Return of Products
Please contact our Service Team before returning a defective device. Ship the cleaned device to the address you have been given. If the device has been in contact with process fluids, it must be decontaminated/disinfected before shipment. In that case, please attach a corresponding certificate, for the health and safety of our service personnel.

Disposal
Observe the applicable local or national regulations.
Safety Information

Process-Related Risks
Knick Elektronische Messgeräte GmbH & Co. KG assumes no liability for damages caused by process-related risks known to the operator, which would in fact not permit the use of the ARI 106 H inline fitting.

Be sure to observe:
Work on the inline fitting shall only be performed by personnel authorized by the operating company and specially trained for handling and operating the inline fitting.
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Intended Use

The ARI 106 H inline fitting is used for holding a liquid-analysis sensor in a 25-mm socket (Ingold). The process-wetted material is stainless steel, PVDF or PEEK. Different adapters are available for connecting pH, temperature, oxygen, ORP, or conductivity sensors. The ARI 106 H inline fitting is suitable for sensors with PG 13.5 connector, 120 mm insertion length and 12 mm body diameter. Conductivity and oxygen sensors where only the end face is used for measuring must have a minimum length of 100 mm.

Safe Use
If you are not sure whether the inline fitting can be safely used for the intended application, please contact the manufacturer.

To ensure safe use of the equipment, you must follow the instructions given in the manual and observe the specified temperature and pressure ranges.

This product is classified in Category I according to the Pressure Equipment Directive 97/23/EC Article 3, Sec. 3.
<table>
<thead>
<tr>
<th>Inline fitting, hygienic design ARI 106 H-N</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensor</strong></td>
<td></td>
</tr>
<tr>
<td>Solid electrolyte</td>
<td>0</td>
</tr>
<tr>
<td>Liquid electrolyte (pressurization possible)</td>
<td>1</td>
</tr>
<tr>
<td>with liquid electrolyte (manual pressurization)</td>
<td>5</td>
</tr>
<tr>
<td><strong>Gasket material</strong></td>
<td></td>
</tr>
<tr>
<td>Elastomeric ring set F, FKM-FDA</td>
<td>F</td>
</tr>
<tr>
<td>Elastomeric ring set E, EPDM-FDA</td>
<td>E</td>
</tr>
<tr>
<td>Elastomeric ring set H, FFKM-FDA</td>
<td>H</td>
</tr>
<tr>
<td>Elastomeric ring set T, silicone-FDA</td>
<td>T</td>
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<tr>
<td>Elastomeric ring set U, EPDM-FDA-USP VI</td>
<td>U</td>
</tr>
<tr>
<td>Elastomeric ring set V, FKM-FDA-USP VI</td>
<td>V</td>
</tr>
<tr>
<td>Elastomeric ring set W, FFKM-FDA-USP VI</td>
<td>W</td>
</tr>
<tr>
<td><strong>Process-wetted materials / head</strong></td>
<td></td>
</tr>
<tr>
<td>PEEK / 1.4404</td>
<td>C</td>
</tr>
<tr>
<td>1.4435 / 1.4404</td>
<td>H</td>
</tr>
<tr>
<td>1.4539 / 1.4404</td>
<td>P</td>
</tr>
<tr>
<td>PVDF / 1.4404</td>
<td>G</td>
</tr>
<tr>
<td>PVDF / PVDF</td>
<td>D</td>
</tr>
<tr>
<td><strong>Process adaptation</strong></td>
<td></td>
</tr>
<tr>
<td>Ingold socket, 25 mm (G 1 1/4&quot;), 29-mm groove</td>
<td>H 0</td>
</tr>
<tr>
<td>Ingold socket, 25 mm, 45-mm groove</td>
<td>H Z</td>
</tr>
<tr>
<td><strong>Immersion depth</strong></td>
<td></td>
</tr>
<tr>
<td>Short</td>
<td>A</td>
</tr>
<tr>
<td><strong>Probe guard</strong></td>
<td></td>
</tr>
<tr>
<td>Without</td>
<td>A</td>
</tr>
<tr>
<td>With</td>
<td>B</td>
</tr>
<tr>
<td><strong>Special variant</strong></td>
<td></td>
</tr>
<tr>
<td>Without</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Certificates</strong></td>
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<tr>
<td>Without</td>
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</tr>
<tr>
<td>Inspection Certificate 3.1 according to EN 10204</td>
<td>3</td>
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<tr>
<td>FDA - USP VI</td>
<td>U</td>
</tr>
<tr>
<td>FDA</td>
<td>F</td>
</tr>
<tr>
<td>Surface Ra &lt; 0.4 µm</td>
<td>4</td>
</tr>
<tr>
<td>Surface Ra &lt; 0.8 µm</td>
<td>8</td>
</tr>
</tbody>
</table>
Installing / Removing a Sensor

Sensors must only be installed or removed by trained personnel authorized by the operating company. **Before installing or removing the sensor, make sure that the process is depressurized and that there is no connection to the process medium.**

Be sure to follow the assembly instructions step by step.

**Preparatory steps before using the sensor:**
- Check whether the sensor is damaged (glass broken?). Never install a damaged sensor!
- Check whether slide washer or O-ring on the sensor are damaged and replace if required.
- Remove the watering cap from the sensor tip and rinse sensor with water.
- Internally pressurized sensors might have a silicone seal on the diaphragm (as transport protection). Remove this seal using the knife shipped with the sensor.
Installing / Removing a Polymer-Electrolyte Sensor

Installing the sensor
1) Depressurize the process before installing the sensor.
2) Use appropriate sensors only:
   Diameter: 12 mm Length: 120 mm
   Observe the pressure resistance of the sensor.
3) Check whether slide washer (B) or O-ring (C) on the sensor are damaged.
4) Insert the sensor and screw in the sensor head (A) (19 mm A/F, PG 13.5 thread) with a max. torque of 3 Nm (recommended tool: 19 mm wrench, e.g. Knick ZU0647).
5) Connect the cable socket with the cable.

Removing the sensor
1) Before removing the sensor, make sure that the process is depressurized and that there is no connection to the process medium.
2) Disconnect the cable socket with the cable.
3) Remove the sensor (recommended tool: 19 mm wrench, e.g. Knick ZU 0647).
4) Check whether slide washer (B) or O-ring (C) on the sensor are damaged.

NOTICE!
When replacing a damaged sensor (glass breakage), you must check the sensor gasket in the fitting and replace it if required (gasket marked with $\mathbb{O}$ in the dimension drawings ).
Installing a Liquid-Electrolyte Sensor

You can use sensors with a length of 120 mm and an electrode diameter of 12 mm, e.g., Knick SE551/1. To ensure that the electrolyte flows from the reference electrode to the process medium, the gas pressure in the sensor pressure chamber must be 0.5 to 1 bar (max. 7 bar) above that of the process medium. The gas pressure (U) for the sensor pressure chamber is connected via connection nipple (dia. 6 mm). Check whether the sensor is damaged (glass broken?). Remove the watering cap from the sensor tip and rinse sensor with water.

Installing the sensor
1) Before installing the sensor, make sure that the process is depressurized and that there is no connection to the process medium.
2) Loosen the small coupling nut (R) – do not remove it.
3) Unscrew and remove the large coupling nut (S) and pull the detached unit upwards.
4) Install the sensor (E).
5) Replace the unit you have detached in step 3. First hand-tighten the large coupling nut (S) and then the small coupling nut (R).
6) Connect the cable socket with the cable.

NOTICE!
In the case of inclined installation of the fitting, the sensor must be installed and operated with the electrolyte filling hole (W) towards the top in order to prevent electrolyte from flowing out (see illustration).
In any case, observe the instructions for use of the sensor.
Removing a Liquid-Electrolyte Sensor

Removing the sensor
1) Before removing the sensor, make sure that the process is depressurized and that there is no connection to the process medium.
2) Disconnect the cable socket with the cable.
3) Loosen the small coupling nut (R) – do not remove it.
4) Unscrew and remove the large coupling nut (S) and pull the detached unit upwards.
5) Remove the sensor (E).

NOTICE!
When replacing a damaged sensor (glass breakage), you must check the sensor gasket in the fitting and replace it if required (gasket marked with O in the dimension drawings).

ARI 106 for manual pressurization
This fitting provides an exchangeable valve insert (ALLIGATOR Express Valve UNIVERSAL) for increasing the pressure (max. 7 bar) in the sensor pressure chamber using a (bicycle) hand pump (U1). The pressure is indicated on the pressure gauge (M). Make sure that it does not exceed the pressure resistance of the sensor. Assembly and disassembly are performed as described above. Opening the valve (U1) releases air from the pressure chamber.
Dimension Drawings

ARI 106 H - N 0 ___ H0 ___ - 000

Version with probe guard

Version without probe guard

All dimensions in mm.
Dimension Drawings

ARI 106 H - N 0 _ _ HZ _ _ - 000

Version with probe guard

Version without probe guard

All dimensions in mm.
All dimensions in mm.
All dimensions in mm.
Dimension Drawings

ARI 106 H - N 5 _ _ H0 _ B - 000

O-ring 18x3 (16x4)
O-ring 33x3 FKM
FKM washer
PTFE washer
O-ring 42x3 FKM
O-ring 42x3 FKM
PTFE washer
FKM washer
O-ring 18x1.5 FKM
O-ring 13x2.5
O-ring 20x2.5
O-ring 11.9x2.6

All dimensions in mm.
All dimensions in mm.
## Specifications

<table>
<thead>
<tr>
<th>Material, process connection, gaskets and connection</th>
<th>See “ARI 106 Product Code” on page 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process temperature and pressure</strong></td>
<td>See pressure/temperature diagram</td>
</tr>
<tr>
<td><strong>Sensors</strong></td>
<td>12 mm diameter</td>
</tr>
<tr>
<td>(polymer electrolyte)</td>
<td>Length 120 mm</td>
</tr>
<tr>
<td><strong>Sensors</strong></td>
<td>12 mm diameter</td>
</tr>
<tr>
<td>(liquid electrolyte, pressurization)</td>
<td>Length 120 mm</td>
</tr>
<tr>
<td></td>
<td>e.g. SE 557X/1-NVPN or SE 557X/1-NMSN</td>
</tr>
</tbody>
</table>

### Connection for pressurized sensors

<table>
<thead>
<tr>
<th>Sensor pressure chamber for compressed air network with pressure regulator</th>
<th>Hose connection NW 6 mm, pressure in sensor pressure chamber 0.5 ... 1 bar above process pressure (max. 7 bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor pressure chamber for hand pump</td>
<td>ALLIGATOR Express Valve UNIVERSAL for standard bicycle pumps, pressure in sensor chamber 0.5 ... 1 bar above process pressure (max. 7 bar)</td>
</tr>
</tbody>
</table>

### Pressure/Temperature Diagram

![Pressure/Temperature Diagram](image)
**Accessories**

for process adaptation

**a**

Weld-in socket, straight

Order No. ZU 0717

Weld-in socket, straight, adapted for DN50

Order No. ZU 0717/DN50

Weld-in socket, straight, adapted for DN65

Order No. ZU 0717/DN65

Weld-in socket, straight, adapted for DN80

Order No. ZU 0717/DN80

Weld-in socket, straight, adapted for DN100

Order No. ZU 0717/DN100

Weld-in socket, inclined, 15°

Order No. ZU 0718

Weld-in socket, 15°, adapted for DN50

Order No. ZU 0718/DN50

Weld-in socket, 15°, adapted for DN65

Order No. ZU 0718/DN65

Weld-in socket, 15°, adapted for DN80

Order No. ZU 0718/DN80

Weld-in socket, 15°, adapted for DN100

Order No. ZU 0718/DN100

**b**

Sensor mounting wrench, 19 mm

Order No. ZU 0647

Required for safely screwing in the sensor without overloading the PG 13.5 plastic thread of the sensor head by an excessive torque (caused by an open-end wrench).

Protective cap

Order No. ZU 0931

Covers the sensor connection and ensures a secure cable guidance.

**a** - The safety weld-in sockets (straight and 15° beveled version) are suitable for mounting fittings with Ingold socket (dia. 25 mm, G1 ¼) to plane tank walls.

**b** - The adapted weld-in sockets are suitable for mounting fittings with Ingold socket (dia. 25 mm, G1 ¼). The contour-optimized straight or inclined (15°) weld-in sockets are adapted to the nominal width of the pipeline (outer diameter). This minimizes the gap widths during welding. The sockets are designed in a way that the thicknesses of socket and pipe wall are similar at the welding point. This allows welding with low energy input and therefore reduced warping. Thanks to the special outline and the weld zone being separated from the mating hole (dia. 25 H7), there should be no need to rework the parts after welding, provided that the welding has been done properly. If required, check the hole using a plug gauge, dia. 25 H7.
Accessories for process adaptation

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>HSD* safety weld-in socket, straight</td>
<td>ZU 0922</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>HSD safety weld-in socket, straight, adapted for DN50</td>
<td>ZU 0922/DN50</td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>HSD safety weld-in socket, straight, adapted for DN65</td>
<td>ZU 0922/DN65</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>HSD safety weld-in socket, straight, adapted for DN80</td>
<td>ZU 0922/DN80</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>HSD safety weld-in socket, straight, adapted for DN100</td>
<td>ZU 0922/DN100</td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td>HSD safety weld-in socket, inclined, 15°</td>
<td>ZU 0923</td>
</tr>
<tr>
<td><img src="image7.png" alt="Image" /></td>
<td>HSD safety weld-in socket, 15° adapted for DN50</td>
<td>ZU 0923/DN50</td>
</tr>
<tr>
<td><img src="image8.png" alt="Image" /></td>
<td>HSD safety weld-in socket, 15° adapted for DN65</td>
<td>ZU 0923/DN65</td>
</tr>
<tr>
<td><img src="image9.png" alt="Image" /></td>
<td>HSD safety weld-in socket, 15° adapted for DN80</td>
<td>ZU 0923/DN80</td>
</tr>
<tr>
<td><img src="image10.png" alt="Image" /></td>
<td>HSD safety weld-in socket, 15° adapted for DN100</td>
<td>ZU 0923/DN100</td>
</tr>
</tbody>
</table>

* HSD: Handling Safety Design

**CAUTION!**

If process fluid escapes as you loosen the coupling nut, the socket is under process pressure. Re-tighten the nut immediately. Always depressurize the system before loosening the coupling nut in order to exclude any danger to persons!

**Note:** Difference between weld-in socket and HSD safety weld-in socket:

With normal weld-in sockets, it can occur that process fluid only escapes when the coupling nut has loosened completely.

With the HSD safety weld-in socket, by contrast, process fluid is leaking slightly before the coupling nut is completely detached. This indicates that the socket is under pressure and that the nut has been loosened by mistake. The operator can quickly re-tighten it. This safety function minimizes the hazards to the employees.