

Operating instructions
Thermowell for temperature sensors

GB

E38xxx



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1 Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at www.ifm.com.

1.1 Symbols used

- ✓ Requirement
- ▶ Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note
Non-compliance may result in malfunction or interference.
-  Information
Supplementary note

1.2 Warnings used



CAUTION

Warning of personal injury

- ▷ Slight reversible injuries may result.

2 Safety instructions

- The unit described is a subcomponent for integration into a system.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Intended use).
- Only use the product for permissible media.
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables against damage.

3 Intended use

The thermowell protects temperature sensors against aggressive media, high pressures and high flow velocities.



The Thermowell allows replacement of the sensor without process interruption.

4 Installation



CAUTION

During installation or in case of mechanical failure, high pressure or hot media can leak from the system.

- ▶ Risk of injury caused by pressure or burns.
- ▶ Ensure that the system is free of pressure during installation.
- ▶ Ensure that no media can leak at the mounting location during installation.

- ▶ Insert the thermowell into the process connection.
- ▶ Secure thermowells with a process connection with a clamp.
- ▶ For thermowells that are screwed in, observe the tightening torque (→ Technical data at documentation.ifm.com).

4.1 Use in hygienic areas according to 3-A

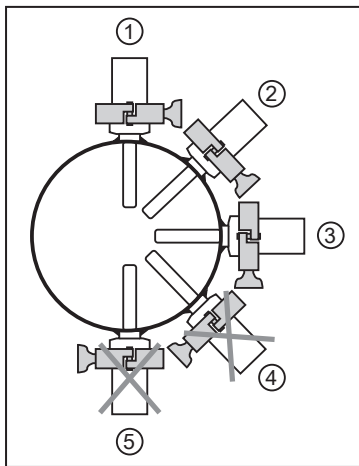
- ▶ Make sure that the thermowell is integrated into the system according to 3-A.
- ▶ Use only process adapters with 3-A certification and marked with the 3-A symbol (→ Accessories at www.ifm.com).



- ▶ For use according to 3-A, take note of the corresponding regulations for cleaning and maintenance.



- ▶ Not suitable for systems that have to meet the criteria of E1.2 / 63-03 of the 3-A standard 63-03.



- ▶ The positioning of the thermowell / sensor must be observed to ensure the mounting adapter will self-drain: do not install the unit in positions 4 and 5.

Fig. 1: Installation position for 3-A certification

4.2 Use in hygienic areas according to EHEDG



The thermowell is suited for CIP (clean in place) when installed correctly.

- ▶ Observe the application limits (temperature and material resistance) according to the data sheet.
- ▶ Ensure that the installation of the unit in the system complies with EHEDG.
- ▶ Use self-draining installation.

- ▶ Only use process adapters permitted according to EHEDG with special seals required by the EHEDG position paper.
- ▶ For any structures in a tank, direct water jet cleaning and cleaning of any dead spaces must be possible.
- ▶ Adhere to the dimensions shown in the following figure to avoid dead spaces that cannot be cleaned effectively:
 $L < (D - d)$.

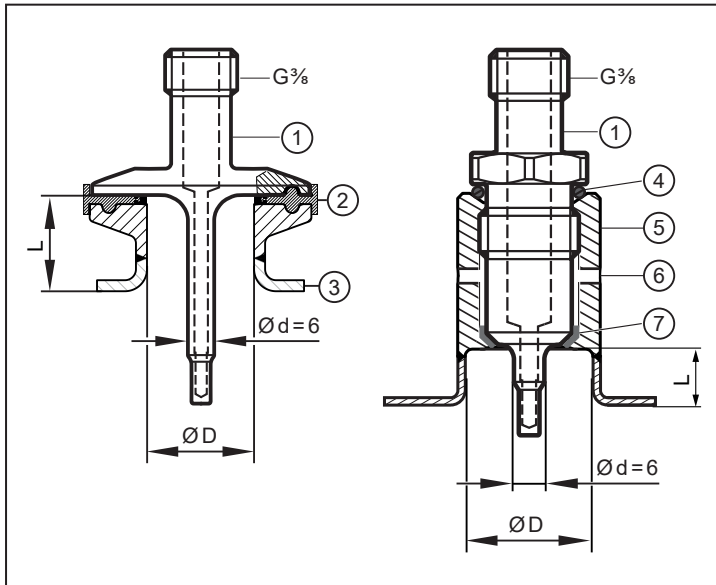


Fig. 2: Mounting dimensions for EHEDG approval

- | | |
|-----------------------------------|--|
| 1: Thermowell | 2: Sealing ring in accordance with EHEDG position paper |
| 3: Process connection | 4: Sealing ring between the housing and the process connection |
| 5: Adapter for process connection | 6: Leakage port |
| 7: PEEK sealing ring | |

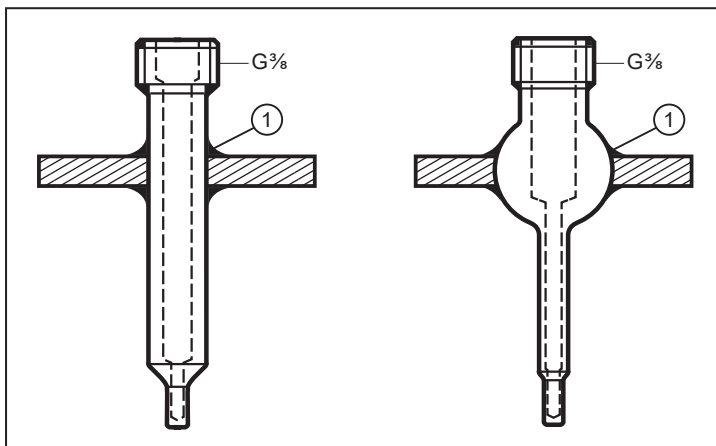


Fig. 3: Installation according to EHEDG with welding thermowells

- 1: Welding edges

4.3 Welding thermowells

! The welding should only be carried out by qualified personnel.

- ✓ Use materials and welding operations that are suitable for the housing material.
- ✓ Use welding techniques according EHEDG requirements (Doc 9) to ensure a good weld. In order to apply the required 3 mm radius to the inner surface a second fillet weld is necessary.

- ✓ Ensure the careful preparation of the components:
- ▶ Grind and polish the inside weld to achieve a minimum radius of 3 mm.
- ▶ Ensure a surface roughness of $Ra \leq 0.8 \mu\text{m}$ for optimised cleanability.

Welding operation:

- ▶ Apply the fixing points of the thermowell at equal distance (crosswise) with a sufficient adhesive force.
- ▶ Apply the welding seams crosswise between the fixing points.
- ▶ Observe cooling phases between individual welding processes to avoid annealing or distortion of the thermowell due to overheating.



Ensure full weld penetration to have no crevice where the weld seam is in contact with the medium according to EHEDG requirements (Doc 9).

After completion of the welding process:

- ▶ Let the workpiece cool down.
- ▶ Slightly grease the thread using a lubricating paste which is suitable and approved for the application.
- ▶ Screw the sensor into the adapter and tighten. Tightening torque: 10 Nm.