Tubular socket wrench	1300A6

* refer to data sheet special tools and sensor dummies (000-068)

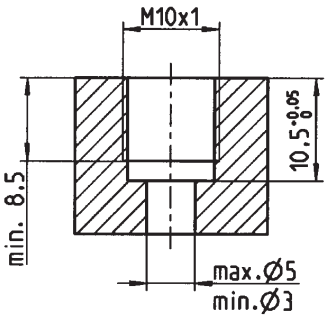


Fig. 1: Sensor bore



Fig. 2: Type 6613CA installed in indicator valve G1/2" with M10-thread and additional stop valve for Type 6613CA

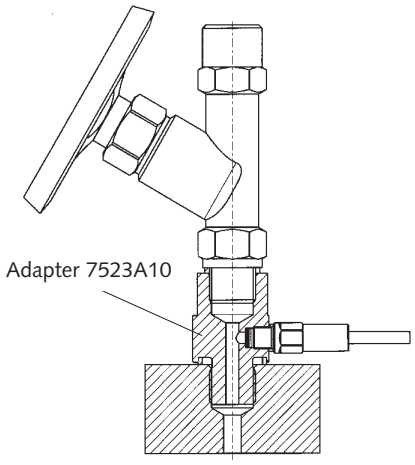


Fig. 3: Sensor installed with adapter 7523A10 underneath the indicator valve

Connecting Cables

1700A69, plug M12 x 1 at sensor side, one free cable end, Cable length l = 10 m, 3-wires	black = GND blue = signal 2,5 Vpp = 250 bar brown = power supply 7 ... 32 VDC	standard cable without range selection,
1700A71, plug M12 x 1 at sensor side, one free cable end, Cable length l = 10 m, 4-wires	black = GND blue = signal 2,5 Vpp = 250 bar brown = power supply 7 ... 32 VDC white = range selection (see manual)	standard cable, enables range selection, Range I/Range II
1787A..., plug M12 x 1 at sensor side, Cable length A5 = 5 m, A20 = 20 m 8-wires	Pin allocation, see manual of Type 6613CA Chapt. 3.2.5	For calibration only, enables selection of range and time constant

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