

# Mold Cavity Pressure Sensor

## HighSens with Front $\varnothing 2,5$ mm

Type 6178A...

Patent No. US 6,212,963

Quartz sensor for low pressure processes for injection molding of plastics with cavity pressures up to 200 bar.

- Ideally suited for industrial applications
- Sensor front can be machined to adapt to the cavity wall (except for coated versions of the sensor)

### Description

The HighSens quartz sensor for mold cavity pressure Type 6178A... has a front diameter of 2,5 mm.

The small cross sectional area of the integrated single wire cable allows flexibility of installation. Shielding in the single wire technology is provided by the mold. It is therefore essential for the cable and connector to be integrated in the mold.

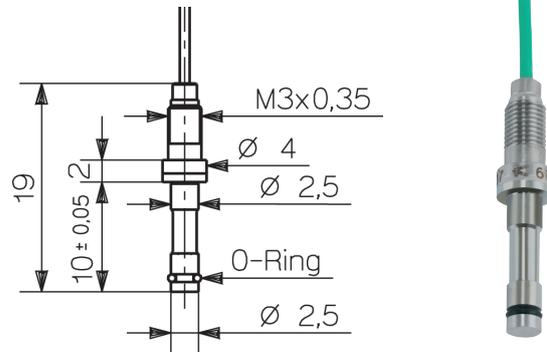
The pressure acts over the entire front of the sensor and is transmitted to the quartz measuring element, which produces a proportional electric charge (pC = Picocolomb). This is converted into a 0 ... 10 V output from a standard charge amplifier.

For multi cavity applications the sensor Type 6178A is used without the single-wire connector Typ 1839. The Multi Cavity Set Type 6829A... and the Multi Sensor System Type 6831A... are described in the appropriate data sheets.

All parts of the sensor are corrosion resistant. The connector is self locking and splash proof.

### Application

This diaphragm free sensor measures mold cavity pressures up to 200 bar during injection molding. It is particularly suitable for optimizing, monitoring and controlling the injection molding process of thermoplastics, elastomers, thermosets and SMC.

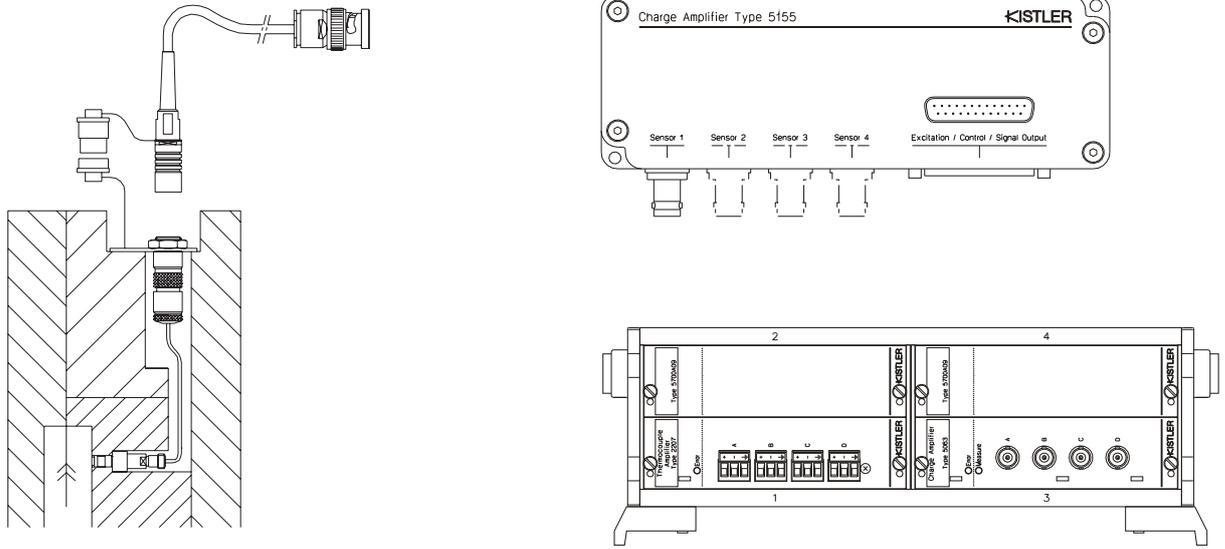


### Technical Data

Range	bar	0 ... 200
Overload	bar	300
Sensitivity	pC/bar	-12
Linearity, all ranges	% FSO	≤±1
Operating temperature range		
Mold (sensor, cable)	°C	0 ... 200
Melt (at the front of the sensor)	°C	<450
Connector	°C	*0 ... 200
Insulation resistance		
at 20 °C	TΩ	>100
at 300 °C	TΩ	>0,01

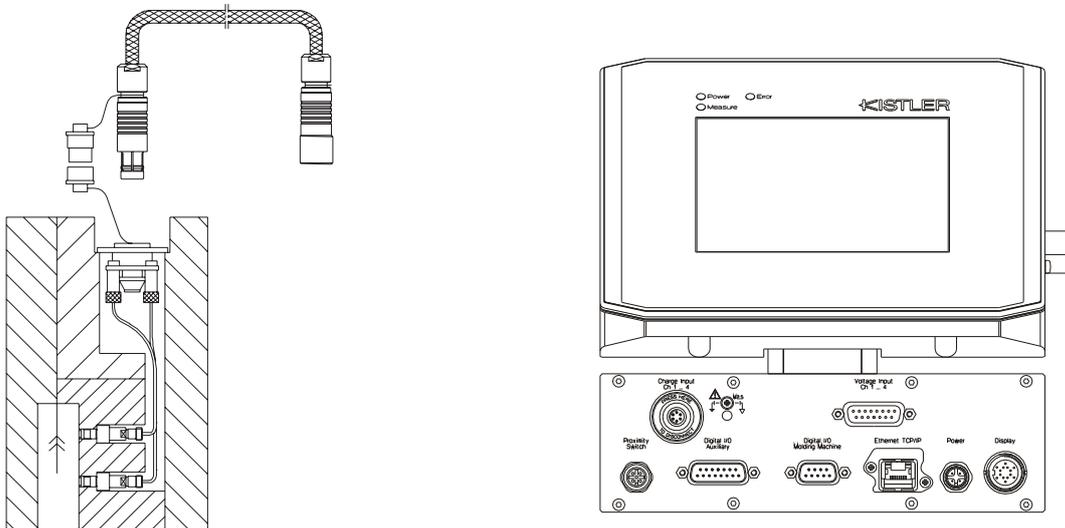
\* During machine down time the mold temperature may rise up to 240 °C, without causing any damage to the sensor. Note that measuring errors may temporarily result

**Cable and Amplifier for Measuring Chain with Sensor Type 6178A...**



Cable Type 1667B... (BNC Connector)	Cable Type 1672B... (TNC Connector)
Type 5039Axx2	Type 5039Axx1
Type 5049Axx2	Type 5049Axx1
Type 5155Axx2x/Axx4x/Axx8x	Type 5155Axx1x/Axx3x/Axx7x
Type 5063A1 in Type 2859A.../2865A...	

Fig. 1: Sensor Type 6178A... with Charge Amplifier Type 5155A... or Signal Conditioner Type 2859/2865A...



4-Channel Cable Type 1995A... to Connector Type 1708A..	8-Channel Cable Type 1997A... on Connector Type 1710A...
Type 2869A0xx	Type 2869A2xx
Type 2869A1xx	

Fig. 2: Sensor Type 6178A... with Monitoring System CoMo® Injection Type 2869A...

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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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**Installation Examples**

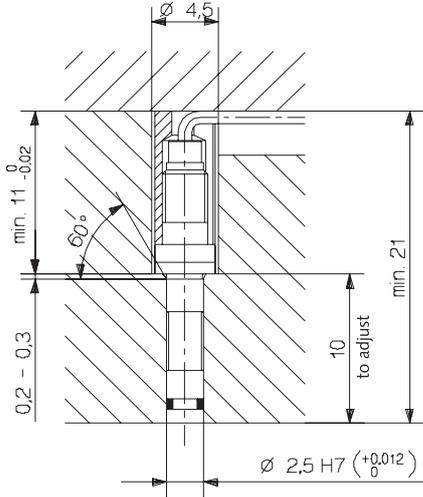


Fig. 3: Installation with spacer sleeve Type 6464

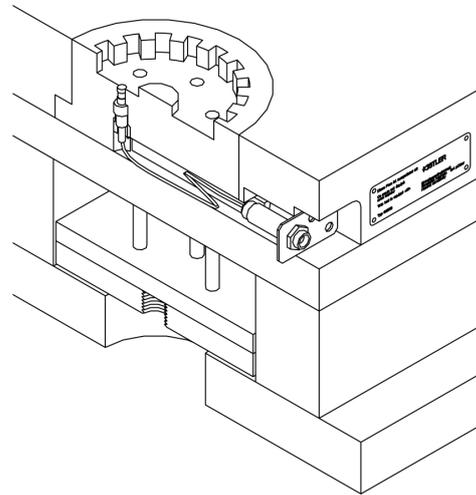


Fig. 4: Sensor, cable, mounting plate and identification plate

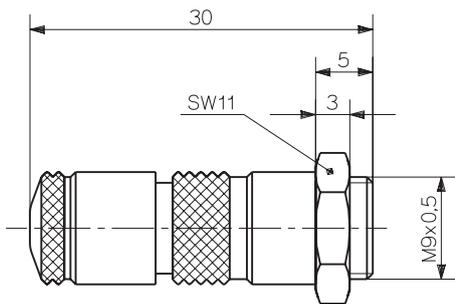


Fig. 5: Connector Type 1839

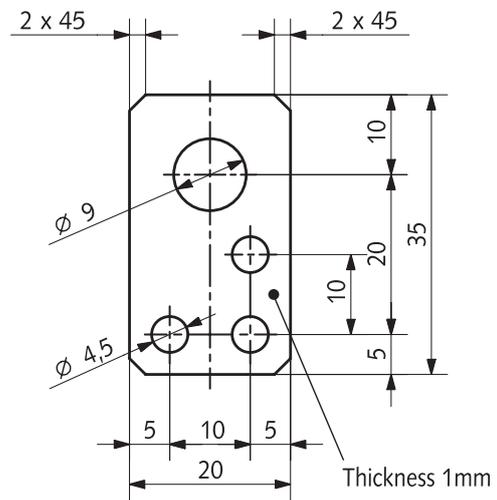


Fig. 6: Mounting plate

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### Installation

The sensor is preferably mounted in the mounting bore with the spacer sleeve (Type 6464A1). The front face of the sensor forms part of the cavity wall. The sensor must therefore be installed in such a way that its front face is exactly flush with the wall.

The sensor of Type 6178AE front face can be machined up to 0,5 mm.

The single-wire cable must be installed completely in the mold. The connector supplied must be installed with the single-wire cable cut to length. The insulation of the cable must not be stripped prior to insertion into the connector. This connector is fitted in the mounting plate and this secured in a recess in the mold. The identification plate should be located nearby, indicating the Type of sensor and its sensitivity.

### Accessories Included

- Spacer sleeve (L = 50 mm) 6464A1
- Mounting plate 3.520.328
- Connector with cap 1839
- Checking tool 3.050.243
- Identification plate 3.520.842
- O-ring 1100A55

### Optional Accessories

- Dummy sensor Type 6558
- Extraction tool 1358A
- Mounting nut 6458
- Tubular socket wrench 1356
- 4-channel connector 1708A...  
for Type 6178AG/6178ACG
- 8-channel connector 1710A...  
for Type 6178AG/6178ACG

### Ordering Key

Standard sensor with single-wire cable Length 1,5 m and connector	E
Sensor with single-wire cable Length 1,5 m and coated front	CE
Sensor Type 6178AE without connector	G
Sensor Typ 6178ACE without connector	CG

Type 6178A □



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