

Miniature Measuring Probe

for Non-Cooled Cylinder Pressure Measurement, M5 Thread Set Back

The miniature measuring probe with very small dimensions and M5x0,5 mounting thread is particularly suitable for direct installation in small-capacity combustion engines with more than 2 valves per cylinder.

- Particularly suitable for measurements with glow plug adapter Type 6535Q...
- Good temperature stability of the sensitivity
- Acceleration-compensated
- Front diameter 4,4 mm
- Low thermal shock error and long life thanks to the front seal
- Very high sensitivity

Description

Type 6055C... uses a new type of PiezoStar® crystal with which a sensitivity of -20 pC/bar is achieved.

This sensitivity over a temperature range of 200 ±50 °C varies by not more than ±0,5 %.

The influence of engine vibrations on the measuring signal is reduced by the passive acceleration compensation.

The front seal allows good heat dissipation and thus a maximum short-time probe operating temperature of 400 °C.

Application

The miniature probe allows measurement of the combustion chamber pressure of combustion engines under critical mounting conditions: e.g. on multi-valve engines, motor cycle and other small engines.

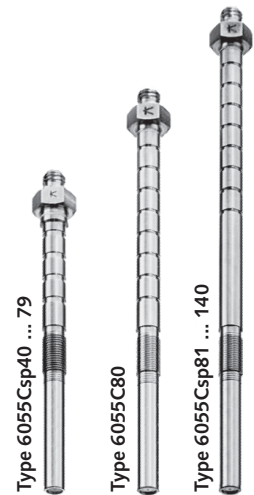
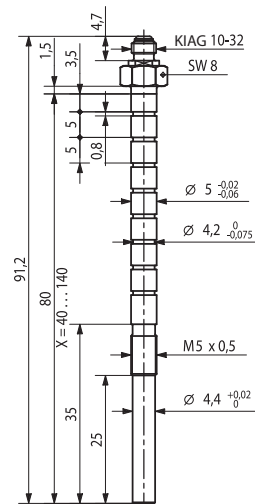
For using the Type 6055C... in a glow plug adapter allows cylinder pressure indications without a separate mounting bore (Fig. 4); see also data sheet 6531Q_000-075e.

The sturdy, turned diaphragm also allows measurements during engine knocking, in which it nevertheless guarantees highly accurate thermodynamic investigations thanks to its small thermal shock error.

For applications mainly in the knocking range or at very high peak pressures, use of Type 6052C...U20 with reinforced diaphragm (heavy duty version) is recommended.

Type 6055C...

Patent No. US 6,105,434



Technical Data

Type 6055C...

Measuring range	bar	0 ... 250
Calibrated sub-ranges	bar	0 ... 50, 0 ... 100, 0 ... 150
Tightening torque	N·m	1,5
Overload	bar	300
Sensitivity	pC/bar	≈-20
Natural frequency, nominal	kHz	≈160
Linearity in all ranges (at 23 °C)	%/FSO	≤±0,4
Acceleration sensitivity		
axial	bar/g	<0,0002
radial	bar/g	<0,0005
Operating temperature range	°C	-20 ... 350
Temperature min./max.	°C	-50 ... 400
Sensitivity shift		
200 °C ±50 °C	%	≈±0,5
23 ... 350 °C	%	≤±2
Insulation resistance		
bei 23 °C	Ω	>10 ¹³
Thermal shock error		
(at 1 500 1/min, p _{mi} = 9 bar)		
Δp (short time drift)	bar	≤±0,5
Δp _{mi}	%	<±2
Δp _{max}	%	<±1,0
Weight		
(Type 6055C60)	g	10
Connector		KIAG 10-32 pos.

Technical Data (Continuation)

Type 6055C...U20 (other specifications as for Type 6052C...)

Measuring range	bar	0 ... 300
Calibrated partial ranges	bar	0 ... 100, 0 ... 200
Overload	bar	350
Acceleration sensitivity		
axial	bar/g	<0,0005
radial	bar/g	<0,0005
Thermal shock error (at 1500 1/min, p _{mi} = 9 bar)		
Δp (short time drift)	bar	≤±0,7
Δp _{mi}	%	≤±3
Δp _{max}	%	≤±1,5

Type 6055C...U40 (other specifications as for Type 6052C...)

Operating temperature range	°C	-20 ... 200
Temperature min./max.		-50 ... 200
Sensitivity shift		
150 ... 200 °C	%	≤±0,5
23 ... 200 °C	%	≤±2

Mounting

The structure of the mounting bore is shown in figures 1 ... 3. When fitted through a coolant channel in the cylinder head, an O-ring is used as the seal.

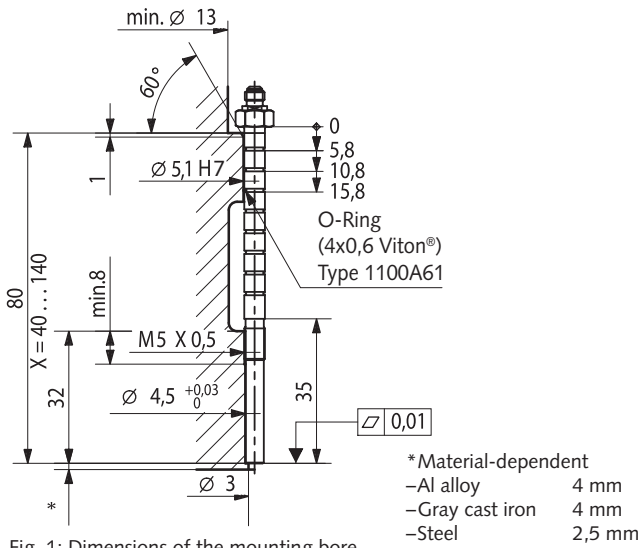


Fig. 1: Dimensions of the mounting bore

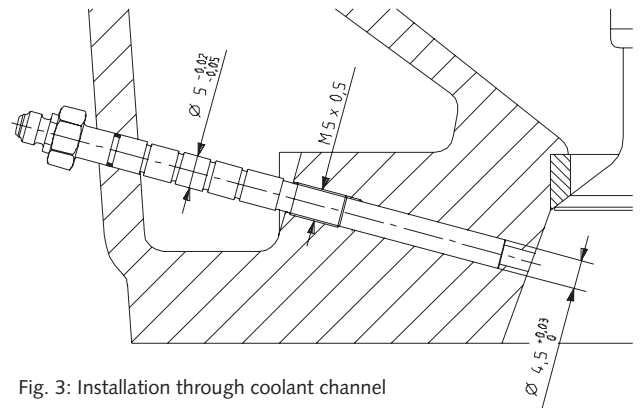


Fig. 3: Installation through coolant channel

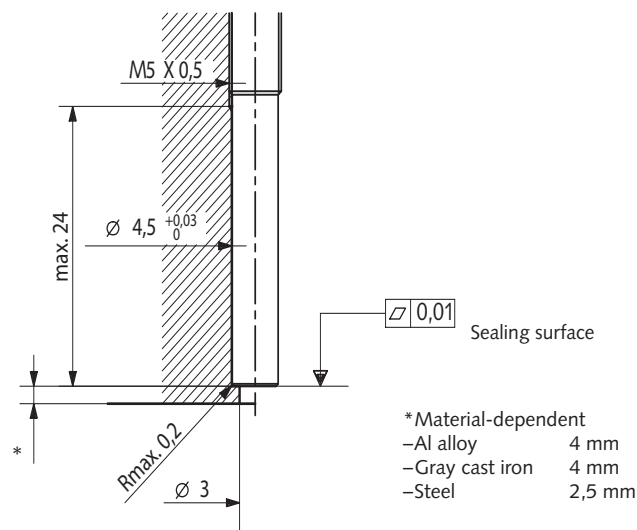


Fig. 2: Bore for sensor

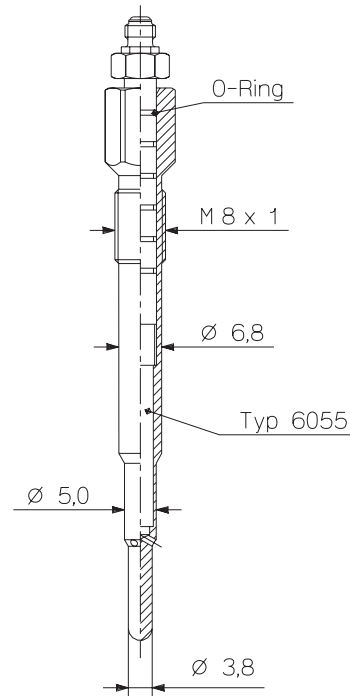


Fig. 4: Application in glow plug adapter

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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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Accessories Included

- O-ring Viton® (4x0,6)

Type/Art. No.
1100A61

Ordering Key

Type 6055C

Optional Accessories

- Connecting cable Teflon® BNC pos.
- Connecting cable Teflon KIAG 10-32 pos.
- Connecting cable, metal KIAG 10-32 pos.
- Torque wrench 1 ... 6 N·m
- Special tap M5x0,5
- Special drill for bore
- Adapter for pressure generator 6904
- Reamer for bore

Type/Art. No.
1631C...
1635C...
1957A1
1300A17
1357A
1300A63
6591
1300A99

Length

L = 80 mm	80
L = 40 ... 79 mm write length in mm	sp40-79
L = 81 ... 140 mm write length in mm	sp81-140

Construction

Standard	-
Amplified diaphragm	U20
Additional damping	U40

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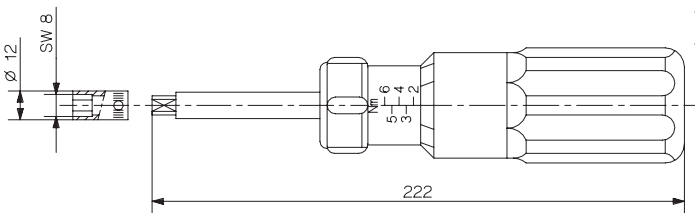


Fig. 5: Torque wrench Type 1300A17

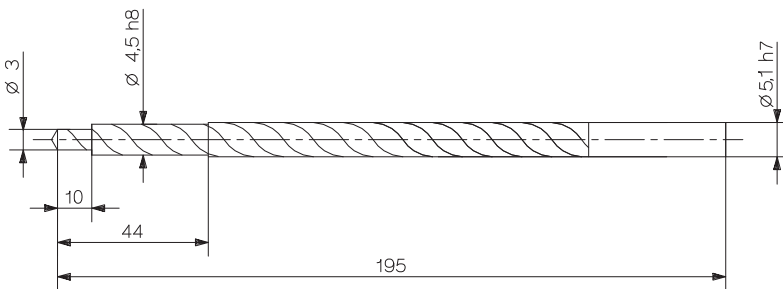


Fig. 6: Special drill for bore Type 1300A63

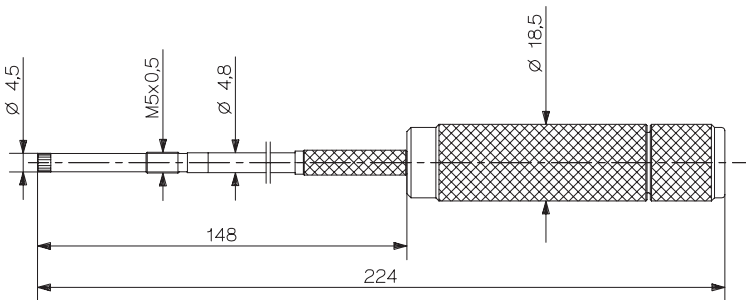


Fig. 7: Reamer Type 1300A99

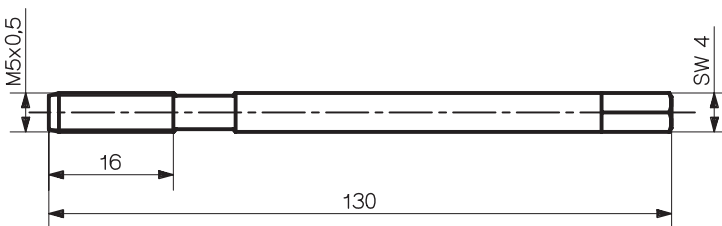


Fig. 8: Special tap Type 1357A

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