PRESSURE SENSOR FOR COMBUSTION ANALYSIS

Data Sheet

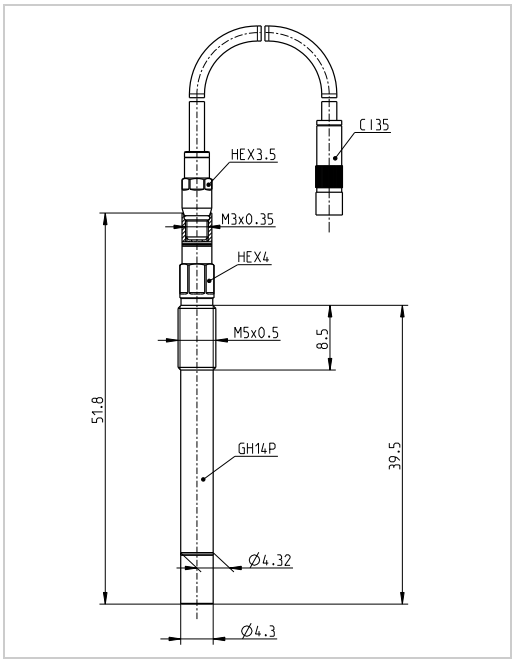
GH14P

TIGG1323A.01

02/2020
AT3993E, Rev. 05

GH14P

TIGG1323A.01



The GH14P is in combination with a glow-plug adaptor (direct mount) a nearly flush mounted solution for diesel engines. It allows measurements without pipe oscillations and pressures of up to 250 bar. The GH14P comes with an M3 connector which allows the smallest installation tool clearance diameters. The glow plug adaptor dimensions are custom tailored to the requirements of the customer. The Double-Shell™ design decouples the piezoelectric elements from negative influences of mechanical stresses which can occur due to the mounting of the sensor into the adaptor or engine. Using a thermo protection like PH08 can improve the cyclic drift by 0.3 bar. The sensor is equipped with built in SID for SDM.

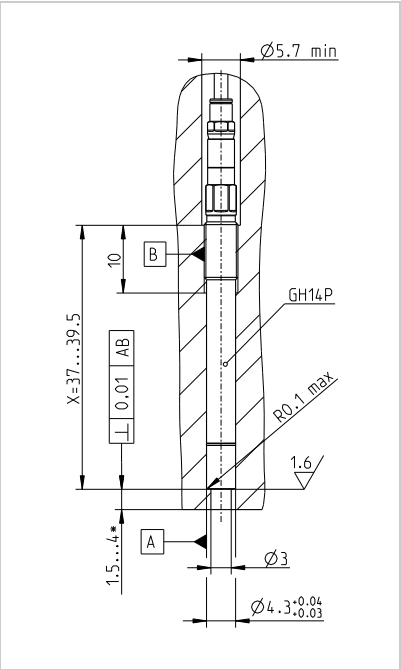
Scope of Supply

- Sensor GH14P
- Piezo-input cable CI35-1
- Coupling CC31
- Accessory kit (protection cap + 2 spare o-rings)
- Calibration sheet
- Documentation

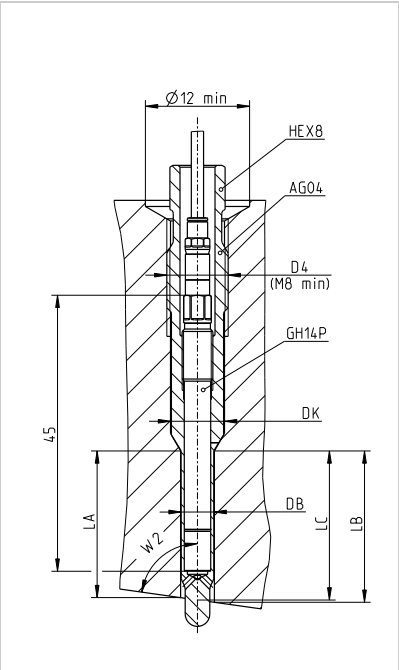
Specifications

Measuring range		0 … 250 bar	
Overload		300 bar	
Sensitivity		15 pC/bar	nominal
Linearity	≤ ±	0.3%	FSO
Calibrated ranges		0 ... 80 bar 0 ... 150 bar 0 ... 250 bar	
Natural frequency		115 kHz	
Acceleration sensitivity	≤	0.001 bar/g	axial
Shock resistance	≥	2000 g	
Insulation resistance	≥	$1 * 10^{13}$ Ω	
Capacitance		7 pF	
Operating temperature range [1]		-40 … 400 °C	
Thermal sensitivity change	≤	2 %	20 … 400 °C and 0 ... 250 bar
	≤ ±	0.5%	250 ± 100 °C and 0 ... 250 bar typ.
Load change drift		1 mbar/ms	max. gradient typ.
Cyclic temperature drift [2]	≤ ±	0.5 bar	
Thermo shock error Δp [3]	≤ ±	0.3 bar	typ.
Mounting bore		4.3 mm	front sealed
Cable connection		M3 x 0.35	negative
Weight		5.4 grams	without cable
Mounting torque		1.5 Nm	using SF01

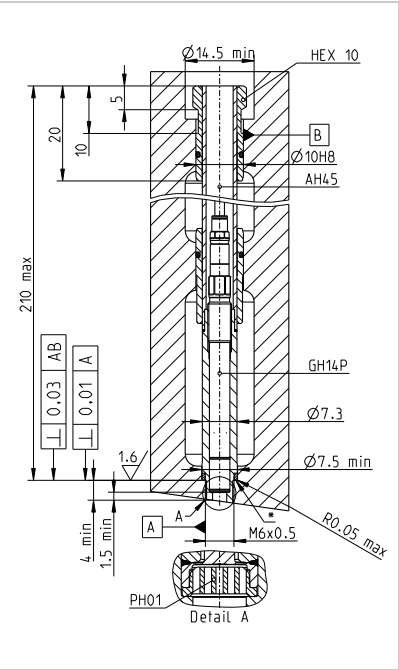
1) surface temperature around the HEX < 200 °C
2) at 7 bar IMEP and 1300 rpm, diesel
3) at 9 bar IMEP and 1500 rpm, gasoline



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



Installation with glow-plug adaptor AG04.



Installation with an AH45 adaptor.

Accessories

Cables & couplings	CI31, CI32, CI3V, CC31, E124	
Cable-mounting tool	TC02	TIWG0613A.01
Dummy	DG13	TIWG0219A.01
Dummy removal tool	TD13	TIWG0224A.01
Glow-plug adaptor	AG03, AG04, AH13, AH45	
Mounting tool	Toolset TS21 (TT21A, TT02) Mounting socket TT21A Torque wrench TT02	TIWG0213A.01 TIWG0663A.01 TIWG0117A.01
Machining tool	Step drill MD26 Tap drill MT11 Seat dressing tool MR05	TIWG0574A.01 TIWG0154A.01 TIWG0575A.01
Mounting paste	SF01	TIHK0094A.01
Thermo protection	PH01	TIYF0592A.01

Icons of strength / Measurement Task

Toughness / knock applications Purpose: Specially designed to withstand under extreme and harsh conditions	Examples: Analysis of knocking combustion, operation under high engine loads, supercharged engines.	Gallium Orthophosphate GaPO4 Patented unique crystal material.	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.
Precision / thermodynamic analysis Purpose: Very highly accurate measurements for critical thermodynamic analysis.	Examples: Measurements for heat release and friction loss calculations	Double Shell™ Mechanically decouples the crystals from the housing for premium signal quality.	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
Durability / endurance testing Purpose: Specially designed to withstand under extreme and harsh conditions	Examples: Onboard monitoring of large marine or stationary engines	SDM Sensor Data Management Increasing efficiency due to organized workflow.	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.

Contact Information

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