Knick

User Manual

SensoGate WA131H

Retractable Fitting

Read before installation.
Keep for future use.

www.knick-international.com

Supplemental Directives

READ AND SAVE THIS DOCUMENT FOR FUTURE REFERENCE. BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT, PLEASE ENSURE A COMPLETE UNDERSTANDING OF THE INSTRUCTIONS AND RISKS DESCRIBED HEREIN. ALWAYS OBSERVE ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS IN THIS DOCUMENT COULD RESULT IN SERIOUS INJURY AND/OR PROPERTY DAMAGE. THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

These supplemental directives explain how safety information is laid out in this document and what content it covers.

Safety Chapter

This document's safety chapter is designed to give the reader a basic understanding of safety. It illustrates general hazards and gives strategies on how to avoid them.

Warnings

This document uses the following warnings to indicate hazardous situations:

Symbol	Category	Meaning	Remark
⚠	**WARNING**	Designates a situation that can lead to death or serious (irreversible) injury.	The warnings contain information on how to avoid the hazard.
⚠	**CAUTION**	Designates a situation that can lead to slight or moderate (reversible) injury.	
None	**NOTICE**	Designates a situation that can lead to property or environmental damage.	

Symbols Used in this Document

Symbol	Meaning
→	Reference to additional information
✓	Interim or final result in instructions for action
▶	Sequence of figures attached to an instruction for action
①	Item number in a figure
(1)	Item number in text

Supplementary Documents for Special Versions

- Supplementary documentation for automatic immersion lock special versions V and W for dismounted sensors [1)]

[1)] Further information on the special versions is available in the "Product Code" section. → *Product Code, p. 12*

Table of Contents

1 Safety

This document contains important instructions for the use of the product. Always follow all instructions and operate the product with caution. If you have any questions, please contact Knick Elektronische Messgeräte GmbH & Co. KG (hereinafter sometimes referred to as "Knick") using the information provided on the back page of this document.

1.1 Intended Use

The SensoGate WA131H (the "product") is a retractable fitting for installation in boilers, tanks, and pipes. The product is used to mount a sensor for measuring process parameters. The sensor is immersed in the process medium by the SensoGate WA131H. The SensoGate WA131H is pneumatically operated.

Cleaning, calibration, or sensor replacement under process conditions by the customer (hereinafter sometimes referred to as the "operating company") may be conducted, subject to the requirements set forth herein, by placing the product into the service position (SERVICE limit position).

If the product is used with any product or part not authorized by Knick, the operating company assumes all risks and liabilities related thereto.

The SensoGate WA131H fitting can be used with the following sensor types:

Solid-electrolyte sensors	Body diameter 12 mm, length 225 mm, sensor head thread PG 13.5
Liquid-electrolyte sensors	Body diameter 12 mm, length 250 mm or 450 mm
Optical sensors	Body diameter 12 mm

For further information, refer to the applicable documentation of the sensor manufacturer.

The defined operating conditions must be observed when using this product. → *Specifications, p. 52*

Thanks to its modular design, the SensoGate WA131H can be adapted to changed conditions by the customer.
→ *Permissible Changes, p. 19*

USE CAUTION AT ALL TIMES WHEN INSTALLING, USING, MAINTAINING OR OTHERWISE INTERACTING WITH THE PRODUCT. ANY USE OF THE PRODUCT EXCEPT AS SET FORTH HEREIN IS PROHIBITED, AND MAY RESULT IN SERIOUS INJURY OR DEATH, AS WELL AS DAMAGE TO PROPERTY. THE OPERATING COMPANY SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGES RESULTING FROM OR ARISING OUT OF AN UNINTENDED USE OF THE PRODUCT.

The SensoGate WA131H-X version is certified for operation in explosive atmospheres.
→ *Operation in Explosive Atmospheres, p. 9*

When installed, SensoGate WA131H can be sterilized with steam. An independent testing institute evaluated the product in terms of its sterilizability.[1)]

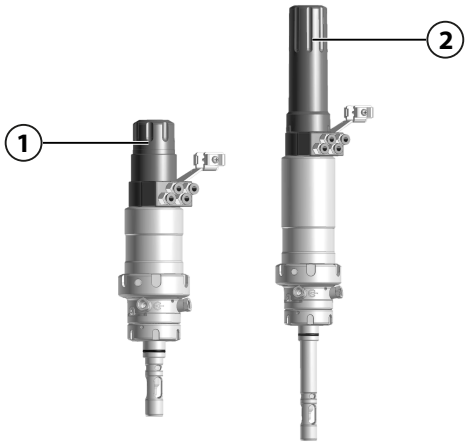
1.2 Personnel Requirements

The operating company shall ensure that any personnel using or otherwise interacting with the product is adequately trained and has been properly instructed.

The operating company shall comply and cause its personnel to comply with all applicable laws, regulations, codes, ordinances, and relevant industry qualification standards related to product. Failure to comply with the foregoing shall constitute a violation of operating company's obligations concerning the product, including but not limited to an unintended use as described in this document.

1) TNO report V7942 dated February 25, 2008 → *www.tno.nl*

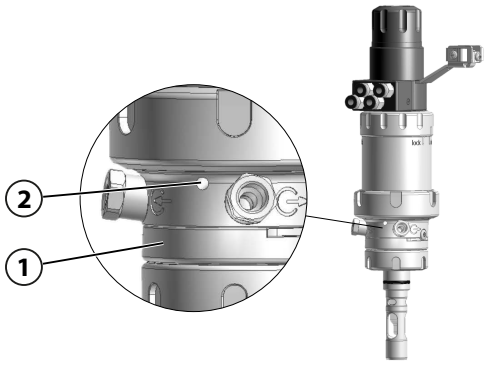
1.3 Safeguards



Solid Electrolyte Sensor Dismount Guard

For versions of SensoGate WA131H for solid electrolyte sensors, sensors can only be dismounted in the service position (SERVICE limit position).

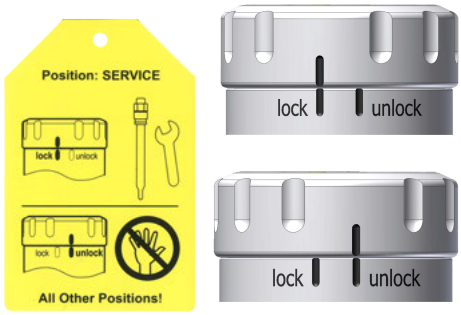
In the process position (PROCESS limit position), the sensor is in the protection sleeve **(1)** or the extension **(2)** and is not accessible.



Leakage Bores

The calibration chamber **(1)** is provided with three radial leakage bores **(2)**.

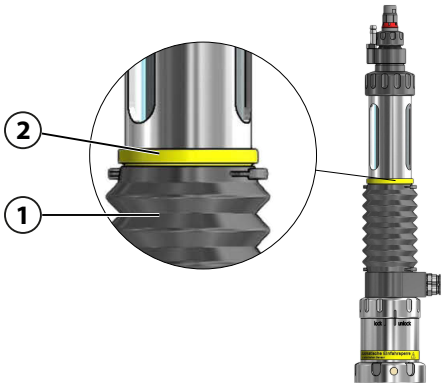
Process medium escaping from the leakage bores **(2)** is indicative of damage to the calibration chamber's O-rings. This damage can be detected and repaired.



SensoLock Locking

The SensoLock immersion lock prevents the SensoGate WA131H from accidentally moving into the process position (PROCESS limit position).

In the service position (SERVICE limit position), manually setting the SensoLock ring to "lock" locks the SensoGate WA131H and prevents it from moving into the process position (PROCESS limit position).

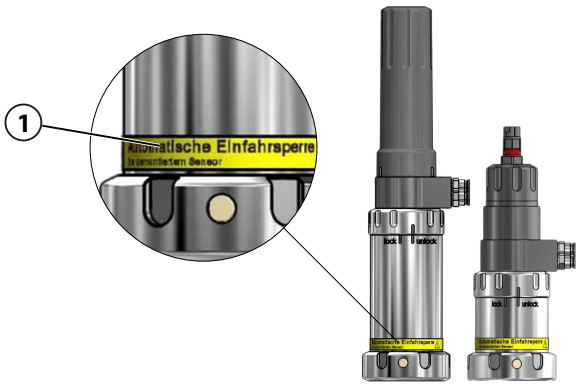


Immersion Lock Without a Mounted Liquid-Electrolyte Sensor

The safeguard is only available with special version V.
→ *Product Code, p. 12*

The immersion lock can be seen at the yellow indicator ring **(2)** above the bellows **(1)**. If the yellow indicator ring **(2)** is missing, the safeguard function is not available.

A mechanical lock prevents the SensoGate WA131H without a mounted liquid-electrolyte sensor from being moved into the process position (PROCESS limit position).



Immersion Lock Without a Mounted Solid-Electrolyte Sensor

The safeguard is only available with special version W.
→ *Product Code, p. 12*

The immersion lock can be seen at the yellow indicator ring **(1)** on the drive unit of the SensoGate WA131H. If the yellow indicator ring **(1)** is missing, the safeguard function is not available.

A mechanical lock prevents the SensoGate WA131H without a mounted solid-electrolyte sensor from being moved into the process position (PROCESS limit position).

The availability of safeguards is in part dependent on the version of the SensoGate WA131H.
→ *Product Code, p. 12*

Ambient influences can have a negative effect on the functionality of safeguards (e.g., from components sticking together). → *Residual Risks, p. 7*

1.4 Residual Risks

The product has been developed and manufactured in accordance with generally accepted safety rules and regulations, as well as an internal risk assessment. Despite the foregoing, the product may among others bear the following risks:

Environmental Influences

The effects of moisture, ambient temperature, chemicals, and corrosion can negatively impact the safe operation of the product.

Please observe the following instructions:

- SensoGate WA131H may only be operated in compliance with the specified operating conditions.
  → *Specifications, p. 52*
- If possible, install the product inside a protected area of the plant. Alternatively, take appropriate measures to protect the SensoGate WA131H (e.g., install ZU0759 protective cap[1)]).
  → *Accessories, p. 48*
- If using aggressive chemical process media, adjust the inspection and maintenance intervals accordingly. → *Inspection and Maintenance Intervals, p. 35*
- Adhering and sticky process media can impact the functionality of the SensoGate WA131H (e.g., by causing components to stick together). Adjust the inspection and maintenance intervals accordingly. → *Inspection and Maintenance Intervals, p. 35*

Accidental Loosening of the Process Connection

Movement of the sensor into the SERVICE/PROCESS limit positions is triggered on the SensoGate WA131H by the pressurization of the control or process air.

Some versions of the SensoGate WA131H are screwed to process connections with a thread or secured with coupling nuts. Travel movements or process-related vibrations may cause the process connection to accidentally come loose from the process or a coupling nut. Pressurized process medium may escape.

Use of an appropriate retainer clamp or locking clamp is strongly recommended.
→ *Safety Accessories, p. 8*

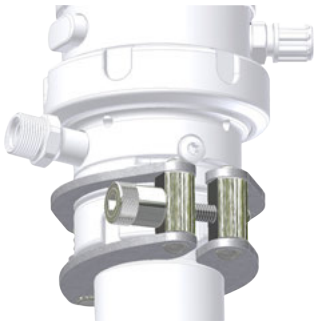
1) The ZU0759 protective cap protects against the effects of weather exposure and prevents the ingress of external liquids or particles into the area of the sensor connections.

Operating companies operate the SensoGate WA131H without a retainer clamp or locking clamp at their own risk. In this case, the operating company must implement measures that exclude the possibility of accidental loosening of the coupling nut of the screw joint.

1.5 Safety Accessories

To increase safety, specially developed accessories are available. → *Accessories, p. 48_*

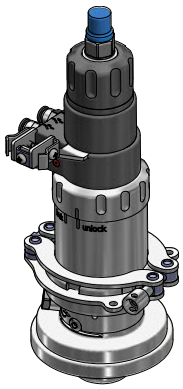
Note: We urgently recommend using the safety accessories.



ZU0818 Retainer Clamp for Ingold Socket, 25 mm

The retainer clamp prevents the coupling nut of the Ingold socket (25 mm) screw joint from accidentally coming loose.

The wires of the retainer clamp connect the SensoGate WA131H to the customer's process port. A locking lug on the retainer clamp engages in the groove of the coupling nut (form-fit).



ZU1138 Retainer Clamp for SensoGate Retractable Fitting

The accessory prevents the screw joint between the retractable fitting's drive unit and the process connection from accidentally coming loose.

The retainer clamp wires connect the SensoGate WA131H's drive unit with the coupling nut. The locking lugs on the retainer clamp engage in the grooves of the coupling nut (form-fit) and secure the screw joint.

1.6 Hazardous Substances

IN THE EVENT OF ANY CONTACT WITH HAZARDOUS SUBSTANCES OR OTHER INJURY HEREUNDER, SEEK IMMEDIATE MEDICAL ATTENTION OR FOLLOW APPLICABLE PROCEDURES TO ADDRESS HEALTH AND SAFETY OF PERSONNEL. FAILURE TO SEEK IMMEDIATE MEDICAL ATTENTION MAY RESULT IN SERIOUS INJURY OR DEATH.

In certain situations (e.g., sensor replacement or corrective maintenance), personnel may come into contact with the following hazardous substances:

- Process medium
- Calibration or cleaning medium
- Lubricant

The operating company is responsible for conducting a risk assessment.

See the relevant manufacturers' safety datasheets for hazard and safety instructions on handling hazardous substances.

1.7 Operation in Explosive Atmospheres

SensoGate WA131H-X is certified for operation in hazardous locations.

- EU Type Examination Certificate KEMA 04ATEX4035X
- IECEx Certificate of Conformity IECEx DEK 23.0051X

The conditions for installation and operation in hazardous locations can be found on the corresponding certificates.

Exceeding the standardized atmospheric conditions within the manufacturer's specifications, e.g., with regard to the ambient temperature and pressure, does not endanger the retractable fitting's durability.
→ *Specifications, p. 52*

Related certificates are included in the product's scope of delivery and are available at www.knick-international.com in the current version.

Observe all applicable local and national codes and standards for the installation of equipment in hazardous locations. For further guidance, consult the following:

- IEC 60079-14
- EU directives 2014/34/EU and 1999/92/EC (ATEX)

1.7.1 Possible Ignition Hazards During Installation and Maintenance

To avoid mechanically generated sparks, handle the SensoGate WA131H-X with care and take suitable protective action, e.g., use covers and pads.

The metallic parts of the SensoGate WA131H-X must be connected to the plant's equipotential bonding system using the metallic process connection and the grounding connection provided for that purpose.

When components are replaced with genuine Knick spare parts made of other materials (e.g., O-rings), the information on the nameplate may then deviate from the actual version of the SensoGate WA131H-X. The operating company must assess and document the changes.
→ *Nameplates, p. 14*

Electrostatic Charging

The drive unit of specific versions of the SensoGate WA131H-X contains housing components made of non-conductive plastic. Due to their surface, the housing components may build up an electrostatic charge. To prevent this charge from becoming an effective ignition source in Zone 0, ensure that the following conditions are met:

- There is no risk of highly efficient charge-generating mechanisms.
- Non-metallic components are cleaned with a moist cloth only.

Mechanically Generated Sparks

Single impacts on metal parts or collisions between metal parts of the SensoGate WA131H-X are not a potential ignition source if the following conditions are met:

- Possible impact velocity is less than 1 m/s.
- Possible impact energy is less than 500 J.

If these conditions cannot be ensured, the operating company must reassess single impacts on metal parts or collisions between metal parts as potential sources of ignition. The operating company must implement suitable risk minimization measures, e.g., by ensuring a non-explosive atmosphere.

1.7.2 Possible Ignition Hazards During Operation

When using non-water-based cleaning, rinsing, or calibration media with a low conductivity of less than 1 nS/m, electrostatic charging of internal, conductive components may occur. The operating company must assess the associated risks and take appropriate action.

The sensors that are used must be approved for operation in hazardous locations. Further information can be found in the sensor manufacturer's documentation.

1.8 Safety Training

Upon request, Knick Elektronische Messgeräte GmbH & Co. KG will provide safety briefings and product training during initial commissioning of the product. More information is available from the relevant local contacts.

1.9 Maintenance and Spare Parts

Preventive Maintenance

Preventive maintenance can keep the product in good condition and minimize downtimes. Knick provides recommended inspection and maintenance intervals. → *Maintenance, p. 35*

Lubricants

Only use lubricants approved by Knick. Special applications or upgrades to special lubricants are available on request. Usage of any other lubricants shall constitute an unintended use of the product.
→ *Maintenance, p. 35*

Tools and Mounting Aids

Special and accessory tools help maintenance personnel to replace components and wear parts safely and professionally. → *Tools, p. 51*

Spare Parts

For professional corrective maintenance of the product, only use Knick genuine spare parts. Usage of any other spare parts shall constitute an unintended use of the product.
→ *Spare Parts, p. 48*

Repair Service

The Knick Repair Service offers professional corrective maintenance for the product to the original quality. Upon request, a replacement unit can be obtained for the period of the repair.

Further information can be found at www.knick-international.com.

2 Product

2.1 Package Contents

- SensoGate WA131H in the version ordered
- User Manual
- EU Declaration of Conformity[1)]
- EU Type Examination Certificate[1)]
- As applicable, supplementary datasheet for special versions[1)]

2.2 Product Identification

The various versions of the SensoGate WA131H product are coded in a model designation.

The model designation is stated on the nameplate, the delivery note, and the product packaging.
→ *Nameplates, p. 14*

2.2.1 Model Designation Example

Model designation		WA131H	–	X	0	E	H	H	0	A	B	1	1	–	0	0	W
Explosion protection	ATEX Zone 0			X										–			
Sensor	Sensor Ø12 mm with PG13.5				0									–			
Seal material	EPDM-FDA					E								–			
Wetted materials [2)]	1.4404 / 1.4404 / 1.4404						H							–			
Process connections	Ingold socket, 1.4404, 25 mm							H	0					–			
Immersion depth	Short									A				–			
Pneumatics connection	With pneumatic limit signal										B			–			
Rinsing medium connection	Inlet G⅛" (female), outlet G⅛" (female) with outlet hose complete (3 m)											1		–			
SensoLock	With												1	–			
Special version	Immersion lock for fitting with dismounted sensor. For sensor type 0.													–	0	0	W

1) Supplied depending on the ordered version of the SensoGate WA131H. → *Product Code, p. 12*

2) Material combinations: process-wetted part of calibration chamber / rinse-wetted part of calibration chamber / immersion tube

2.2.2 Product Code

Basic unit with pneumatic drive unit, stainless steel, hygienic		WA131H	–	_	_	_	_	_	_	_	_	_	–	_	_	_
Explosion protection	ATEX Zone 0			X									–			
	Without			N									–			
Sensor	Sensor Ø12 mm with PG13.5				0								–			
	pH sensor ⌀12 mm with pressurization, sensor holder for compressed air supply				1								–			
	Optical sensor Ø12 mm with PG13.5				4								–			
Seal material	EPDM-FDA					E							–			
	FKM-FDA					F							–			
	FFKM/EPDM-FDA[1]					G							–			
	FFKM-FDA					H							–			
	EPDM-FDA-USP VI[2]					U							–			
	FFKM-FDA-USP VI[2]					W							–			
Wetted materials [3]	1.4404 / 1.4404 / 1.4404						H						–			
Process connections	Ingold socket, 25 mm							H	0				–			
	Ingold socket, hygienic, 25 mm							H	1				–			
	Ingold socket 25 mm, groove 45 mm							H	Z				–			
	Dairy pipe DN 40							C	0				–			
	Dairy pipe DN 50							C	1				–			
	Dairy pipe DN 65							C	2				–			
	Dairy pipe DN 80							C	3				–			
	Dairy pipe DN 100							C	4				–			
	Clamp 1.5″							J	1				–			
	Clamp 2″							J	2				–			
	Clamp 2.5″							J	3				–			
	Clamp 3″							J	4				–			
	Clamp 3.5″							J	5				–			
	Clamp 2″, inclined[2]							J	G				–			
	Clamp 1.5″, inclined[2]							J	F				–			
	BioControl, DS 50							L	1				–			
	BioControl, DS 65							L	2				–			
	Clamp 2.5″, inclined[2]							J	K				–			
	Varivent (≥ DN 50)							V	1				–			
	Varivent (≥ DN 65 short, ≥ DN 80 long)							V	2				–			
	Varivent, inclined 12° (≥ DN 50)							V	4				–			
Immersion depth	Short									A			–			
	Long									B			–			
Pneumatics connection	Without pneumatic limit signal										A		–			
	With pneumatic limit signal										B		–			
Rinsing medium connection	Inlet G⅛ (female), outlet G⅛ (female) with outlet hose complete (3 m)											1	–			
	Inlet G⅛ (female) and inlet hose complete (5 m), outlet G⅛ (female) with outlet hose complete (3 m)											2	–			

1) Process-wetted seals/rinse-wetted seals

2) Special option, lead time on request

3) Material combinations: process-wetted part of calibration chamber / rinse-wetted part of calibration chamber / immersion tube

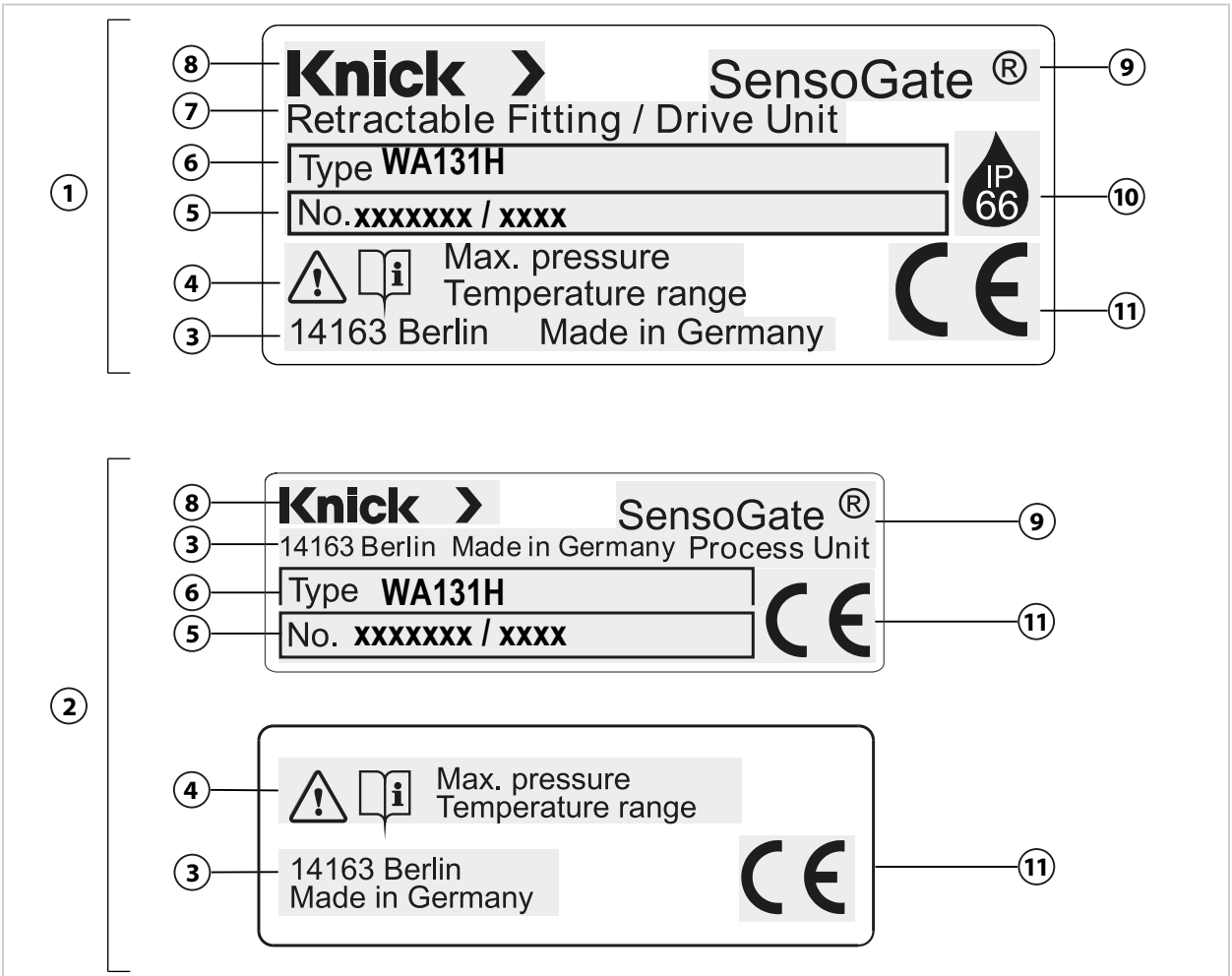
Basic unit with pneumatic drive unit, stainless steel, hygienic		WA131H - _ _ _ _ _ _ _ _ _ _ - _ _ _
SensoLock	Without	0 -
	With	1 -
Special version	Without	- 0 0 0
	Equipment with special grease (provided by customer)	- 0 0 1
	Customer-specific special datasheet	- 0 0 F
	Immersion lock for fitting without mounted sensor. For immersion depths A, V and pH sensor type 1.	- 0 0 V
	Immersion lock for fitting with dismounted sensor. For sensor type 0.	- 0 0 W

2.3 Nameplates

The SensoGate WA131H is identified by nameplates on the drive unit and the process unit. The information provided on the nameplates varies according to the version of the SensoGate WA131H.

Nameplate, Version Without Ex Approval

Note: The figure shows a nameplate for the SensoGate WA131H-N version by way of example.

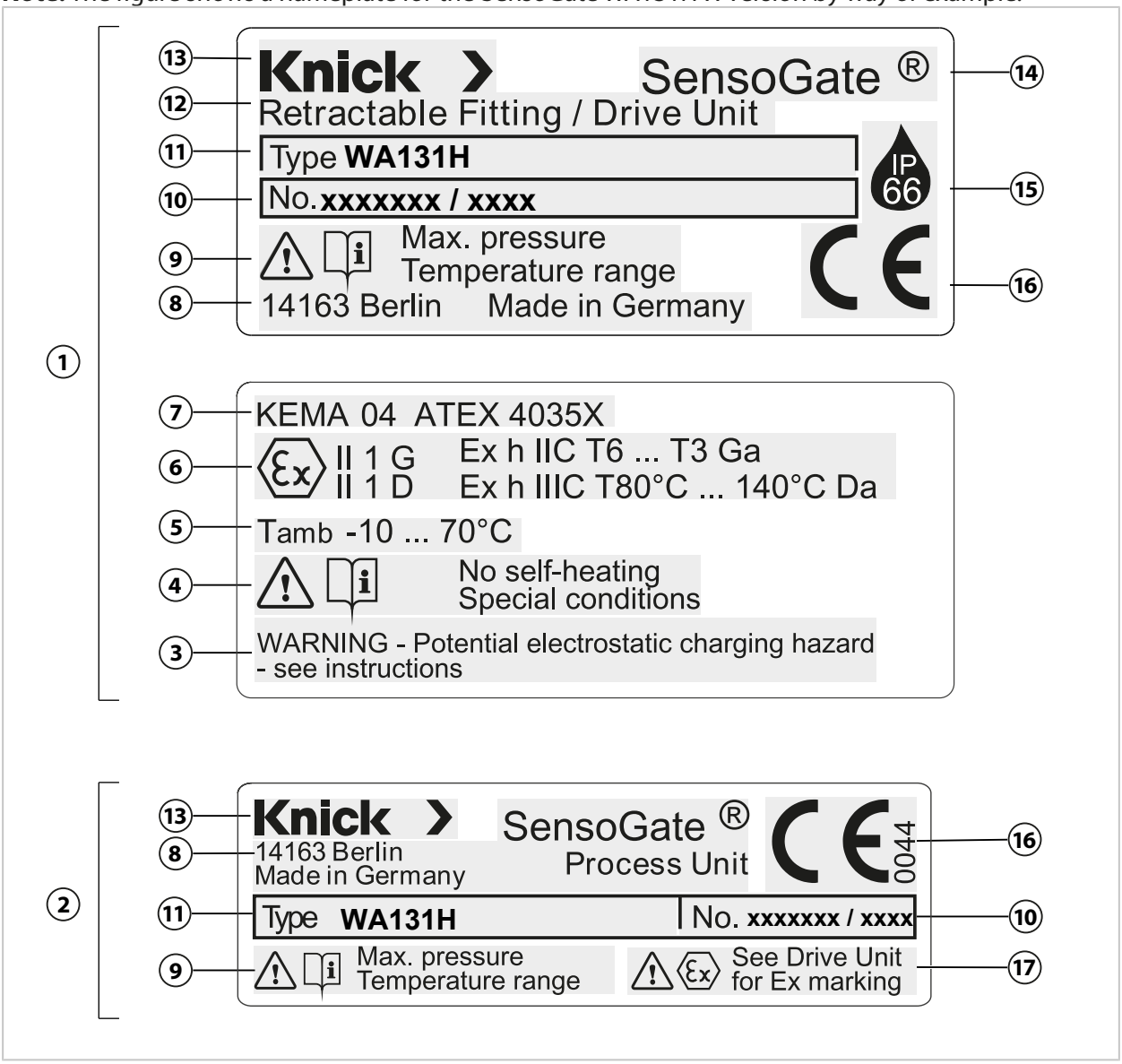


1	Drive unit nameplate	7	Product group: Retractable fitting Assembly group: Drive unit
2	Process unit nameplates	8	Manufacturer
3	Manufacturer's address with designation of origin	9	Product family
4	Max. operating pressure and temperature range [1)]	10	IP degree of protection
5	Serial number/production year and week YYWW	11	CE mark
6	Model designation	12	Assembly group: Process unit

[1)] Further information is available in the → *Safety, p. 5* and → *Specifications, p. 52* chapters.

Nameplate, Version With Ex Approval

Note: The figure shows a nameplate for the SensoGate WA131H-X version by way of example.



1	Drive unit nameplate	10	Serial number/year and week of production
2	Process unit nameplate	11	Model designation
3	Warning: Risk of electrostatic discharge[1)]	12	Product group: Retractable fitting Assembly group: Drive unit
4	No self heating/special conditions [1)]	13	Manufacturer
5	Permissible ambient temperature	14	Product family
6	ATEX marking/information on explosion protection	15	IP degree of protection
7	EU Type Examination Certificate test number	16	CE marking with identification number
8	Manufacturer's address with designation of origin	17	Reference to ATEX information for the drive unit
9	Reference to max. operating pressure and temperature range		

[1)] Further information is available in the related EU Type Examination Certificate and in the → *Safety, p. 5* and → *Specifications, p. 52* chapters.

2.4 Symbols and Markings

	Special conditions and danger points! Observe the safety information and instructions on safe use of the product as outlined in the product documentation.
	Reminder to read the documentation
	CE mark with identification number[1] of the notified body involved in the production control.
	ATEX marking[1] of the European Union for operation in hazardous locations → *Operation in Explosive Atmospheres, p. 9*
	IP66 protection: The product is dust-tight and offers complete protection against contact as well as protection against strong water jets.
	Outlet symbol marking the outlet port of the SensoGate WA131H
	Inlet symbol marking the inlet port of the SensoGate WA131H[1]
	Connection of the process position (PROCESS limit position) check-back signal[1]
	Connection of the service position (SERVICE limit position) check-back signal[1]
	Symbol to show that the SensoGate WA131H is mechanically locked[1]
	Symbol to show that the SensoGate WA131H is not mechanically locked[1]

2.5 Design and Function

SensoGate WA131H consists of two main assemblies:

- Drive unit
- Process unit

The drive unit is connected to the process unit with a coupling nut. The drive unit and process unit can be separated. → *Drive Unit: Removal, p. 37*

Various different versions of drive and process unit can be combined. → *Permissible Changes, p. 19*

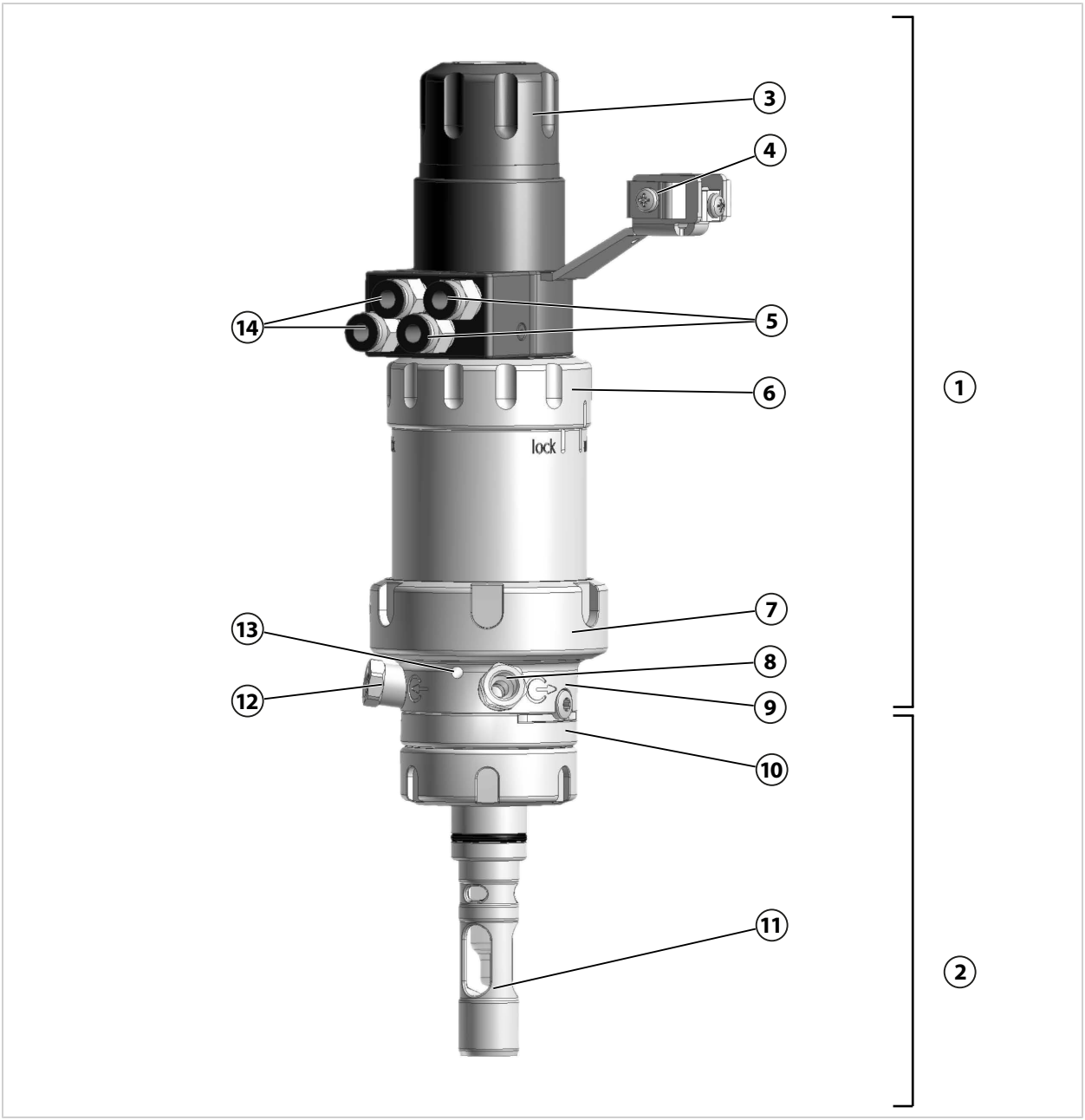
The process connection is used to fasten the SensoGate WA131H to the process port.

The pneumatically operated drive unit moves the SensoGate WA131H into the service position (SERVICE limit position) or the process position (PROCESS limit position).
→ *SERVICE/PROCESS Limit Positions, p. 20*

[1] Dependent on the ordered version → *Product Code, p. 12*

2.5.1 Retractable Fitting

Note: The figure shows an example version of the SensoGate. → *Product Code, p. 12*



1	Drive unit	8	Outlet port
2	Process unit	9	Calibration chamber
3	Sensor holder	10	Process connection
4	Fixing bracket with grounding connection	11	Immersion tube
5	Pneumatic system check-back signal connection (option)	12	Inlet port (option)
6	SensoLock (option)	13	Leakage bore
7	Coupling nut	14	Control air connection

2.5.2 Drives and Sensor Holders

Note: The figure shows a selection from the product line. → *Product Code, p. 12*

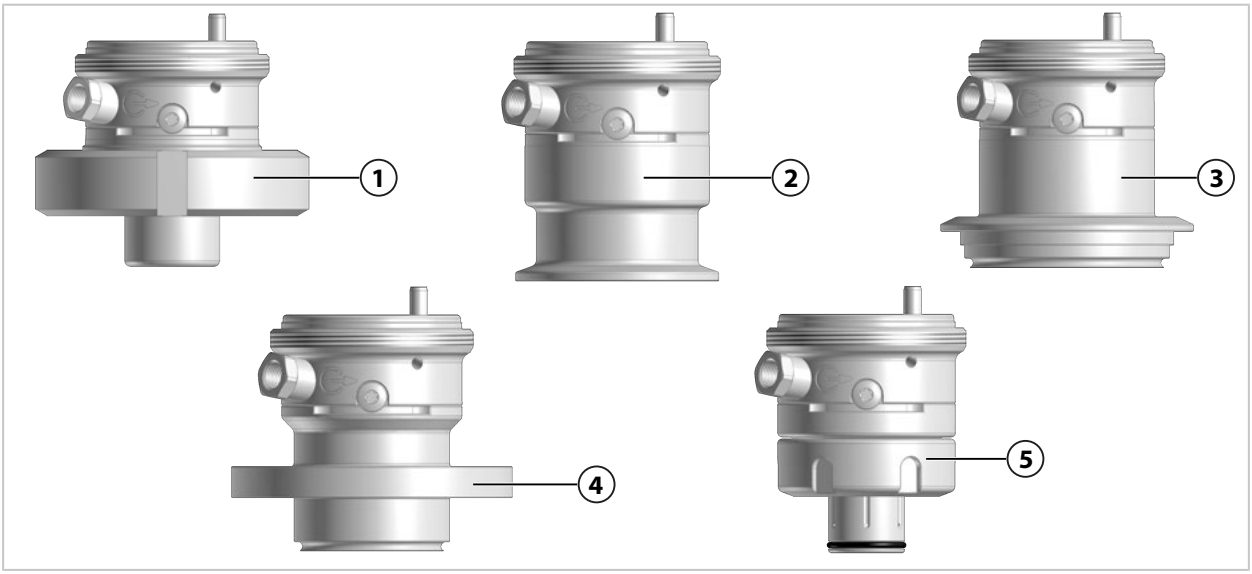
1 Drive unit short ID, solid electrolyte sensor (225 mm)	2 Drive unit short ID, liquid electrolyte sensor (250 mm)

See also

→ *Drives and Sensor Holders, p. 18*

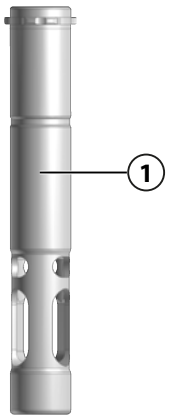
2.5.3 Process Connections

Note: The figure shows a selection from the product line. → *Product Code, p. 12*



1 Dairy-pipe screw joint	**4** BioControl
2 Tri-Clamp	**5** Ingold socket
3 Varivent	

2.5.4 Immersion Tube



1 Stainless steel immersion tube 1.4404 (135 mm)

2.6 Permissible Changes

The SensoGate WA131H can be adapted to changed conditions by the customer. Prior to making any changes, contact Knick Elektronische Messgeräte GmbH & Co. KG. The following are examples of possible changes:

- Change to a different process connection → *Process Connections, p. 18*
- Modification of the sensor holder to fit another sensor type → *Drives and Sensor Holders, p. 18*
- Replacement of process-wetted components (calibration chamber, immersion tube, seals) with other material characteristics → *Maintenance, p. 35*
- Retrofit of safeguards, e.g., "Immersion Lock Without a Mounted Liquid-Electrolyte Sensor" → *Safeguards, p. 6*

Any changes may result in deviations between the information on the nameplate and the actual version of the SensoGate WA131H. The operating company must assess and document the changes. In the event of a change to the version, the product must be identified accordingly.

It is recommended that changes to the SensoGate WA131H be carried out by the Knick Repair Service. After making the necessary changes, a functional and pressure test is carried out and, if necessary, a modified nameplate is attached. → *Knick Repair Service, p. 42*

More information on changes can be found in the related supplementary datasheet. Maintenance instructions with detailed instructions for action are available on request.

2.7 SERVICE/PROCESS Limit Positions

2.7.1 Service and Process Position

The SensoGate WA131H can take one of two limit positions (service or process position).

Note: The SensoGate WA131H is only disconnected from the process in the service position (SERVICE limit position). This is *not* the case in any other position, i.e., there remains contact with the process.

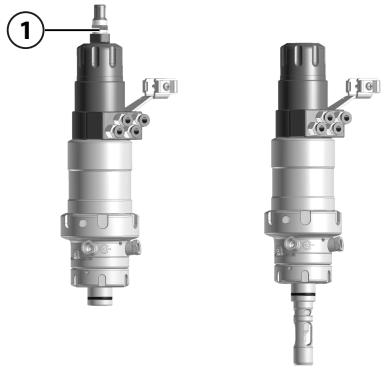
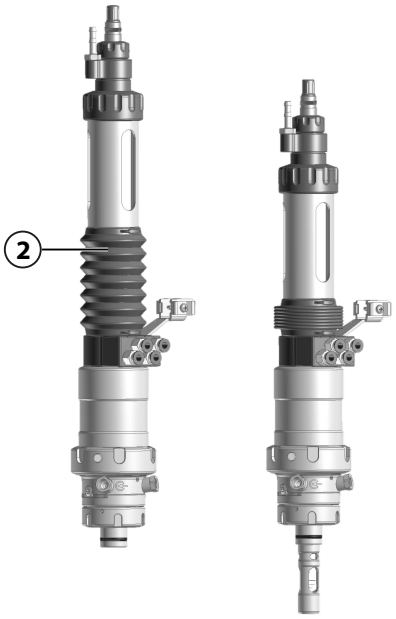
Service Position (SERVICE limit position)

- The sensor does not have contact with the process medium.
- The sensor can be installed or dismounted and cleaned if necessary in an ongoing process.
- The measuring system can be calibrated and adjusted.
- The limit position can be monitored pneumatically.[1)]

Process Position (PROCESS limit position)

- The sensor has contact with the process medium.
- The required process parameters can be measured.
- The limit position can be monitored pneumatically.[1)]

The service position (SERVICE limit position) and process position (PROCESS limit position) are indicated in different ways depending on the version of the SensoGate WA131H.

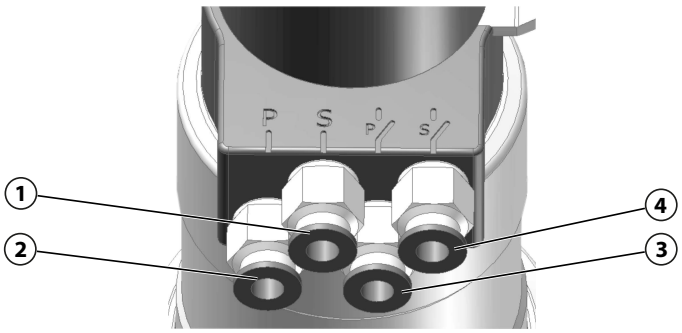
Solid electrolyte sensor, short immersion depth	Liquid electrolyte sensor, short immersion depth
	
SERVICE	**SERVICE**
In the service position, the sensor head **(1)** is visible tat the top end of the protection sleeve.	In the service position, the bellows are **(2)** pulled apart.
PROCESS	**PROCESS**
In the process position, the sensor head **(1)** is retracted into the protection sleeve.	In the process position, the bellows are **(2)** pressed together.

1) Availability of functions depends on the ordered version. → *Product Code, p. 12*

2.7.2 Limit Signals

On versions of the SensoGate WA131H with pneumatic limit signal, a pneumatic signal is applied to the corresponding push-in connection when a limit position is reached. This signal can either be processed directly or converted into an electrical signal through use of a limit switch (ZU0859).

→ *Accessories, p. 48*

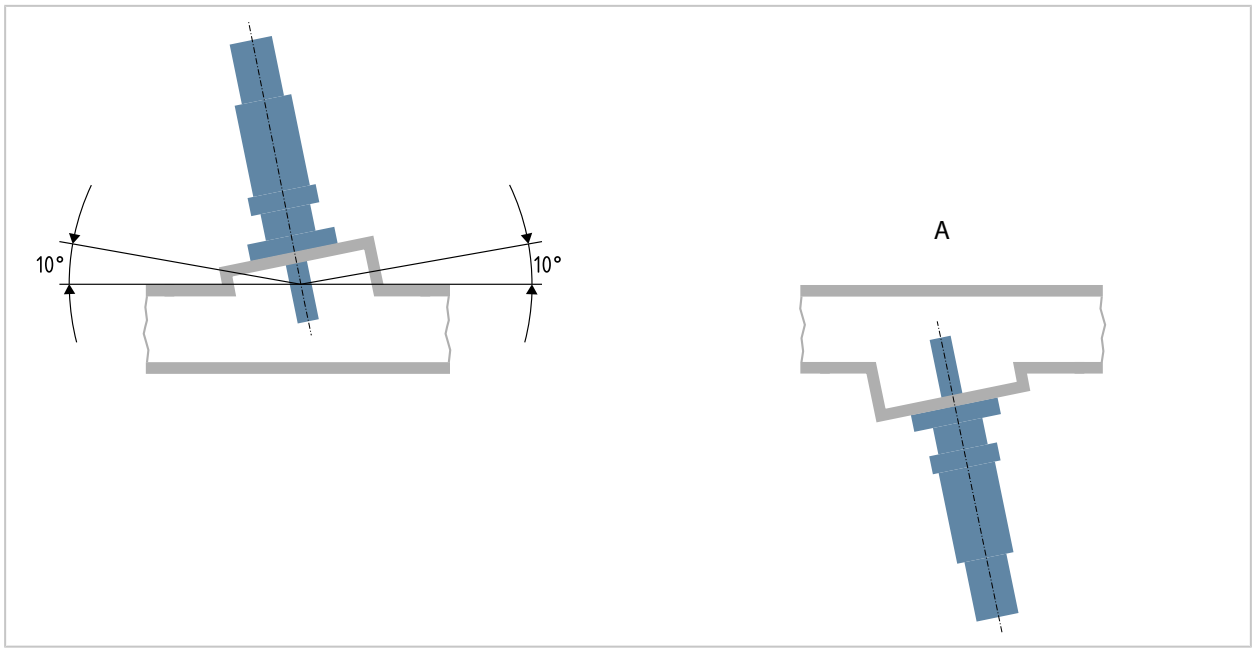


1	SERVICE compressed air connection	3	PROCESS limit position compressed air connection
2	PROCESS compressed air connection	4	SERVICE limit position compressed air connection

3 Installation

3.1 Retractable Fitting: Installation

⚠ WARNING! Risk of explosion from mechanically generated sparks when used in explosive atmospheres. Take appropriate action to prevent mechanically generated sparks. Follow the safety instructions. → *Operation in Explosive Atmospheres, p. 9*



01. Check the package contents of the SensoGate WA131H for completeness.
    → *Package Contents, p. 11*
02. Check the SensoGate WA131H for damage.
03. Ensure the required sensor installation clearances. → *Dimension Drawings, p. 53*
    Note: The installation angle of the SensoGate WA131H depends on the sensor type. An installation angle of up to 10° above the horizontal plane is permissible for all sensor types. An installation angle upside down (see view A) is only permitted if using sensors approved for upside-down operation.
04. Fasten the SensoGate WA131H to the process port using the process connection.
05. Optional: If using the product in explosive atmospheres, connect the grounding connection of the SensoGate WA131H to the plant's equipotential bonding system.

See also

→ *Operation in Explosive Atmospheres, p. 9*
→ *Commissioning, p. 26*

3.2 Safety Accessories: Installation

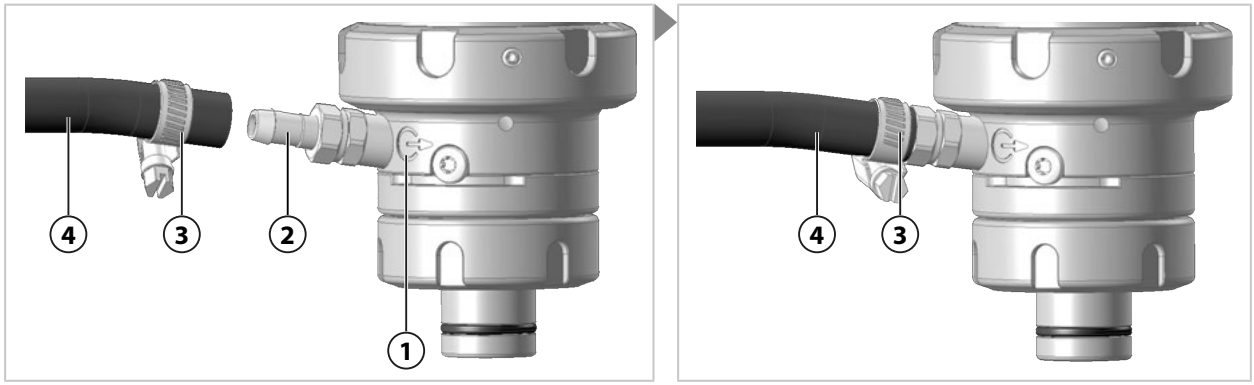
The installation of the safety accessories (e.g., ZU0818 retainer clamp) is described in the associated accessories manual.

Note: We urgently recommend using the safety accessories.

See also
→ *Safety Accessories, p. 8*

3.3 Outlet Hose: Installation

Note: The outlet is used to discharge rinse medium and trapped process medium and must not be closed. Installation of the supplied drain hose is also recommended for versions without a rinse connection. By moving the sensor to the SERVICE/PROCESS limit positions, pressurized process medium can enter the calibration chamber and be compressed when the outlet is closed. This process medium may splash out during sensor replacement.

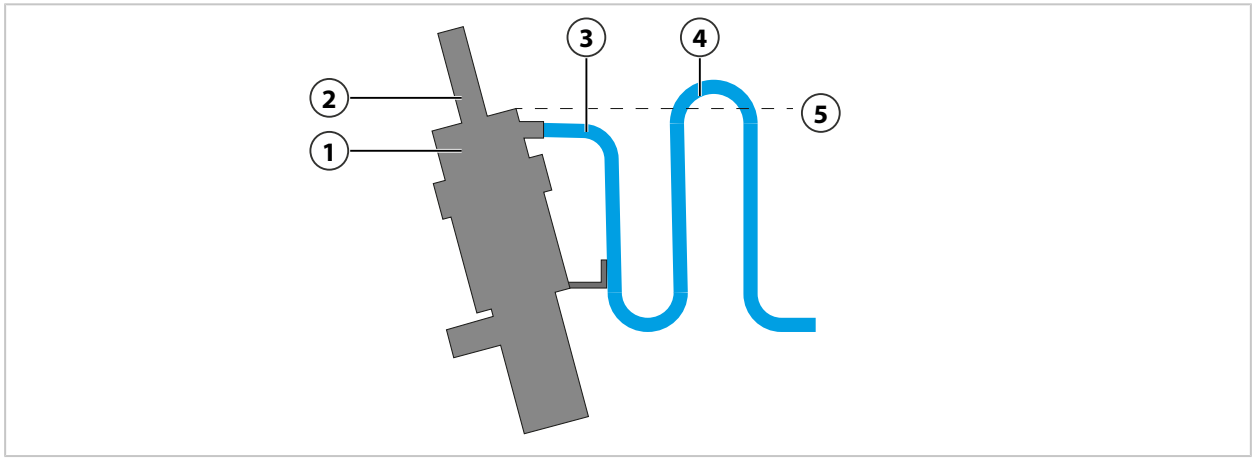


Note: The symbol **(1)** designates the outlet.

01. Push the hose clamp **(3)** onto the outlet hose **(4)**.
02. Completely push the outlet hose **(4)** onto the connection nozzle **(2)**.
03. Secure the outlet hose **(4)** with the hose clamp **(3)**.

Upside-Down Installation

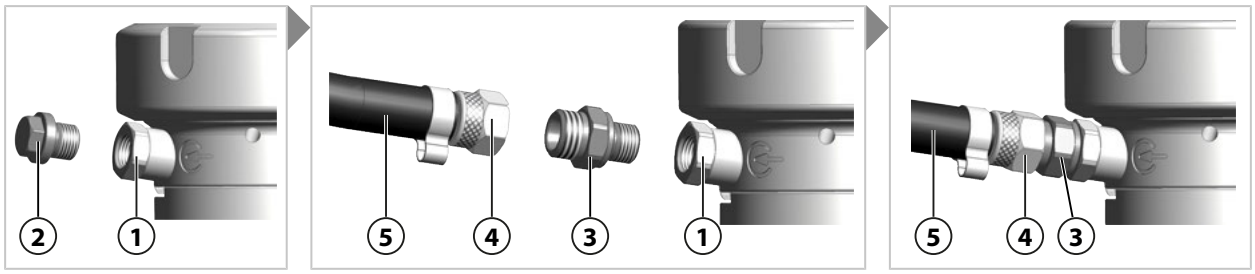
If installing the SensoGate WA131H upside down, lay the outlet hose in an arc above the level of the calibration chamber. This prevents gravity from causing the calibration chamber to leak.



1	Calibration chamber	4	Hose arc
2	Sensor	5	Calibration chamber level
3	Outlet hose		

3.4 Inlet Hose (Option): Installation

NOTICE! Drinking water may be contaminated by rinse and process media when connecting to drinking water pipes. Observe the information contained in EN 1717. Install a suitable check valve (e.g., check valve RV01) at the water or rinse connection. → *Accessories, p. 48*



Note: To ensure safe operation, the sealing insert or the inlet hose[1)] must be installed on the inlet. As delivered, the inlet port is sealed with a sealing insert. → *Product Code, p. 12*

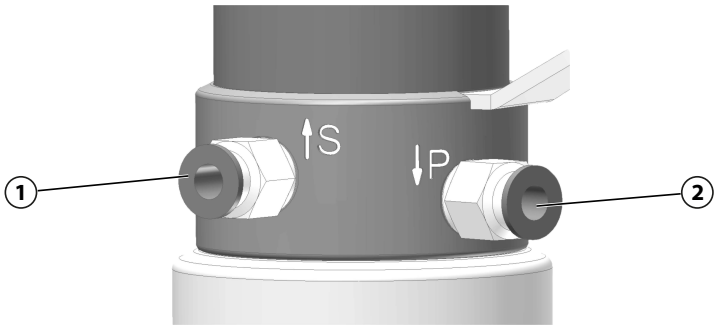
01. To install the inlet hose **(5)**, unscrew the PG plug **(2)** from the inlet port **(1)**.
02. Screw the coupling **(3)** as a component of the inlet hose **(5)** into the inlet port **(1)**.
03. Attach the inlet hose **(5)** using the coupling nut **(4)** to the coupling **(3)**.

1) Availability dependent on the ordered version → *Product Code, p. 12*

3.5 Pneumatic Control: Installation

For the SensoGate WA131H retractable fitting, the motions toward the service position (SERVICE limit position) or process position (PROCESS limit position) are pneumatically controlled.

3.5.1 Installation Without Limit Positions



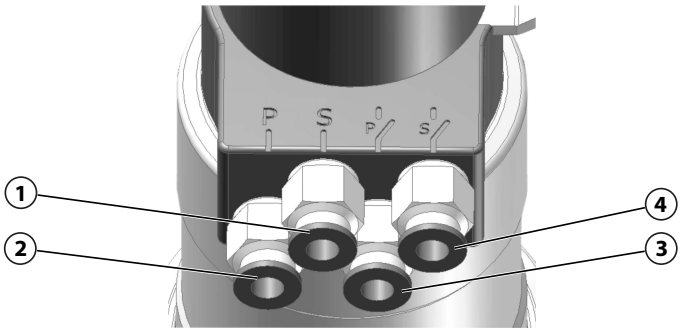
01. Push two compressed air hoses DN6 into the SERVICE **(1)** and PROCESS **(2)** plug-in connections up to the stop.

See also

→ *Inlet Hose (Option): Installation, p. 25*

3.5.2 Installation With Limit Positions

Whether limit positions are present depends on the version ordered. → *Product Code, p. 12*



01. Push four compressed air hoses DN6 into the SERVICE **(1)**, PROCESS **(2)**, SERVICE feedback **(4)** and PROCESS feedback **(3)**plug-in connections up to the stop.

4 Commissioning

⚠ WARNING! If the SensoGate WA131H fitting is damaged or improperly installed, process medium, potentially containing hazardous substances, may escape. Follow the safety instructions. → *Safety, p. 5*

Note: Upon request, Knick will provide safety briefings and product training during initial commissioning of the product. More information is available from the relevant local contacts.

01. Install SensoGate WA131H. → *Retractable Fitting: Installation, p. 22*
02. Install the outlet hose. → *Outlet Hose: Installation, p. 23*
03. Install the connections for the pneumatic controller. → *Pneumatic Control: Installation, p. 25*
04. Install the inlet hose if necessary.[1)] → *Inlet Hose (Option): Installation, p. 24*
05. Mount the sensor. → *Installing and Removing Sensors, p. 28*
06. Check if the process connection is mounted securely.
07. Optional: Check if the installed safety accessories (e.g., ZU0818 retainer clamp) are mounted securely. → *Safety Accessories, p. 8*
08. Optional: Check SensoGate WA131H-X if the equipotential bonding is connected to the system correctly. → *Operation in Explosive Atmospheres, p. 9*
09. Optional: Set SensoLock to “unlock”.
    ✓ SensoGate WA131H is unlocked.
10. Move the SensoGate WA131H into the process position (PROCESS limit position).
    → *Moving into the Process Position (PROCESS Limit Position), p. 27*
    ✓ Sensor head/service cap is not visible.
11. Move the SensoGate WA131H into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
    ✓ Sensor head/service cap visible.
12. Check SensoGate WA131H for tightness under process conditions.
    Note: Pressure and leak tests must be carried out in accordance with the relevant operating regulations or the operating company’s instructions.
    ✓ SensoGate WA131H and connections do not have leakage.

✓ SensoGate WA131H is ready for operation.

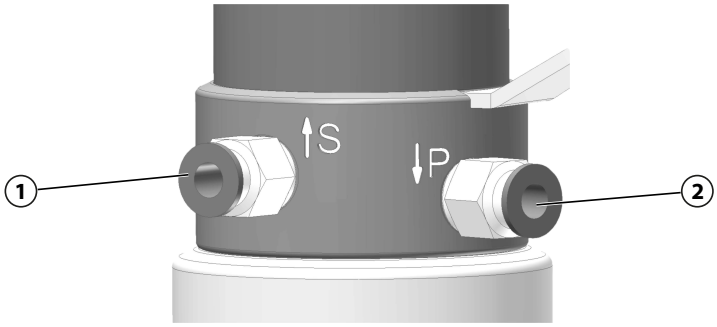
1) Dependent on the ordered version → *Product Code, p. 12*

5 Operation

5.1 Moving into the Process Position (PROCESS Limit Position)

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA131H. Only move the SensoGate WA131H into the process position (PROCESS limit position) if a sensor is installed. → *Installing and Removing Sensors, p. 28*

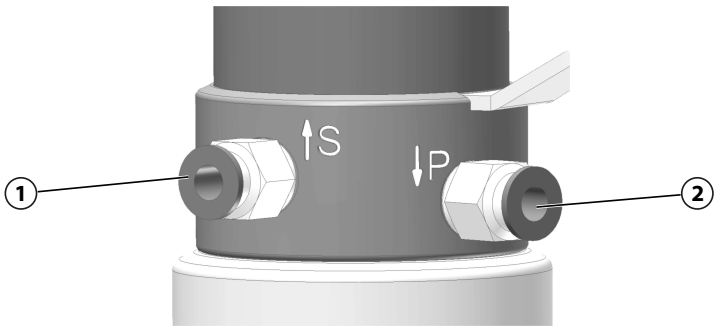
⚠ CAUTION! Risk of crushing injuries to hands and fingers. When moving to the limit positions, the SensoGate WA131H with liquid-electrolyte sensor performs a stroke movement (approx. 43 mm). Do not touch the SensoGate WA131H while it is moving to the limit positions.



01. Install the sensor. → *Installing and Removing Sensors, p. 28*
    Note: When moving to the process position (PROCESS limit position), the control air **(1)** is vented and the process air **(2)** is pressurized.
02. Move the SensoGate WA131H into the process position (PROCESS limit position).
    ✓ Sensor head/service cap is not visible.

5.2 Moving into the Service Position (SERVICE Limit Position)

⚠ CAUTION! Risk of crushing injuries to hands and fingers. When moving to the limit positions, the SensoGate WA131H with liquid-electrolyte sensor performs a stroke movement (approx. 43 mm). Do not touch the SensoGate WA131H while it is moving to the limit positions.



Note: When moving to the service position (SERVICE limit position), the control air **(1)** is pressurized and the process air **(2)** is vented.

01. Move SensoGate WA131H to the service position (SERVICE limit position).
    ✓ Sensor head/service cap visible.

5.3 Installing and Removing Sensors

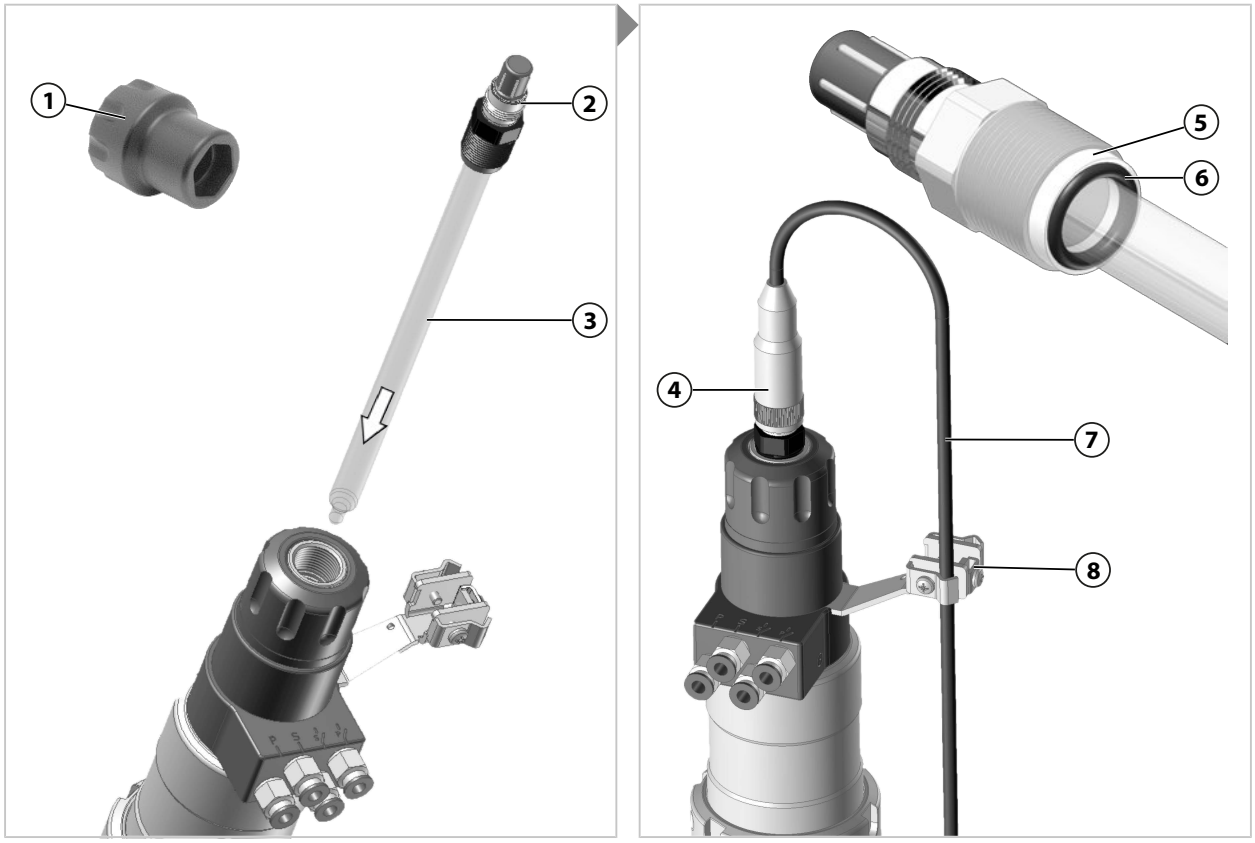
5.3.1 Safety Instructions on Installing and Removing Sensors

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA131H. Follow the safety instructions. → *Safety, p. 5*

⚠ CAUTION! Risk of cutting injuries from broken sensor glass. Handle the sensor with care. Follow the safety instructions in the sensor manufacturer's documentation.

Note: The outlet is used to discharge trapped rinse medium and must not be closed. By moving the SensoGate WA131H to the limit positions, pressurized process medium may enter the calibration chamber. When the outlet is closed, this process medium may be compressed and splash out during a sensor replacement. → *Design and Function, p. 16*

5.3.2 Solid-Electrolyte Sensor, Short Immersion Depth: Installation



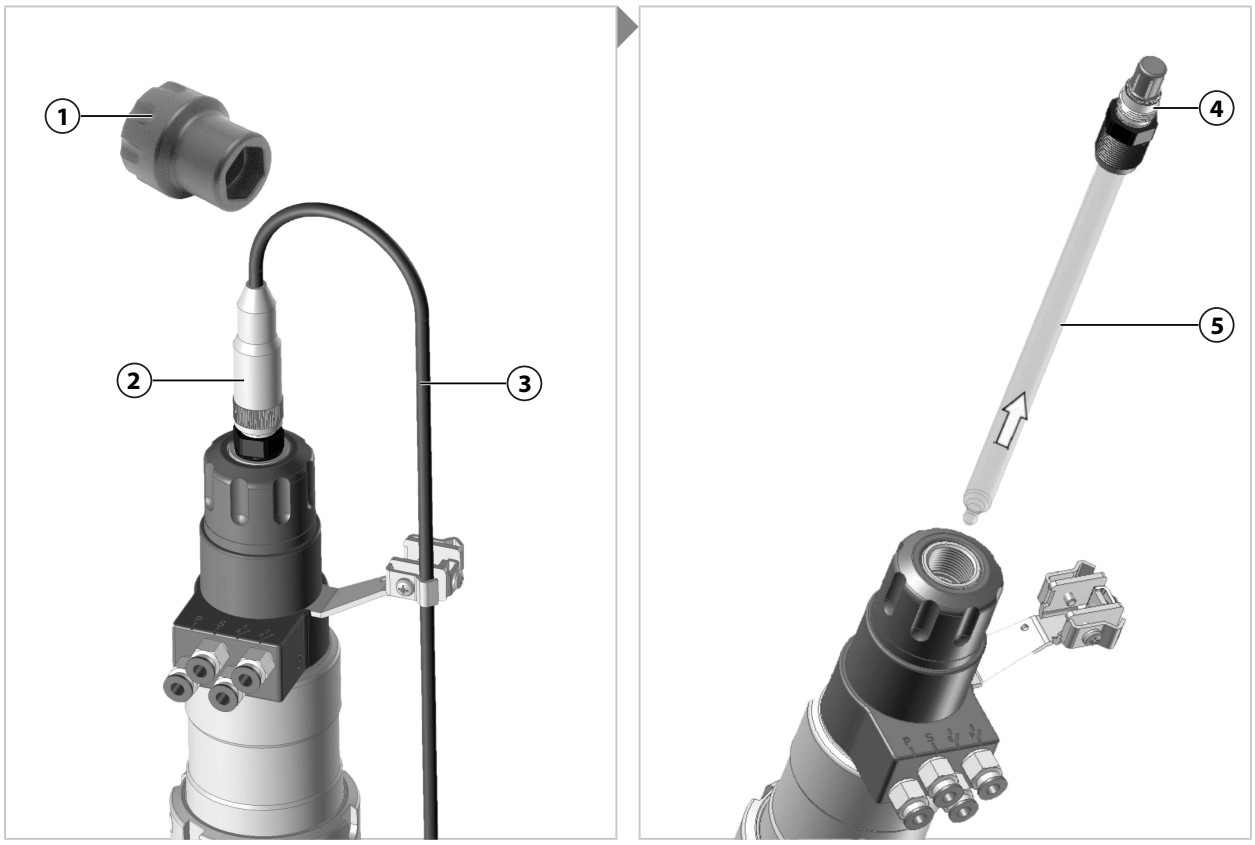
01. Move the SensoGate WA131H into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 43*
03. Optional: Set SensoLock to "lock".
04. Check the washer **(5)** and O-ring **(6)** of the sensor **(3)** for correct positioning and damage, and replace them if necessary.
05. Push the sensor **(3)** into the SensoGate WA131H.
06. Tighten the sensor **(3)** using the spanning wrench **(1)** to max. 3 Nm (A/F 19 mm). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 51*
07. Connect the cable bushing **(4)** to the sensor head **(2)**.
08. On first-time installation: Hold the sensor cable **(7)** in a loop and fasten it with the clamp **(8)**. During this process, the sensor cable loop must be long enough so that the sensor cable does not impede the stroke movement of the SensoGate WA131H.

09. On first-time installation: Optionally, connect the equipotential bonding cable to the clamp **(8)**.
10. Optional: Install the ZU0759/1 protective cap. → *Accessories, p. 48*
11. Optional: Set SensoLock to "unlock".

✓ The sensor is now installed.

5.3.3 Solid-Electrolyte Sensor, Short Immersion Depth: Removal

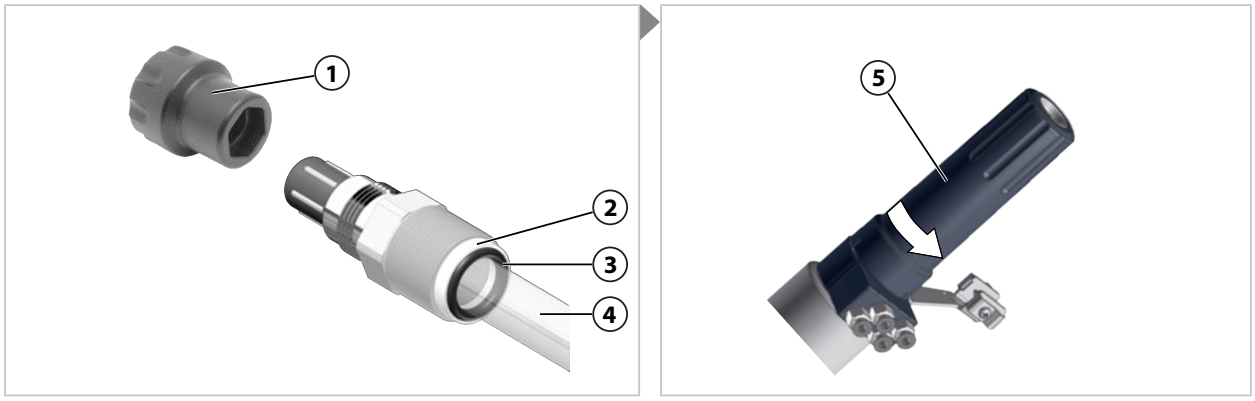
Note: Rinse the sensor prior to removal in order to prevent entrainment of chemically aggressive process medium in the area of the sensor holders.



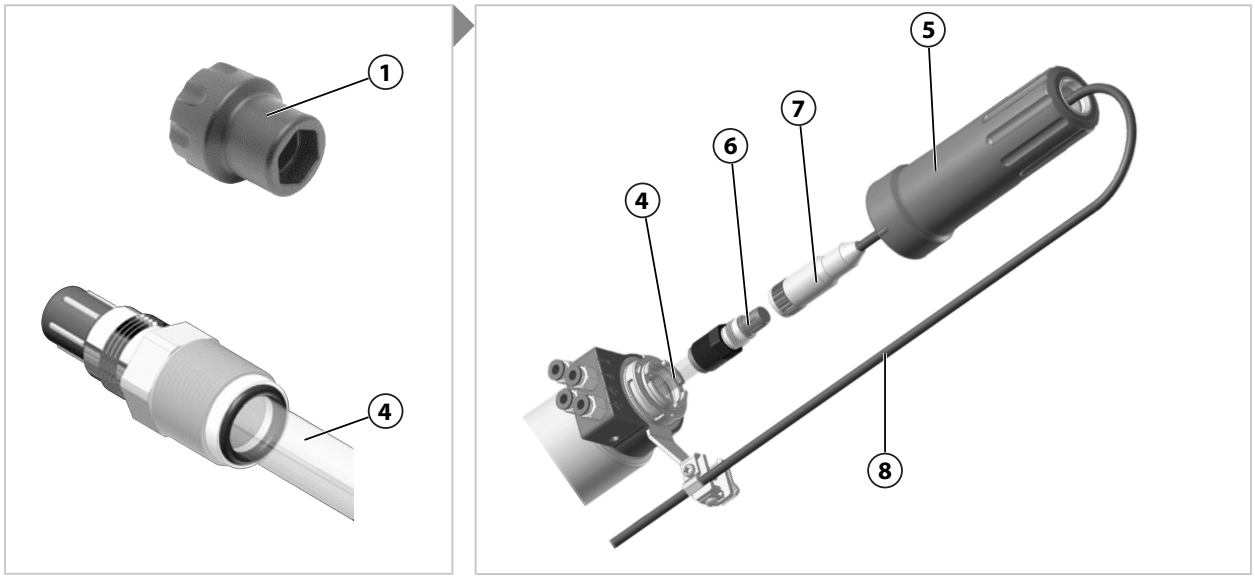
01. Move the SensoGate WA131H into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 43*
03. Optional: Remove the ZU0759 protective cap.
04. Optional: Set SensoLock to "lock".
05. Disconnect the cable bushing **(2)** of the sensor cable **(3)** from the sensor head **(4)**.
06. Release the sensor **(5)** using the spanning wrench **(1)** (A/F 19 mm). Recommended tool: ZU0647 sensor spanning wrench. → *Tools, p. 51*
07. Pull out the sensor **(5)**.
08. If the sensor glass is broken, check the immersion tube seal for damage and replace it if necessary. → *Immersion Tube: Removal, p. 39*

✓ The sensor is now removed.

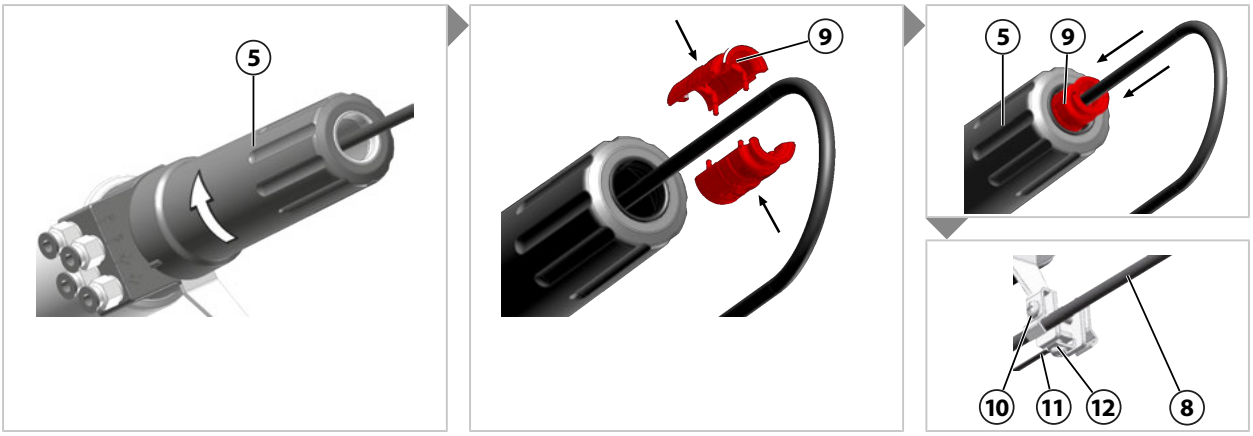
5.3.4 Solid-Electrolyte Sensor, Long Immersion Depth: Installation



01. Move the SensoGate WA131H into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 43*
03. Optional: Set SensoLock to "lock".
04. Check the washer **(2)** and O-ring **(3)** of the sensor **(4)** for correct positioning and damage, and replace them if necessary.
05. Rotate the extension **(5)** counterclockwise until its bayonet coupling opens.
06. Remove the extension **(5)**.



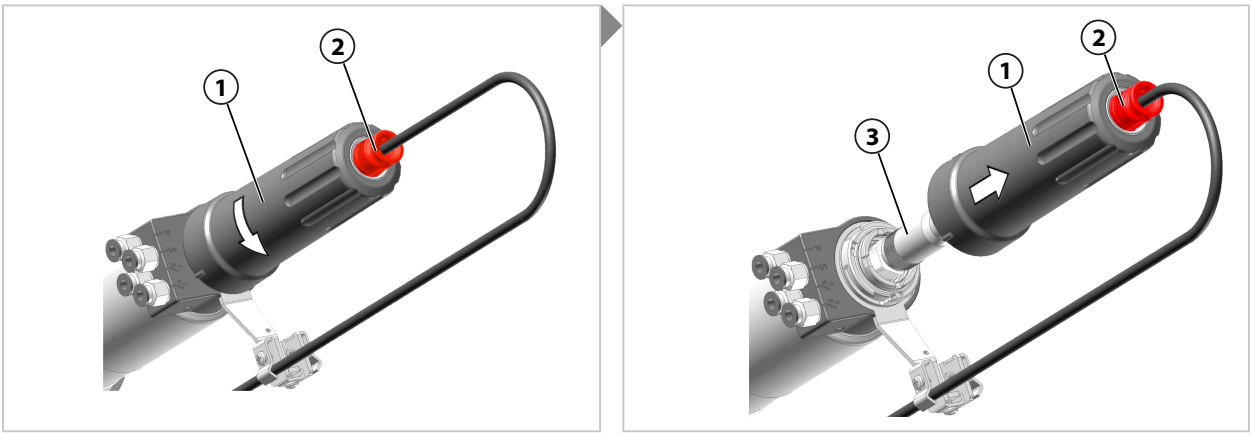
07. Push in the sensor **(4)**.
08. Tighten the sensor **(4)** using the spanning wrench **(1)** to max. 3 Nm (A/F 19 mm). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 51*
09. On first-time installation: Remove the split red service cap **(9)** from the extension **(5)**. Keep the service cap **(9)** in a safe place for future use.
10. On first-time installation: Guide the cable bushing **(7)** through the extension **(5)**.
11. Connect the cable bushing **(7)** to the sensor head **(6)**.



12. Position the extension **(5)** and rotate clockwise until the bayonet coupling engages.
13. On first-time installation: Mount the two-part red service cap **(9)** on the sensor cable **(8)** above the extension **(5)**.
14. On first-time installation: Push the service cap **(9)** toward the extension **(5)** until the service cap **(9)** positively engages.
15. On first-time installation: Hold the sensor cable **(8)** in a loop and fasten it with the clamp **(10)**. During this process, the sensor cable loop must be long enough so that the sensor cable does not impede the stroke movement of the SensoGate WA131H.
16. On first-time installation: Connect the equipotential bonding cable **(11)** to the terminal **(12)**.
17. Optional: Install the ZU0759/1 protective cap. → *Accessories, p. 48*
18. Optional: Set SensoLock to "unlock".

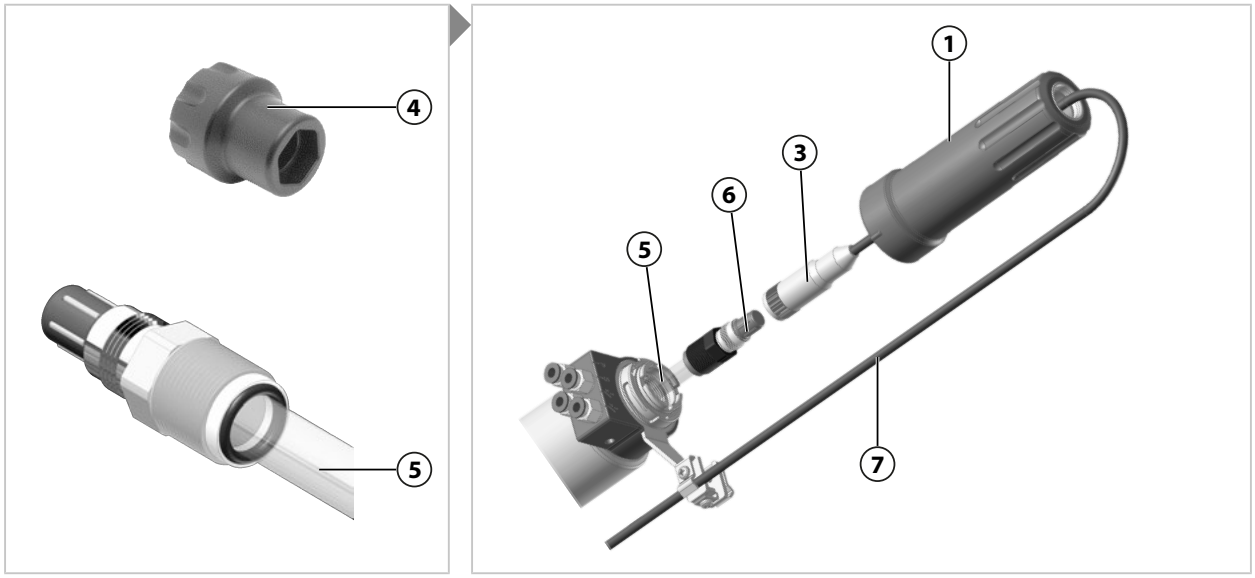
✓ The sensor is now installed.

5.3.5 Solid-Electrolyte Sensor, Long Immersion Depth: Removal



01. Move the SensoGate WA131H into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 43*
03. Optional: Remove the ZU0759 protective cap.
04. Optional: Set SensoLock to "lock".
05. Rotate the extension **(1)** counterclockwise until its bayonet coupling opens.
Note: The extension can only be unlocked in the service position (SERVICE limit position). The red service cap **(2)** must be visible in order to unlock. → *SERVICE/PROCESS Limit Positions, p. 20*

06. Pull off the extension **(1)** until the cable bushing **(3)** is accessible.

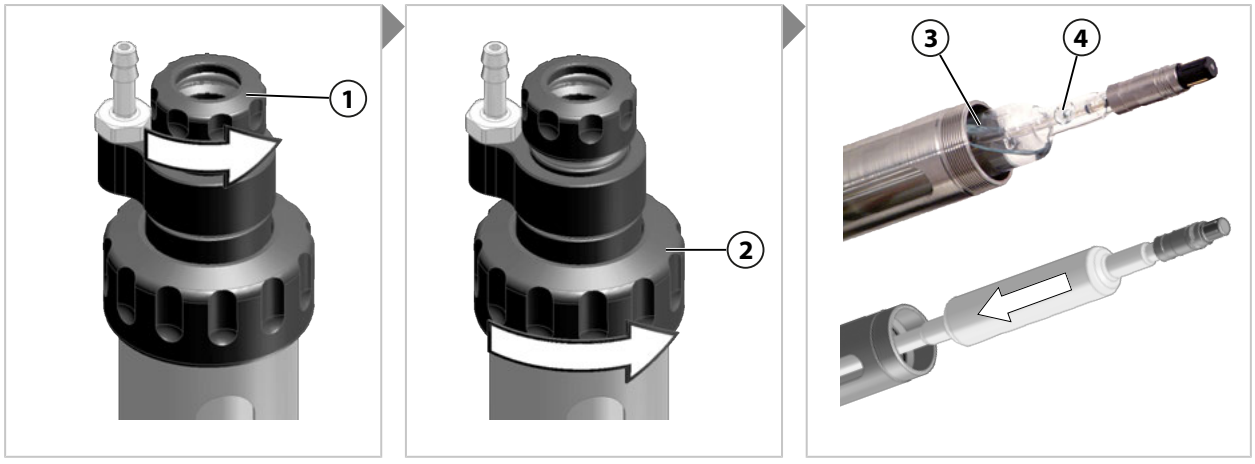


07. Disconnect the cable bushing **(3)** of the sensor cable **(7)** from the sensor head **(6)**.
08. Release the sensor **(5)** using the spanning wrench **(4)** (A/F 19 mm). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 51*
09. Pull out the sensor **(5)**.
10. If the sensor glass is broken, check the immersion tube seal for damage and replace it if necessary. → *Immersion Tube: Removal, p. 39*

✓ The sensor is now removed.

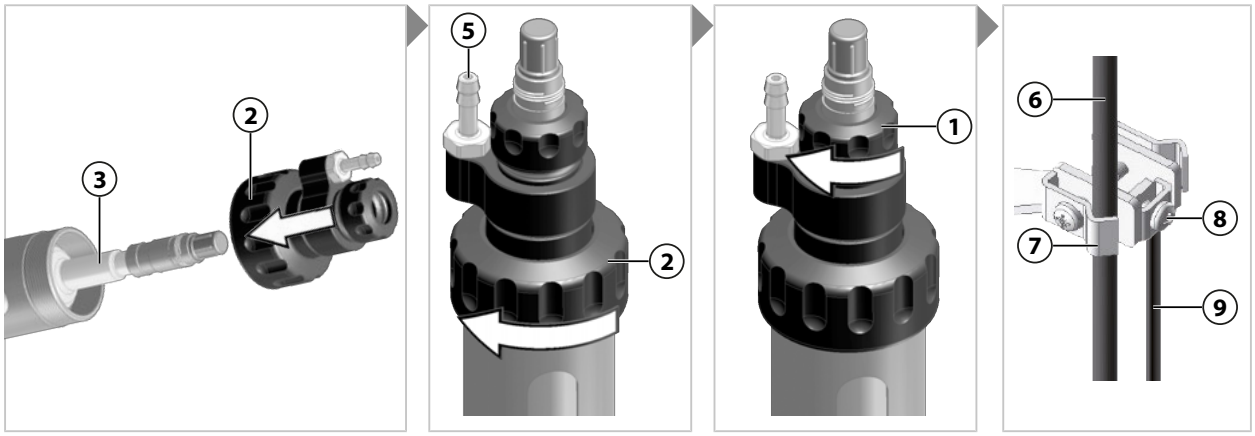
5.3.6 Liquid-Electrolyte Sensor: Installation

Note: To ensure that the electrolyte flows from the reference electrode to the process medium, the air pressure in the pressure chamber must be 0.5 to 1 bar above that of the process medium.



01. Move the SensoGate WA131H into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 43*
03. Optional: Set SensoLock to "lock".
04. Loosen the small coupling nut **(1)** by a few rotations; do not loosen completely.
05. Fully loosen the large coupling nut **(2)** and pull off the entire unit.
06. Remove the watering cap from the sensor tip and rinse the sensor **(3)** with water.

07. Remove the cap of the filling hole **(4)** of the sensor **(3)**.
08. Push in the sensor **(3)**.
    Note: In the case of inclined installation, turn the electrolyte filling hole towards the top to prevent electrolyte from flowing out during operation of the SensoGate WA131H. Observe any deviating direction of installation specified by the sensor manufacturer.

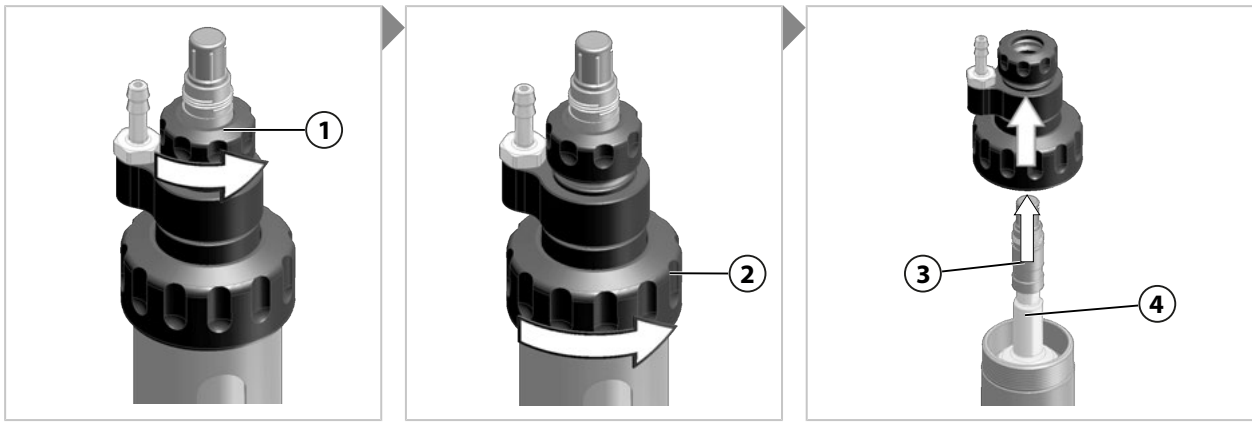


09. Position the large coupling nut **(2)** and fasten finger tight.
10. Fasten the small coupling nut **(1)** finger tight.
11. Connect the sensor cable **(6)**.
12. On first-time installation: Hold the sensor cable **(6)** in a loop and fasten it with the clamp **(7)**. During this process, the sensor cable loop must be long enough so that the sensor cable does not impede the stroke movement of the SensoGate WA131H.
13. On first-time installation: Connect the air pressure inlet for the pressure chamber to the connection nozzle **(5)**.
14. On first-time installation: Connect the equipotential bonding cable **(9)** to the clamp **(8)**.
15. Optional: Set SensoLock to "unlock".

✓ The sensor is now installed.

5.3.7 Liquid-Electrolyte Sensor: Removal

Note: Rinse the sensor prior to removal in order to prevent entrainment of chemically aggressive process medium in the area of the sensor holders.



01. Move the SensoGate WA131H into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 43*
03. Optional: Set SensoLock to "lock".

04. Disconnect the sensor cable.
05. Loosen the small coupling nut **(1)** by a few rotations; do not loosen completely.
06. Fully loosen the large coupling nut **(2)** and pull off the entire unit.
07. Pull out the sensor **(3)**.
    Note: Hold the sensor's filling hole **(4)** upward at an inclined angle during removal to prevent electrolyte from escaping. Follow the instructions in the sensor manufacturer's documentation. During transport and storage, close the sensor's filling hole with the cap.
08. If the sensor glass is broken, check the immersion tube seal for damage and replace it if necessary. → *Immersion Tube: Removal, p. 39*

✓ The sensor is now removed.

6 Maintenance

6.1 Inspection

6.1.1 Inspection and Maintenance Intervals

NOTICE! Different process conditions (e.g., pressure, temperature, chemically aggressive media) will affect the inspection and maintenance intervals. Analyze the specific application and process conditions at hand. Define appropriate intervals based on similar application cases where experience has already been gained.

Interval[1)]	Work Required
First inspection after a few days/weeks	Move the SensoGate WA131H into the service position (SERVICE limit position). If the product is not tight, process medium will escape from the outlet hose. → *Moving into the Service Position (SERVICE Limit Position), p. 27* As necessary, replace process-wetted (dynamically loaded) O-rings. → *Seal Kits, p. 45*
	Check leakage bores for process deposits. → *Safeguards, p. 6* As necessary, replace process-wetted (dynamically loaded) O-rings. → *Seal Kits, p. 45*
After 6 ... 12 months[2)]	Repeat the measures implemented during the first inspection.
After 10,000 ... 20,000 strokes	As necessary, replace process-wetted (dynamically loaded) O-rings. → *Seal Kits, p. 45*
After approx. 2 years	In particular if using chemically aggressive cleaning agents, check the rinse-wetted seals and replace them if necessary. → *Seal Kits, p. 45*
After approx. 5 years	Service the drive, replace O-rings, and re-grease. → *Corrective Maintenance, p. 37*

6.1.2 Immersion Lock Without a Mounted Solid-Electrolyte Sensor: Functional Test

To check the function of the immersion lock, the situation of a missing sensor is simulated.

Note: The functional test is possible only on a SensoGate WA131H with the corresponding safeguard.
→ *Safeguards, p. 6*

01. Move the SensoGate WA131H into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Optional: Set SensoLock to "unlock".
03. Loosen the sensor a maximum of 1.5 turns.

NOTICE! In the event of a malfunction, pressurized process medium, potentially containing hazardous substances, may escape from the SensoGate WA131H. Loosen the sensor no more than a maximum of 1.5 turns to ensure that pressure resistance is still available in the event of a malfunction.

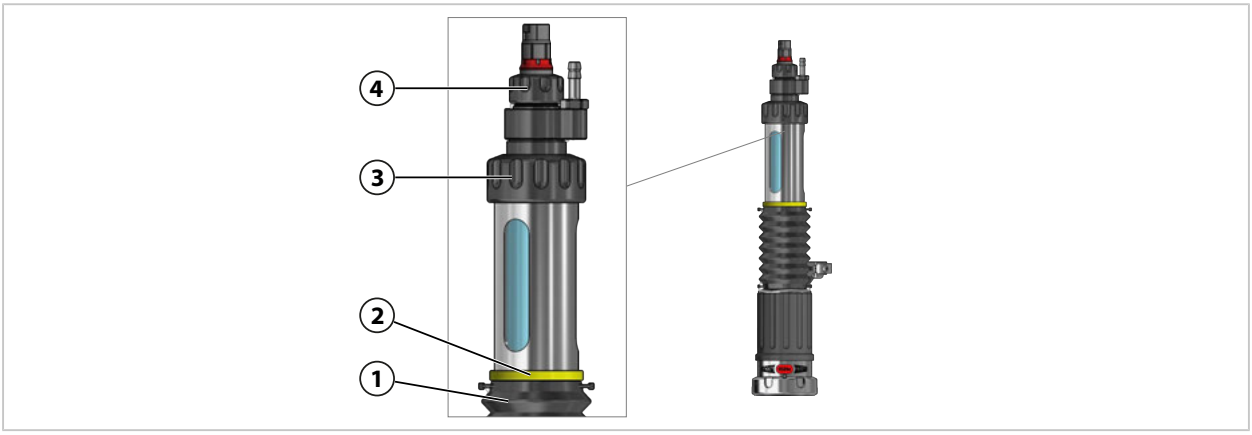
04. Move the SensoGate WA131H into the process position (PROCESS limit position).
    → *Moving into the Process Position (PROCESS Limit Position), p. 27*
    ✓ The SensoGate WA131H does not move to the process position (PROCESS limit position).
05. Fully screw in and tighten the sensor. Tightening torque 1 ... 3 Nm:
06. Repeat the functional test every 12 months. As applicable, adjust the interval to match the specific application for which the SensoGate WA131H is used.

1) The stated intervals are general recommendations based on Knick's experience. The actual intervals are dependent on the specific application for which the SensoGate WA131H is used.
2) Following successful first inspection and confirmation of the suitability of all materials used, the interval may be lengthened.

6.1.3 Immersion Lock Without a Mounted Liquid-Electrolyte Sensor: Functional Test

To check the function of the immersion lock, the situation of a missing sensor is simulated.

Note: The functional test is only available for a SensoGate WA131H with the safeguard "Immersion Lock Without a Mounted Liquid-Electrolyte Sensor". The safeguard can be seen at the yellow indicator ring **(2)** above the bellows **(1)**. → *Safeguards, p. 6*



01. Move the SensoGate WA131H into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 27*.
02. Loosen but do not remove the small coupling nut **(4)**.
03. Loosen the large coupling nut **(3)** by around 1.5 turns.

⚠ WARNING! In the event of a malfunction, pressurized process medium may escape from the SensoGate WA131H. Do not completely loosen the large coupling nut **(3)** to ensure that pressure resistance is still available in the event of a malfunction.

04. Move the SensoGate WA131H into the process position (PROCESS limit position).
→ *Moving into the Process Position (PROCESS Limit Position), p. 27*
✓ The process position (PROCESS limit position) of the SensoGate WA131H is locked.
05. Tighten the coupling nuts **(3)** and **(4)**.
06. Repeat the functional test every 12 months. As applicable, adjust the interval to match the specific application for which the SensoGate WA131H is used.

6.2 Maintenance

6.2.1 Lubricants Used and Permitted

Application	**Pharma and Food**	
Lubricant	Beruglide L [1] (silicone-free)	Paraliq GTE 703 [2] (containing silicone)
Elastomer seal materials		
FKM – FDA	+	+
FFKM – FDA	+	+
EPDM – FDA	+	+

Note: Lubricant Paraliq GTE 703 contains silicone and has good lubricating properties even at elevated temperatures and with numerous travel movements. Paraliq GTE 703 is used as a special version at the customer's express request.

[1] FDA-compliant, registered in accordance with NSF-H1.

[2] FDA-compliant, registered in accordance with USDA-H1.

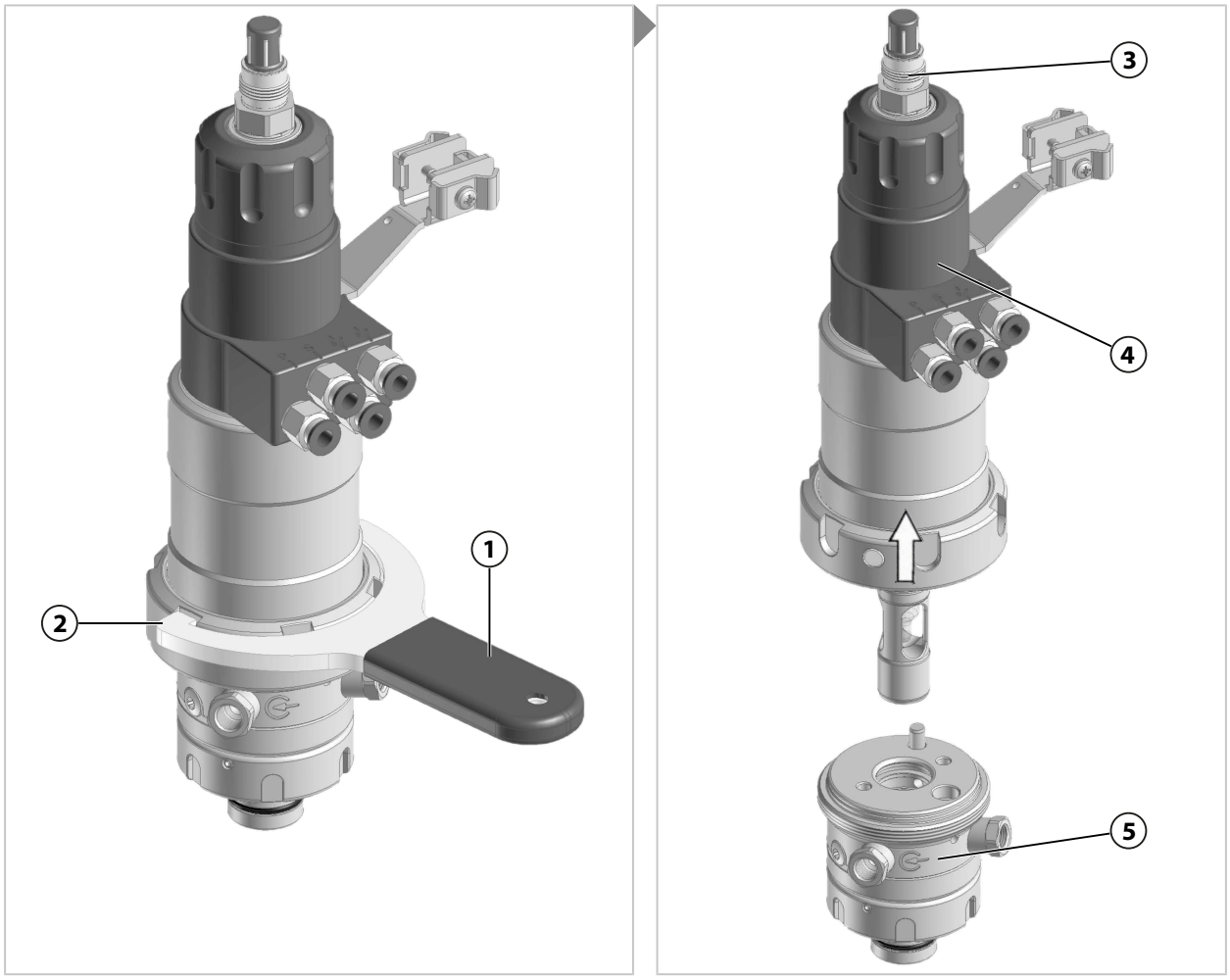
6.3 Corrective Maintenance

6.3.1 Corrective Maintenance Safety Instructions

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA131H. Follow the safety instructions. → *Safety, p. 5*

⚠ CAUTION! Risk of cutting injuries from broken sensor glass. Handle the sensor with care. Follow the safety instructions in the sensor manufacturer's documentation.

6.3.2 Drive Unit: Removal



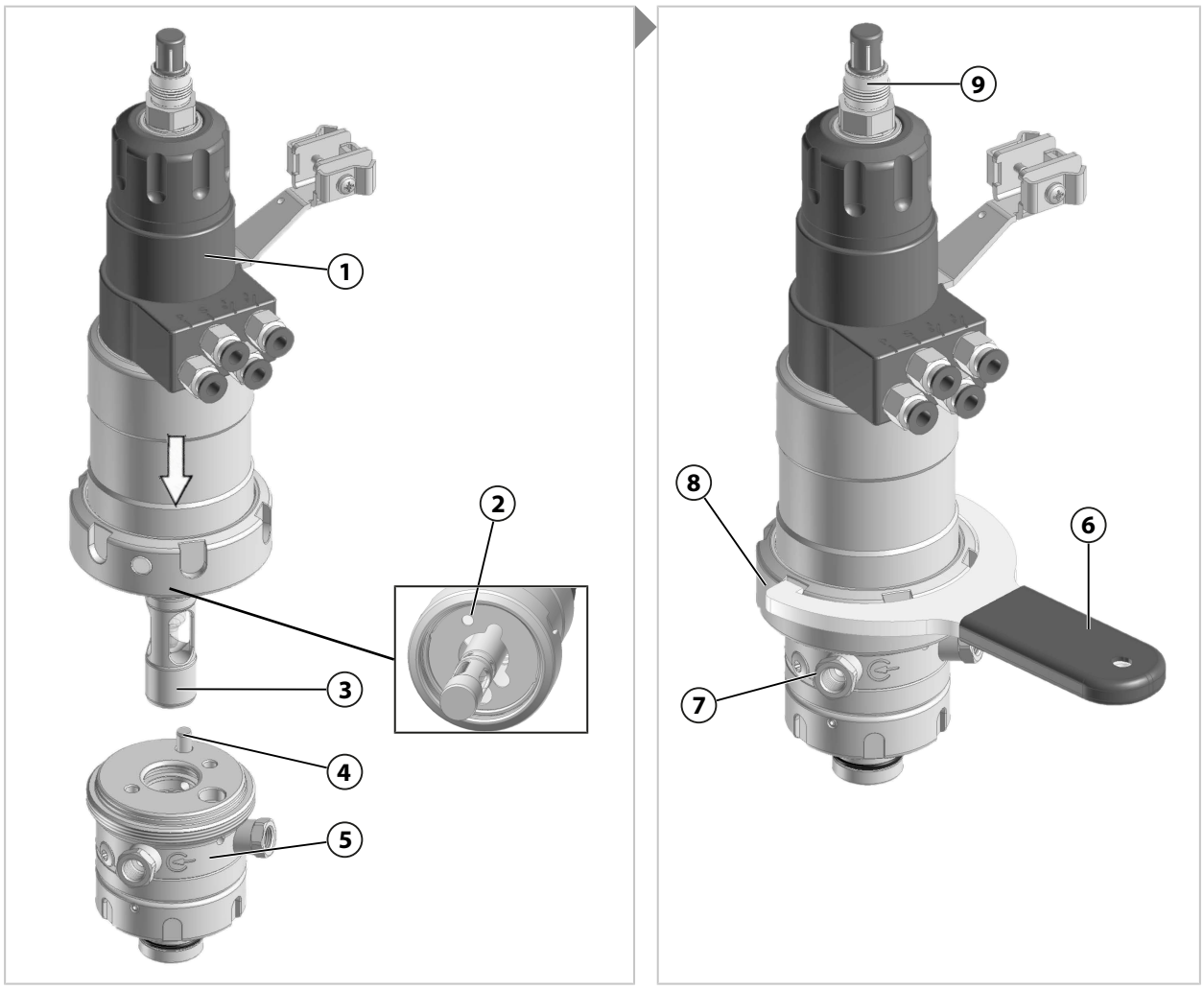
01. Safely disconnect the SensoGate WA131H from the process. → *Retractable Fitting: Removal, p. 44*
02. As required, disconnect the outlet and inlet hoses[1)].
03. Move the SensoGate WA131H into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
04. As necessary, remove the sensor **(3)**. → *Installing and Removing Sensors, p. 28*
05. Using the spanning wrench **(1)**, loosen the coupling nut **(2)** counterclockwise.
    Note: Do not tilt the coupling nut. Use a suitable spanning wrench (e.g., the one contained in ZU0680 service set or ZU0740 service set). → *Tools, p. 51*
06. Pull the drive unit **(4)** out of the process unit **(5)**.

✓ The drive unit is now removed.

1) Dependent on the ordered version → *Product Code, p. 12*

6.3.3 Drive Unit: Assembly

Note: The radial installation position of the drive unit is determined by a coding pin in the calibration chamber and a hole in the drive unit. The coupling nut can be tightened only if the drive unit is correctly inserted into the process unit.

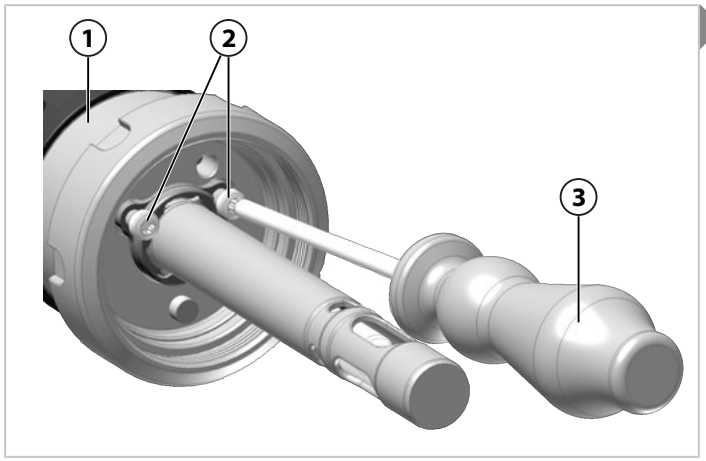


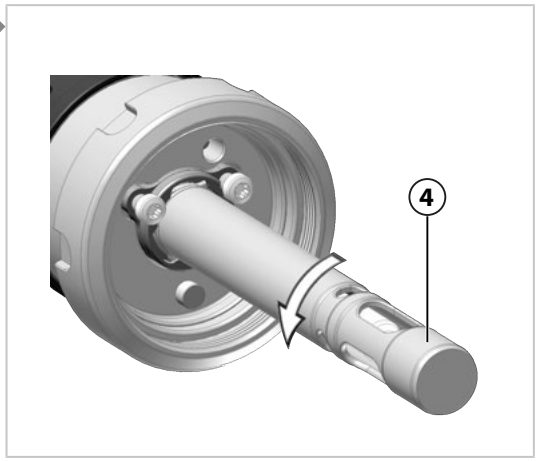
01. Move the drive unit to the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 27*
02. Push the drive unit **(1)** with the immersion tube **(3)** into the process unit **(5)**. While doing so, position the coding pin **(4)** in the hole **(2)**.
03. Position the coupling nut **(8)** and tighten clockwise finger tight or to approx. 10 Nm using the spanning wrench **(6)**.
Note: Do not tilt the coupling nut. Use a suitable spanning wrench (e.g., the one contained in ZU0680 service set or ZU0740 service set). → *Tools, p. 51*
04. As required, install the outlet hose at the outlet **(7)**. → *Outlet Hose: Installation, p. 23*
05. As required, install the inlet hose[1)]. → *Inlet Hose (Option): Installation, p. 24*
06. As required, install the sensor **(9)**. → *Installing and Removing Sensors, p. 28*

✓ The drive unit is now installed.

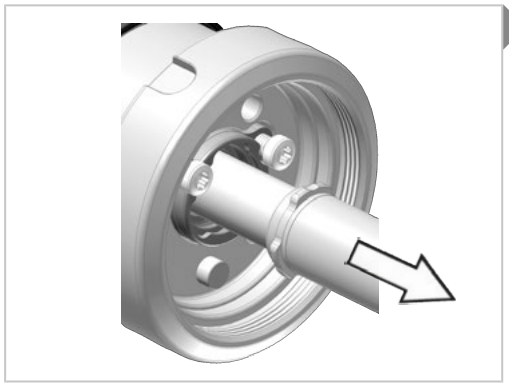
[1)] Dependent on the ordered version → *Product Code, p. 12*

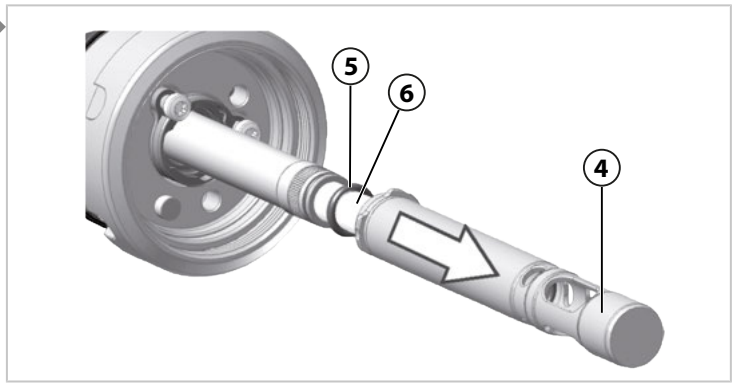
6.3.4 Immersion Tube: Removal





01. Remove the drive unit **(1)**. → *Drive Unit: Removal, p. 37*
02. Pull on the immersion tube **(4)** until the process position (PROCESS limit position) is reached.
03. Loosen the screws **(2)** around 4 rotations using a screwdriver of type TX25 **(3)** (do not completely unscrew).
04. Rotate the immersion tube **(4)** around 60° counterclockwise until the bayonet coupling of the immersion tube **(4)** is open.

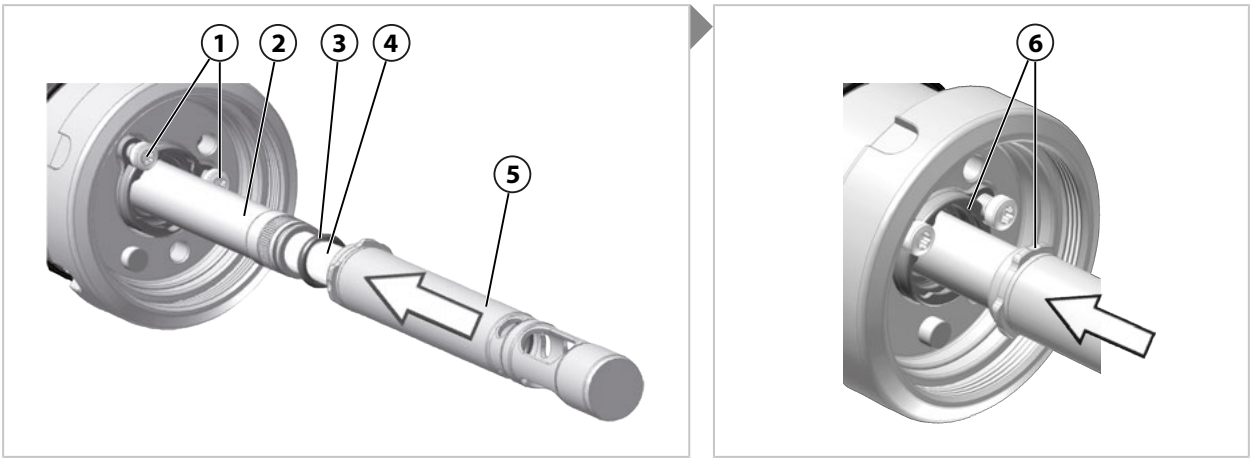




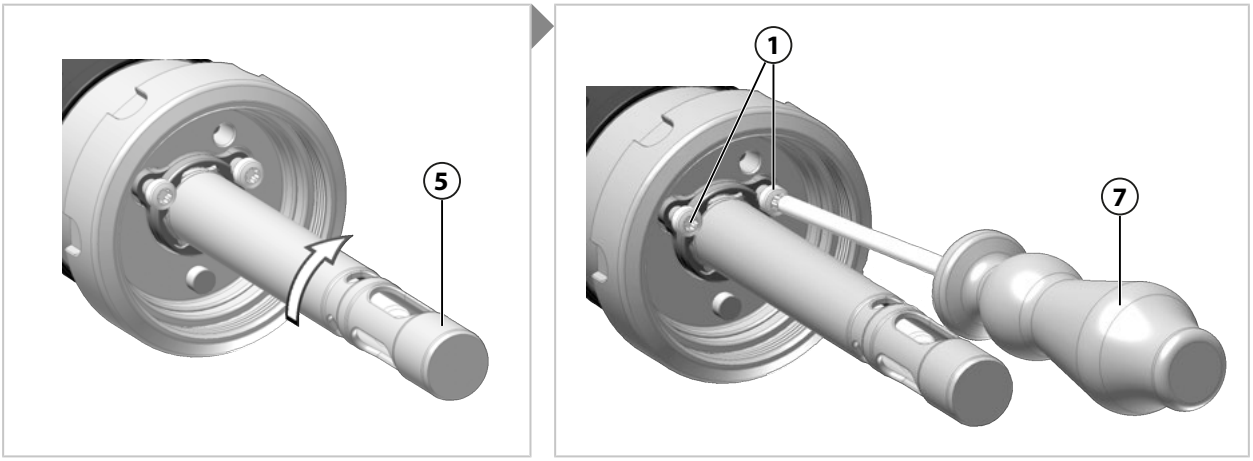
05. Pull the immersion tube **(4)** off the sensor **(6)**.
    ✓ The O-ring **(5)** is now visible, or it may be located in the removed immersion tube **(4)**.
06. Check the O-ring **(5)** for damage; replace the O-ring **(5)** if necessary. → *Seal Kits, p. 45*

✓ The immersion tube is now removed.

6.3.5 Immersion Tube: Installation



01. Install the sensor **(4)**. → *Installing and Removing Sensors, p. 28*
02. If the drive unit is not in process position (PROCESS limit position): Firmly push the immersion tube **(5)** into the sensor protection tube **(6)**, at the same time rotating around 60° clockwise up to the hard stop.
    Pull the immersion tube **(5)** until the process position (PROCESS limit position) is reached.
03. Check the O-ring **(3)** for damage; replace the O-ring **(3)** if necessary. → *Seal Kits, p. 45*
04. Push the O-ring **(3)** fully onto the sensor **(4)**.
05. If the screws **(1)** were not loosened during removal, loosen them around 4 rotations now using a screwdriver of type TX25 **(7)** (do not completely unscrew).
06. Carefully push the immersion tube **(5)** onto the sensor **(4)** and insert it into the bayonet coupling **(6)**.
    Note: There may be an O-ring in the immersion tube left over from the removal process. Remove this O-ring from the immersion tube prior to installation.



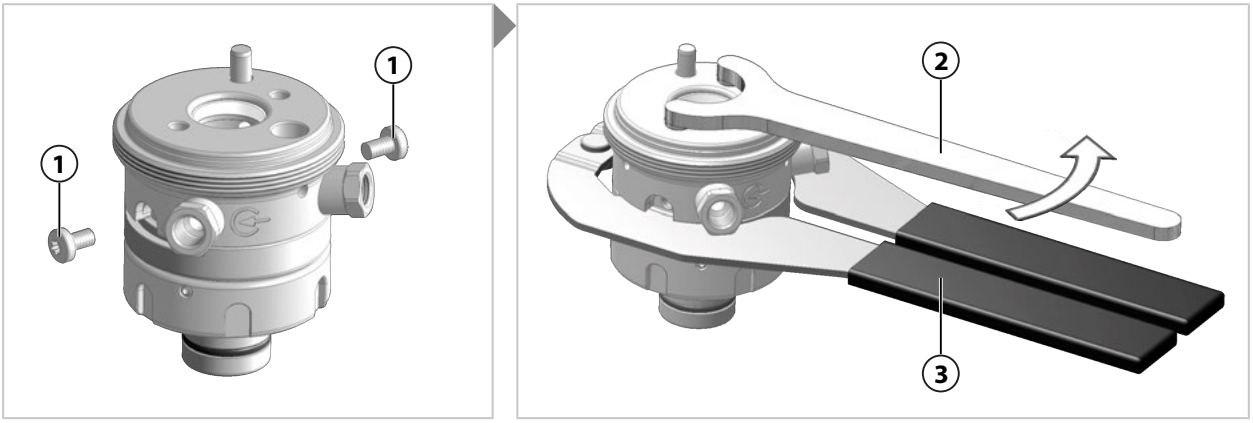
07. Firmly push the immersion tube **(5)** into the bayonet coupling **(6)**, at the same time rotating around 60° clockwise up to the hard stop.
08. Tighten the screws **(1)** with a screwdriver of type TX25 **(7)**.

Note: The bayonet coupling is locked by the form-fit screw heads. The immersion tube, however, remains movable to compensate for tolerances.

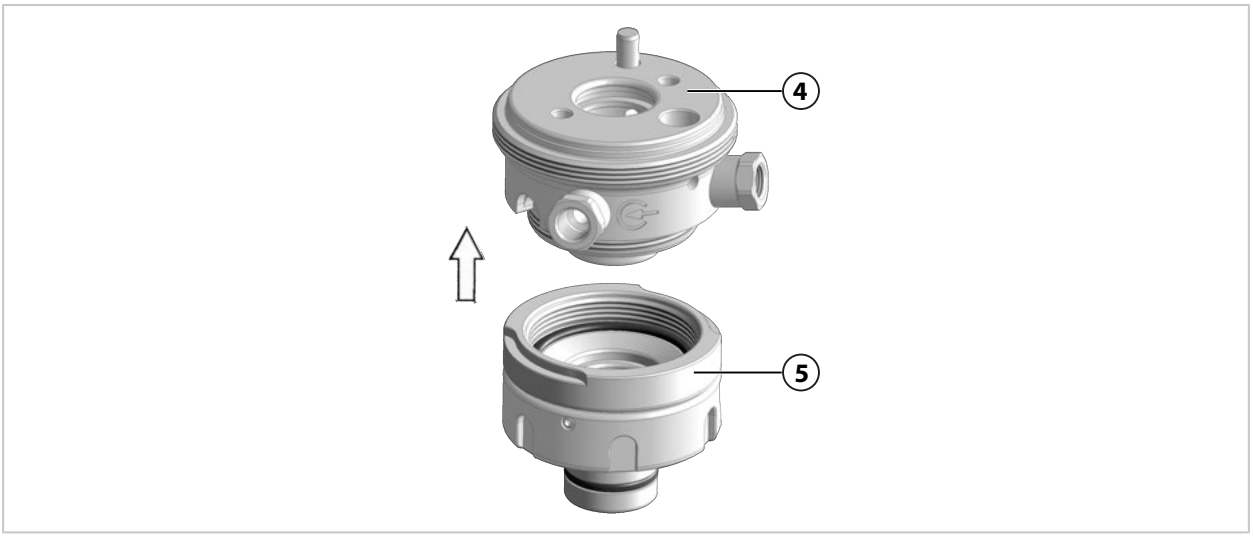
✓ The immersion tube is now installed.

6.3.6 Calibration Chamber: Removal

Note: Service sets ZU0754 or ZU0740 are required to remove the calibration chamber. → *Tools, p. 51*



01. Remove the process unit from the drive unit. → *Drive Unit: Removal, p. 37*
02. Remove the screws **(1)** with a screwdriver of type TX25. Keep the screws **(1)** in a safe place for assembly later on.
03. Position the pliers **(3)** and use the face pin spanner wrench **(2)** to loosen the coupling of the split calibration chamber.



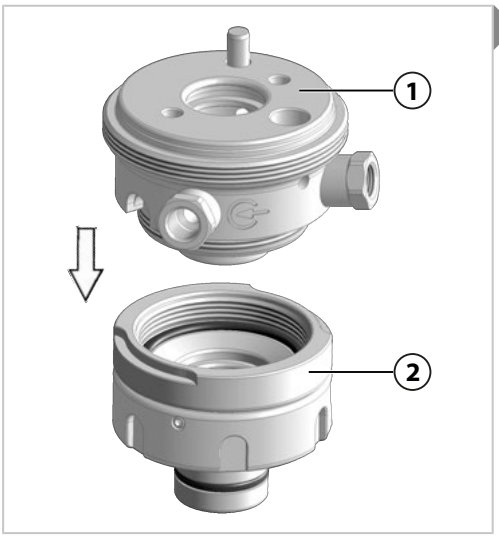
04. Unscrew the top **(4)** from the bottom **(5)** of the calibration chamber and separate the two parts.

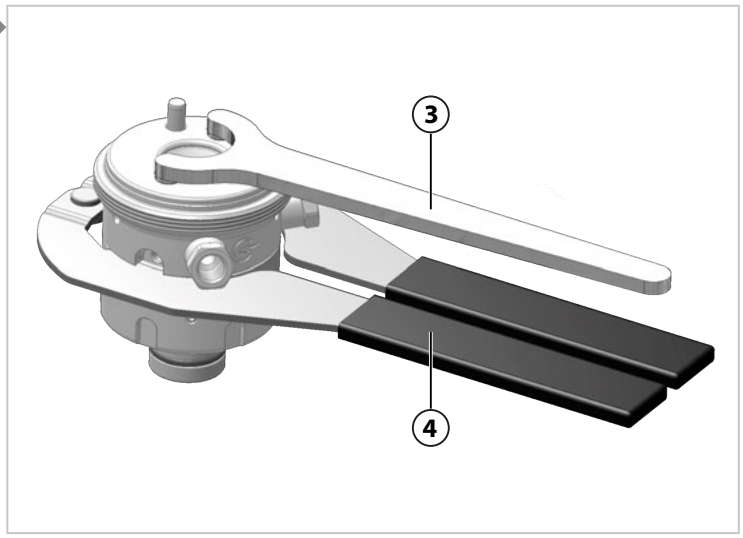
✓ The calibration chamber is now removed.

6.3.7 Calibration Chamber: Installation

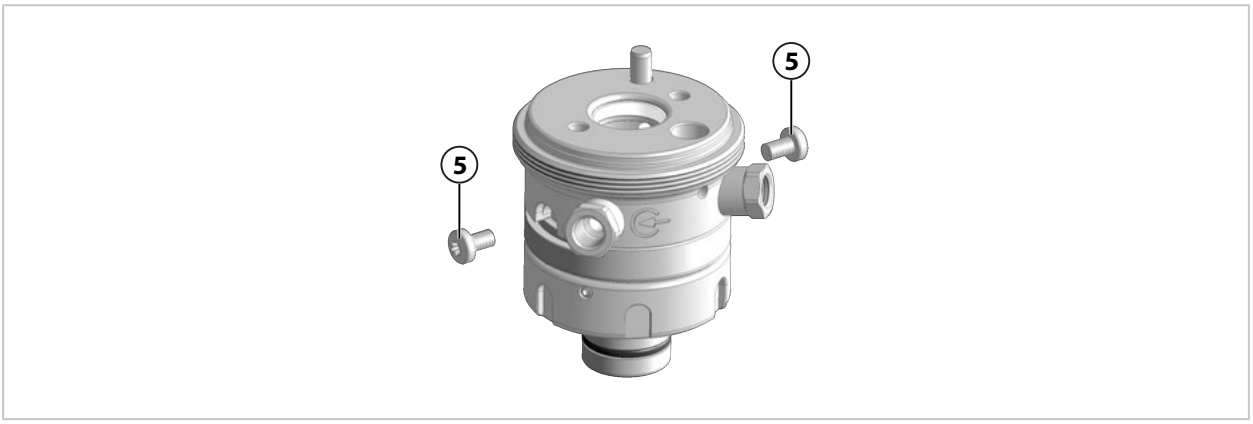
Note: Service sets ZU0754 or ZU0740 are required to install the calibration chamber. → *Tools, p. 51*

Note: To ensure correct assembly of the O-rings and the scraper ring, use the accessory tools ZU0746 and ZU0747. The procedure for handling the accessory tools is described in the relevant documentation. → *Tools, p. 51*





01. Check the O-rings and scraper ring for damage; replace the O-rings and scraper ring if necessary. → *Seal Kits, p. 45*
02. Connect the top **(1)** and the bottom **(2)** of the calibration chamber and screw together finger tight.
03. Position the pliers **(4)** and use the face pin spanner wrench **(3)** to screw the calibration chamber together.



Note: Securing the calibration chamber with the two screws is not possible until the top and bottom parts have been firmly screwed together (to the hard stop).

04. Tighten the screws **(5)** with a screwdriver of type TX25 .

✓ The calibration chamber is now installed.

6.3.8 Knick Repair Service

The Knick Repair Service offers professional corrective maintenance for the product to the original quality. Upon request, a replacement unit can be obtained for the period of the repair.

Further information can be found at www.knick-international.com.

7 Troubleshooting

Fault status	Possible cause	Remedy
Process medium escaping from leakage bore.	Leakage due to damaged O-rings.	Replace damaged O-rings.[1] → *Seal Kits, p. 45*
Sensor glass shattered.	Mechanical impact on the sensor glass (e.g., by process medium).	Replace faulty sensor. → *Installing and Removing Sensors, p. 28*
		Remove any glass splinters from the SensoGate WA131H. Check immersion tube seal and replace if necessary. → *Seal Kits, p. 45*
No or wrong measured value displayed.	Faulty sensor.	Replace the sensor. → *Installing and Removing Sensors, p. 28*
	Defective plug connection or damaged sensor cable.	Fasten plug connection or replace damaged sensor cable. → *Installing and Removing Sensors, p. 28*
Safeguard "Immersion Lock Without a Mounted Sensor" not working.	Corrosion or clogging by penetrated process medium.[2]	Send the SensoGate WA131H to your local contact for repair. → *knick.de*

See also
→ *Corrective Maintenance, p. 37*
→ *Knick Repair Service, p. 42*
→ *Return, p. 44*

7.1 Malfunction State: Retractable Fitting Does Not Fully Move to the SERVICE or PROCESS Limit Position

01. Increase the drive control pressure up to the maximum permissible value to move fully to the service position (SERVICE limit position) or the process position (PROCESS limit position).
    → *Specifications, p. 52*
    ✓ Sensor head or service cap is visible in service position (SERVICE limit position). In process position (PROCESS limit position), the sensor head or service cap is not visible.
02. Troubleshooting successful: Check the cause of the malfunction. If required, remove the drive unit. Perform maintenance on the drive unit or check the functionality of the process unit using a replacement drive.
03. Troubleshooting unsuccessful: Stop process, depressurize or discharge process medium if necessary. Dismount SensoGate WA131H and send to the local representative responsible for repairs.
    → *knick-international.com*

See also
→ *Drive Unit: Removal, p. 37*
→ *Retractable Fitting: Removal, p. 44*

[1] After replacing the damaged O-rings, clean the leakage bores so that any further escape of process medium can be detected.
[2] To protect against the penetration of media from outside into the sensor holder, we recommend using the ZU0759 protective cap. We recommend rinsing the sensor before removing it in order to prevent entrainment of the process medium in the area of the sensor holders.

8 Decommissioning

8.1 Retractable Fitting: Removal

⚠ WARNING! Risk of explosion from mechanically generated sparks when used in explosive atmospheres. Take appropriate action to prevent mechanically generated sparks. Follow the safety instructions. → *Operation in Explosive Atmospheres, p. 9*

⚠ WARNING! Process or rinse medium, potentially containing hazardous substances, may escape from the SensoGate WA131H or the process port. Follow the safety instructions. → *Safety, p. 5*

01. Stop the process; depressurize or drain off the process medium if necessary.
02. Move the SensoGate WA131H into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 27*.
03. Optional: Set SensoLock to "lock".
04. Switch off the compressed air supply and vent the compressed air system.
05. Remove the compressed air for the process and service positions.
06. Optional: Remove the compressed air for the process and service limit positions.[1)]
07. Optional: Remove the inlet hose[2)].
08. Remove the sensor. → *Installing and Removing Sensors, p. 28*
09. Remove the outlet hose.
10. Optional: Remove the inlet hose[2)].
11. Optional: Disconnect the equipotential bonding cable from the grounding connection and remove it.
12. Optional: Remove installed safety accessories (e.g., ZU0818 retainer clamp).
13. Loosen the process connection.
14. Remove the SensoGate WA131H from the customer's process port.
15. Seal off the process port appropriately.

✓ The retractable fitting is now removed.

8.2 Return

If a product must be returned, send it to the responsible local representative in a clean condition and securely packaged. → *knick-international.com*

Upon contact with hazardous substances, decontaminate or disinfect the product before shipping. Always include the relevant return form (Declaration of Decontamination) with shipments, in order to avoid hazards to our Service employees. → *knick-international.com*

8.3 Disposal

To dispose of the product properly, follow the local regulations and laws.

The SensoGate WA131H can contain various materials, depending on the version concerned. → *Product Code, p. 12*

1) Availability dependent on the ordered version → *Product Code, p. 12*

2) Dependent on the ordered version → *Product Code, p. 12*

9 Spare Parts, Accessories, and Tools

9.1 Seal Kits

The seal kits are available in different materials.

The smaller seal kits (“Set X/1”) only contain O-rings for direct contact with the process medium.

The extended seal kits (“Set X/2”) also include O-rings for contact with the rinse medium.

Each seal kit comes with an accompanying slip that provides information about the package contents, where the O-rings are to be installed, and where the lubrication points are. Replacement O-rings must be greased with the lubricant that is supplied.

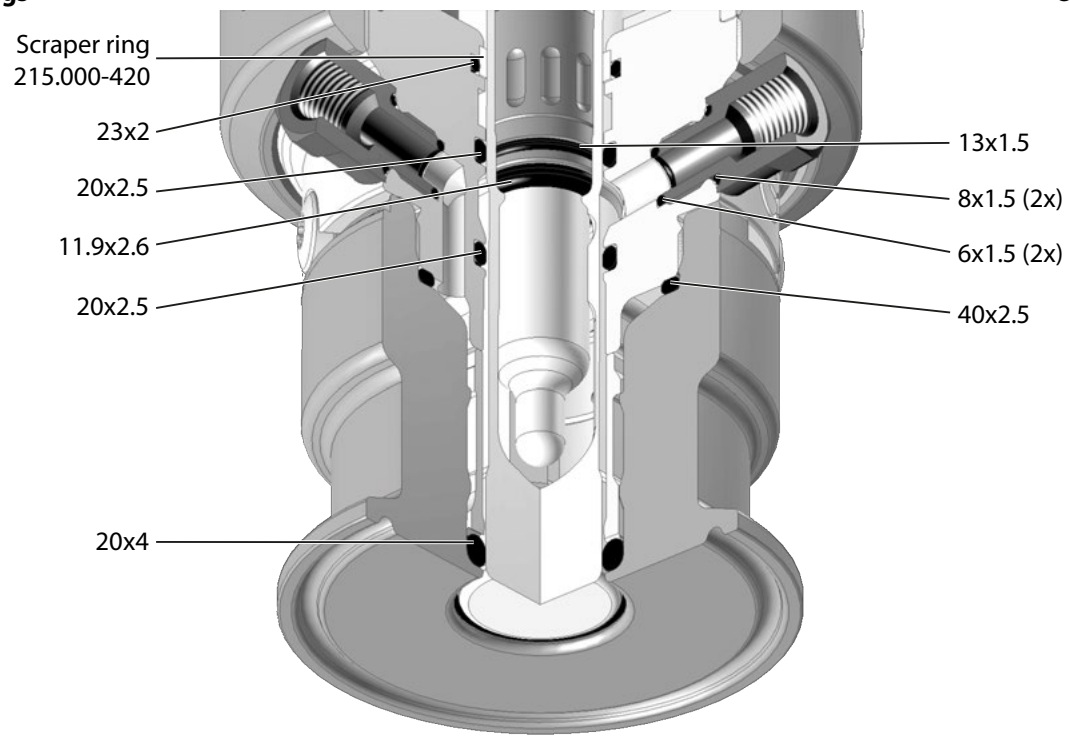
To ensure correct installation of the O-rings and the scraper ring, we recommend using the accessory tools ZU0746 and ZU0747. The procedure for handling the accessory tools is described in the relevant product documentation. → *Tools, p. 51*

Seal Kits			**Order No.**
Dairy pipe, Tri-Clamp, Varivent, BioControl process connection	Set E/1	Process-wetted seal material: EPDM FDA	ZU0700/1
	Set E/2	Process-wetted seal material: EPDM FDA, Wetted by rinse medium: EPDM FDA	ZU0841
	Set F/1	Process-wetted seal material: FKM FDA	ZU0697/1
	Set F/2	Process-wetted seal material: FKM FDA, Wetted by rinse medium: FKM FDA	ZU0842
	Set G/1	Process-wetted seal material: FFKM FDA	ZU0766/1
	Set G/2	Process-wetted seal material: FFKM FDA, Wetted by rinse medium: EPDM FDA	ZU0843
	Set H/1	Process-wetted seal material: FFKM FDA	ZU0766/1
	Set H/2	Process-wetted seal material: FFKM FDA, Wetted by rinse medium: FFKM FDA	ZU0844
	Set U/1	Process-wetted seal material: EPDM FDA USP VI	ZU1111/1
	Set U/2	Process-wetted seal material: EPDM FDA USP VI Wetted by rinse medium: EPDM FDA USP VI	ZU1111/3
Ingold socket H0 process connection	Set E/1	Process-wetted seal material: EPDM FDA	ZU0704/1
	Set E/2	Process-wetted seal material: EPDM FDA, Wetted by rinse medium: EPDM FDA	ZU0845
	Set F/1	Process-wetted seal material: FKM FDA	ZU0703/1
	Set F/2	Process-wetted seal material: FKM FDA, Wetted by rinse medium: FKM FDA	ZU0846
	Set G/1	Process-wetted seal material: FFKM FDA	ZU0768/1
	Set G/2	Process-wetted seal material: FFKM FDA, Wetted by rinse medium: EPDM FDA	ZU0847
	Set H/1	Process-wetted seal material: FFKM FDA	ZU0768/1
	Set H/2	Process-wetted seal material: FFKM FDA, Wetted by rinse medium: FFKM FDA	ZU0848
	Set U/1	Process-wetted seal material: EPDM FDA USP VI	ZU1112/1
	Set U/2	Process-wetted seal material: EPDM FDA USP VI Wetted by rinse medium: EPDM FDA USP VI	ZU1112/3
Ingold socket H1 process connection	Set E/1	Process-wetted seal material: EPDM FDA	ZU0704/1
	Set E/2	Process-wetted seal material: EPDM FDA, Wetted by rinse medium: EPDM FDA	ZU0849
	Set F/1	Process-wetted seal material: FKM FDA	ZU0703/1

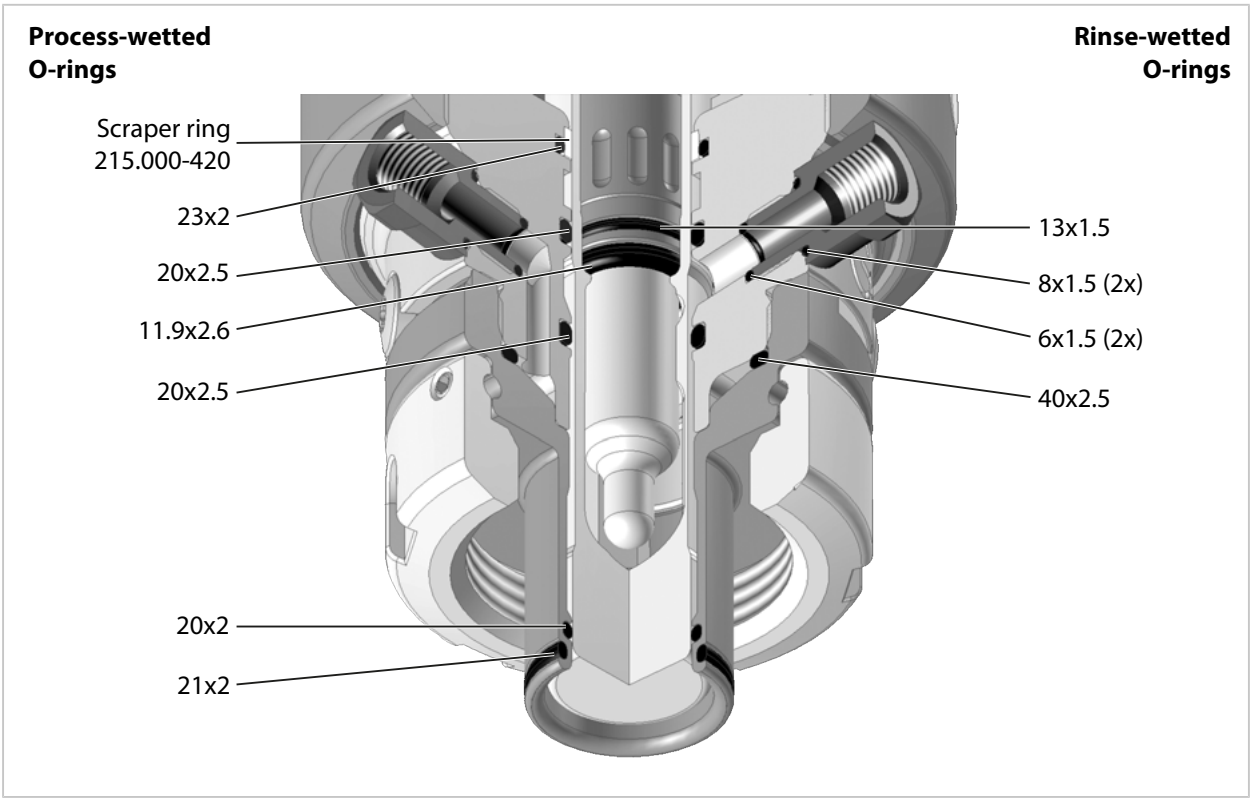
Seal Kits			Order No.
	Set F/2	Process-wetted seal material: FKM FDA, Wetted by rinse medium: FKM FDA	ZU0850
	Set G/1	Process-wetted seal material: FFKM FDA	ZU0768/1
	Set G/2	Process-wetted seal material: FFKM FDA, Wetted by rinse medium: EPDM FDA	ZU0851
	Set H/1	Process-wetted seal material: FFKM FDA	ZU0768/1
	Set H/2	Process-wetted seal material: FFKM FDA, Wetted by rinse medium: FFKM FDA	ZU0852
	Set U/1	Process-wetted seal material: EPDM FDA USP VI	ZU1112/1
	Set U/2	Process-wetted seal material: EPDM FDA USP VI Wetted by rinse medium: EPDM FDA USP VI	ZU1112/5

Note: Further seal kits are available on request.

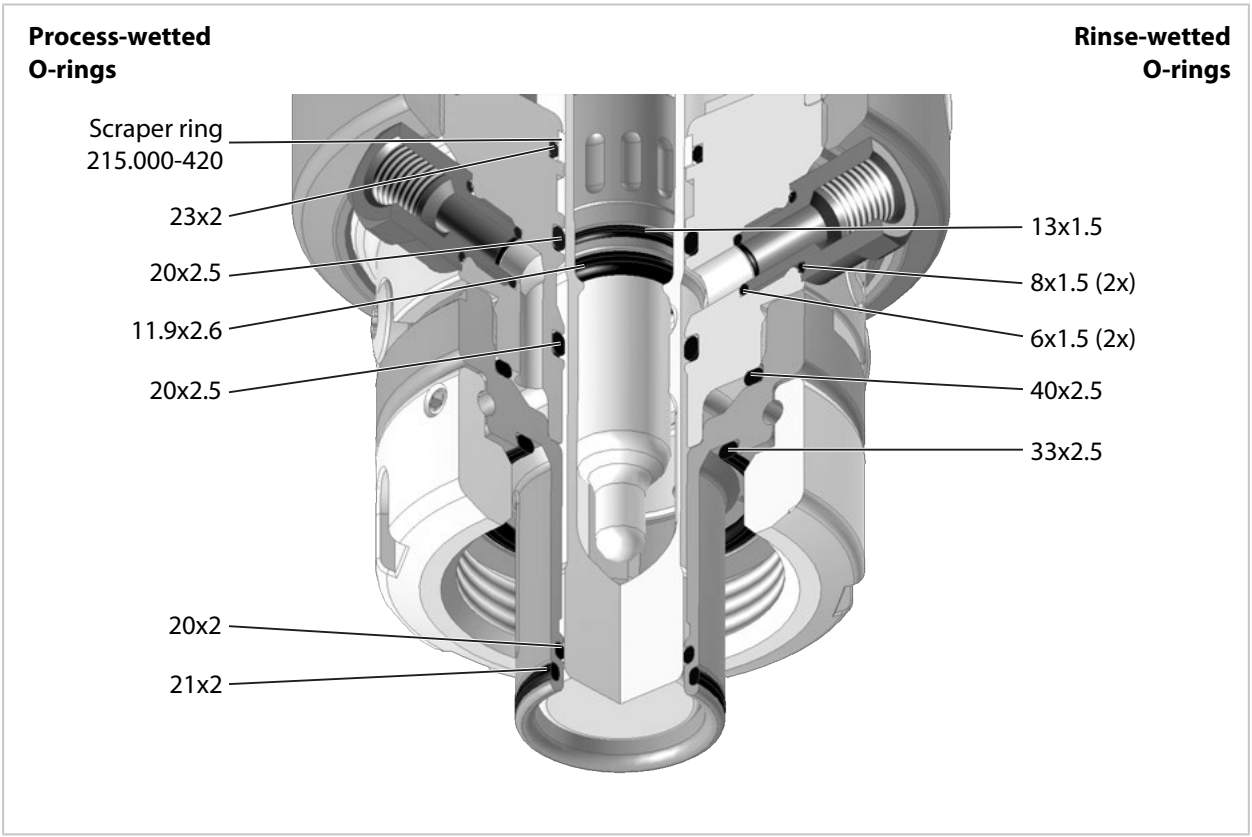
Seal Kits for Dairy-Pipe, Tri-Clamp, Varivent, BioControl Process Connection



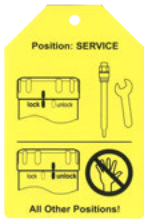
Seal Kits for Ingold Socket H0 Process Connection



Seal Kits for Ingold Socket H1 Process Connection



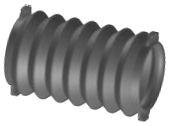
9.2 Spare Parts



Safety Label

The safety label provides information on the safeguard "Immersion Lock Without a Mounted Solid-Electrolyte Sensor". → *Safeguards, p. 6*

Damaged or lost safety labels will be replaced on request.



ZU0739 Bellows

The bellows (only used on versions with liquid-electrolyte sensors) protect the fitting beneath the pressure chamber against external contamination and wear.

ZU0889 Outlet Hose

The outlet hose is used to drain calibration solutions and cleaning or rinsing media from the calibration chamber. → *Outlet Hose: Installation, p. 23*

Available lengths: 3.5 m and 10 m

9.3 Accessories

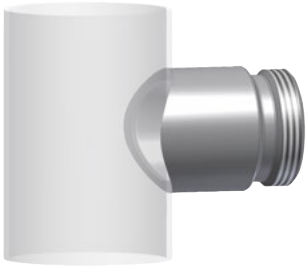
ZU0759 and ZU0759/1 Protective Cap

The protective cap protects against the effects of weather exposure and prevents the ingress of external liquids or particles into the area of the sensor connections.

ZU0759: suitable for versions with solid-electrolyte sensors
ZU0759/1: suitable for versions with liquid-electrolyte sensors

ZU0717 (Straight) Weld-In Socket for Tank Walls

Process connection: Ingold socket (Ø 25 mm, G1¼")



ZU0717/DN (Straight) Weld-In Socket for Pipes

Process connection: Ingold socket (Ø 25 mm, G1¼")

Adapted to DN 50 ZU0717/DN 50
Adapted to DN 65 ZU0717/DN 65
Adapted to DN 80 ZU0717/DN 80
Adapted to DN 100 ZU0717/DN 100

ZU0718 (15° Incline) Weld-In Socket for Tank Walls

Process connection: Ingold socket (Ø 25 mm, G1¼")

ZU0718/DN (15° Incline) Weld-In Socket for Pipes

For connection with Ingold socket (Ø 25 mm, G1¼")

Adapted to DN50 ZU0718/DN50
Adapted to DN65 ZU0718/DN65
Adapted to DN80 ZU0718/DN80
Adapted to DN100 ZU0718/DN100

Safety weld-in sockets with Handling Safety Design (HSD) feature special grooves on the sealing surface for the process connection O-ring. These grooves prevent the O-ring from sealing if the Ingold coupling nut loosens inadvertently when process pressure is present. A minor leak means the loosening can be detected quickly and remedied before the Ingold coupling nut comes loose from the thread completely. This increases safety for personnel.

ZU0922 (Straight) HSD Safety Weld-In Socket for Tank Walls

Process connection: Ingold socket (Ø 25 mm, G1¼")

ZU0922/DN (Straight) HSD Safety Weld-In Socket for Pipes

Process connection: Ingold socket (Ø 25 mm, G1¼")

Adapted to DN50 ZU0922/DN50
Adapted to DN65 ZU0922/DN65
Adapted to DN80 ZU0922/DN80
Adapted to DN100 ZU0922/DN100

ZU0923 (ZU0923 (15° Incline) HSD Safety Weld-In Socket for Tank Walls

Process connection: Ingold socket (Ø 25 mm, G1¼")

ZU0923/DN (15° Incline) HSD Safety Weld-In Socket for Pipes

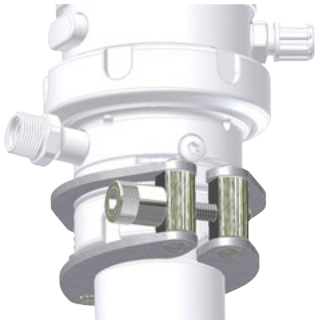
Process connection: Ingold socket (Ø 25 mm, G1¼")

Adapted to DN50 ZU0923/DN50
Adapted to DN65 ZU0923/DN65
Adapted to DN80 ZU0923/DN80
Adapted to DN100 ZU0923/DN100

RV01 Check Valve

The RV01 Check Valve prevents the return flow of the process medium, calibration medium, cleaning medium, or rinsing medium into the inlet. The check valve is selected via a product code.

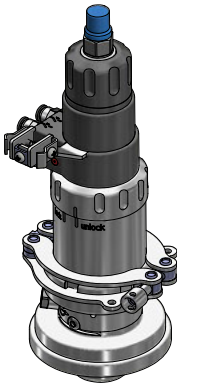
Check Valve		RV01	-	_	_	_	_
Material of housing, valve body	Stainless steel 1.4404			H			
	PEEK			E			
Material of seals	FKM				A		
	EPDM				B		
	FFKM				C		
	FKM-FDA				F		
	EPDM-FDA				E		
	FFKM-FDA				H		
Inlet connection, female thread	G¼″					4	
	G⅛″					8	
Outlet connection, male thread	G¼″						4
	G⅛″						8



ZU0818 Retainer Clamp for Ingold Socket, 25 mm

The retainer clamp prevents the coupling nut of the Ingold socket (25 mm) screw joint from accidentally coming loose.

The wires of the retainer clamp connect the SensoGate WA131H to the customer's process port. A locking lug on the retainer clamp engages in the groove of the coupling nut (form-fit).



ZU1138 Retainer Clamp for SensoGate Retractable Fitting

The accessory prevents the screw joint between the retractable fitting's drive unit and the process connection from accidentally coming loose.

The retainer clamp wires connect the SensoGate WA131H's drive unit with the coupling nut. The locking lugs on the retainer clamp engage in the grooves of the coupling nut (form-fit) and secure the screw joint.

ZU0887 Inlet Hose

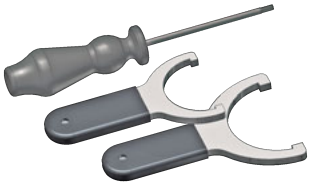
The inlet hose is used to supply calibration, cleaning, or rinse media to the retractable fitting calibration chamber. → *Inlet Hose (Option): Installation, p. 24*

Thread: G ⅛″
Length: 3 m
Nominal size: DN 8
Hose material: EPDM
Connection nozzle material: Stainless steel
O-ring material 8x1.5: EPDM
O-ring material 4.5x1.5: EPDM

ZU0670/1 Air Supply for Pressurized Sensors 0.5 ... 4 bar
ZU0670/2 Air Supply for Pressurized Sensors 1 ... 7 bar
ZU0713 Hose, 20 m (Extension for ZU0670)

This assembly group maintains the defined gauge pressure in the pressure chamber in versions of the SensoGate WA131H for liquid-electrolyte sensors.

9.4 Tools

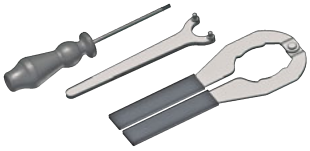


ZU0680 SensoGate Service Set, Basic Equipment

This tool set is suitable for minor maintenance work. It allows easy separation of the drive unit from the process unit, mounting of an Ingold socket, and replacement of the immersion tube, including O-ring maintenance.

ZU0740 SensoGate Service Set, Maintenance, Repair, Modification

This tool set contains all the tools required to carry out extensive maintenance and corrective maintenance, as well as to modify the product. SensoGate WA131H can be fully dismantled using this tool set.

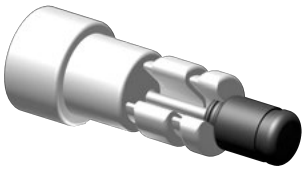


ZU0754 SensoGate Service Set, Calibration Chamber

This tool set is suitable for maintenance work on the calibration chamber and its seals. It allows easy separation of the split calibration chamber.

ZU0746 Accessory Tool for Scraper Ring

The ZU0746 accessory tool allows easy and correct fitting of the scraper rings in the calibration chamber of the SensoGate WA131H.



ZU0747 Accessory Tool for O-Rings 20 x 2.5

The ZU0747 accessory tool allows easy and correct fitting of the O-rings 20 x 2.5 in the calibration chamber of the SensoGate WA131H.

ZU0647 Sensor Spanning Wrench

ZU0647 sensor spanning wrench is used to properly tighten sensors. It prevents damage to the PG 13.5 plastic thread of the sensor head caused by applying an excessive tightening torque (e.g., when using an open-end wrench).

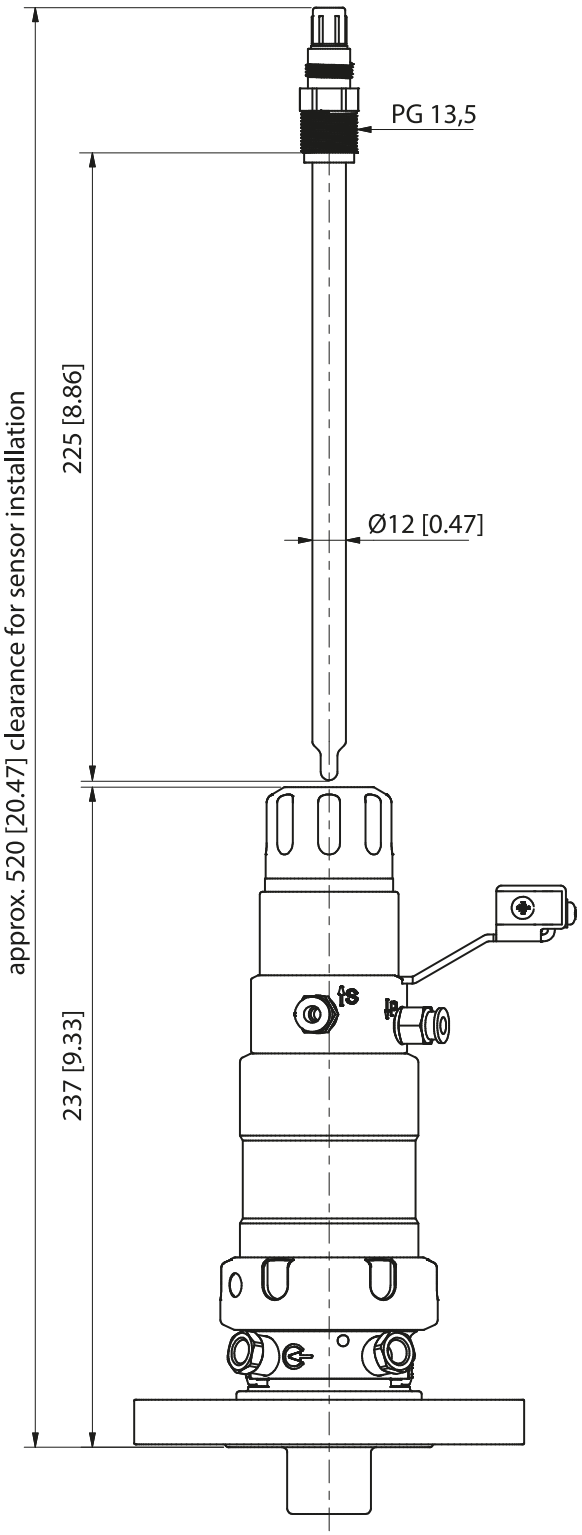
10 Specifications

Generally permitted process pressure and temperature	
1.4404 process connection	
0 … 140 °C (32 … 284 °F)	10 bar (145 psi)
PEEK HD process connection	
0 … 140 °C (at 32 … 284 °F)	10 bar (145 psi)
Only static in service position (SERVICE limit position)	
0 … 40 °C (32 … 104 °F)	16 bar (232 psi)
PP: 5 … 20 °C (41 … 68 °F):	10 bar (145 psi)
Permitted rinsing pressure and temperature	
5 … 90 °C (41 … 194 °F)	6 bar (87 psi)
Permitted pressure for SERVICE/PROCESS controller	4 … 7 bar (58 … 101.5 psi)
Ambient temperature	-10 … 70 °C (14 … 158 °F)
Protection class	IP66
Housing material	Stainless steel, PP
Sensors	→ *Product Code, p. 12*
Process connections	→ *Product Code, p. 12*
Compressed air quality	
Standard	In accordance with ISO 8573-1:2001
Quality class	3.3.3 or 3.4.3
Solid contaminants	3 (max. 5 µm, max. 5 mg/m^3)
Water content for temperatures > 15 °C (> 59 °F)	Class 4, pressure dew point 3 °C (37.4 °F) or lower
Water content for temperatures 5 … 15 °C (41 … 59 °F)	Class 3, pressure dew point -20 °C (-4 °F) or lower
Oil content	Class 3 (max. 1 mg/m^3)
Connections	
Compressed air	Quick coupling DN 4/6
Inlet	Female thread G 1/8"
Outlet	Female thread G 1/8" with hose insert for hose NW 8 EPDM 3 m
For pressurized sensors	Hose connection NW 6, Pressure in calibration chamber 0.5 … 1 bar / 7.25 … 14.5 psi via process pressure (max. 7 bar / 101.5 psi)
Immersion depths/Mounting dimensions	→ *Dimension Drawings, p. 53*
Wetted materials	→ *Product Code, p. 12*
Weight	Depending on material and version

11 Dimension Drawings

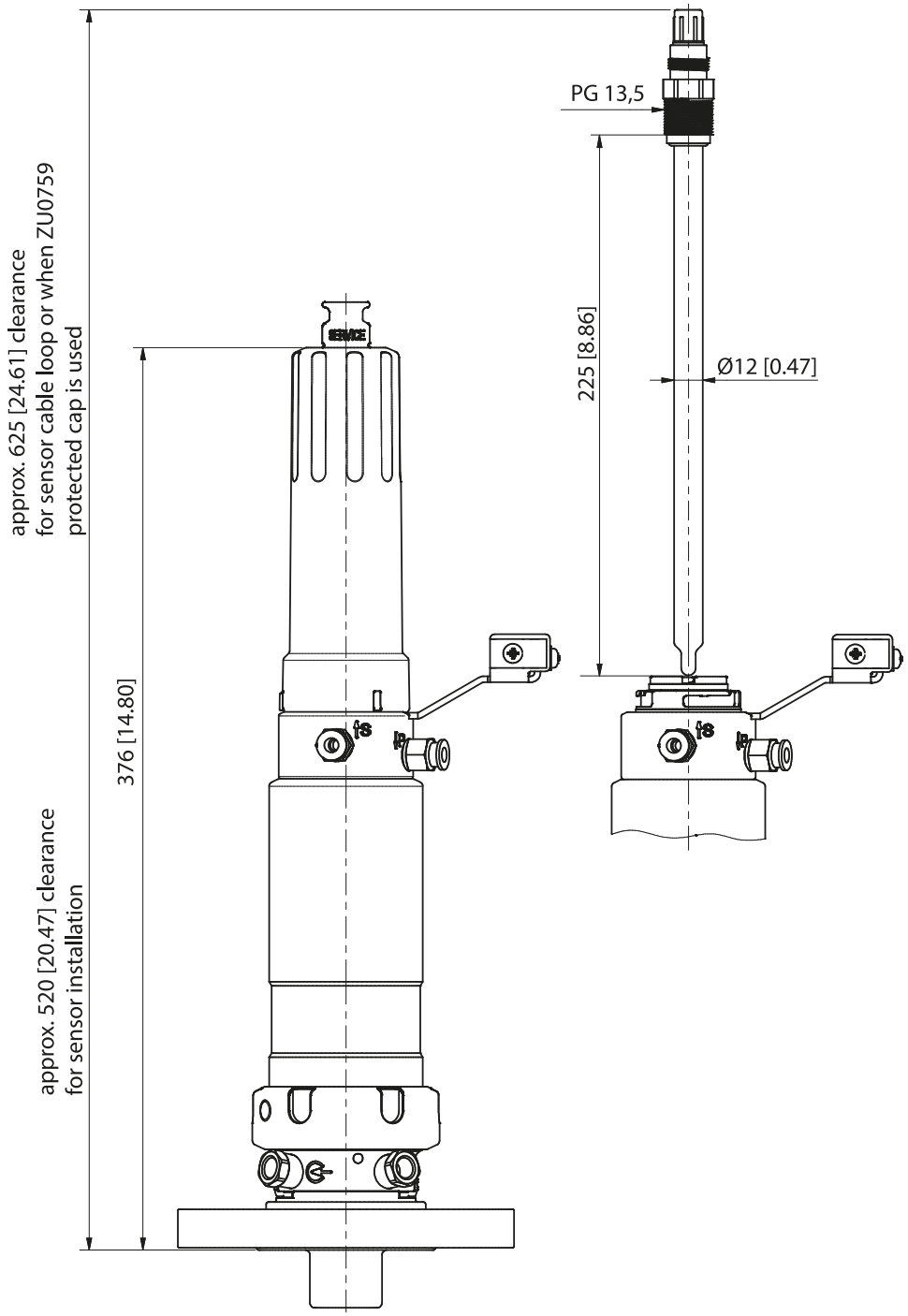
Retractable Fitting for Solid Electrolyte Sensor, Short Immersion Depth

Note: All dimensions are listed in millimeters [inches].



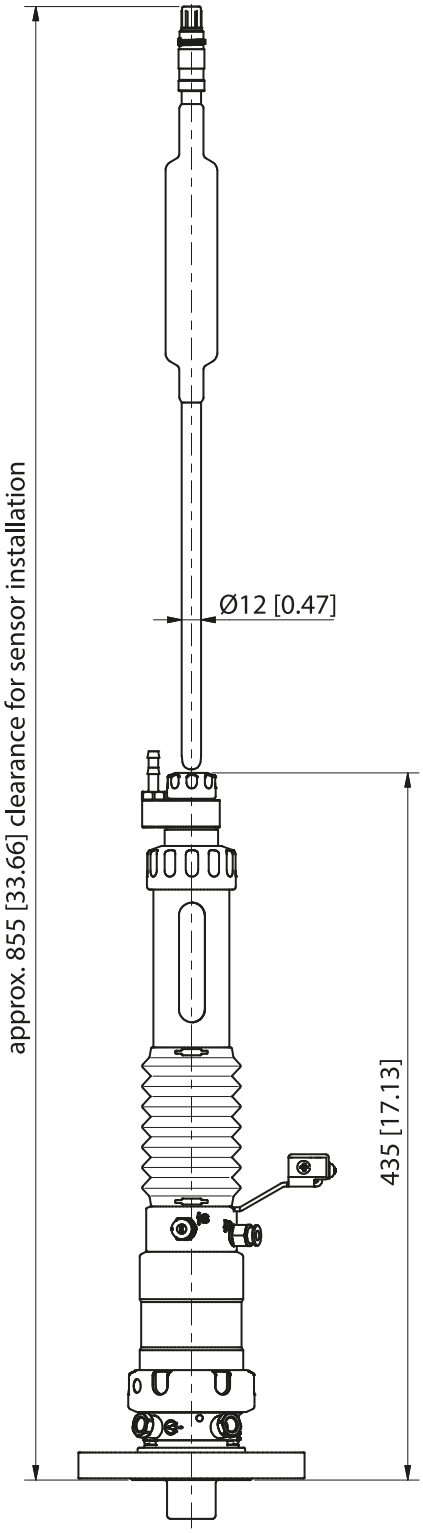
Retractable Fitting for Solid Electrolyte Sensor, Long Immersion Depth

Note: All dimensions are listed in millimeters [inches].

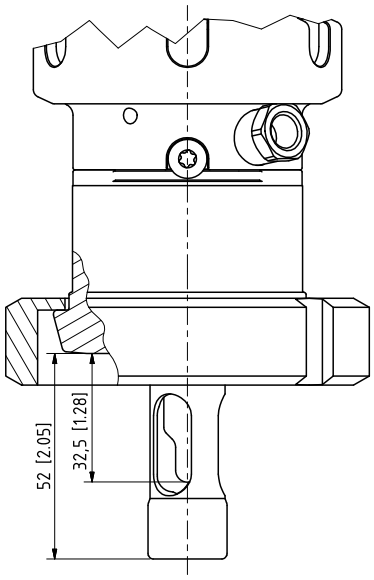


Retractable Fitting for Liquid Electrolyte Sensor, Short Immersion Depth

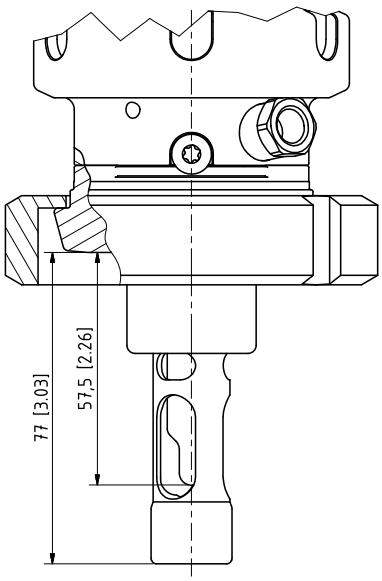
Note: All dimensions are listed in millimeters [inches].



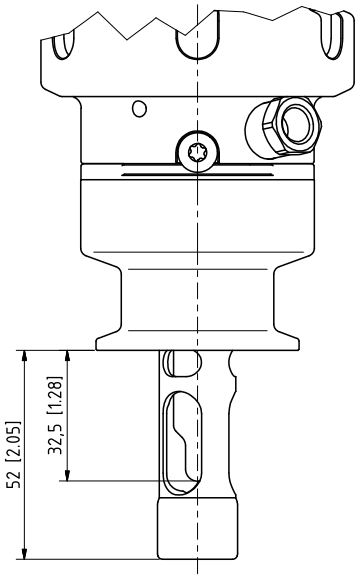
Process Connections



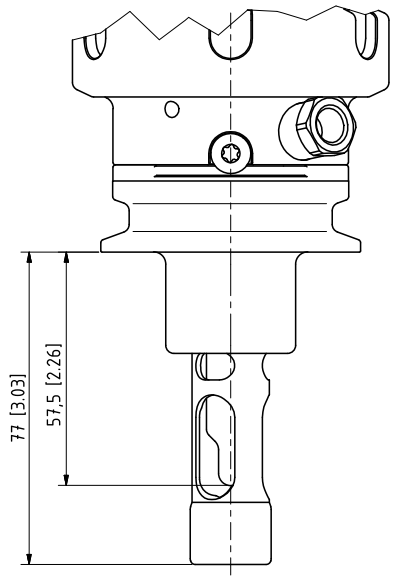
Dairy pipe DIN 11851 DN 40 ... DN 100
Short immersion depth (ID)



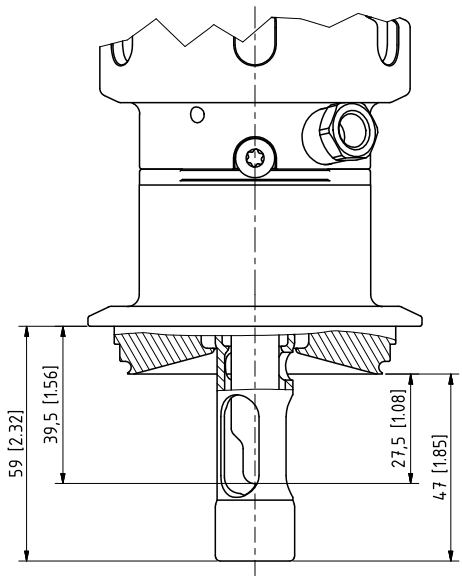
Dairy pipe DIN 11851 DN 40 ... DN 100
Long immersion depth (ID)



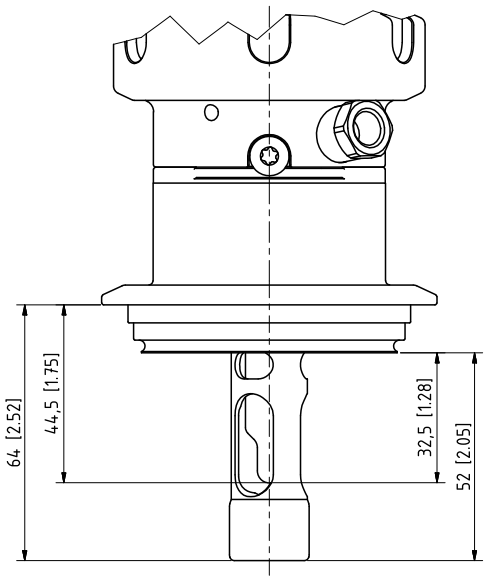
Clamp 1″ ... Clamp 3.5″
Short immersion depth (ID)



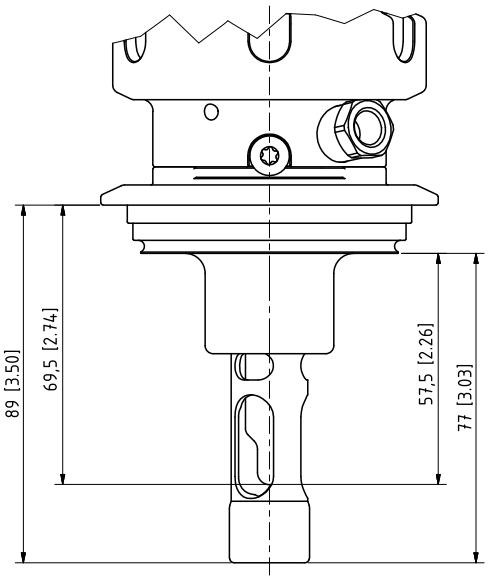
Clamp 2″ ... Clamp 3.5″
Long immersion depth (ID)



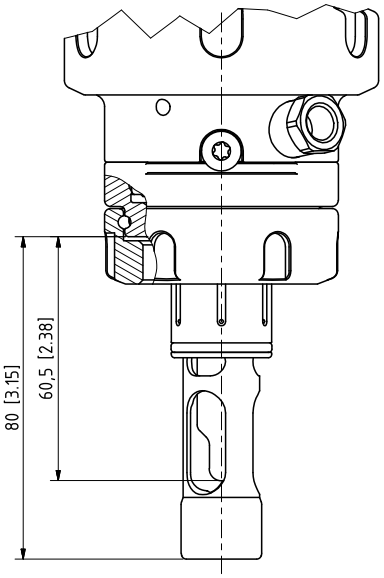
Varivent ≥ DN 50
Short immersion depth (ID)



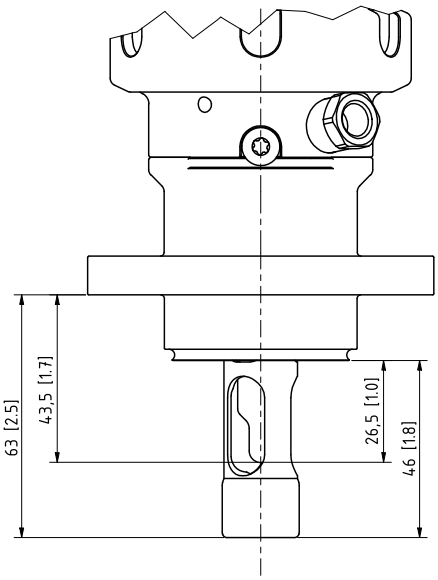
Varivent ≥ DN 65
Short immersion depth (ID)



Varivent ≥ DN 80
Long immersion depth (ID)



25 mm Ingold socket



BioControl DS 50 or DS 65

Abbreviations

A/F	Width across flats
ATEX	Atmosphères Explosibles (explosive atmospheres)
CE	Conformité Européenne (European conformity)
CLP	Classification, labeling, and packaging
DIN	Deutsches Institut für Normung (German Institute for Standardization)
DN	Diamètre nominal (nominal size)
DS	Company-specific indication of size for a BioControl blind flange, corresponding to inside diameter DN
EPDM	Ethylene propylene diene monomer rubber
EU	European Union
FDA	U.S. Food and Drug Administration
FFKM	Perfluoro rubber
FKM	Fluoro rubber
ID	Immersion depth
IEC	International Electrotechnical Commission
IP	International Protection/Ingress Protection
ISO	International Organization for Standardization
KEMA	Keuring van Elektrotechnische Materialen te Arnhem (inspection of electrical equipment in Arnheim)
LED	Light-emitting diode
NSF-H1	Lubricants approved by the US organization NSF (National Sanitation Foundation) for the food and feed industry.
PCS	Process control system
PEEK	Polyether ether ketone
PP	Polypropylene
PVDF	Polyvinylidene fluoride
USDA-H1	Lubricants approved by the U.S. Department of Agriculture (USDA).

Glossary

CE Marking

Manufacturer's declaration, in accordance with EU Regulation 765/2008, that the product is in conformity with the applicable requirements set out in the European Union harmonization legislation providing for its affixing.

Corrective Maintenance

Measures taken to return an item under review to an operational condition, with the exception of improvements.

Hazard

A hazard is defined as a potential source of damage. The term "hazard" can be specified to indicate the origin or nature of the expected damage. (Source: EN ISO 12100)

Highly Efficient Charge Generating Mechanism

A highly efficient charge generating mechanism is [...] any charging mechanism stronger than manual rubbing of surfaces. (Source: EN ISO 80079-36)

Inspection

Measures for determining and assessing the actual condition of an item under review, including determining the causes of wear and deriving the necessary steps for future use.

Maintenance

Combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a state in which it can perform the required function. (Source: EN 13306 Maintenance – Maintenance terminology)

Preventive Maintenance

Measures for maintaining the target condition […] and delaying the reduction of the available wear margin of an item under review.

Risk

Combination of the probability of occurrence of harm and the severity of that harm (source: EN ISO 12100)

Risk Assessment

Overall process of risk analysis and risk evaluation (source: EN ISO 12100)

Zone 0

Area in which an explosive gas atmosphere is present continuously or for long periods or frequently. (Source: IEC 60079-10-1)

Notes

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Translation of the original instructions

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The latest documents are available for download on our website under the corresponding product description.

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