



Operating instructions  
Aseptoflex Vario welding adapter

GB

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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](http://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

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	<b>ATTENTION</b> Warning of damage to property
	<b>CAUTION</b> Warning of personal injury ▷ Slight reversible injuries may result.
	<b>WARNING</b> Warning of serious personal injury ▷ Death or serious irreversible injuries may result.

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## 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 (→ Technical data).
- 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, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.
- The welding operation must be carried out by authorised personnel.
- The welding operation must be carried out carefully and according to state-of-the-art technology.
- During the welding process, ensure sufficient fume extraction.
- Protect the product against damage.

### 3 Intended use



The selection of the appropriate adapter must be made by a welding engineer.

#### Standard welding adapter:

The standard welding adapter enables the installation of sensors with Aseptoflex Vario sealing contour in tanks and pipes under standard conditions.

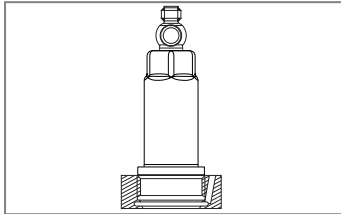


Fig. 1: E30130 with installed sensor

#### Special welding adapter:

The special welding adapter enables the installation of sensors with Aseptoflex Vario sealing contour in tanks under unfavourable or difficult welding conditions or circumstances.

### 3.1 Selection guide welding adapter

#### Selection guide wall thickness and welding adapter:

Wall thickness	Recommendation
Thin	Standard and special welding adapter
Thick	Special welding adapter

#### Installation positions special welding adapter:

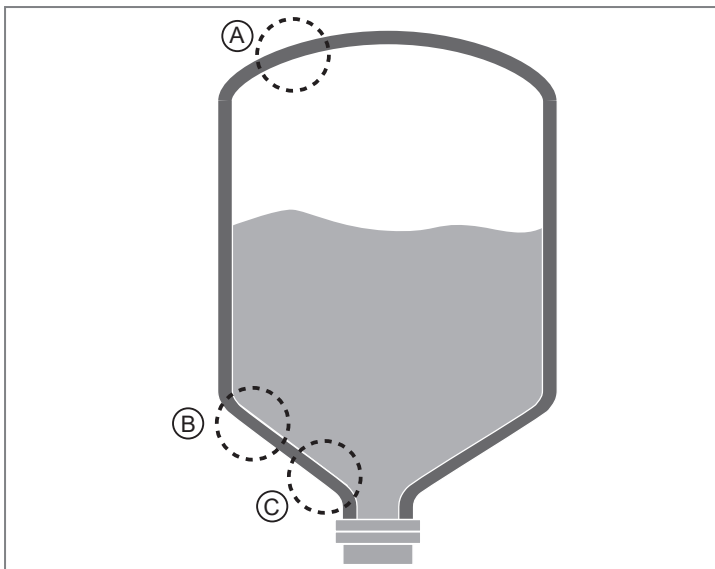


Fig. 2: Schematic illustration of a tank

#### Position A:

E30528 Special welding adapter (D85 / rim height 6 mm) for installation in the tank head and wall.

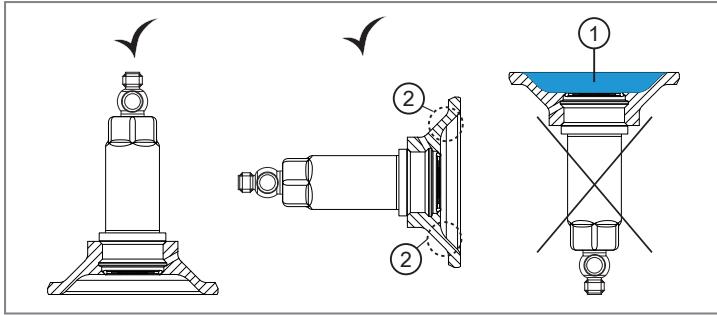


Fig. 3: Special welding adapter with installed pressure sensor.

- 1: Note limited drainage on the inside.  
 2: Transition range of the adapter: do not reduce wall thickness!

### Position B and C:

E30529 Special welding adapter (D85 / rim height 6 mm) for installation in the tank bottom or in walls and larger tank diameters.

E30531 Special welding adapter (D85 / rim height 11.5 mm) for installation in tank cones and thick walls and small tank diameters or tight radii.

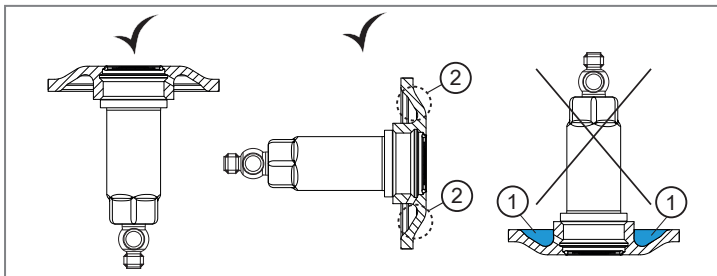


Fig. 4: Special welding adapter with installed pressure sensor.

- 1: Note limited drainage on the outside.  
 2: Transition range of the adapter: do not reduce wall thickness!

## 3.2 Basic notes



If the tank is treated after the adapter has been welded in (e.g. grinding, pickling, sand-blasting, glass bead blasting, e-polishing or applying procedures such as powder coating, painting etc.):

- ▶ Make sure that the inside and sealing area of the adapter are clean and not damaged.  
[Processing the weld seam](#) (→ [11](#))
- ▶ Exclude a reduction in the wall thickness of the special welding adapter in the transition area.  
[Processing of the weld seam for special welding adapters](#) (→ [14](#))



Use in hygienic areas to EHEDG:

The food contact surface must be smooth (surface roughness  $R_a < 0.8 \mu\text{m}$ ) and the welding has to be done according to EHEDG Guideline 9 and 35.



The welding operation must be carried out by authorised personnel.

The welding operation must be carried out carefully and according to state-of-the-art technology.

During welding and the following cooling phase the sensor must not be in place.

The surfaces must be free from any contamination.


Welding materials must be suitable for the adapter and wall material.


- ▶ The requirements in the specifications, of common practice, in regulations, norms, of intended use and the application must be applied.
- ▷ They determine the welding procedure, the welding material, the connection category and connection type, including chamfer, welding penetration depth and demands on the surface.



Carry out a leak check after the welding process. [Leak check \(→ 15\)](#)

## 4 Installation

 Observe and adhere to state-of-the-art technology and applicable regulations during the welding process.

 Carefully read and apply the operating instructions of all components used.

### ATTENTION

Dangers to the plant and the environment during welding operations and rework.

- ▶ Consider possible dangers and adhere to applicable regulations and guidelines.



### CAUTION

During the welding operation, the adapter, the surrounding material and the welding aid can increase in temperature to over 65 °C (149 °F).

- ▷ Risk of burns.
- ▶ Allow all components to cool down.



### WARNING

Dangers to persons during welding operations, rework and pressure tests.

- ▶ Consider possible dangers and adhere to applicable regulations and guidelines.

### 4.1 Preparation welding adapter and wall

 Be careful when working on the adapter.

- ▶ Exclude any damage to the sealing contour on the adapter.
- ▶ Do not remove any material from the transition area of the special welding adapters.  
[Processing of the weld seam for special welding adapters](#) (→ [14](#))



These specifications are only recommendations, unless product specifications and / or welding specifications from welding engineers are available.

- ▶ Depending on the welding applications, chamfers are to be applied to the sheet and / or the welding adapter if required.



The sealing contour must remain undamaged.

- ▶ Depending on the welding strategy, the welding adapter is to be inserted precisely into the cut-out if required.
- ▶ Residual stresses in the sheet metal, e.g. in the cone or the dished end, resulting from the manufacturing process should, if possible, be released by pre-annealing so that no forces are transmitted to the adapter during the welding process.

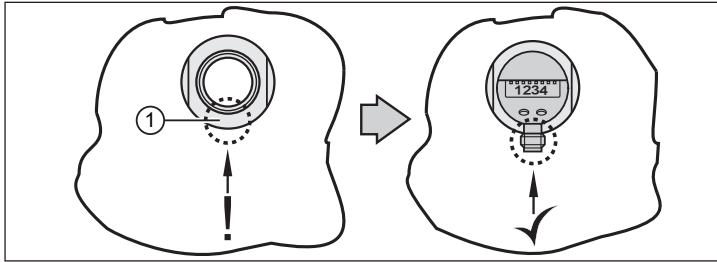
### 4.2 Use in hygienic areas to EHEDG

- ▶ Make sure that the adapter and sensor are integrated into the system according to EHEDG.
- ▶ Use self-draining installation.
- ▶ For installation in a tank, it must be ensured that direct water jet cleaning is possible.



### 4.3 Alignment of adapter / leakage port

Align the marking 1 (marking may vary) of the adapter to the position provided for the display (if any) of the screwed sensor.



Adapter with leakage port according to EHEDG and 3A®:

- ▶ For reliable draining: align the adapter with only one leakage port so that the leakage port is located at the lowest possible point.

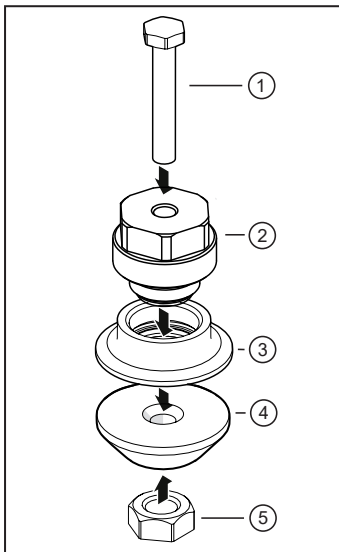
### 4.4 Welding aid E30452

The welding aid (in pipes) and the additional counter plate (in tanks, if accessible from the inside) must be used.

The welding aid absorbs the thermal energy and helps to stabilise the adapter.

These accessories may only be replaced by more effective measures such as internally cooled mandrels with the same geometry, provided that the sealing edge is protected but not negatively influenced by the accessories themselves and their mounting forces.

- ▶ Further information on the welding aid E30452 → Operating Instructions.



- 1: M10 fastening screw (19 mm width across flats)
- 2: Welding aid with M12 internal thread
- 3: Adapter to be welded in
- 4: Counter plate with through-hole for the fastening screw (1)
- 5: M12 nut

- ▶ Screw the welding aid (2) hand-tight into the adapter (3) to be welded in.
- ▶ Position the counter plate (4) with its through-hole underneath the welding adapter (3).
- ▶ Insert the fastening screw (1) from above through the screwed-in welding aid (2) with the adapter (3) and the counter plate (4) and screw it with the nut (5) using a spanner. Max. tightening torque 20 Nm.
- ▶ Carry out the welding process.
- ▶ After each welding, including the cooling phase, check the thread of the welding adapter for ease of movement.
- ▶ After completion, remove all components from the welding adapter.

## 4.5 Cooling

During the welding process, high amounts of energy are introduced into the centrally located adapter in the area of the weld seam, which can only dissipate this energy into the welding aid to a limited extent.

To avoid overheating of the adapter:

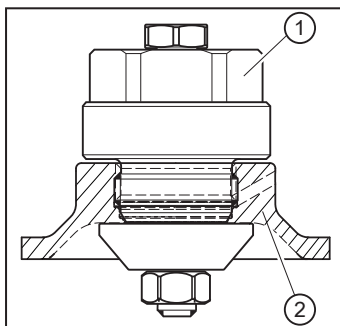
- ▶ Ensure sufficient cooling times.
- ▶ Any specifications of a responsible welding specialist on targeted cooling devices must be applied.
- ▶ For cooling, water pockets can be introduced in a modified welding mandrel in such a way that the adapter is permanently cooled from the inside.

## 4.6 Welding operation



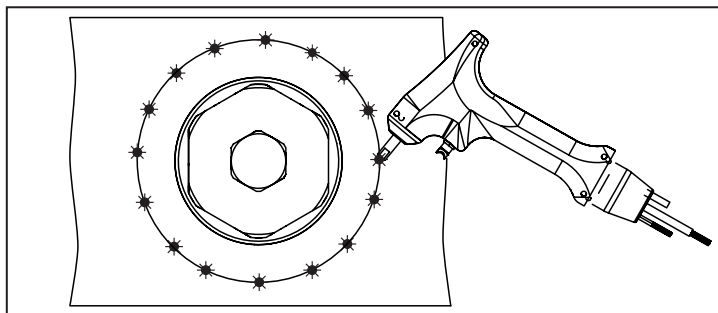
The basic notes and guidelines must be adhered to:

- ▶ The welding method must be suitable for the welding task and the power of the welding equipment must be adapted to the material thickness.
- ▶ During welding, avoid overheating of the adapter and observe sufficient cooling phases.
- ▶ The sealing area of the adapter must not be damaged by weld spatter or similar. The sealing area should be sufficiently protected before starting the welding process.
- ▶ Provide a cut-out with the outside diameter of the adapter in the housing wall.
- ▶ Insert welding aid E30452 for heat conduction and protection of the sealing edge. [Welding aid E30452](#) (→ [9](#))

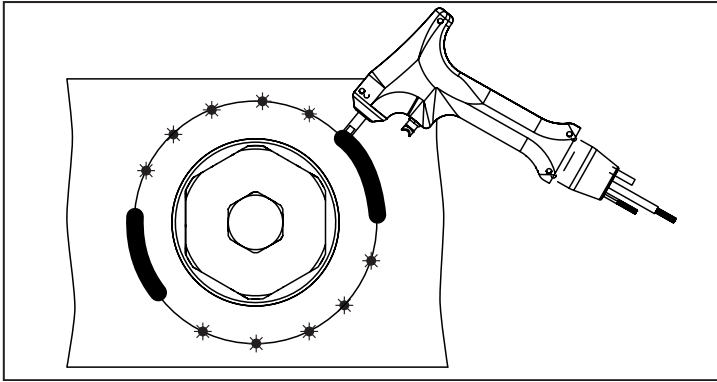


- 1: Welding aid 30452  
2: Welding adapter (depending on model)

- ▶ For an optimum welding result, apply a sufficient number of fixing points crosswise, if necessary.



- ▶ For an optimum welding result, apply the welding segments crosswise in the back-step method, if necessary.
- ▶ Ensure sufficient intervals between the individual sections to avoid overheating of the adapter.



- ▶ After each welding operation, including the cooling phase, check the thread of the welding adapter for ease of movement and tighten the welding aid with the correct torque.
- ▶ After completion, remove all components from the welding adapter.
- ▶ Remove deposits from the adapter thread.
- ▶ Screw in the sensor by hand in order to check for functionality of the thread. If the tightening torque is too high during screwing in, do not use any tool, but check the thread and replace the adapter, if necessary.



Carry out a leak check after the welding process. [Leak check](#) (→ [15](#))

## 4.7 Processing the weld seam



Prevent any damage to the sealing edge on the welding adapter if subsequent surface post-processing (e.g. grinding / polishing of the weld seam) is necessary.

- ▶ Insert the device to protect the sealing edge.  
[Processing standard welding adapter](#) (→ [11](#))  
[Processing special welding adapter](#) (→ [12](#))
- ▶ Carefully remove the material around the adapter in case of post-processing (e.g. grinding / polishing).
- ▶ The sealing edge for the sensor sealing on the welding adapter must remain unaffected.



Use protective devices and equipment according to the product specifications, installation conditions and ambient conditions.



Read and apply the operating instructions and safety instructions for the tools used.

### 4.7.1 Processing standard welding adapter

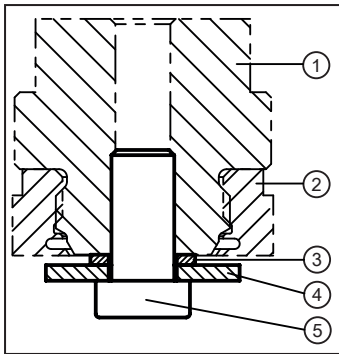


When processing the weld seam:

- ▶ Use accessories E30160 as sealing edge protection.
- ▶ Additional information: → Operating instructions E30160

#### 4.7.1.1 Installation of E30160 on standard welding adapter

- ▶ Insert the components into the welded adapter (2).



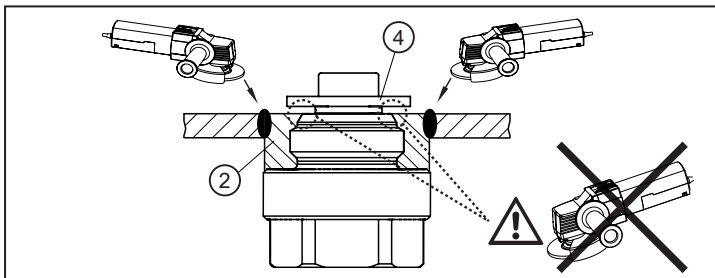
- 1: Welding aid E30452
- 2: Welding adapter (depending on model)
- 3: E30160 spacer disk (small disk)
- 4: E30160 grinding protection (large protective disk)
- 5: E30160 (M12 screw)

#### 4.7.1.2 Processing of the weld seam for standard welding adapters

**!** Observe and use protective devices and equipment according to the product specifications, installation conditions and ambient conditions.

**!** Observe and use the operating instructions and safety instructions for the tools used.

- ▶ Guide the grinding tool parallel to the surface to be processed.
- ▶ Carry out the grinding process in such a way that the large protective disk (4) is only worn to the extent that the sealing edge of the adapter (2) remains undamaged.



- 2: Welding adapter (depending on model)
- 4: E30160 grinding protection (large protective disk)

**!** Do not damage the sealing edge of the sensor sealing.

**!** One set of the E30160 is for one-time use.

#### 4.7.2 Processing special welding adapter

**i** When processing the weld seam:

- ▶ Mount parts of the grinding protection set E30161 / E30162 and, if necessary, parts of the welding aid E30452 on the special welding adapter.

**!** Do not damage the sealing edge of the sensor sealing.

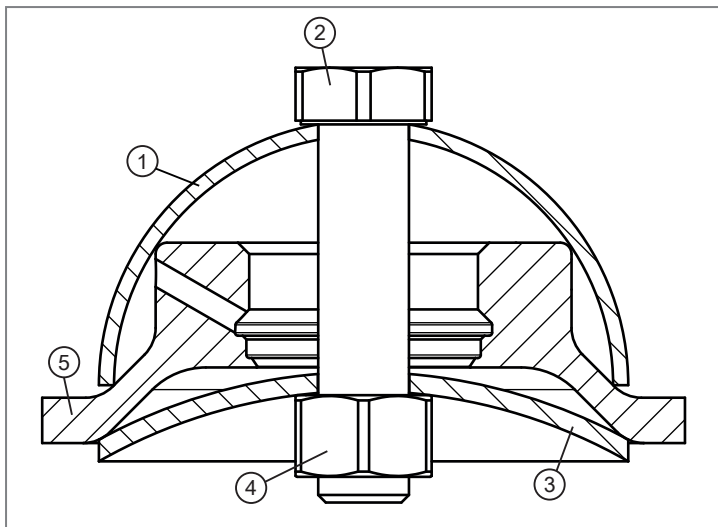
**!** The grinding protection must be centred on both sides before final tightening.  
Do not scratch the surfaces with the grinding protection caps.

##### 4.7.2.1 Grinding protection set E30161 for special welding adapter E30528

**i** A set of article E30161 contains 3 pieces each: high hemispheres, flat half shells, screws, nuts.

#### 4.7.2.2 Installation of E30161 on the special welding adapter E30528

► Install the grinding protection E30161 on the welded adapter E30528.



- 1: High hemisphere D = 70
- 2: M12 x 50 screw
- 3: Flat half shell D = 70
- 4: M12 nut
- 5: Welding adapter E30528

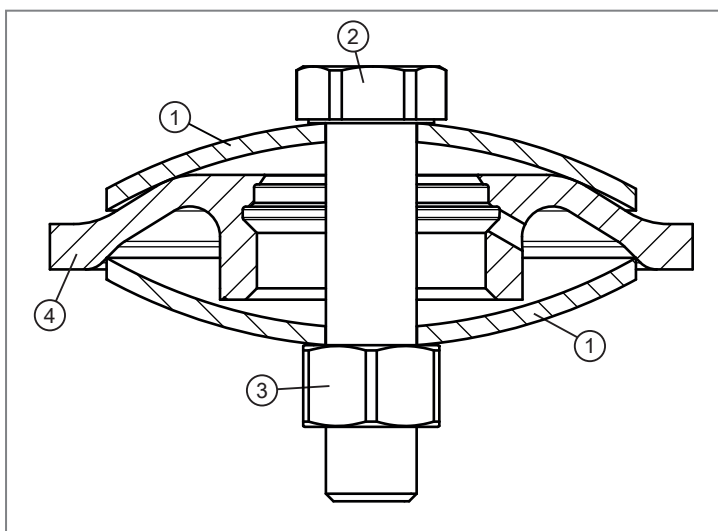
#### 4.7.2.3 Grinding protection set E30162 for special welding adapter E30529 / E30531



A set of article E30162 contains 6 pieces flat half shells, 3 screws, 3 nuts.

#### 4.7.2.4 Installation of E30162 on the special welding adapter E30529 / E30531

► Install the grinding protection E30162 on the welded adapter E30529 or E30531.

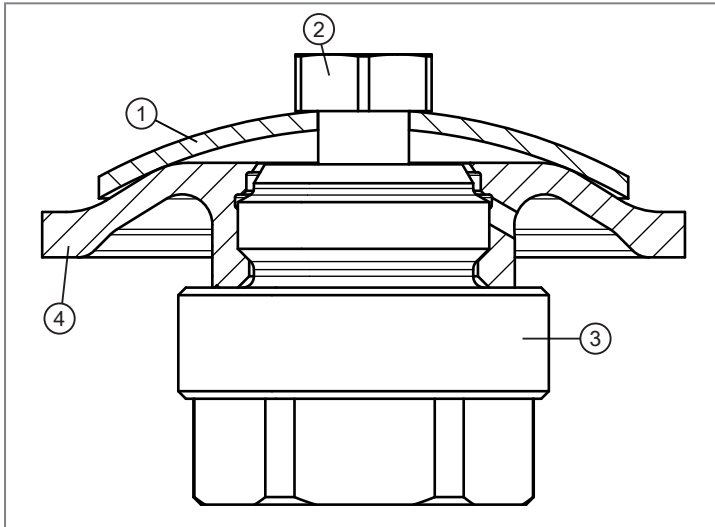


- 1: Flat half shell D = 70
- 2: M12 x 50 screw
- 3: M12 nut
- 4: Welding adapter, ex. E30529

#### 4.7.2.5 Alternative grinding protection with E30161 / E30162, E30452 on special welding adapters

- Mount parts of the grinding protection set E30161 / E30162 and the mandrel of the welding aid E30452 on the special welding adapter.

#### Parts from E30161 / E30162, E30452 and E30529 or E30531



- 1: Flat half shell D = 70
- 2: M12 x 20 screw from the set E30452
- 3: Welding aid E30452 with M12 internal thread
- 4: Welding adapter, ex. E30529 or E30531

#### 4.7.2.6 Processing of the weld seam for special welding adapters

- ⚠ Observe and use protective devices and equipment according to the product specifications, installation conditions and ambient conditions.
  - ⚠ Observe and use the operating instructions and safety instructions for the tools used.
  - ⚠ Do not remove any material from the special welding adapter in the transition area.
- Guide the grinding tool parallel to the surface to be processed.

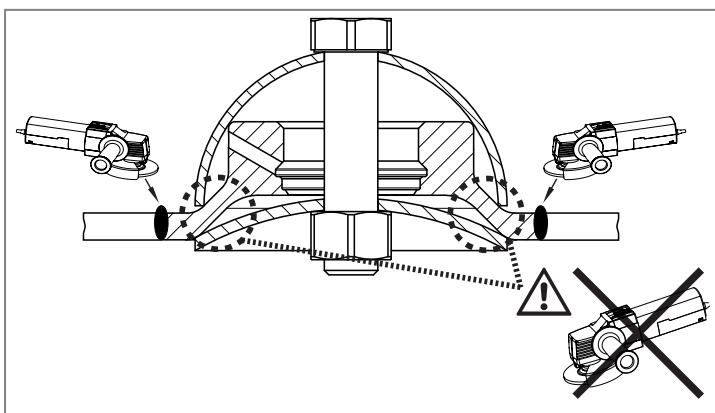


Fig. 5: Ex. E30161 and E30528

## 4.8 Leak check



### WARNING

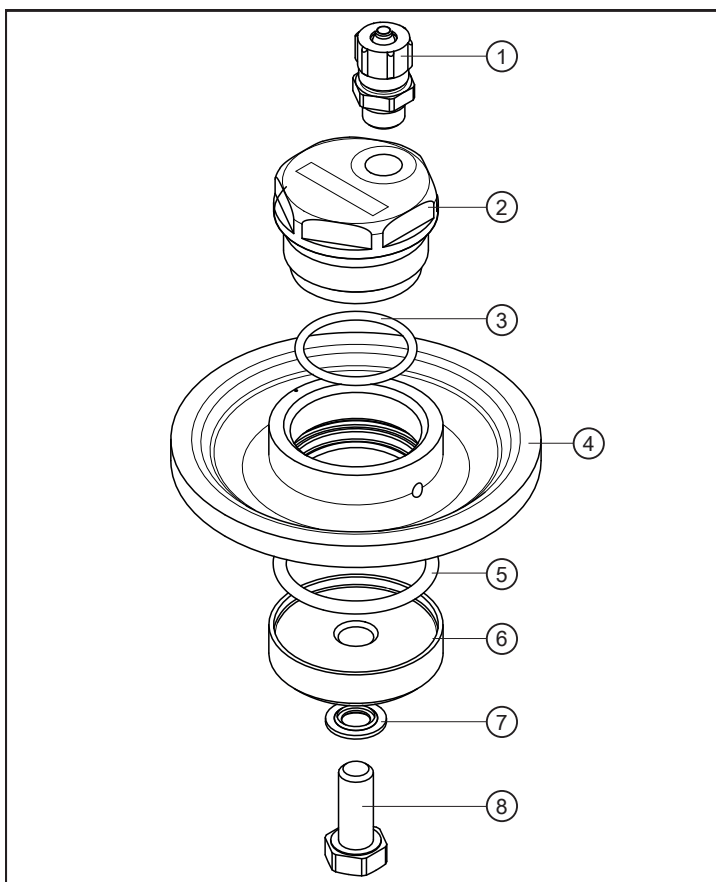
Dangers during pressure checks.

- ▶ Consider possible dangers for persons and adhere to applicable regulations and guidelines.

### 4.8.1 Leak check Aseptoflex Vario welding adapter with E30530

With accessory E30530, liquid or air is pressed via a pneumatic connection into the front or medium area of the welded adapter to determine whether liquid or air is leaking through the leakage port, which means that the sealing point is leaking due to damage.

- ▶ Install the components of accessory E30530 on the welding adapter to be tested according to the illustration.



- 1: Pneumatic connection
- 2: G1 dummy plug
- 3: 24 x 2 EPDM O-ring
- 4: Aseptoflex Vario welding adapter (design varies)
- 5: 32 x 3 NBR O-ring
- 6: Lower part G1 sealing
- 7: Steel / M8 NBR seal
- 8: M8 x 20 screw

- ▶ Carry out the leak check.

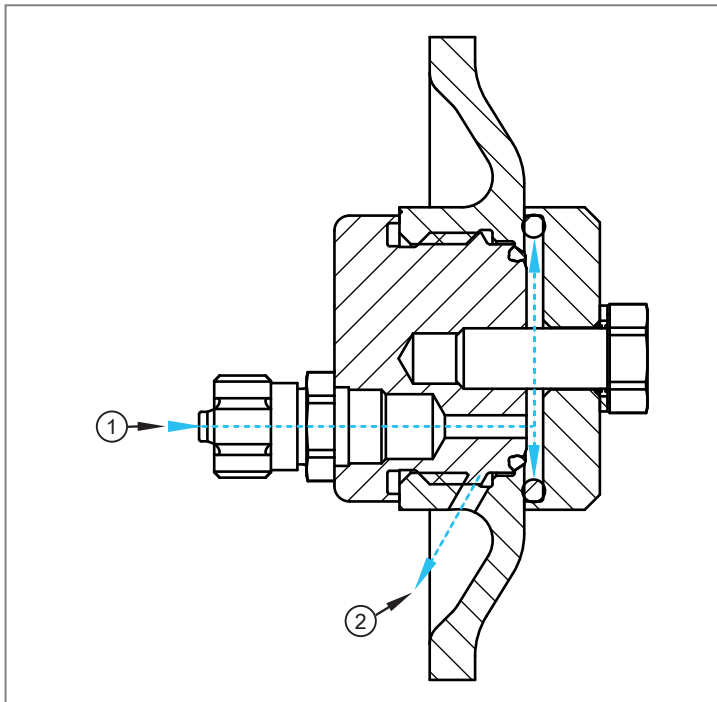


Fig. 6: E30530 installed in a special welding adapter

- 1: Air supply via pneumatic connection  
 2: Air outlet via the leakage port in case of a fault

- ▶ If medium leaks during the check.
- ▷ Replace the welding adapter.

#### 4.8.2 Leak check of complete system



If a leak check of the complete system is to be carried out or the tank / system is only accessible from the outside and the accessory E30530 cannot be used.

- ▶ Insert the sensor (note the overload resistance of the sensor: → Technical data [www.ifm.com](http://www.ifm.com)) or the sealing plug (E30128) with O-ring.
- ▶ No foreign plugs of any kind may be inserted.
- ▶ The sealing edge of the welding adapter must not be touched or deformed.
- ▶ Do not use any additional sealing material.
- ▶ Only tighten the sensor / sealing plug with the torques approved for the welding adapter. → Technical data [www.ifm.com](http://www.ifm.com)



## 5 Installing the sensor with an Aseptoflex Vario adaption



General information for sensor installation: → Operating instructions of the sensor.

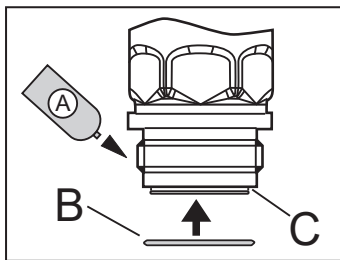


A lubricating paste is required to install the sensor. It must be suitable and approved for the given application and compatible with the elastomers used (e.g. seal).



The inline adapter is supplied with an EPDM O-ring = order no. E30054.  
More sealing rings are available as accessories: FKM O-ring = order no. E30123.

- ▶ Remove the protective packaging only just before mounting.
- ▶ Ensure cleanliness of the sealing areas.



- ▶ Place the sealing ring (B) in the groove (C) of the sensor.
- ▶ Use the lubricating paste (A) sparingly and apply it to threaded parts.

- ▶ Screw the sensor into the adapter.
- ▶ Tighten the sensor using a spanner until you can feel the end stop (this corresponds to a maximum tightening torque of approx. 35 Nm).



Too much torque may impair the seal.



If the sealing area is damaged:

- ▶ Replace the adapter.

## **6 Set-up**

- ▶ Before setting up the system: Check all components for ingress resistance.
- ▶ Setting up the sensor: → Operating instructions of the sensor.

## **7 Disposal and return**

- ▶ After use dispose of the product or components in an environmentally friendly way in accordance with the applicable national regulations.