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Mold Cavity Pressure Sensor

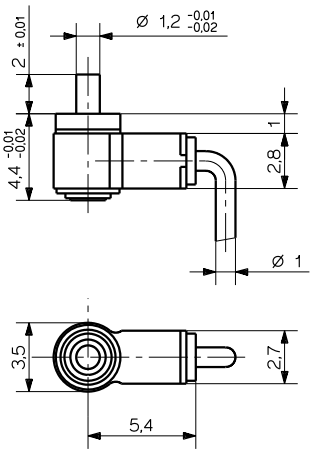
Type 6184A...

with front ø1,2 mm

Introduction

Miniaturized christal sensor with single-wire technique for mold cavity pressure up to 2 000 bar used in the injection molding of plastics.

- Minimum size for installation in a mold insert
- Ideal for multi-cavity applications
- Diaphragm-free design with flat, machinable measuring front
- Version with chrome-plated available





Description

This miniaturized quartz sensor for mold cavity pressure Type 6184A… has a protruding pin with a front face of 1,2 mm diameter. The integral single-wire cable with a very small cross-sectional area is designed to allow flexibility of mounting. With the single-wire technique, electrical shielding is guaranteed by the mold. It is therefore essential for the cable and connector to be integrated in the mold.

The pressure acts directly on the entire front face of the sensor and is transferred to the quartz force link, which produces an electric charge (pC = picocoulomb) proportional to the pressure. This is converted in an amplifier into a voltage of 0 … 10 V which is available at the amplifier output.

For multi-cavity applications the sensor Type 6184AAG or Type 6184ACG, without connector is used. The multichannel connectors Type 1708A... and 1710A... connect up to 4, respectively 8 sensors.

Application

The sensor is primarily suitable for industrial applications in optimising, monitoring and controlling injection molding of thermoplastics.

This miniature sensor has been specially developed for mounting in multi-cavity molds where there is limited space. Because of the lateral cable outlet the sensor can be mounted radially or axially directly into a mold insert or a slider. At the side, the sensor is secured via the case against rotation allowing the sensor front to be adapted in situ to the cavity. The spacer sleeve supplied protects the sensor against damage and guarantees optimum sensor mounting.

Technical data

Range	bar	0 ... 2 000
Overload	bar	2 500
Sensitivity	pC/bar	≈–1.2
Linearity	%FSO	≤±1
Operating temperature range		
mold (sensor, cable, connector)	°C	0 ... 200 *
melt (at the front of the sensor)	°C	<450
Insulation resistance		
at 20°C	Ω	$>10^{13}$
at 120°C	Ω	$>10^{12}$

* During machine malfunctions, the mold temperature can be allowed to reach 240°C without the sensor being damaged. However measuring errors may occur.

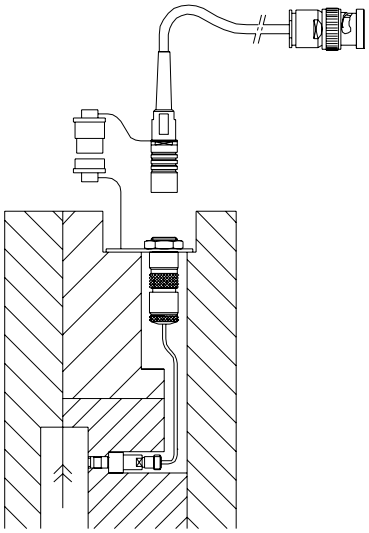
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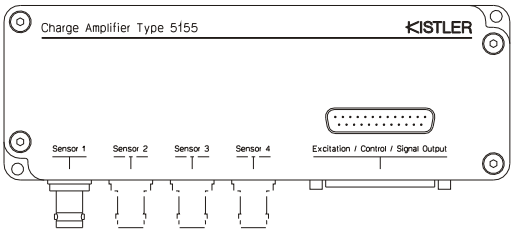
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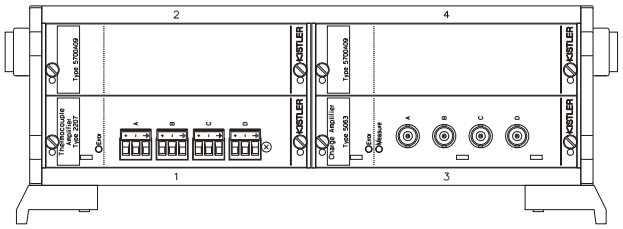
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Cable and amplifier for measuring chain with sensor Type 6184A...

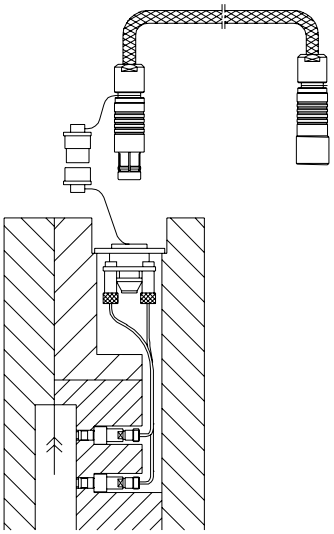


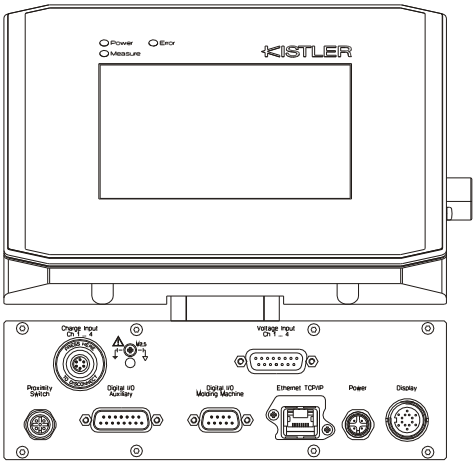




Cable Type 1667B... or 1661A... (BNC connector)	Cable Type 1672B... or 1662A... (TNC connector)
Type 5039Axx2	Type 5039Axx1
Type 5049Axx2	Type 5049Axx1
Type 5155Axx2x/Axx4x/Axx8x	Type 5155Axx1x/Axx3x/Axx7x
Type 5063A1 in Type 2853A.../2859A.../2865A.../2865B...	

Fig. 1: Sensor Type 6184A... with Charge Amplifier Typ 5155A... or Signal Conditioner Type 2859/2865...





4-channel cable Type 1995A... to connector Type 1708A..	8-channel cable Type 1997A... on connector Type 1710A...
Type 2869A0xx	Type 2869A2xx/2869B2xx
Type 2869A1xx/2869B1xx	Type 2869B3xx

Fig. 2: Sensor Type 6184A... with Monitoring System CoMo Injection Type 2869...

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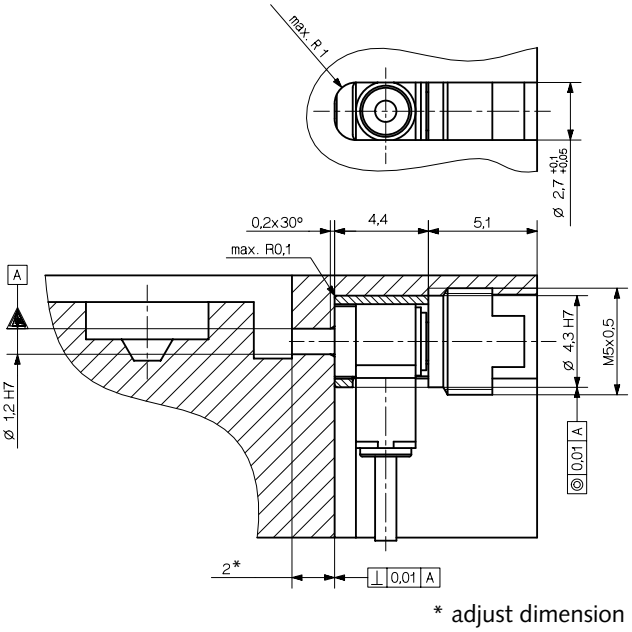


Fig. 3: Mounting with spacer sleeve Type 6466 and mounting nut Type 6465

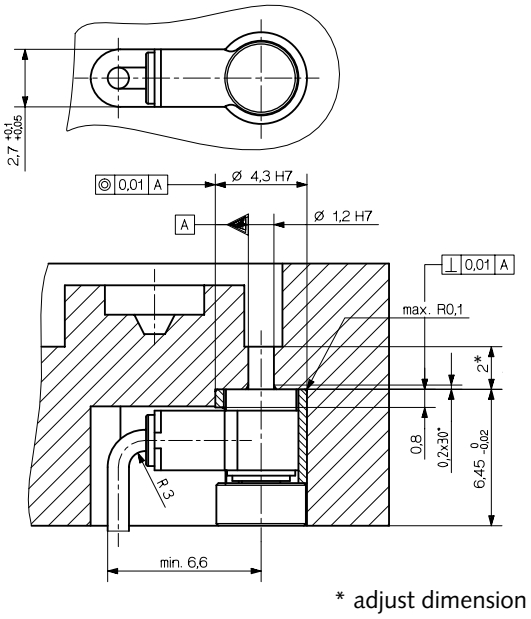


Fig. 4: Mounting with spacer sleeve Type 6466 and thrust washer Type 6470

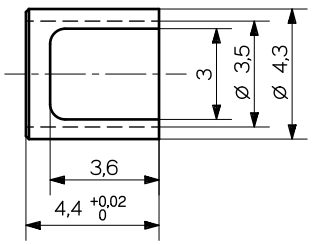


Fig. 5: Spacer sleeve Type 6466

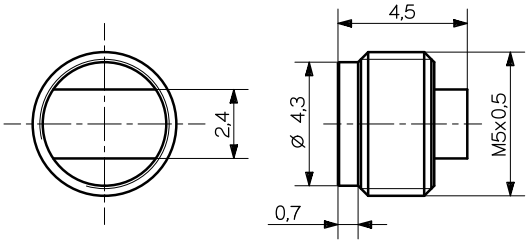


Fig. 6: Mounting nut Type 6465

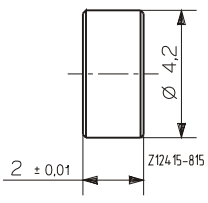


Fig. 7: Thrust washer Type 6470

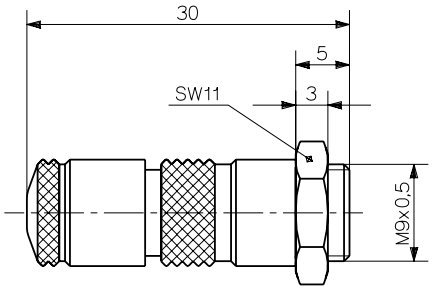


Fig. 8: Connector Type 1839

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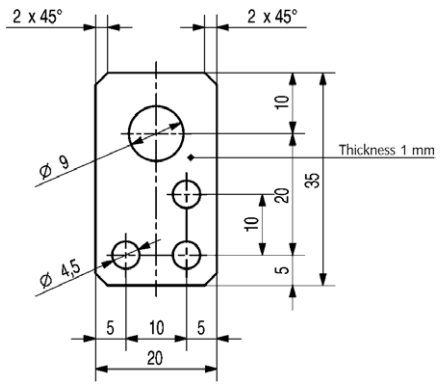


Fig. 9: Mounting plate (Mat. No. 65005208)

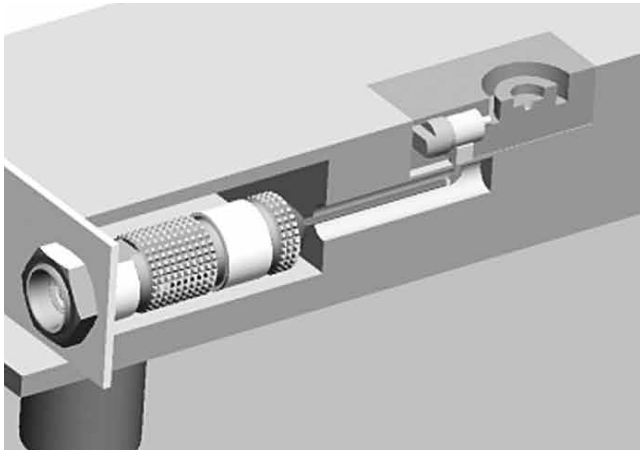


Fig. 10: Installation from the side, sensor, cable, connector and mounting plate

Mounting

The sensor is always installed in the mounting hole with a spacer sleeve Type 6466 along with a mounting nut or thrust washer. Since the sensor forms part of the cavity wall, it must be installed in such a way that its front face is exactly flush. The front face of Type 6184AA... can be machined up to 0,3 mm (The front of the chrome-plated Type 6184AC... may not be machined).

With flat inserts in which the cavities are not very deep, the sensor is installed from the side with the mounting nut. When it is installed from underneath, the sensor is mounted with a dimensionally adapted thrust washer. With both types of mounting, the spacer sleeve prevents the sensor from being deformed.
The single-wire cable must be mounted completely in the mold. The connector supplied must be mounted with the single-wire cable cut to size but with its insulation intact. This is then inserted with the mounting plate in the mold and secured. The identification plate should also be affixed alongside it giving details of the type of sensor and its sensitivity.

Accessories included	**Type/Mat. No.**
• Spacer sleeve	6466
• Mounting nut	6465
• Thrust washer	6470
• Mounting plate	65005208
• Connector with short-circuit cap	1839
• Checking tool	65000144
• Identification plate	65005416

Optional accessories	**Type/Mat. No.**
• Socket wrench for mounting nut	1363
• 4-Channel Connector for Types 6184AAG and ACG	1708A...
• 8-Channel Connector for Types 6184AAG and ACG	1710A...
• Contact elements 1 channel	1712A0
• Contact elements 4 channels	1714A0
• Crimped pin	65003747
• Crimpset with tools	1381A0

Ordering key

Type 6184A ☐

Sensor with machinable front, single-wire cable Length 1,5 m, with connector	**AE**
Sensor with machinable front, single-wire cable, Length 5 m, with connector	**AF**
Sensor Type 6184AAE without connector	**AG**
Sensor with chrome-plated front, single-wire cable Length 1,5 m, with connector	**CE**
Sensor Type 6183ACE, without connector	**CG**
For contact elements Types 1712A... and 1714A...	
Sensor with single-wire cable and crimped pin (Mat. No. 65003747). Cable with special length. Specify cable length l in m. L_{min} = 0,04 m/L_{max} = 1,5 m	**Zsp**
Sensor with chromed face, single-wire cable and crimped pin (Mat. No. 65003747). Cable with special length. Specify cable length l in m. L_{min} = 0,04 m/L_{max} = 1,5 m	**CZsp**

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