

PLUG & SEAL CONNECTOR WITH A SENSOR



Plug & Seal connectors with a sensor form a secure, leakage-free connection between components. They are available in a wide range of elastomers and dimensions and have proven to be a reliable solution for transporting water, water glycol, technical fluids and oils. They also compensate for tolerance fluctuations and misalignments between the components to be joined.

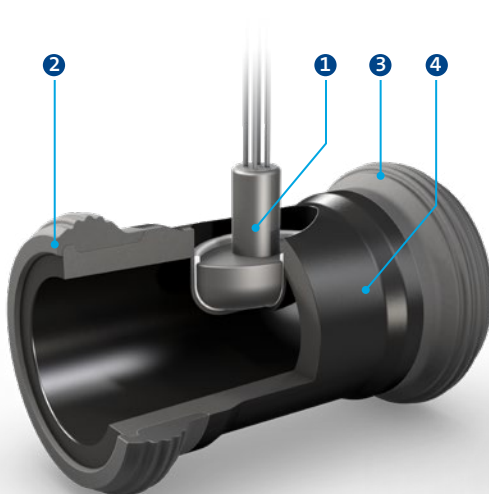
With the help of an innovative injection molding process, temperature sensors can be placed in Plug & Seals – both through a thin wall and directly in the medium. This allows for a single point measurement as well as a redundant measurement with a second sensor. The possibility of using different, commercially available automotive connector systems is a particularly attractive approach.

VALUES FOR THE CUSTOMER

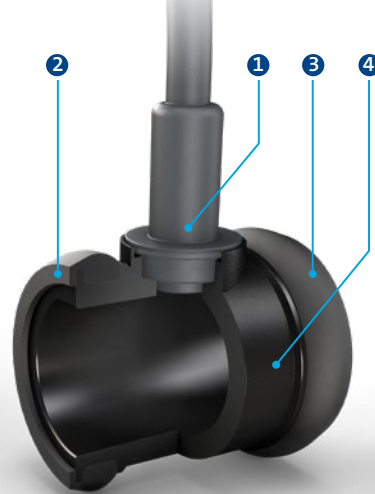
- Reliable sealing in combination with high vibration resistance
- Compensation for misalignment allows for larger tolerances for the mating partners
- Combines multiple functions in a single component
- Customer-specific design development and integration of components
- Simple, safe and easy to assemble pipe fitting
- Enables acoustic and mechanical decoupling
- Reduction of assembly forces due to patented sealing bead geometry
- Thermal insulation against the environment possible in order to achieve highly accurate thermal fluid measurements
- Versatile application due to low dead weight and high chemical resistance

Design variants

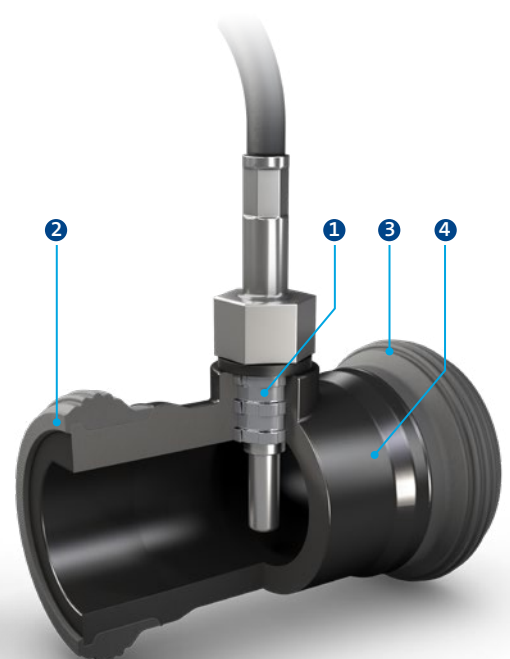
- ① Sensor
- ② Damping element
- ③ Sealing bead
- ④ Carrier



Sensor in flow cross section



Sensor outside flow cross section



Sensor screwed in

OTHER IMPORTANT INFORMATION

Information about the Plug & Seal

- A proven sealing system in large automotive series for use in media systems for engines, transmissions, batteries and electric motors.
- Large variety of materials enables use in almost all media
- Compensation of dynamic misalignment in the application
- If required, additional assembly force reduction through a friction-optimized coating.
- Design validation including customer requirements can be offered on FST test benches, including pressure and temperature cycles and dynamic offset.
- Integration of special internal geometries allows for turbulent media flow to increase heat transfer efficiency.
- Fast reaction time similar to conventional temperature sensors due to optimized thermal conductivity of the high-performance thermoplastics combined with high electrical insulation values.

Information about the temperature sensor

- Integration of the plastic temperature sensor by using injection molding technology
- Reproducible position of the temperature measuring point through the use of integrated SMD components
- Fast temperature measurement through modified, thermally conductive thermoplastics
- Complete design freedom for individual geometries of the measuring point
- Sensor response time $t_{0.63} <$
- Temperature measuring range depending on the sensor used -40 °C to +200 °C
- High electrical insulation values in the range of 4kV
- Use of various standardized measuring elements: Pt100, Pt200, Pt500, Pt1000 resistance thermometers according to DIN EN 60751, class F0.3
- NTC measuring elements of various designs and characteristic
- Digital sensors with direct I²C and SMBus, accuracy from 0.1K and alarm output
- Connection geometry can be adapted via the contacting of wired automotive connector systems or via permanently molded connectors
- Depending on the sheath material of the strands or the cable sheath, protection classes ranging from IP65 to IP68 can be
- High vibration resistance around all component axes: acceleration 40g; shock resistance 100g.



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