PRESSURE SENSOR FOR COMBUSTION ANALYSIS

Data Sheet

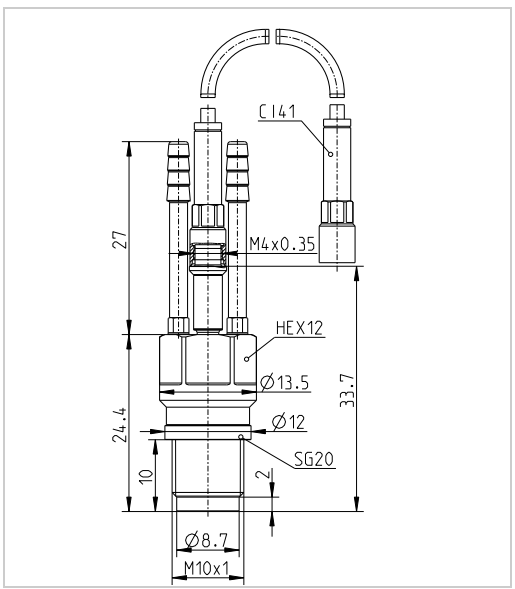
QC34D

TIGG1367A.01

03/2019
AT3379E, Rev. 04

QC34D

TIGG1367A.01



Scope of Supply

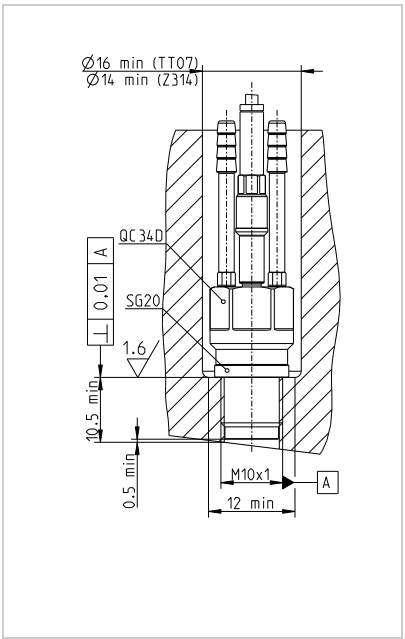
- Sensor QC34D
- Piezo-input cable CI41-1
- Coupling CC41
- Gasket SG20
- Accessory kit (protection cap + 2 spare O-rings)
- Spare gasket SG20
- Calibration sheet
- Documentation

The QC34D is a cooled quartz sensor with a mounting thread of 10 mm designed especially for midrange engines. An active water cooling system is required to ensure long lifetimes and excellent thermodynamic behavior. In case of a failure in the cooling system, the QC34D is designed so that the sensor can survive temperatures up to 350 °C. The sensor is equipped with built in SID for SDM.

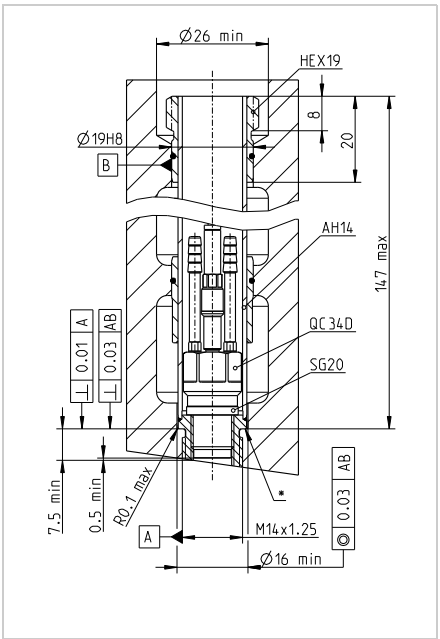
Specifications

Measuring range		0 ... 250 bar	
Overload		300 bar	
Sensitivity		19 pC/bar	nominal
Linearity	≤ ±	0.2%	FSO
Calibrated ranges		0 ... 80 bar 0 ... 150 bar 0 ... 250 bar	
Natural frequency		69 kHz	
Acceleration sensitivity	≤ ≤	0.013 bar/g 0.003 bar/g	axial water cooled axial uncooled
Shock resistance	≥	2000 g	
Insulation resistance	≥	$1 * 10^{13}$ Ω	
Capacitance		10 pF	
Operating temperature range (1)		- 40 ... 350°C	
Thermal sensitivity change (cooled)	≤	0.003 %/°C	20 ... 80 °C and 0 ... 250 bar
Load change drift		4.5 mbar/ms	max. gradient typ.
Cyclic temperature drift (2)	≤ ±	0.3 bar	
Thermo shock error Δp(3)	≤ ±	0.2 bar	typ.
Mounting bore		M10x1	shoulder sealed
Cable connection		M4x0.35	negative
Cooling rate	≥	20 l/h	
Weight		15 grams	without cable
Mounting torque for sensor		10 Nm	using SF01

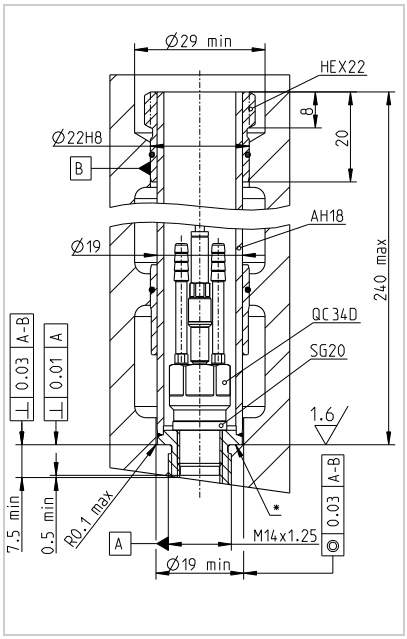
1) surface temperature around the HEX < 200 °C
2) at 7 bar IMEP and 1300 rpm, diesel
3) at 9 bar IMEP and 1500 rpm, gasoline



Direct installation.



Installation with the adaptor AH14 and Pin-Tool Z314. *) Rigid adhesive, e.g. LOCTITE 648.



Installation with adaptor AH18 and box spanner TT07. *) Rigid adhesive, e.g. LOCTITE 648.

Accessories

Cables & couplings	CI41, CI42, CC41, CC42, E124	
Cable-mounting tool	TC01	TIWG0131A.01
Gasket	SG20	TIBQ0231A.01
Gasket dismounting tool	TT15	TIWG0179A.01
Dummy	DG06	TIWG0188A.01
Dummy removal tool	TD01	TIWG0122A.01
Adaptor sleeve	AH14, AH18	
Machining tool	Tap drill MT31	TIWG0156A.01
Mounting tool	Mounting socket TT07 (Ø = 15.8 mm) Mounting tool Z314 (Ø = 13.8 mm) Torque wrench TT18	TIWG0133A.01 TIWG0103A.01 TIWG0209A.01
Mounting paste	SF01	TIHK0094A.01
Cooling system	ZP91.00/1-4 (230 V version) ZP91.00/1-8 (230 V version) ZP91.00/1-4 (115 V version) ZP91.00/1-8 (120 V version) ZP93/1-8 (230 V version)	TIZP91A.04 TIZP91A.08 TIZP91A.14 TIZP91A.28 TIZP93A.08

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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