

Mold Cavity Pressure Sensor

Type 6163AA...

for Low-Viscosity Thermosetting Materials and Rubbers with $\varnothing 6$ mm Front

Sensor for cavity pressures up to 1 000 bar during the pressing and injection molding of low-viscosity plastics and resins.

- Suitable for industrial use in compression molding and in processing of thermosetting materials and rubbers
- Sensitive diaphragm sensor welded into sleeve
- Interchangeable cable

Description

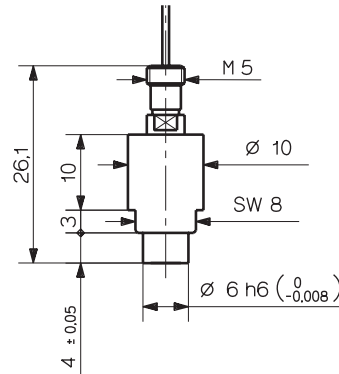
The sensor Type 6163A... consists of a sensitive $\varnothing 4$ mm diaphragm design welded into a robust $\varnothing 6$ mm sleeve. The welded ring gap prevents ingress of low-viscosity resins and falsification of the sensor signal by a force shunt. Interchangeable cables allow a choice of cable types and/or repairs.

The pressure acts over the diaphragm front of the sensor and is transmitted to the measuring element, which produces a proportional electric charge ($pC = \text{Picocolomb}$). This is converted into a voltage of 0 ... 10 V in the amplifier and is then available as an amplifier output.

The sensor is available in two versions for different types of cable. The coaxial version uses high-insulation cables that do not necessarily have to be laid in the mold. The practical single-wire alternative is based on a cable that can be cut to any length. The cut-and-grip connector can be connected during mounting in the mold. This makes both installation and servicing easier.

Applications

The robust sensor measures mold cavity pressures up to 1 000 bar during various methods of processing of crosslinking molding compounds. It is mainly suitable for industrial use in monitoring, controlling and regulating compression molding processes such as those used for thermosetting materials, bulk molding compounds, free-flowing resins (melamine) and vulcanizable rubber compounds. These processes give rise to cavity pressures between 200 and 1 000 bar.



The welded front prevents ingress of low-viscosity plastics in order to allow recording of minute changes in pressure. This is particularly important in long production runs, which require accurate monitoring.

Technical Data

| | | |
|-----------------------------|-------------|----------------|
| Range | bar | 0 ... 1 000 |
| Overload | bar | 1 200 |
| Sensitivity | pC/bar | $\approx -3,9$ |
| Linearity, all ranges | % FSO | $\leq \pm 1$ |
| Operating temperature range | | |
| Mold (Sensor, Cable) | | |
| 6163AA... | CC | 200 |
| Melt (at front of sensor) | $^{\circ}C$ | <450 |
| Connector | $^{\circ}C$ | 0 ... 200* |
| Insulation resistance | | |
| at 20 $^{\circ}C$ | T Ω | >100 |
| at 300 $^{\circ}C$ | T Ω | >0,01 |

* During machine down time, the mold temperature may rise to 240 $^{\circ}C$ without damaging the sensor; however, this may lead to measuring errors.

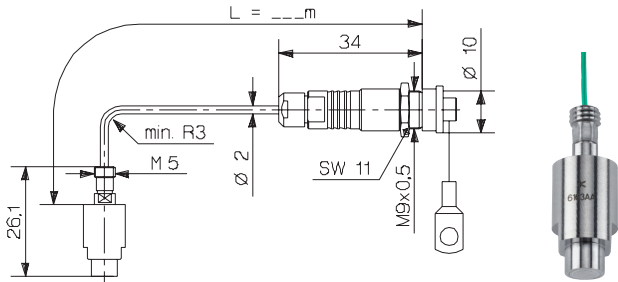
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QUALITY MOLDING
powered by Kistler

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Pressure Sensor Type 6163AA...



Sensor with coaxial cable

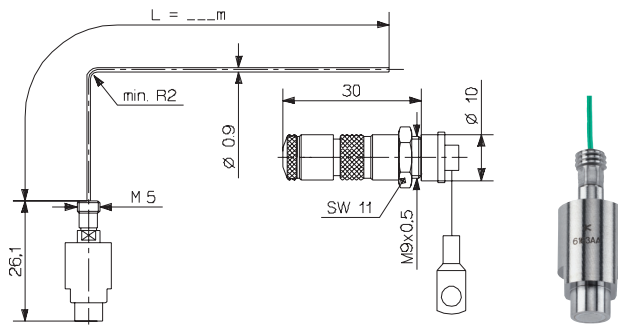
Montage

The sensor is normally fixed in the mounting bore (Fig. 3) with the mounting nut (Type 6453), but a spacer sleeve (Type 6459) can also be used (Fig. 4).

The sensor front forms part of the cavity wall. The hole must therefore be adapted so that the sensor front comes exactly flush and leaves no impression on the molded part. The front cannot be re-machined, as this would damage the diaphragm.

The sensor is center aligned in the 6 H7 bore.

Pressure Sensor Type 6163A...E



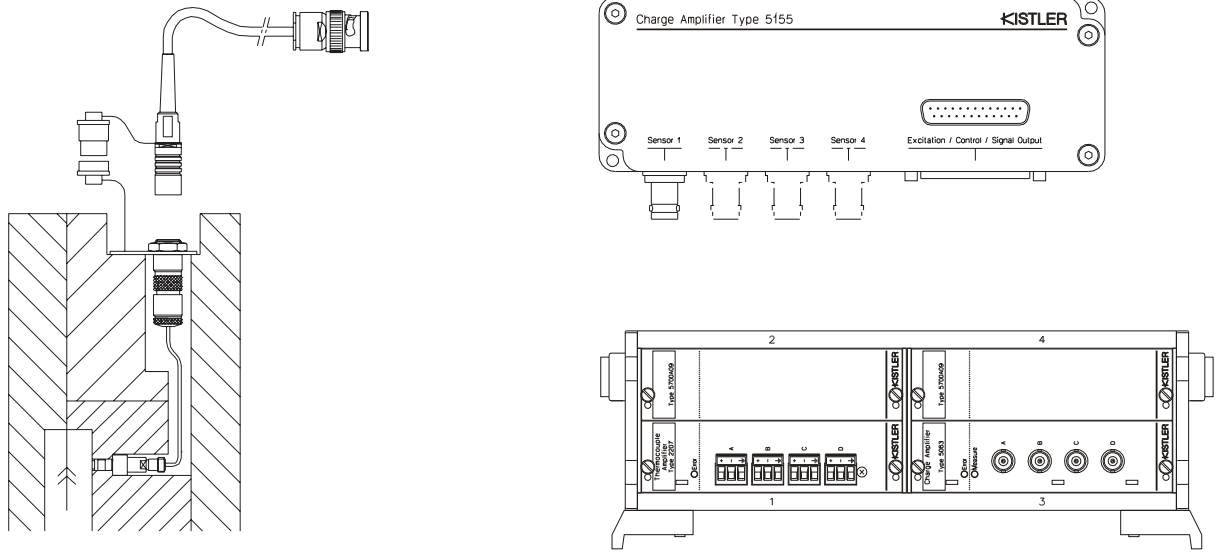
Sensor uses single-wire technique for easy installation. The sensor Type 6163A...E is provided with a single-wire cable with a very small cross-sectional area and can be installed flexibly in the injection mold. The single-wire cable Type 1666A... is interchangeable and can be cut to length as required. With the single-wire technique, electrical shielding is provided by the mold. It is therefore essential for the cable and connector to be completely integrated in the mold. To ensure easy installation, a connector is included for Types 6163A...E... which is self-locking and splash-proof.

The following sensors with single-wire technique are available:

Types 6163AAE... and 6163AAG... .

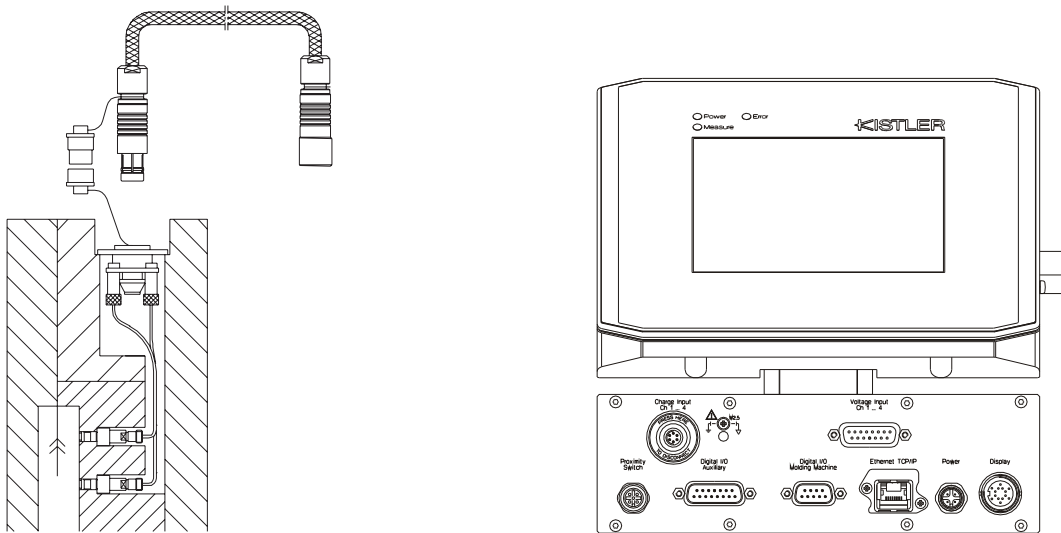
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Cable and Amplifier for Measuring Chain with Sensor Type 6163AA...



| 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.../2865B... | |

Fig. 1: Sensor Type 6163AA... with Charge Amplifier Type 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 6152A... with Monitoring System CoMo Injection Typ 2869...

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Installation Examples

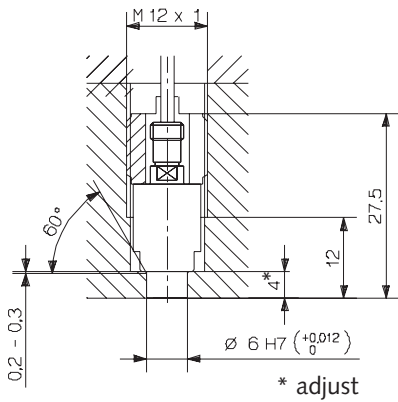


Fig. 3: Installation with mounting nut Type 6453

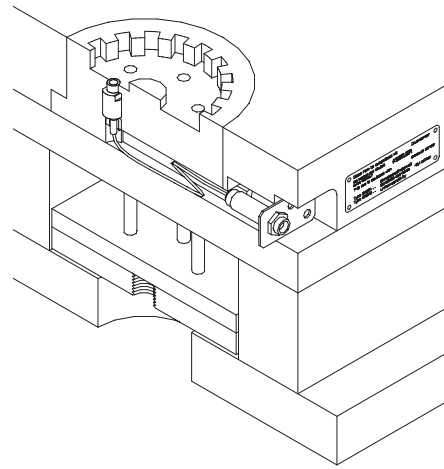


Fig. 6: Sensor, cable, mounting plate (Art. No. 3.520.328) and identification label (Art. No. 3.520.842)

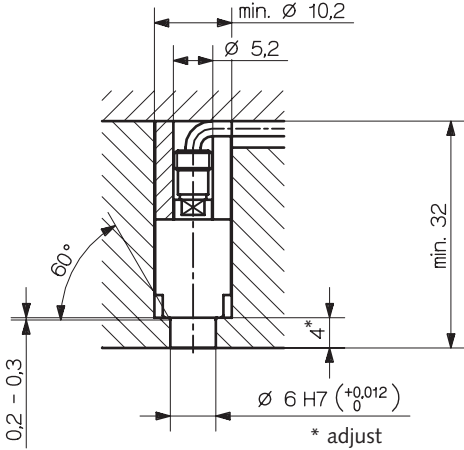


Fig. 4: Installation with spacer sleeve Type 6462

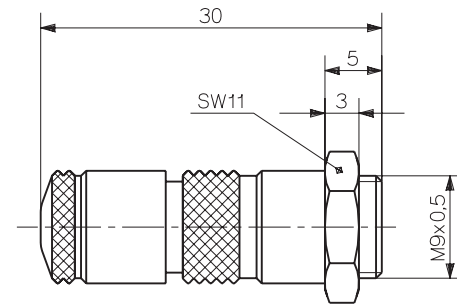


Fig. 6: Connector (Type 1839)

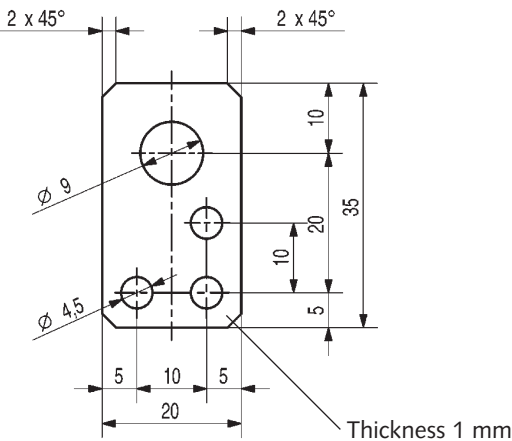


Fig. 5: Mounting plate (Art. No. 3.520.328)

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Accessories Included

- Mounting nut Art. No./Type 6453
- Mounting plate 3.520.328
(for sensor with cable only)
- Identification label 3.520.842

Sensor with coaxial cable

- High temperature connecting cable 1645C...
(Type 6163AA 0,2/0,4/0,6/0,8 and sp)

Sensor with single-wire cable

- Connector (at Type 6163A...E...) 1839
- Single-wire cable, with the length of 1,5 m 1666A2
(Types 6163A...E... and A...G...)
- Single-wire cable, with the length of 5 m 1666A4
(Types 6163A...E... and A...G...)

Optional Accessories

- High temperature extension cable Viton® Fischer SE102A014 – BNC pos.,
Length 2 m Art. No./Type 1667B2
Length 5 m 1667B5

- High temperature extension cable Viton® Fischer SE102A014 – TNC pos.,
Length 2 m 1672B2
Length 5 m 1672B5
- Spacer sleeve 6462
- 4 channel connector (for Type 6163A...G and G1) 1708A...
- 8 channel connector (for Type 6163A...G and G1) 1710A...
- Dummy sensor 6552

Mounting Accessories

- Socket wrench Type 1383
- Extraction tool 1315A
- Tap M 12x1 1355
- Mounting piece for connector (not for Types 6163AAE... and AAG) 1401

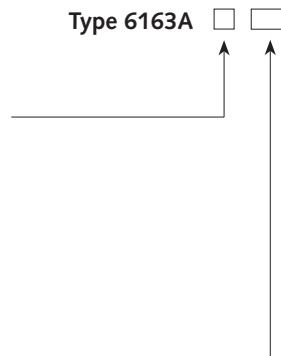
Ordering Key

Sensor

| | |
|--------------|----------|
| up to 200 °C | A |
|--------------|----------|

Cable

| | |
|-----------------------------------------------------------------------------------------------------------|------------|
| Coaxial cable, L in m | 0,2 |
| | 0,4 |
| | 0,6 |
| | 0,8 |
| Coaxial cable with special lengths, specify L in m (L _{min} = 0,1 m / L _{max} = 5 m) | sp |
| with single-wire-cable (L = 1,5 m) | E |
| with single-wire-cable (L = 5 m) | E1 |
| Type 6163AAE (L = 1,5 m), without connector | G |
| Type 6163AAE1 (L = 5 m), without connector | G1 |



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