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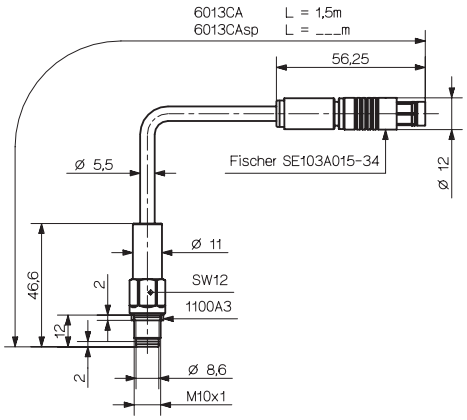
Cylinder Pressure Sensor

for Continuous Monitoring

Type 6013C...

Life expectancy optimized sensor for continuous cylinder pressure measurement in gas and diesel engines. Because of its low thermal shock and high stability over the long term, this sensor is suitable for difficult monitoring and control tasks for internal combustion engines.

- Small thermal shock
- Long life
- Also available with integral charge amplifier





Description

As a result of its patented «anti-strain» 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 for a service life of >16'000 h in a gas engine running. With heavy-oil operation, its service life depends very much on the corrosion occurring, while extreme contamination can reduce measuring accuracy.

Application

Continuous Monitoring

Type 6013CA has been specially developed for the monitoring and control of medium and large size diesel and gas engines. Excellent thermodynamic characteristics enable high precision cylinder measurements. Sensor and cable together form an oil- and splash proof unit.

Test Bed

Most suitable for knock detection and long-term measurements. For test bed applications the sensor Type 6013C (without cable) can be used together with special connecting cables. For more information about cables refer to data sheet 000-352e (DB15.035e).

Technical Data

		Type 6013CA	Type 6013C
Range	bar	0 ... 250	
Calibrated partial range	bar	0 ... 50	
Overload	bar	300	
Sensitivity	pC/bar	21	
Natural frequency	kHz	85	
Linearity	%FSO	≤±1	
Sensitivity to acceleration	bar/g	0,001	
Operating temperature range	°C	-50 ... 350	
Change in sensitivity			
200 ± 150 °C	%	≤±2	
200 ± 50 °C	%	≤±1	
Thermal shock			
at 1'500 r/min, p_{mi} = 9 bar	bar	≤±0,5	
Insulation resistance at 20 °C	Ω	$\geq 10^{13}$	
Shock resistance	g	2000	
Tightening torque	Nm	15	
Output impedance	Ω	100	
Capacitance	pF	160	6
Weight	g	80	20
Connector	Type	Fischer SE103	10-32UNF

000-402e-11.03 (DB03.6013CAe)

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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Tel +41 52 224 11 11, Fax 224 14 14, info@kistler.com, www.kistler.com

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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. 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.

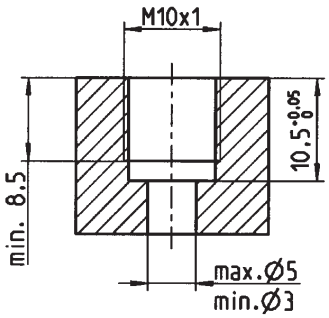


Fig. 1: Sensor bore

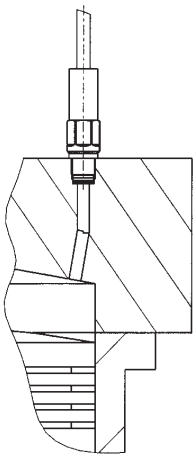


Fig. 2: Sensor fitted in a set-back location

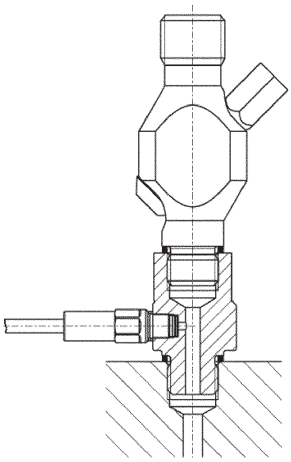


Fig. 3: Fitting example: sensor fitted below the indicator valve

Accessories Included	**Type**
• Cr-Ni seal	1100A3

Optional Accessories	**Type**
• Connecting cable, Fischer KE 103 – BNc pos.	1673A ...
• Socket wrench 16/12*	1300B7
• Fork wrench SW16 to 1300A11*	1300A33
• Torque wrench 8 … 40 Nm*	1300A11
• Fork wrench insert SW12 to 1300A11*	1300A13
• Adapter M14x1,25	6582A1
• Adapter BSP 1/2" male thread	6582A2
• Socket wrench	1300A6

* refer to data sheet 000-068m (DB04.012m)
data sheet 000-352e (DB15.035e)

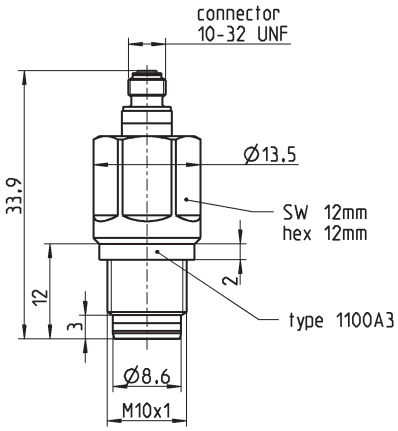




Fig. 4: Cylinder pressure sensor Type 6013C with 10-32UNF connector

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