

Quartz Pressure Sensor

Type 603B

for High Frequencies

Quartz pressure sensor of very small dimensions with acceleration compensation, for measuring pressure fluctuations of high frequency resp. short rise time. Pressure range: vacuum to 200 bar at temperatures up to 200 °C. Natural frequency beyond 400 kHz.

- Measurements up to 400 kHz
- Acceleration compensated

Description

The measured pressure acts through the diaphragm on the quartz crystal measuring element, which transforms the pressure p (bar) into an electrostatic charge Q (pC = Picocoulomb). The stainless steel diaphragm is welded flush and hermetically to the stainless steel sensor body. As the ceramic insulator of the connector is also hermetically welded, the entire sensor is hermetically sealed. The quartz disks are assembled together with a seismic mass in a way to compensate for the acceleration sensitivity.

Application

The sensor Type 603B is especially suited for measuring pressure fluctuations of high frequency resp. short rise time in heavily vibrating measuring objects.

Typical Applications

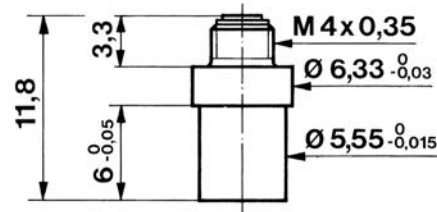
Pressure measurements in shock tubes, measurements of propagation of blast pressures.

Mounting

The sensor is usually screwed by means of a connecting nipple directly into the measuring object (Fig. 1). For low pressure measurements with high frequency in heavily vibrating objects the acceleration compensation of the sensor is often not sufficient. To isolate it against high frequency accelerations (acoustic emission) the special plastic mounting adapter Type 6581 (Fig. 2) is used.

See also data sheets for:

Tools	000-068
Adapters	000-070
Connecting nipples	000-069
Cables	000-352



Technical Data

Range	bar	0 ... 200
Calibrated partial ranges	bar	0 ... 20
	bar	0 ... 10
Overload	bar	350
Sensitivity	pC/bar	≈-5,0
Natural frequency	kHz	≈400
Linearity	%FSO	≤±1
Acceleration sensitivity	bar/g	<0,0001
Operating temperature range	°C	-196 ... 200
Temperature coefficient of sensitivity	°C ⁻¹	<2x10 ⁻⁴
Insulation resistance at 20 °C	Ω	≥10 ¹³
Shock resistance	g	10 000
Capacity	pF	10
Weight	g	1,7
Connector, Teflon® insulator		M4x0,35

1 N (Newton) = 1 kg·m·s⁻² = 0,1019... kp = 0,2248... lbf; 1 kp = 1 kgf = 9,80665 N; 1 inch = 25,4 mm; 1 kg = 2,2046... lb; 1 N·m = 0,73756... lbft

Teflon® is a registered trade mark of DuPont.

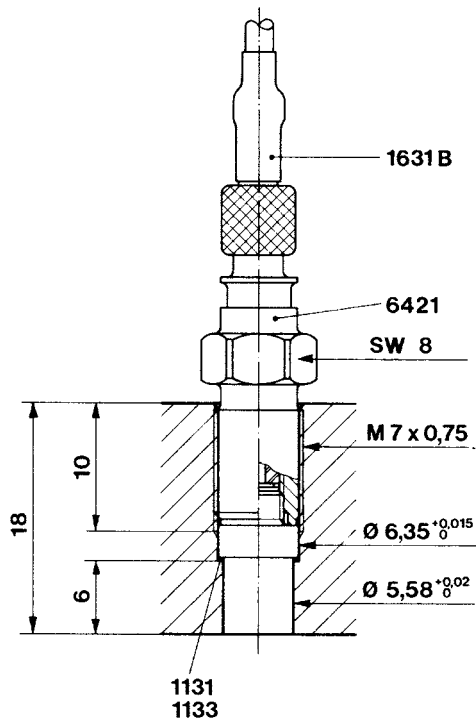


Fig. 1: Direct mounting

Included Accessories

- Copper seal

Type

1131

Optional Accessories

- Nickel seal
- Teflon seal
- Step drill
- Extraction tool for KIAG 10-32 and M4
- Connecting nipple M4/KIAG 10-32
- Heat-shrink tubing for connector
- Plastic adapter incl. mounting nut

Type

1131A
1133
1331
1311
6421
1021
6581

Ordering Code

- Quartz pressure sensor for high frequencies

Type 603B

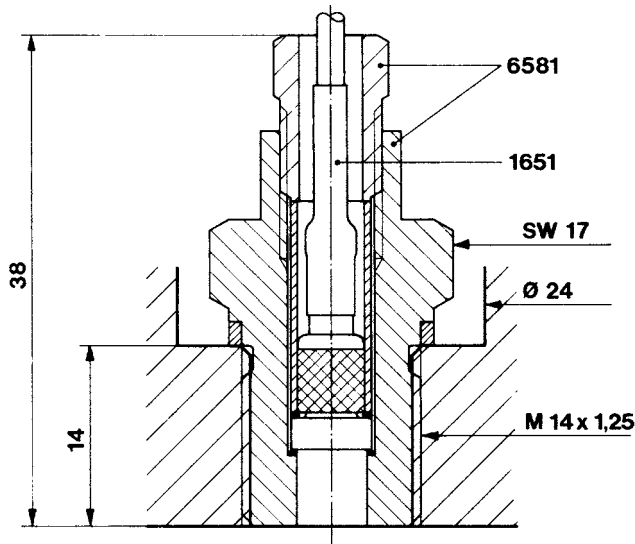


Fig. 2: Mounting with special plastic mounting adapter Type 6581

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