

Quartz high-pressure sensor for ballistic pressure measurement to 10 000 bar

Type 6213B...

Front sealing high pressure sensor for ballistic and hydraulic pressure measurements up to 10 000 bar.

- Extremely high life
- Good long-time stability
- Excellent linearity

Description

Front sealed diaphragm, therefore very low mechanical and thermal stress of the sensor, no mounting gap (small dead volume) and a largely reduced surface pressure in the sealing part.

Easy handling, through M12x1 damaging through mounting torque barely possible.

Measuring element out of quartz crystal. Therefore, high stability of the sensitivity and no drift through pyroelectricity. The optimized shape through machined diaphragm.

Thanks to patented Anti-Strain construction, the sensor is not critical to different tightening torques and mounting conditions. It excels by its excellent linearity of $\leq \pm 0.5\%$, an extremely high life and a good long-time stability.

Application

Use for all ballistic measurements and measuring configurations and as a reference sensor. Despite its extremely large measuring range, the sensor is best suited for measuring relatively low pressures of several hundred bar.

Based on its accurate performance, highly suitable to be used as reference sensor for calibration setup (version 6213BK with linearity $> \pm 0.3\%$ FSO).



M12x1 →

Type 6213B

Type 6213BA,
short version

Technical data

System

Measuring range	bar	0 ... 10 000
Calibrated range	bar	0 ... 8 000
Calibrated partial range	bar	0 ... 1 000
Overload	bar	11 000
Threshold	bar	<0.02
Sensitivity	pC/bar	-1.2
Natural frequency	kHz	>150
Rise time	µs	2
Linearity	%FSO	$\leq \pm 0.5$
for range and partial range (typical)	%FSO	$< \pm 0.3$
Acceleration sensitivity	bar/g	<0.005
Shock resistance		
axial	g	25 000
transverse	g	10 000
Temperature coefficient of sensitivity	%/°C	$\leq \pm 0.02$
Operating temperature range	°C	-50 ... 200
Capacitance		
Type 6213B	pF	≈ 5.5
Type 6213BA	pF	≈ 60
Insulation resistance at 20 °C	Ω	$> 10^{13}$
Tightening torque	N·m	40
Weight	g	18

1 bar = 10⁵ Pa (Pascal) = 10⁵ N · m⁻² = 1.0197... at = 14.503... psi;
1 g = 9.80665 m · s⁻²; 1 N·m = 0.73756... lbf·ft; 1 g = 0.03527... oz

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Dimensions and mounting bore Type 6213B

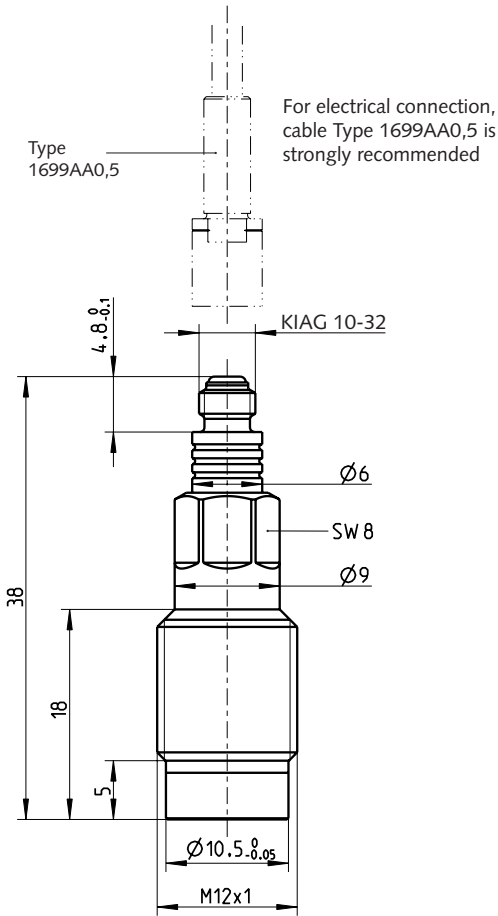


Fig. 1: Dimensions Type 6213B

Dimensions and mounting bore Type 6213BA

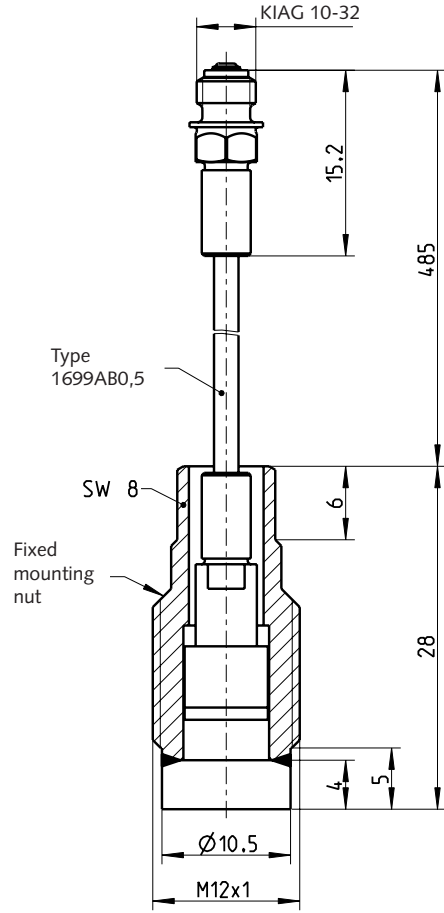


Fig. 2: Dimensions Type 6213BA

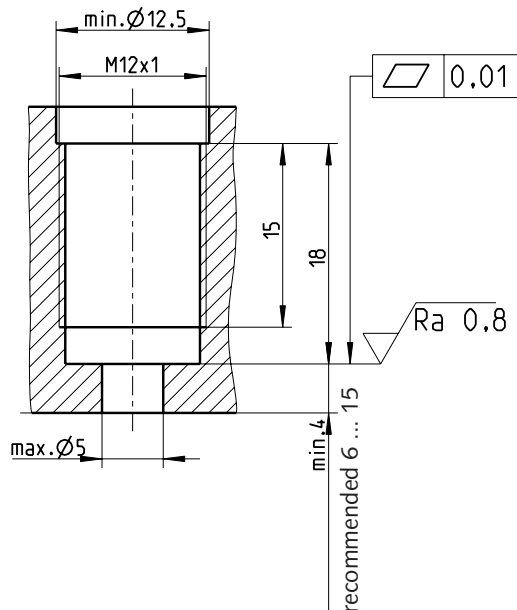


Fig. 3: Mounting bore Type 6213B and 6213BA

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Mounting

To mount the sensor, a threaded hole M12x1 with accurately machined contact face, which has been finished with the surface finishing tool Type 1300A23, is sufficient (Fig. 3). The sensor can be fitted without special thermal protection, using only the sealing ring Type 1100 (Fig. 4).

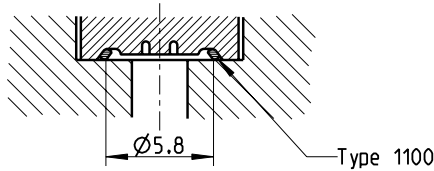


Fig. 4: Direct mounting

The front seal allows the use of an additional attachment. Fig. 5 shows the installation with thermal protection shield Type 6563A and thermal protective plate Type 1181A to reduce thermal shock error. For measurements in which the sensor is exposed to heat over the entire pressure profile (e.g. in pressure bombs and cartridge chambers).

Fig. 6 shows the installation with diaphragm protector Type 6564. Recommended for measurements at the case mouth and along the measuring barrel as protection against mechanical damage from metal fragments and powder particles. It is essential to follow the operating instructions when machining the measuring hole and for installation.

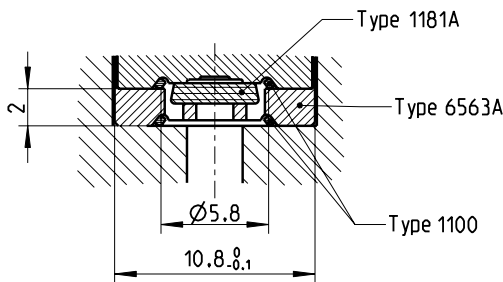


Fig. 5: Mounting with thermal protective plate (Type 1181) and thermal protection shield (Type 6563A)

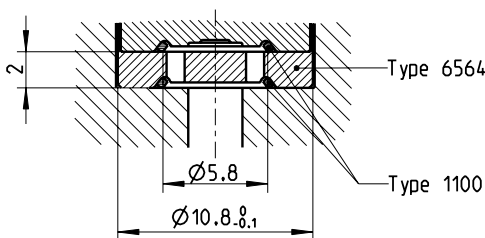


Fig. 6: Mounting with diaphragm protection (Type 6564)

Accessories included

- Sealing ring, 10 pieces
- Lubrication grease, 1 piece

Type/Art. No.
1100
1063

Optional accessories

- Thermal protective plate
- Thermal protection shield
- Diaphragm protection
- Sealing joint
- Dummy plug
- Adapter to pressure generator Type 6906
- Connection cable to Type 6213B, (KIAG 10-32 pos./KIAG 10-32 neg.)
- HT connection cable
- Special drilling tool
- Screw tap M12x1
- Surface finishing tool
- Torque wrench
- Tubular socket wrench hex. 8mm

Type/Art. No.
1181A
6563A
6564
1100
6467
6923A
1699AA0,5
1631C...
1341
1355
1300A23
1371B
1373A1

Ordering key

Quartz high-pressure sensor	-
Quartz high-pressure sensor	1
additional accessories included types 1341, 1355, 1300A23 + 1373A1	
Short version with integr. cable	A
Selected high-pressure quartz sensor with linearity ≤0.3 %	K

Type 6213B

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