

PRESSURE SENSOR FOR COMBUSTION ANALYSIS

Data Sheet

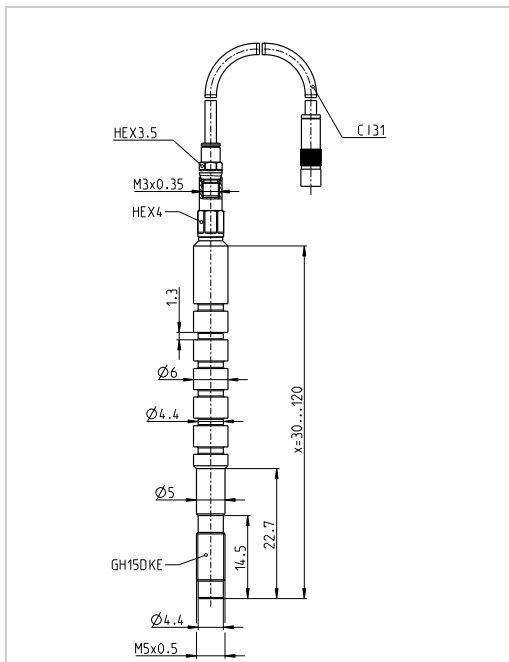


GH15DKE

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The GH15DKE is the elonguated version of GH15DK and could be used within oil and water jackets without the need of an adaptor sleeve. It is an accurate and robust M5 sensor especially suited for supercharged engines with high specific output. It has thermally optimized piezoelectric crystal elements and the special Double Shell™ design. It decouples the piezoelectric elements from negative influences of mechanical stresses which can occur due to the mounting of the sensor into the engine. Additionally it has an improved membrane material and geometry. This makes the sensor more robust suitable as the standard solution for research and development work with perfect trade off between accuracy and robustness. A thermo protection can improve the cyclic drift down to ± 0.4 bar. The sensor is equipped with built in SID for SDM.



Scope of Supply

- Sensor GH15DKE
- Piezo-input cable C131-1
- Coupling CC31
- Accessory kit (protection cap + 2 spare O-rings)
- Calibration sheet
- Documentation

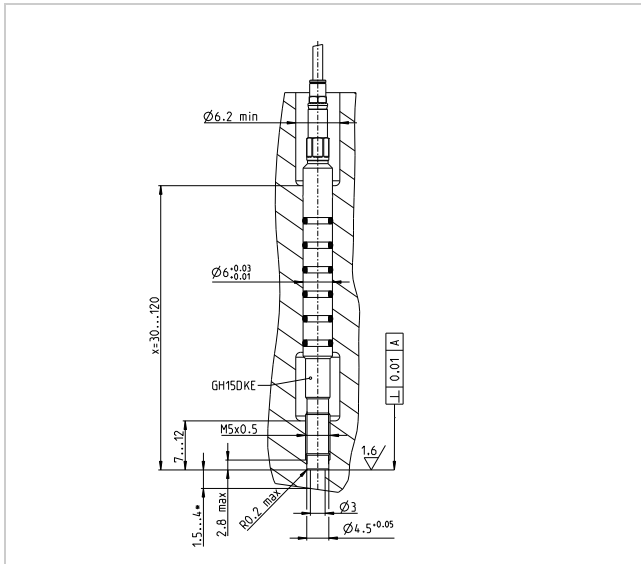
Specifications

Measuring range		0 ... 300 bar	
Overload		350 bar	
Sensitivity		19 pC/bar	nominal
Linearity	≤ ±	0.3 %	FSO
Calibrated ranges		0 ... 80 bar 0 ... 150 bar 0 ... 300 bar	
Natural frequency		170 kHz	
Acceleration sensitivity	≤	0.0005 bar/g	axial
Shock resistance	≥	2000 g	
Insulation resistance	≥	10 ¹³ Ω	
Capacitance		7.5 pF	
Operating temperature range ⁽¹⁾		- 40 ... 400 °C	
Thermal sensitivity change	≤	2 %	20 ... 400 °C and 0 ... 300 bar
	≤ ±	0.5 %	250 ± 100 °C and 0 ... 300 bar typ.
Load change drift		1.5 mbar/ms	max. gradient typ.
Cyclic temperature drift ⁽²⁾	≤ ±	0.7 bar	
Thermo shock error Δp ⁽³⁾	≤ ±	0.4 bar	typ.
Thread diameter		M5 x 0.5	front sealed
Cable connection		M3 x 0.35	negative
Weight		6.7 - 10.2 g	without cable
Mounting torque		1.5 Nm	

¹⁾ surface temperature around the HEX < 200 °C

²⁾ at 7 bar IMEP and 1300 rpm, diesel

³⁾ at 9 bar IMEP and 1500 rpm, gasoline









Front sealed direct installation.

*) 1.5 mm for steel, 4 mm for cast iron and aluminium alloys.

Article	Length [x]	Type
GH15DKE-A	40 mm	TIGG1595A.01
GH15DKE-B	60 mm	TIGG1597A.01

Accessories		
Cables & couplings	CI31, CI32, CI3V, CC31, E124	
Cable-mounting tool	TC02	TIWG0613A.01
Mounting tool	Tool set TS21 (TT21, TT02)	TIWG0213A.01
	Mounting socket TT21	TIWG0214A.01
	Torque wrench TT02	TIWG0117A.01
	PH08 dismounting tool TT51	TIWG0532A.01
Machining tool	Tool set MS15 (MD12, MT12)	TIWG0337A.01
	Step drill MD12	TIWG0335A.01
	Tap drill MT12	TIWG0346A.01
	Seat dressing tool MR01-85	TIWG0616A.01
	Seat dressing tool MR01-160	TIWG0632A.01
Mounting paste	SF01	TIHK0094A.01
Thermo protection	PH01, PH08	

Icons of strength / Measurement Task

	<p>Toughness / knock applications Purpose: Specially designed to withstand under extreme and harsh conditions</p>	<p>Examples: Analysis of knocking combustion, operation under high engine loads, supercharged engines.</p>		<p>Gallium Orthophosphate GaPO4 Patented unique crystal material.</p>	<p>Today, GaPO4 is by far the best suited piezoelectric material to be used in sensor applications. It has a combination of several unique properties that make it the first choice.</p>
	<p>Precision / thermodynamic analysis Purpose: Very highly accurate measurements for critical thermodynamic analysis.</p>	<p>Examples: Measurements for heat release and friction loss calculations</p>		<p>Double Shell™ Mechanically decouples the crystals from the housing for premium signal quality.</p>	<p>Due to their high sensitivity, these elements are also susceptible to any other kind of applied pressure which would else cause a misreading of the combustion pressure</p>
	<p>Durability / endurance testing Purpose: Specially designed to withstand under extreme and harsh conditions</p>	<p>Examples: Onboard monitoring of large marine or stationary engines</p>		<p>SDM Sensor Data Management Increasing efficiency due to organized workflow.</p>	<p>SDM guarantees end-to-end automated data transfer and thus ensures errorfree measurements. This solution covers the complete measurement chain running from the sensor to the software.</p>

Contact Information

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