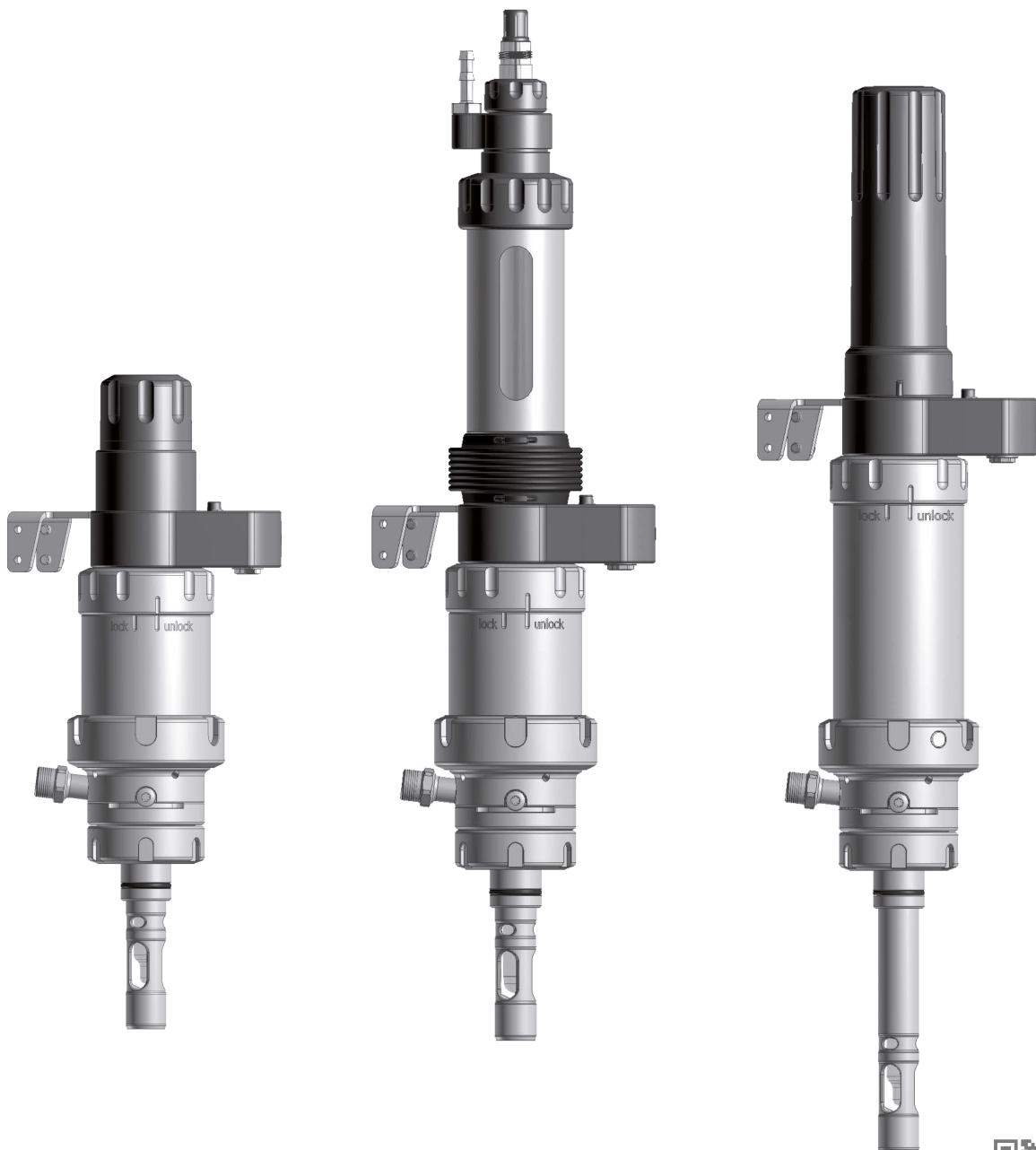


User Manual

SensoGate WA130 Retractable Fitting



Read before installation.
Keep for future use.



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:

Icon	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.	
<i>Without</i>	NOTICE!	Designates a situation that can lead to property or environmental damage.	

Symbols Used in this Document

Icon	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

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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 WA130 (hereafter also called “product”) is a retractable fitting for installation on boilers, containers, and pipes. The product holds a sensor for measuring process parameters. The SensoGate WA130 moves the sensor into the process medium.

SensoGate WA130 has a pneumatic drive.

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 WA130 is suitable for 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 rated operating conditions must be observed when using this product.

→ *Specifications, p. 65*

With the modular structure, customers can easily adapt the SensoGate WA130 to changed conditions.

→ *Permissible Changes, p. 20*

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 WA130-X version is certified for operation in potentially explosive atmospheres.

→ *Operation in Explosive Atmospheres, p. 9*

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.

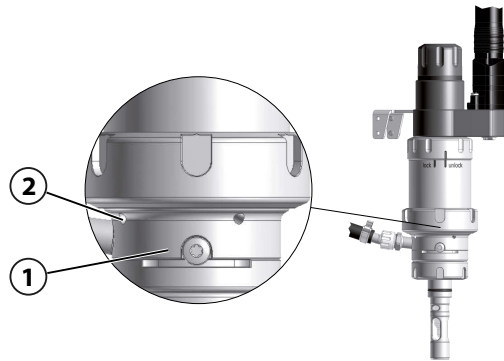
The operating company shall comply and cause its personnel to comply with all applicable laws, regulations, codes, ordinances, and relevant industry qualification standards related to product. Failure to comply with the foregoing shall constitute a violation of operating company’s obligations concerning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

1.3 Safeguards

The safety concept of the SensoGate WA130 expands on the interaction within a Knick measuring system. The safeguards and safety functions of the SensoGate WA130 rely on the functionalities of the electro-pneumatic controller. → *Process Analysis System: Installation Example, p. 22*

When operating the SensoGate WA130 without the Knick measuring system, safeguards and safety functions are not available. The operator must assess the risks and take appropriate measures. Media and energy connections must be able to be safely disconnected from the SensoGate WA130 using shut-off devices.

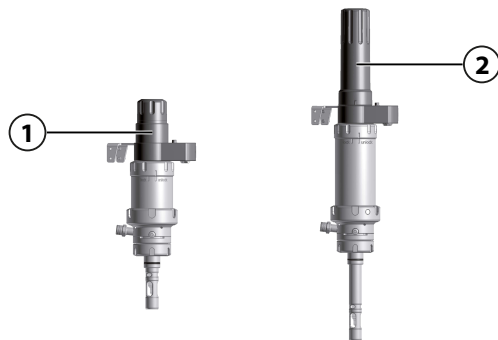
Only operate the product as intended. → *Intended Use, p. 5*



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.



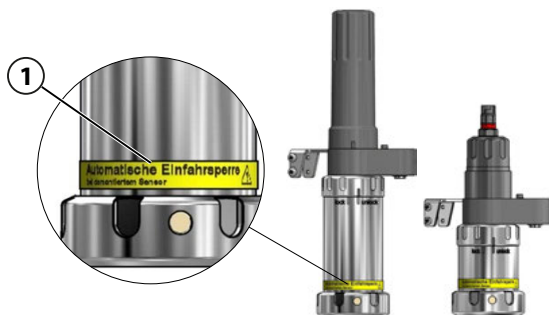
Solid Electrolyte Sensor Dismount Guard

For versions of SensoGate WA130 for solid electrolyte sensors, sensors can only be dismantled in the service position (SERVICE limit position).

→ *Moving into the Service Position (SERVICE Limit Position), p. 30*

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

→ *Moving into the Process Position (PROCESS Limit Position), p. 29*



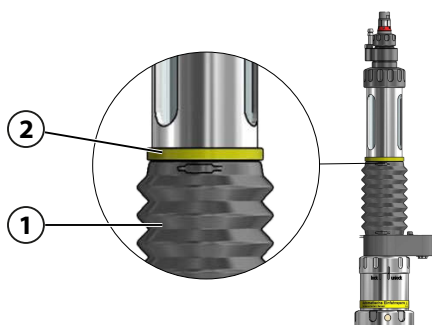
Immersion Lock Without a Mounted Solid Electrolyte Sensor

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 WA130. If the yellow indicator ring (1) is missing, the safeguard function is not available.

A mechanical lock prevents the SensoGate WA130 without a mounted solid electrolyte sensor from being moved into the process position (PROCESS limit position).



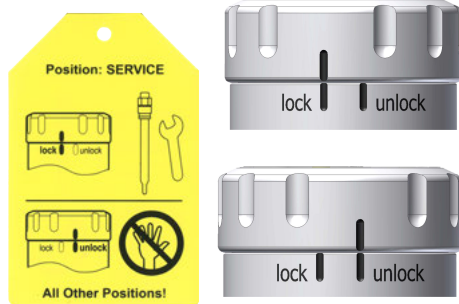
Immersion Lock Without a Mounted Liquid Electrolyte Sensor

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 WA130 without a mounted liquid-electrolyte sensor from being moved into the process position (PROCESS limit position).



SensoLock Locking

The SensoLock immersion lock prevents the SensoGate WA130 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 WA130 and prevents it from moving into the process position (PROCESS limit position).

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

The availability of safeguards is in part dependent on the version of the SensoGate WA130.

→ *Product Code, p. 12*

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 impact of moisture, corrosion and chemicals, as well as the ambient temperature, could influence the safe operation of the product. Observe the following instructions:

- SensoGate WA130 may only be operated in compliance with the specified operating conditions.
→ *Specifications, p. 65*
- If possible, install the product inside a protected area of the plant. Alternatively, take appropriate measures to protect the SensoGate WA130 (e.g., install ZU0759 protective cap¹⁾).
→ *Accessories, p. 53*
- If using aggressive chemical process media, adjust the inspection and maintenance intervals accordingly. → *Inspection and Maintenance Intervals, p. 38*
- Adhering and sticky process media can impact the functionality of the SensoGate WA130 (e.g., by causing components to stick together). Adjust the inspection and maintenance intervals accordingly. → *Inspection and Maintenance Intervals, p. 38*

Accidental Loosening of the Process Connection

Movement of the sensor into the SERVICE/PROCESS limit positions is triggered on the SensoGate WA130 by the pressurization of the control or process air.

Some versions of the SensoGate WA130 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*

Operating companies operate the SensoGate WA130 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⁾ 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.

1.5 Safety Accessories

To increase safety, specially developed accessories are available. → *Accessories, p. 53*

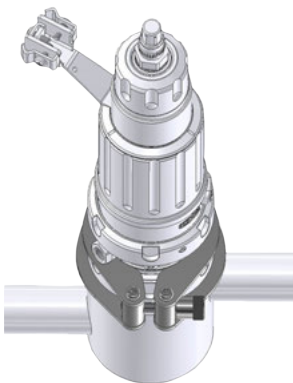
Note: We urgently recommend using the safety accessories.



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.

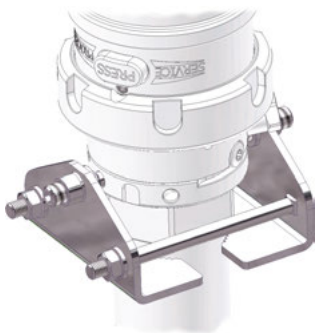
The wires of the retainer clamp connect the SensoGate WA130 to the customer's process port. A locking lug on the retainer clamp engages in the groove of the coupling nut (form-fit).



ZU1055 Retainer Clamp for Process Connection K8

The retainer clamp prevents the coupling nut of the screw joint for a K8 process connection from accidentally coming loose.

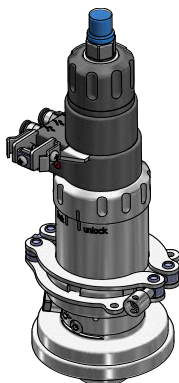
The wires of the retainer clamp connect the SensoGate WA130 to the customer's process port. A locking lug on the retainer clamp engages in the groove of the coupling nut (form-fit).



ZU0877 Locking Clamp for Process Connection G1", G1 1/4", R1", R1 1/4", 1" NPT

The locking clamp prevents the process screw joint of a SensoGate WA130 with threaded connection from accidentally coming loose. The locking clamp is available for process connections with the following threads: G1", G1 1/4", R1", R1 1/4", 1" NPT.

The locking clamp can be used with threaded couplings with a minimum length of 10 mm and an outer diameter of 39 mm to 57 mm.



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 WA130'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 job hazard analysis.

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

1.7 Operation in Explosive Atmospheres

SensoGate WA130-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. 65*

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 explosive atmospheres. 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 WA130-X with care and take suitable protective action, e.g., use covers and pads.

The metallic parts of the SensoGate WA130-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 WA130-X. The operating company must assess and document the changes.

→ *Nameplates, p. 14*

Electrostatic Charging

The drive unit of specific versions of the SensoGate WA130-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 parts are only cleaned with a moist cloth.

Mechanically Generated Sparks

Single impacts on metal parts or collisions between metal parts of the SensoGate WA130-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 low conductivities of less than 1 nS/m with a calibration chamber made of polypropylene (PP), 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. 38*

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. 38*

Tools and Mounting Aids

Special and accessory tools help maintenance personnel to replace components and wear parts safely and professionally. → *Tools, p. 57*

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. 52*

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 WA130 in the version ordered
- User Manual
- EU Declaration of Conformity¹⁾
- EU Type Examination Certificate¹⁾
- As applicable, supplementary datasheet for special versions²⁾

2.2 Product Identification

Note: The operating company is responsible for selecting the material for the seals and the wetted parts, as well as for the suitability of the selection for the process medium.

The various versions of the SensoGate WA130 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		WA130	-	X	1	K	C	P	2	A	C	-	0	0	W
Explosion protection	ATEX Zone 0			X								-			
Sensor	pH sensor Ø12 mm with pressurization, sensor pressure chamber for compressed air supply				1							-			
Seal material	FFKM					K						-			
Wetted materials ³⁾	PEEK / PEEK / PEEK						C					-			
Process connections	Loose flange, ANSI 316, 300 lbs, 2.5"							P	2			-			
Immersion depth	Short									A		-			
Connection	PEEK media connection with an integrated connection for an additional medium										C	-			
Special version	Immersion lock for fitting with dismounted sensor. For sensor type 0.											-	0	0	W

¹⁾ Only for versions certified for operation in hazardous locations.

²⁾ Supplied depending on the ordered version of the SensoGate WA130. → *Product Code, p. 12*

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

2.2.2 Product Code

Basic unit		WA130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Explosion protection	ATEX Zone 0		X																
	Without		N																
Sensor	Sensor Ø12 mm with PG13.5		0																
	pH sensor Ø12 mm with pressurization, sensor pressure chamber for compressed air supply		1																
	Optical sensor Ø12 mm with PG13.5		4																
Seal material	FKM			A															
	EPDM			B															
	FFKM / FKM			C															
	EPDM - FDA			E															
	FFKM / EPDM – FDA ¹⁾			G															
	FFKM - FDA			H															
	FFKM			K															
Wetted materials ²⁾	1.4571/1.4404/1.4571 ³⁾			A															
	Hastelloy / Hastelloy / Hastelloy			B															
	PEEK/PEEK/PEEK			C															
	PVDF/PVDF/PVDF			D															
	PEEK HD/PEEK HD/PEEK HD			E															
	PVDF HD/PVDF HD/PVDF HD			F															
	PP/PP/PP			P															
	Titanium/Titanium/Titanium			T															
Process connections	1.4571/1.4571/PEEK			Z															
	Ingold socket, 25 mm				H	0													
	Loose flange, 1.4571, PN10/16, DN 32				B	0													
	Loose flange, 1.4571, PN10/16, DN 40				B	A													
	Loose flange, 1.4571, PN10/16, DN 50				B	1													
	Loose flange, 1.4571, PN10/16, DN 65				B	2													
	Loose flange, 1.4571, PN10/16, DN 80				B	3													
	Loose flange, 1.4571, PN10/16, DN 100				B	4													
	Loose flange, 1.4571, PN40, DN 32				E	0													
	Loose flange, 1.4571, PN40, DN 40				E	A													
	Loose flange, 1.4571, PN40, DN 50				E	1													
	Loose flange, 1.4571, PN40, DN 65				E	2													
	Loose flange, 1.4571, PN40, DN 80				E	3													
	Loose flange, 1.4571, PN40, DN 100				E	4													
	Dairy pipe DN 50				C	1													
	Dairy pipe DN 65				C	2													
	Dairy pipe DN 80				C	3													
	Dairy pipe DN 100				C	4													
	Loose flange, ANSI 316, 150 lbs, 1½"				D	0													
	Loose flange, ANSI 316, 150 lbs, 2"				D	1													
	Loose flange, ANSI 316, 150 lbs, 2½"				D	2													

¹⁾ Process-wetted seals/rinse-wetted seals

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

³⁾ Material 1.4571: alternatively 1.4404 at discretion of manufacturer

Basic unit		WA130	-	-	-	-	-	-	-	-	-	-	-	-	-
	Loose flange, ANSI 316, 150 lbs, 3"	D 3													
	Loose flange, ANSI 316, 150 lbs, 3.5"	D 4													
	Loose flange, ANSI 316, 150 lbs, 4"	D 5													
	Loose flange, ANSI 316, 300 lbs, 1½"	P 0													
	Loose flange, ANSI 316, 300 lbs, 2"	P 1													
	Loose flange, ANSI 316, 300 lbs, 2½"	P 2													
	Loose flange, ANSI 316, 300 lbs, 3"	P 3													
	G1 (outer)	G 1													
	G1¼ (outer)	G 3													
	G1½ (outer)	G 5													
	R1 (outer) ¹⁾	R 1													
	R1¼ (outer) ¹⁾	R 3													
	1" NPT (outer) ¹⁾	N 1													
	G2¼ for ARF210/215	K 8													
	Clamp 1.5"	J 1													
	Clamp 2"	J 2													
	Fitting DIN 3237-1/-2, PN16, DN 25 ²⁾	T X													
	Fitting DIN 3237-1/-2, PN16, DN 32 ²⁾	T 0													
	Fitting DIN 3237-1/-2, PN16, DN 40 ²⁾	T A													
	Fitting DIN 3237-1/-2, PN16, DN 50 ²⁾	T 1													
	Fitting DIN 3237-1/-2, PN16, DN 80 ²⁾	T 3													
Immersion depth	Short	A													
	Long	B													
	Short, without lock function	K													
Connection	PP media connection	A													
	PEEK media connection	B													
	PEEK media connection with an integrated connection for an additional medium	C													
Special version	Without														
	Equipment with special grease (provided by customer)														
	With reinforced scraper ring PTFE/PEEK (not for Ingold socket)														
	Customer-specific special datasheet														
	Immersion lock for fitting with dismounted sensor. For immersion depths A, K, and pH sensor type 1.														
	Immersion lock for fitting with dismounted sensor. For sensor type 0.														

¹⁾ For the following materials only: 1.4571, Hastelloy, titanium, PEEK

²⁾ This version requires an adapter for connection to the sight glass fitting. The adapter is part of the Knick sight glass fitting.

2.3 Nameplates

The SensoGate WA130 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 WA130.

Nameplate, Version With Ex Approval

Note: The figure shows an example nameplate in the SensoGate WA130-X version.

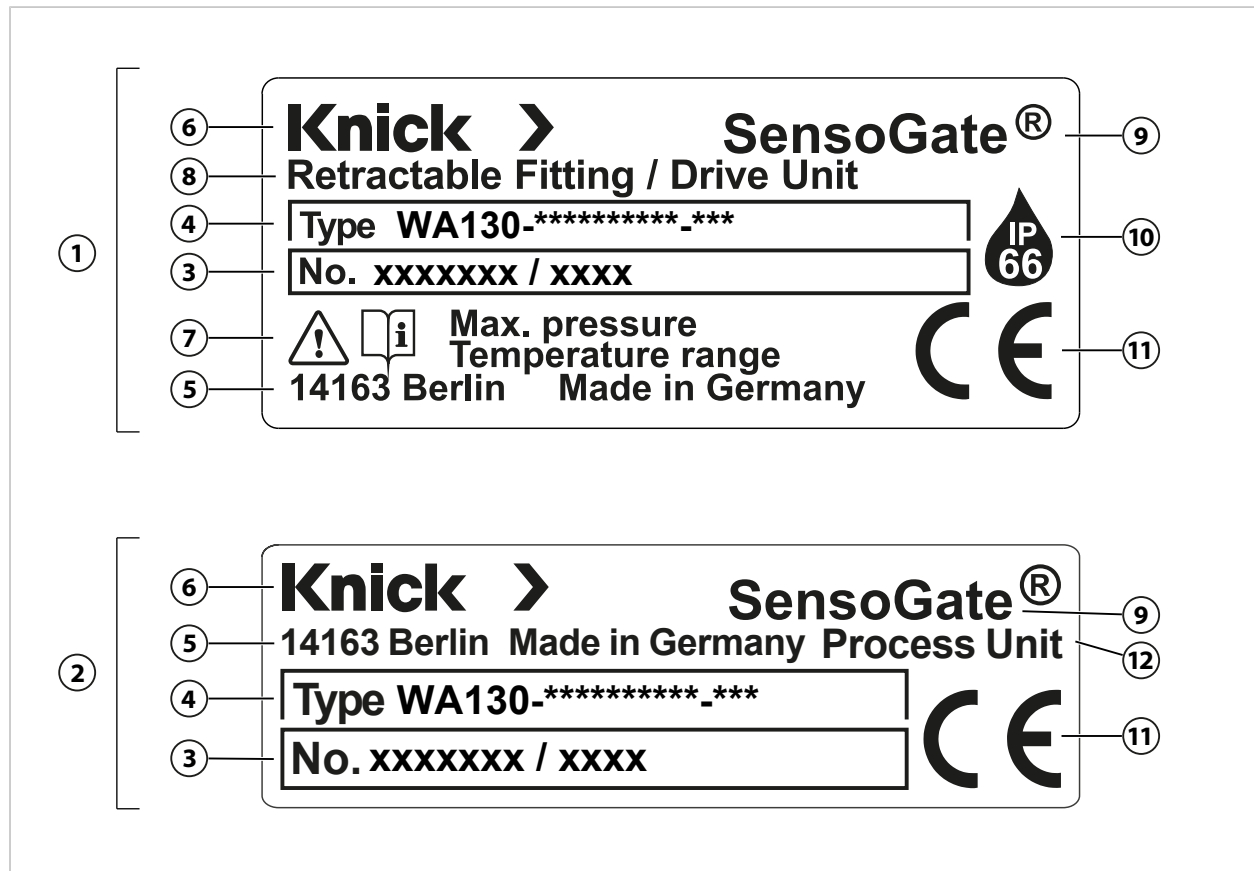


1	Nameplates, drive unit	10	ATEX marking, information on explosion protection
2	Process unit nameplate	11	EU Type Examination Certificate test number
3	Max. operating pressure and temperature range ¹⁾	12	Serial number/production year and week
4	Model designation	13	Product line: Retractable fitting Assembly group: Drive unit
5	Manufacturer address with designation of origin	14	Product family
6	Manufacturer	15	IP rating
7	Reference to explosion protection information ¹⁾	16	CE mark with identification number
8	No self heating/special conditions ¹⁾	17	Assembly group: Process unit
9	Permitted ambient temperature	18	Reference to ATEX information of drive unit

¹⁾ Additional information can be found in the related EU Type Examination Certificate or in the sections → *Safety*, p. 5 and → *Specifications*, p. 65.

Nameplate, Version Without Ex Approval

Note: The figure shows example nameplates in the SensoGate WA130-N version.



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

¹⁾ Further information is available in the → *Safety*, p. 5 and → *Specifications*, p. 65 chapters.

2.4 Symbols and Marks

	Special conditions and danger points! Observe the safety instructions 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 → <i>Operation in Explosive Atmospheres, p. 9</i>
	IP66 protection: The product is dust-tight and offers complete protection against contact as well as protection against strong water jets.
	Symbol to show that the SensoGate WA130 is mechanically locked.
	Symbol to show that the SensoGate WA130 is not mechanically locked.

2.5 Design and Function

SensoGate WA130 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. 41*

Various different versions of drive and process unit can be combined. → *Permissible Changes, p. 20*

The process connection is used to fasten the SensoGate WA130 to the process port.

The pneumatically operated drive unit moves the SensoGate WA130 into the service position (SERVICE limit position) or the process position (PROCESS limit position).

→ *Limit Positions, Service and Process Position, p. 21*

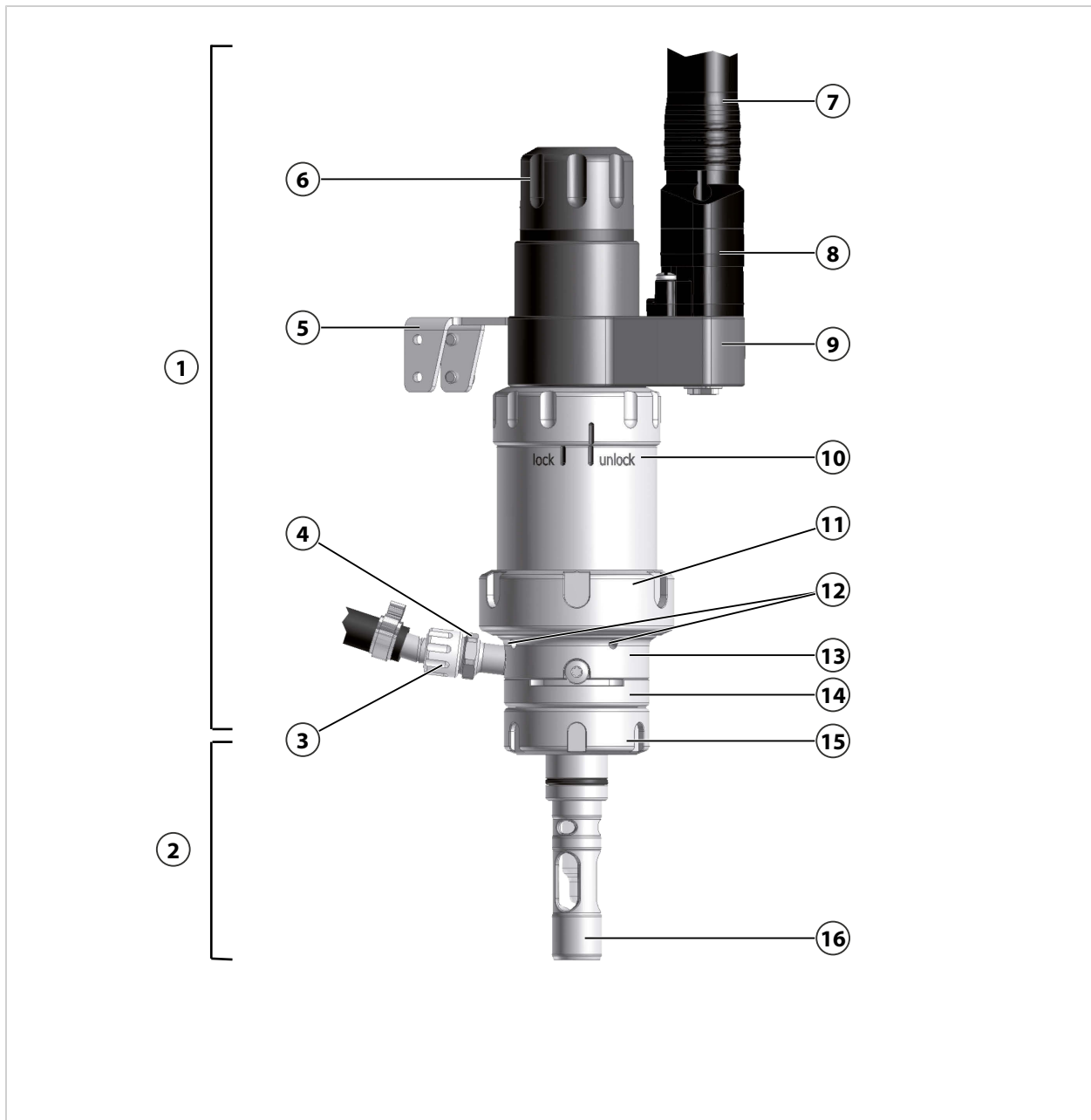
See also

→ *Safeguards, p. 6*

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

2.5.1 Retractable Fitting

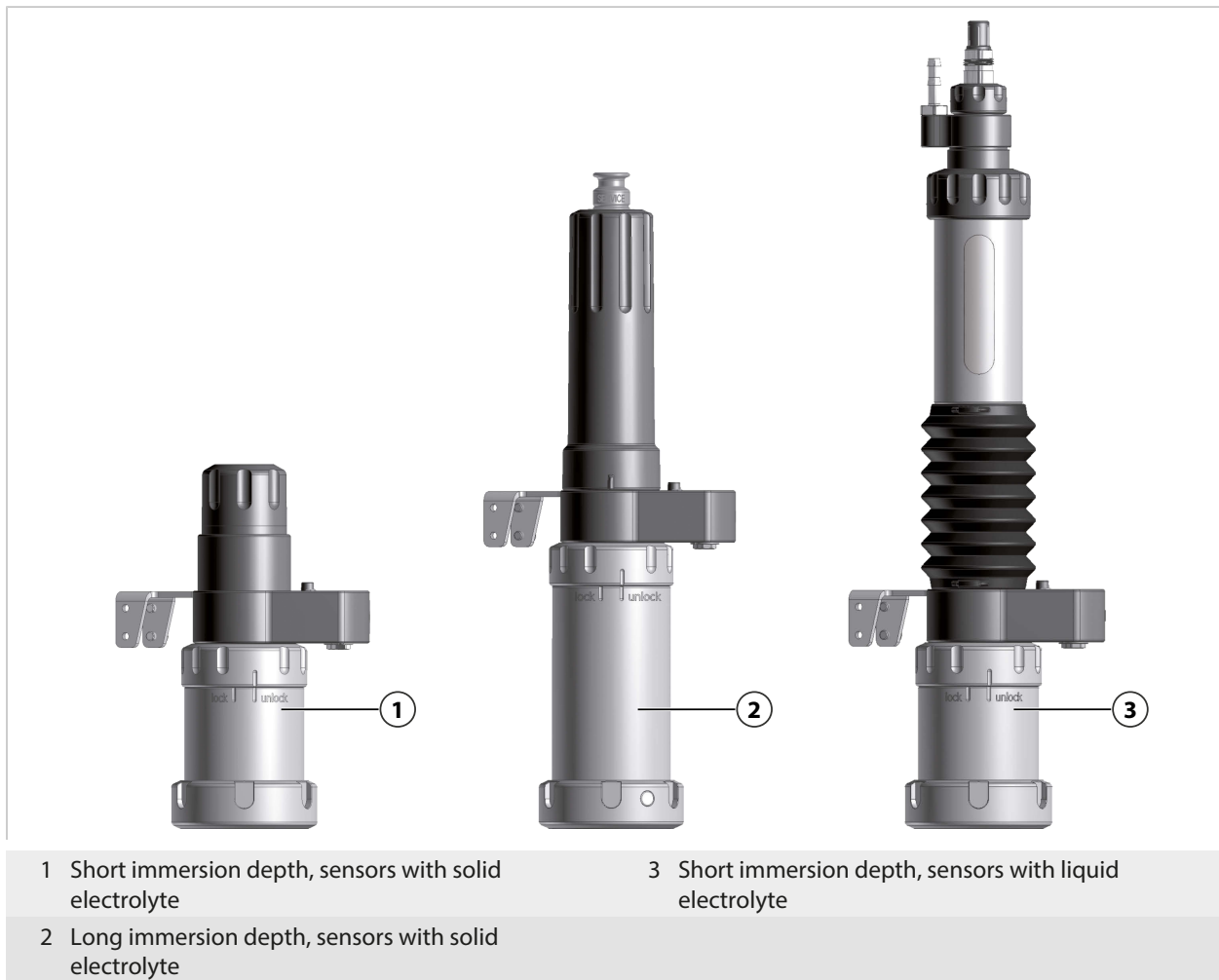
Note: The figure shows an example version of the SensoGate. → *Product Code*, p. 12



1 Drive unit	9 Multiplug connection
2 Process unit	10 SensoLock with upper coupling nut
3 Outlet hose (not included in package contents)	11 Coupling nut
4 Outlet port	12 Leakage bores
5 Fixing bracket	13 Upper part of calibration chamber
6 Sensor holder	14 Lower part of calibration chamber
7 Media connection for Unical 9000 (not included in package contents)	15 Process connection (e.g., Ingold socket)
8 Multiplug (not included in package contents)	16 Immersion tube

2.5.2 Drives and Sensor Holders

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

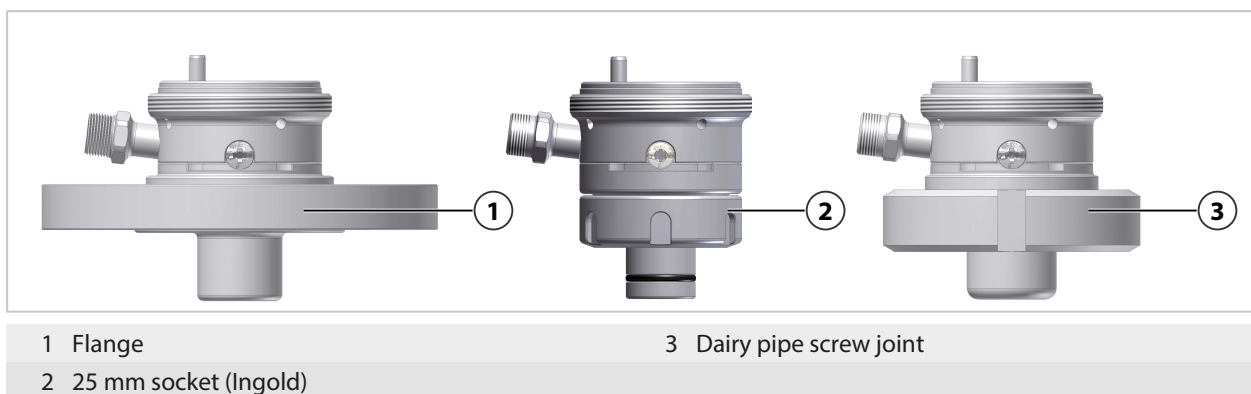


See also

→ *Drives and Sensor Holders, p. 18*

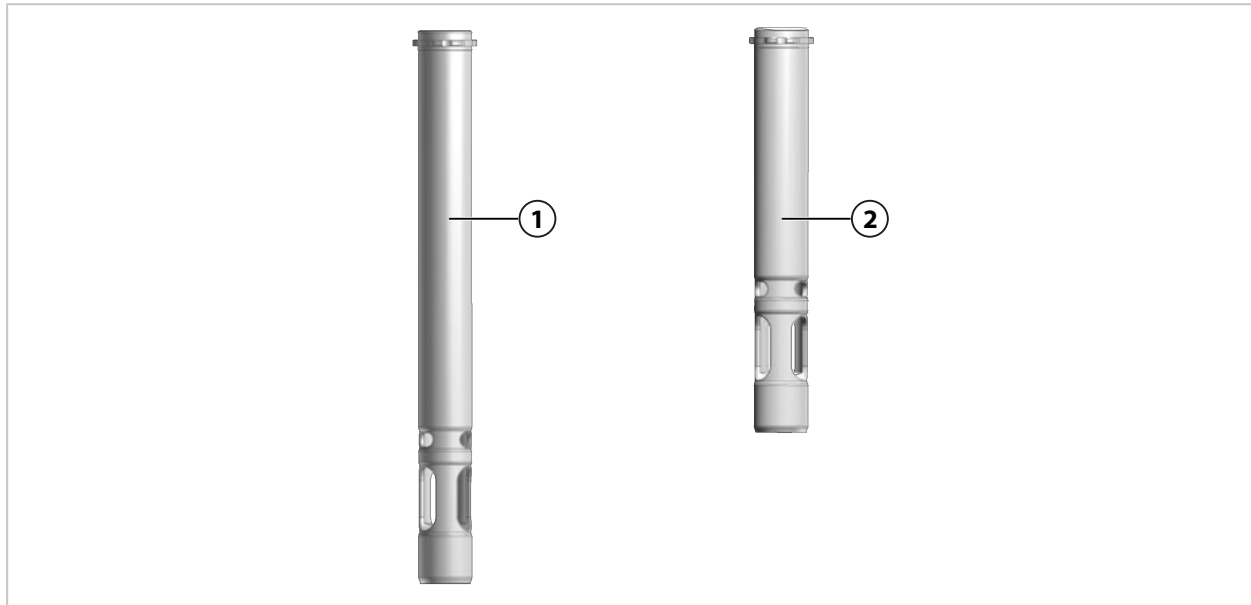
2.5.3 Process Connections

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



2.5.4 Immersion Tubes

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

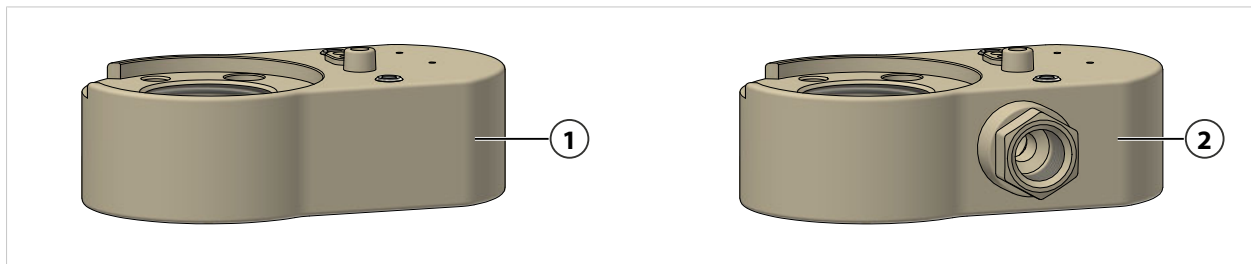


1 Immersion tube, long (204 mm)
Materials: 1.4571 (1.4404)¹⁾, PEEK, PVDF, Hastelloy
or optionally titanium → *Spare Parts, p. 52*

2 Immersion tube, short (149 mm)
Materials: 1.4571 (1.4404)¹⁾, PEEK, PVDF, Hastelloy
or optionally titanium → *Spare Parts, p. 52*

2.5.5 Media Connection

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



1 PP or PEEK media connection

2 PEEK media connection with connection for an
additional medium

¹⁾ Material 1.4571: alternatively 1.4404 at discretion of manufacturer

2.6 Permissible Changes

The SensoGate WA130 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*
- Replacing wetted components (calibration chamber, immersion tube, seals) with other material properties → *Maintenance, p. 38*
- 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 WA130. 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 WA130 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. 46*

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 Limit Positions, Service and Process Position

The SensoGate WA130 can have one of two limit positions (service or process position).

Note: The SensoGate WA130 is only separated from the process in the service position (SERVICE limit position).

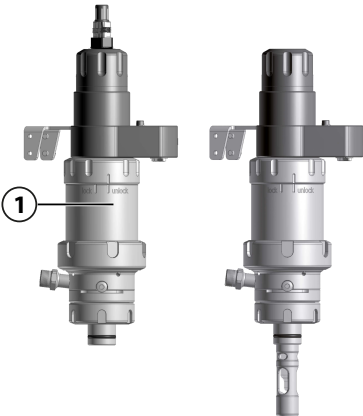
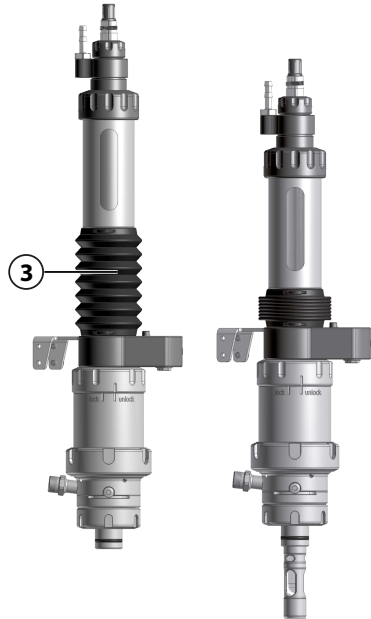
Service Position (SERVICE Limit Position)

- The sensor is not in contact with the process medium.
- During an ongoing process, the sensor can be installed or removed and cleaned if required.
- The measuring system can be calibrated and adjusted.
- The limit position is monitored.

Process Position (PROCESS Limit Position)

- The sensor is in contact with the process medium.
- The required process parameters can be measured.
- The limit position is monitored.

The service position (SERVICE limit position) and process position (PROCESS limit position) are indicated in different ways depending on the version of the SensoGate WA130.

Solid Electrolyte Sensor, Short Immersion Depth		Solid Electrolyte Sensor, Long Immersion Depth		Liquid Electrolyte Sensor, Short Immersion depth	
					
SERVICE	PROCESS	SERVICE	PROCESS	SERVICE	PROCESS
In the service position, the sensor head (1) is visible at the top end of the protection sleeve. In the process position, the sensor head (1) is retracted into the protection sleeve.		In the service position, the service cap (2) is visible at the top end of the extension. In the process position, the service cap (2) is retracted into the extension.		In the service position, the bellows (3) are pulled apart. In the process position, the bellows (3) are pressed together.	

3 Installation

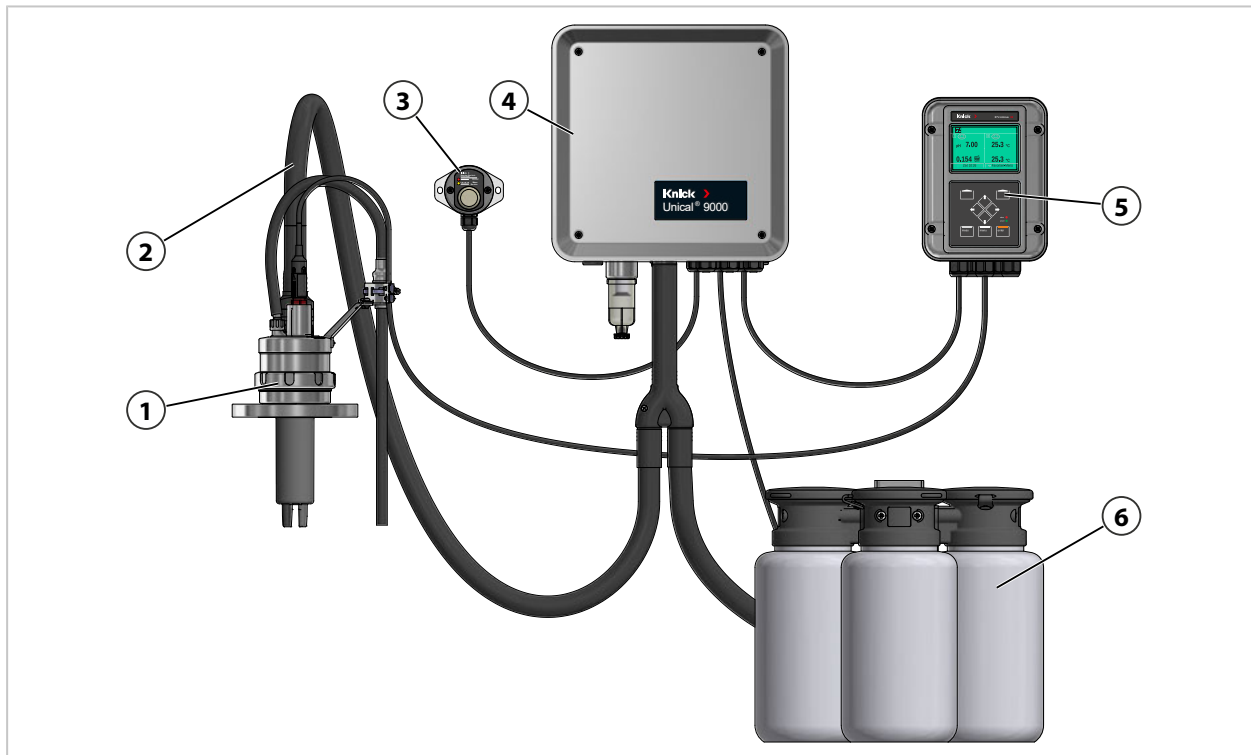
3.1 General Installation Instructions

Process Analysis System: Installation Example

The SensoGate WA130 is designed for operation within a fully automatic Knick process analysis system. The process analysis system may typically comprise the following products:

- Protos industrial transmitter
- Unical 9000 electro-pneumatic controller
- SensoGate WA130 retractable fitting

Note: The figure shows an installation example of a process analysis system from Knick. More information is available on www.knick-international.com.



1 Retractable fitting (shown here: Ceramat WA153)

4 Unical 9000 controller

2 Media connection

5 Protos industrial transmitter

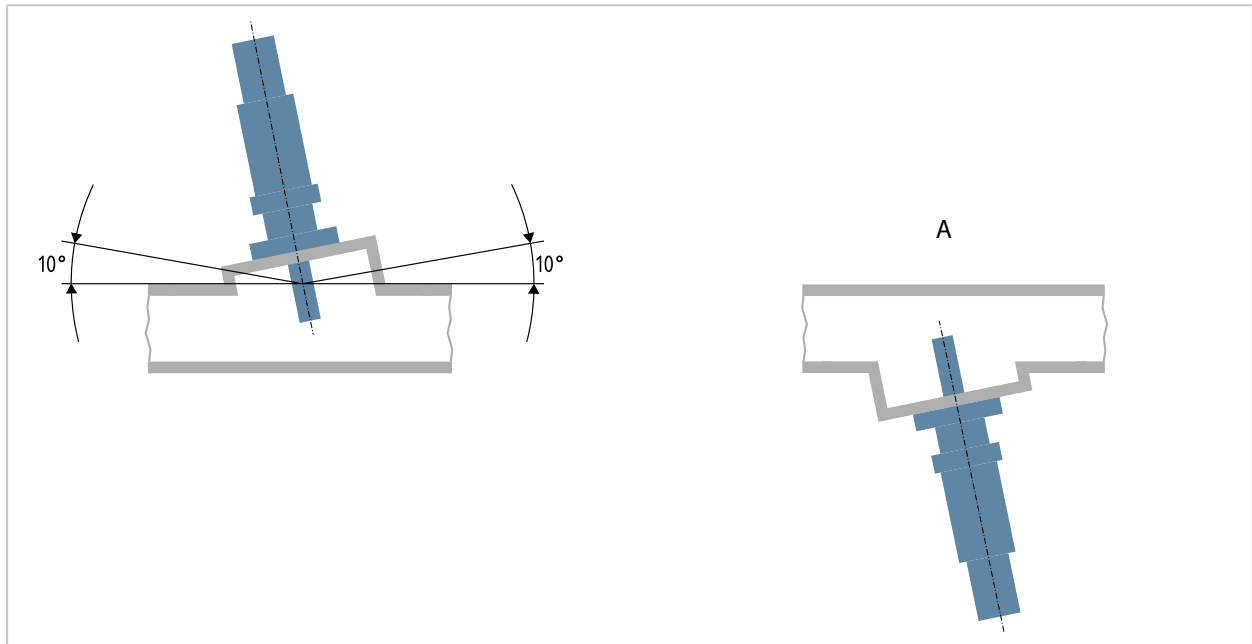
3 Service switch

6 Media adapter with metering pumps

Note: The SensoGate WA130 may also be operated without a process analysis system. Accessory ZU0733, ZU0734, or ZU0742 "Adapter for Free Hose Connection" is required for this. The adapter is installed instead of the multiplug with media connection. → *Accessories, p. 53*

3.2 Retractable Fitting: Installation

⚠ WARNING! Risk of explosions from mechanically generated sparks if used in potentially explosive atmospheres. Implement measures for avoiding mechanically generated sparks. Follow the safety instructions. → *Operation in Explosive Atmospheres, p. 9*



01. Check the package contents of the SensoGate WA130 for completeness. → *Package Contents, p. 11*
02. Check the SensoGate WA130 for damage.
03. Ensure the required installation clearances for the sensor installation.
→ *Dimension Drawings, p. 59*
Note: The installation angle of the SensoGate WA130 depends on the sensor type. An installation angle from 10° above the horizontal is permitted for all sensor types. An upside down installation angle (see View A) is only permitted when using sensors that are approved for upside down operation.
04. Fasten the SensoGate WA130 to the process port with the process connection.
05. Optional: When using in potentially explosive atmospheres, connect the ground connection of the SensoGate WA130 with the equipotential bonding of the system.

See also

→ *Operation in Explosive Atmospheres, p. 9*

→ *Commissioning, p. 28*

3.3 Safety Accessories: Installation

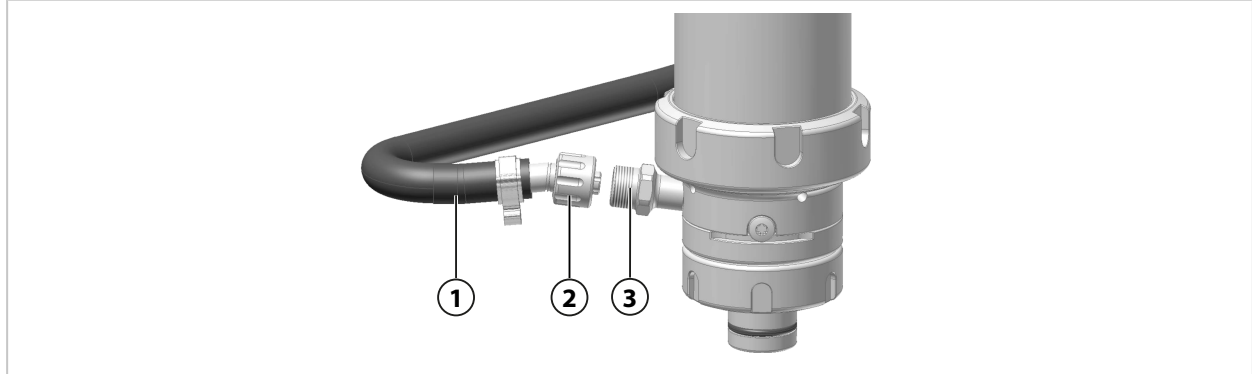
The installation of the safety accessories is described in the associated accessories manuals.

→ *Safety Accessories, p. 8*

Note: We urgently recommend using the safety accessories.

3.4 Outlet Hose: Installation

Note: The outlet is used to discharge rinsing medium and trapped process medium and must not be closed. Installation of the supplied outlet 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.

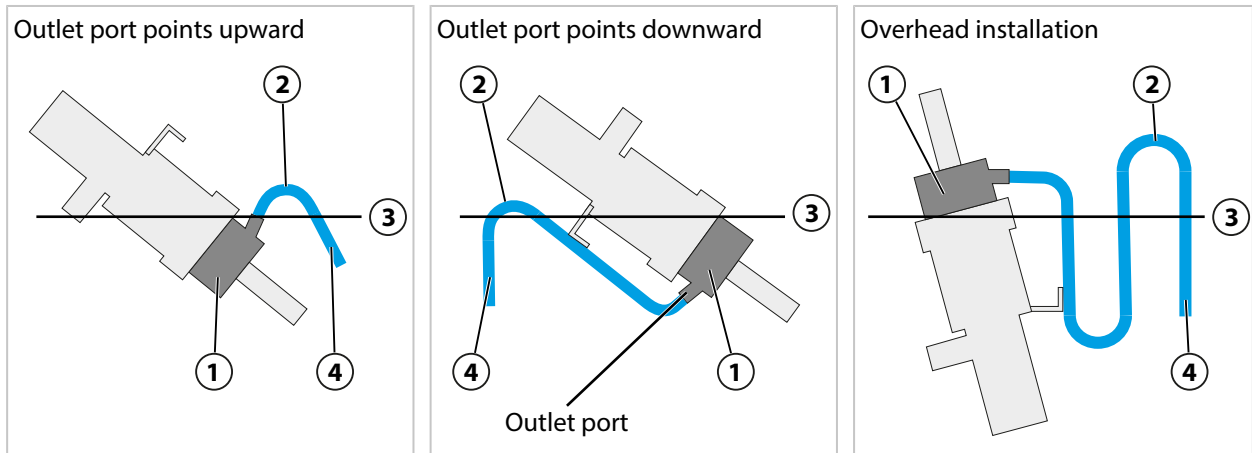


01. Tightly screw the outlet hose (1) to the outlet port (3) using the coupling nut (2).

Outlet Hose Laying

During an overhead installation of the SensoGate WA130, lay the outlet hose in an arc above the level of the calibration chamber. This prevents gravity-induced leaking from the calibration chamber.

Route the outlet hose no more than 1 m below the retractable fitting. Routing the outlet hose lower can create a suction effect that empties the calibration chamber despite the arc.



01. Lay the outlet hose (4) in an arc (2) above the calibration chamber level (3).

✓ This prevents the calibration chamber (1) from leaking.

3.5 Media Connection

3.5.1 Media Connection: Installation Instructions

To connect the media to the SensoGate WA130, the following options are available:

- “Media connection” of the electro-pneumatic controller (operation with process analysis system)
- Accessories ZU0733, ZU0734, or ZU0742 “Adapter for free hosing” (operation without process analysis system)

“Media Connection” for Operation with Process Analysis System

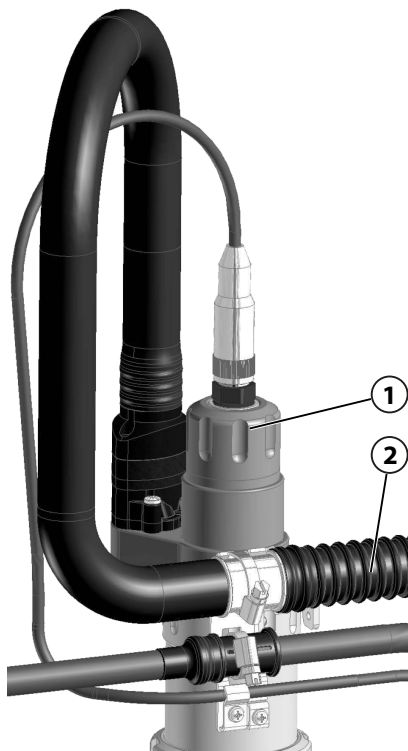
When using a process analysis system from Knick, all supply lines and the connecting cable for the limit signal are joined in one hose: the media connection **(2)**. The media connection is connected to SensoGate WA130 using a common plug-in connection, the multiplug **(1)**.

The supply lines of the different media are connected to the electro-pneumatic controller of the process analysis system. More information is available in the documentation of the electro-pneumatic controller.

“Adapter for Free Hosing” for Operation without a Process Analysis System

To control the SensoGate WA130 without a process analysis system, the media are supplied to the retractable fitting via the accessories ZU0733, ZU0742, or ZU0734 “Adapter for free hosing.” The accessory is connected to the media adapter connection.

The supply lines of the different media are connected in free hosing to the accessories ZU0733, ZU0742, or ZU0734 “Adapter for free hosing” **(3)**. More information is available in the associated accessory documentation. → *Accessories, p. 53*



“Media connection” for operation with process analysis system

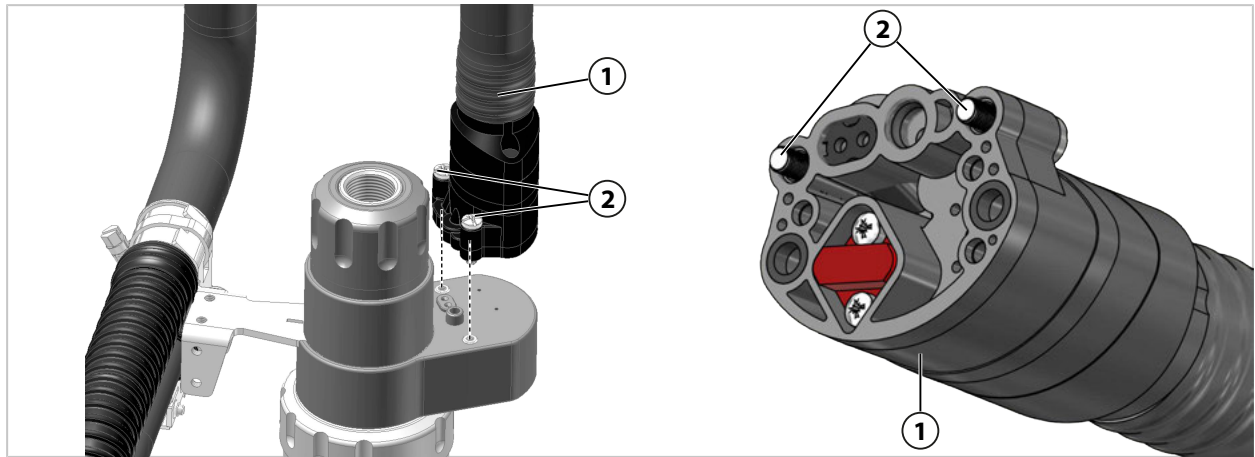


Accessories ZU0733, ZU0734, or ZU0742 “Adapter for free hosing” for operation without a process analysis system

See also

→ *Process Analysis System: Installation Example, p. 22*

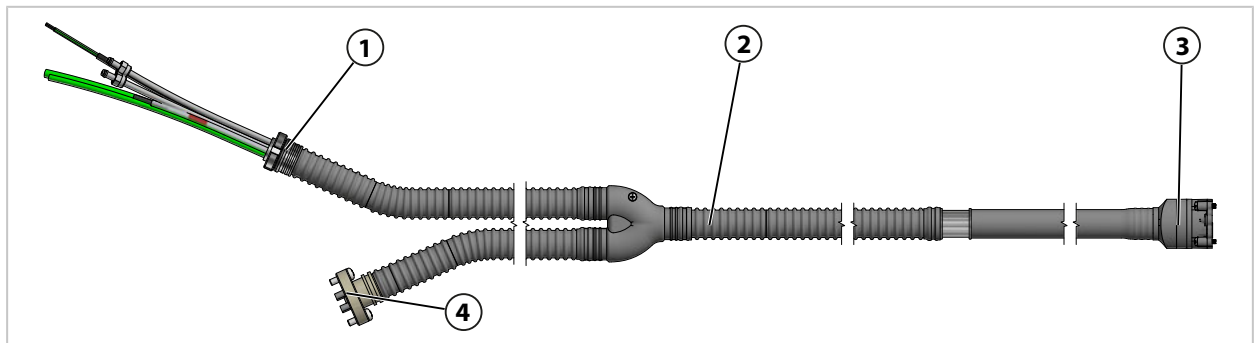
3.5.2 Multiplug: Installation



01. Check the seals and O-rings of the multiplug **(1)** for correct position and damage. Replace if necessary. → *Troubleshooting, p. 47*
02. Position the multiplug **(1)** on the SensoGate WA130 and connect.
03. Secure the multiplug **(1)** using two screws **(2)**.

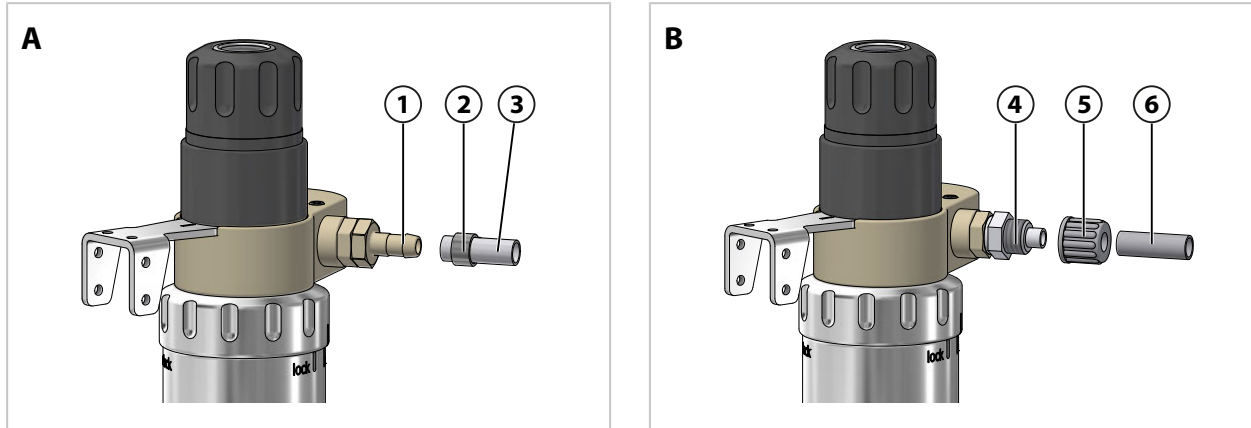
3.5.3 Electro-Pneumatic Controller: Connection

The connection of the SensoGate WA130 to the media connection of the electro-pneumatic controller is described in the controller documentation.



- | | |
|---|---|
| 1 Electro-pneumatic controller connection | 3 Multiplug for connection of the SensoGate WA130 |
| 2 Media connection | 4 Media adapter connection |

3.5.4 Additional Medium Option: Installation



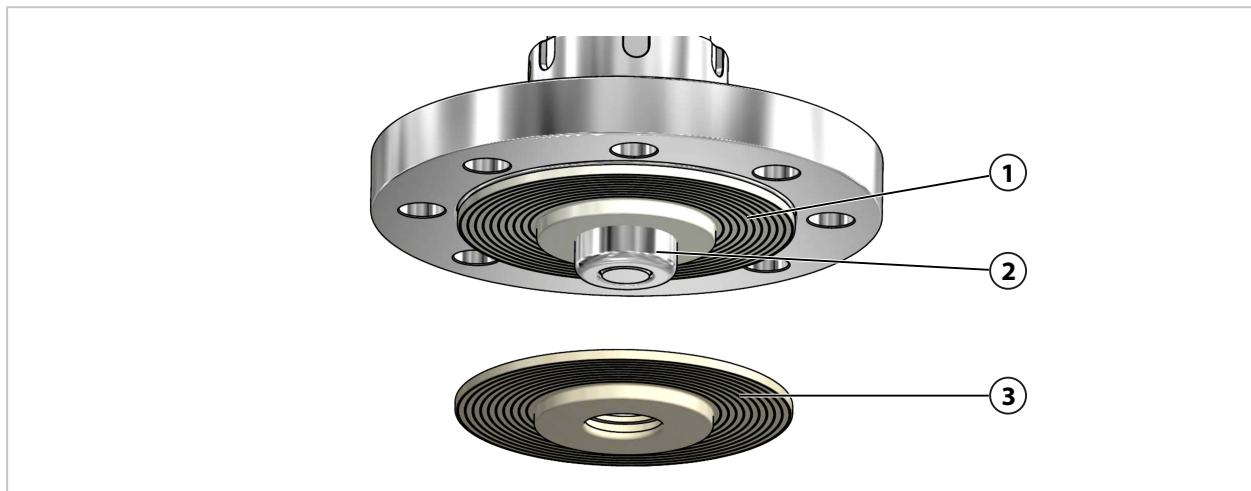
A hose screw connection is provided when combining the media connection with the additional medium and the sealing material FFKM-FDA (graphic B). → *Product Code, p. 12*

Connection	Hose dimensions
Graphic A: Connection nozzle (1)	Outer diameter 10 mm, inner diameter 8 mm
Graphic B: Hose screw connection (4)	Outer diameter 10 mm, inner diameter 8 mm

01. Graphic A: Connect the hose for the additional medium (3) to the connection nozzle (1) and secure with a clip (2).
02. Graphic B: Connect the hose for the additional medium (6) to the hose screw connection (4) and hand-tighten with the coupling nut (5).

3.6 Protective Pane Option: Installation

Note: A flange protector (ZU0595, ZU0596, ZU0597, or ZU0598) (3) is required to protect the flange DN 80 or DN 100 (1) from aggressive media. → *Accessories, p. 53*



01. Push the protective pane (3) over the sensor housing (2).
02. Fully cover the flange surface (1).

4 Commissioning

⚠ WARNING! If the SensoGate WA130 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 WA130. → *Retractable Fitting: Installation, p. 23*
 02. Install the outlet hose. → *Outlet Hose: Installation, p. 24*
 03. Install the multiplug of the media connection → *Multiplug: Installation, p. 26* or the accessory "Adapter for free hosing." → *Media Connection: Installation Instructions, p. 25*
 04. Mount the sensor. → *Installing and Removing Sensors, p. 31*
 05. Optional: Install the flange protector. → *Protective Pane Option: Installation, p. 27*
 06. Check that the process connection is mounted securely.
 07. Optional: Check that the installed safety accessories (e.g., ZU1138 retainer clamp) are mounted securely. → *Safety Accessories, p. 8*
 08. When using the SensoGate WA130-X in potentially explosive atmospheres, check that the connection to the equipotential bonding of the system is correct.
→ *Installing and Removing Sensors, p. 31*
 09. Set the SensoLock to "unlock" by rotating the upper coupling nut.
✓ SensoGate WA130 is unlocked.
 10. Move SensoGate WA130 into the process position (PROCESS limit position).
→ *Moving into the Process Position (PROCESS Limit Position), p. 29*
✓ The sensor head or service cap is not visible.
 11. Move SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
✓ The sensor head or service cap is visible.
 12. Check that SensoGate WA130 is tight 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 WA130 and connections do not leak.
- ✓ SensoGate WA130 is ready for operation.

5 Operation

5.1 Moving into the Process Position (PROCESS Limit Position)

⚠ WARNING! Process, rinse, or additional media, potentially containing hazardous substances, may escape from the SensoGate WA130. Only move the SensoGate WA130 into the process position (PROCESS limit position) if a sensor is installed. → *Installing and Removing Sensors, p. 31*

For the SensoGate WA130, reaching the limit positions is monitored by the multiplug and the electro-pneumatic Unical 9000 controller. If the limit position is not reached, then the Protos industrial transmitter displays an error message. → *Troubleshooting, p. 47*



01. Install the sensor. → *Installing and Removing Sensors, p. 31*

02. Move SensoGate WA130 into the process position (PROCESS limit position).

Note: Depending on the installation of the SensoGate WA130, moving it into the limit positions is triggered differently: industrial transmitters, service switch of the electro-pneumatic controller, process control system (PCS), or ZU0646 "Manually operated pneumatic valve".

→ *Process Analysis System: Installation Example, p. 22*

✓ The sensor head or service cap is not visible (see Detail A).

5.2 Moving into the Service Position (SERVICE Limit Position)

Note: The SensoGate WA130 is only separated from the process in the service position (SERVICE limit position).

For the SensoGate WA130, reaching the limit positions is monitored by the multiplug and the electro-pneumatic Unical 9000 controller. If the limit position is not reached, then the Protos industrial transmitter displays an error message. → *Troubleshooting, p. 47*



01. Move SensoGate WA130 into the service position (SERVICE limit position).

Note: Depending on the installation of the SensoGate WA130, moving it into the limit positions is triggered differently: industrial transmitters, service switch of the electro-pneumatic controller, process control system (PCS), or ZU0646 "Manually operated pneumatic valve".

→ *Process Analysis System: Installation Example, p. 22*

- ✓ The sensor head or service cap is visible (see Detail A).

5.3 Installing and Removing Sensors

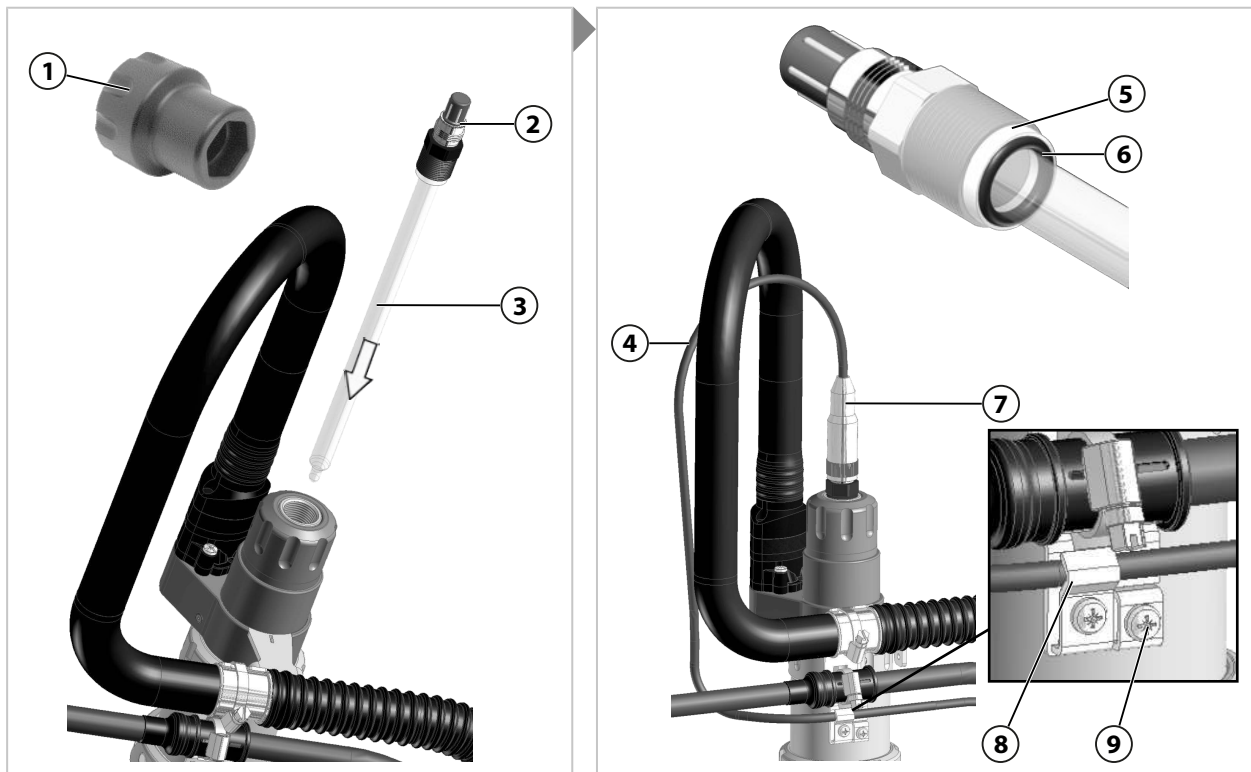
5.3.1 Safety Instructions for Installing and Removing Sensors

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA130. 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 rinsing medium and must not be closed. By moving the SensoGate WA130 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

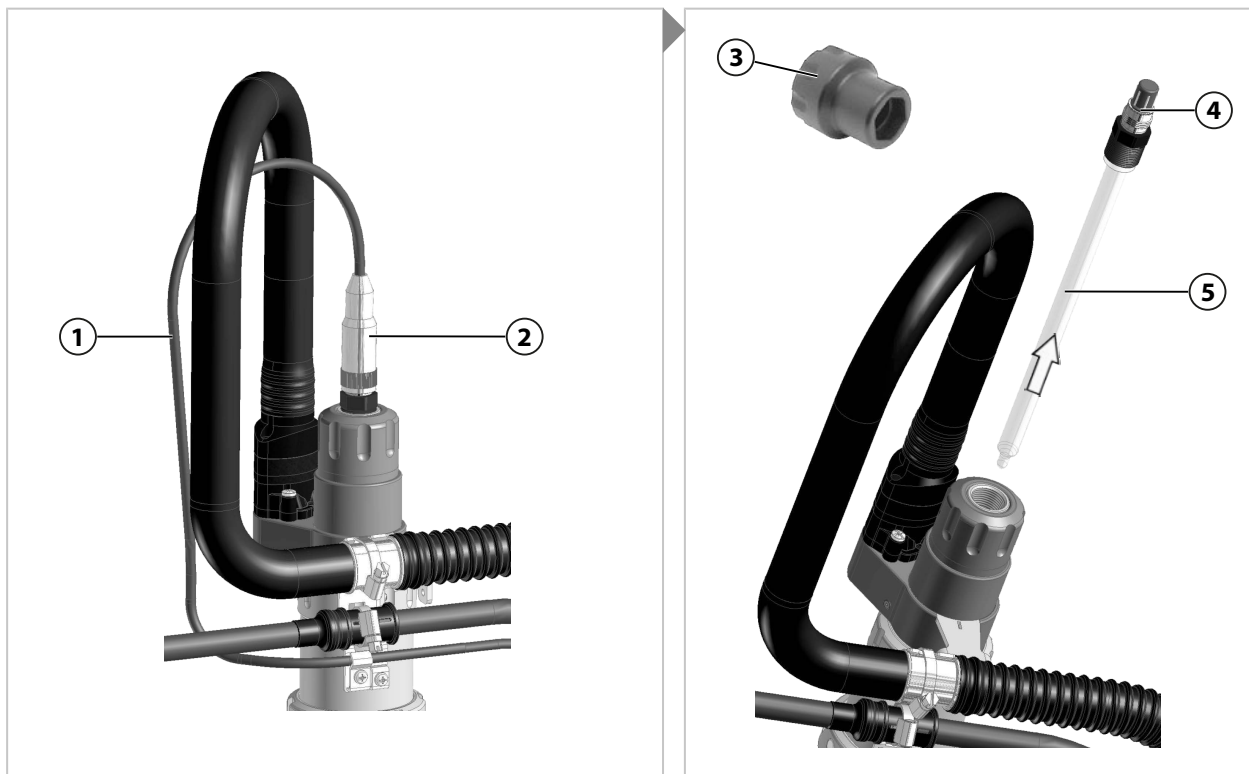


01. Move SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 47*
03. Set the SensoLock to "lock" by rotating the upper coupling nut.
04. Check that the sensor is permitted. → *Intended Use, p. 5*
 - ✓ Length 225 mm
 - ✓ Body diameter 11.5 ... 12.0 mm
 - ✓ Pressure resistance permitted for process → *Specifications, p. 65*
05. Check that the compression ring (5) and O-ring (6) of the sensor (3) are correctly positioned.
06. Check the sensor (3), compression ring (5), and O-ring (6) for damage.
Note: Replace damages sensors, compression rings and O-rings.
07. Check the sensor holders for foreign bodies (e.g. compression ring, O-ring) and remove if necessary.
08. Slide the sensor (3) into the SensoGate WA130.

09. Tighten the sensor **(3)** using a spanning wrench **(1)** to max. 3 Nm (A/F 19). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 57*
Note: When tightening the sensor, the spring force of the "Immersion Lock Without a Mounted Solid-Electrolyte Sensor" safeguard must be overcome.
10. Connect the socket **(7)** of the sensor cable to the sensor head **(2)**.
11. During first-time installation: Route the sensor cable **(4)** in an arch and fasten it with the clip **(8)**. While doing so, ensure that the sensor cable has sufficient arch length to prevent the SensoGate WA130's lifting movement from being obstructed by the sensor cable.
12. During first-time installation: Connect the equipotential bonding line to the terminal **(9)**.
13. Optional: Install the ZU0759/1 protective cap. → *Accessories, p. 53*

5.3.3 Solid Electrolyte Sensor, Short Immersion Depth: Removal

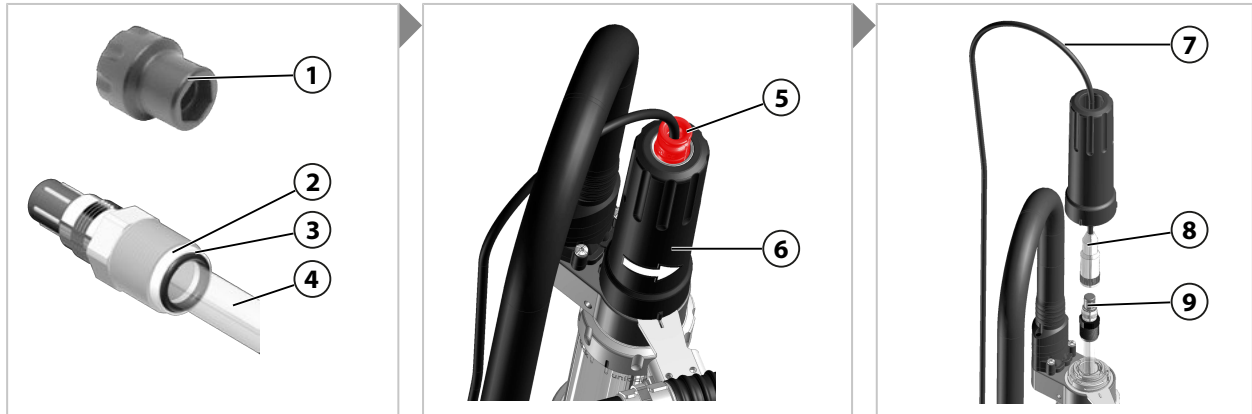
Note: Rinse the sensor prior to removal in order to prevent entrainment of chemically aggressive process medium in the area of the sensor holders.



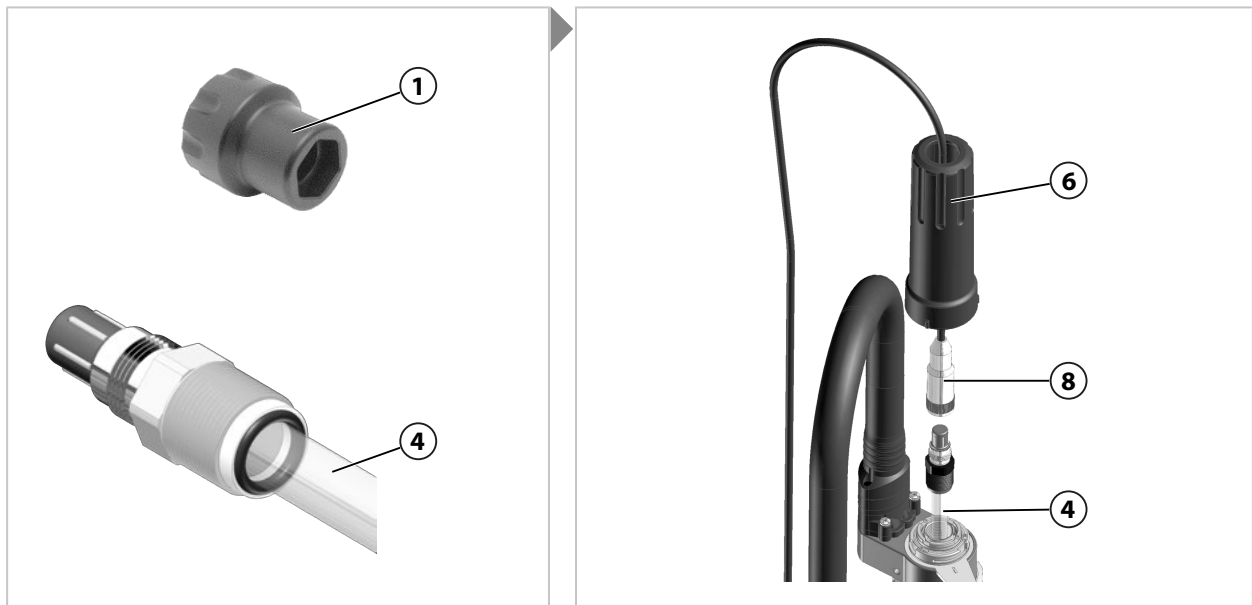
01. Move SensoGate WA130 into the service position (SERVICE limit position).
 → *Moving into the Service Position (SERVICE Limit Position), p. 30*
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 47*
03. Optional: Remove the ZU0759 protective cap.
04. Disconnect the socket **(7)** of the sensor cable from the sensor head **(2)**.
05. Loosen the sensor **(5)** using the spanning wrench **(1)** (A/F 19). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 57*
06. Pull the sensor **(5)** out of SensoGate WA130.
07. If the sensor glass is broken, check the seal of the immersion tube for damage and replace if damaged. → *Immersion Tube: Disassembly, p. 43*

5.3.4 Solid Electrolyte Sensor, Long Immersion Depth: Installation

Note: The extension can only be unlocked in the service position (SERVICE limit position) (safety function).



01. Move SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position)*, p. 30
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. 47
03. Set the SensoLock to "lock" by rotating the upper coupling nut.
04. Check that the sensor is permitted. → *Intended Use*, p. 5
 - ✓ Length 225 mm
 - ✓ Body diameter 11.5 ... 12.0 mm
 - ✓ Pressure resistance permitted for process → *Specifications*, p. 65
05. Check that the compression ring (2) and O-ring (3) of the sensor (4) are correctly positioned.
06. Check the sensor (4), compression ring (3), and O-ring (2) for damage.
Note: Replace damages sensors, compression rings and O-rings.
07. Turn the extension (6) counterclockwise until the bayonet coupling opens.
08. Remove the extension (6).

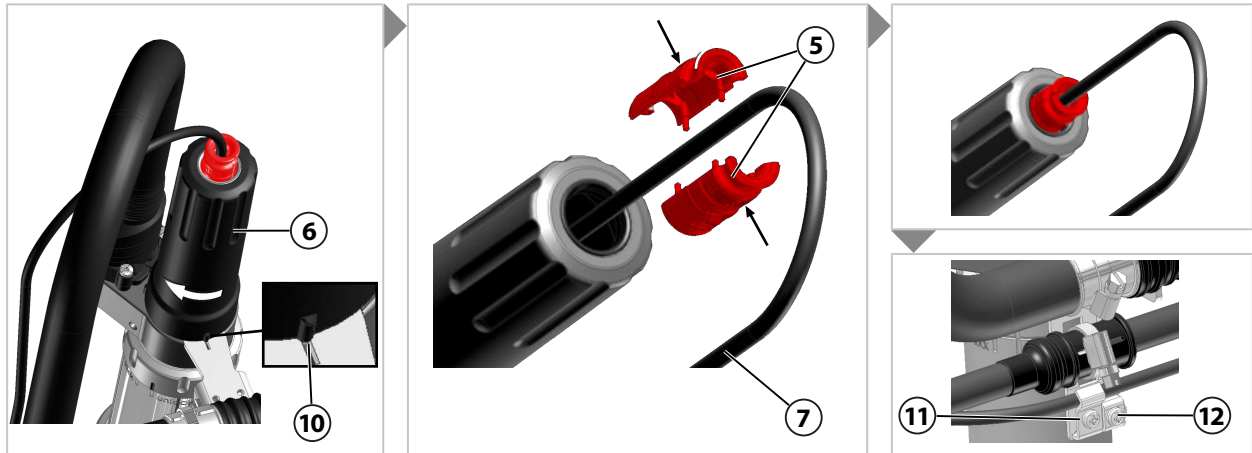


09. Check the sensor holders for foreign bodies (e.g. compression ring, O-ring) and remove if necessary.
10. Slide the sensor (4) into the SensoGate WA130.

11. Tighten the sensor **(4)** using a spanning wrench **(1)** to max. 3 Nm (A/F 19). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 57*

Note: When tightening the sensor, the spring force of the “Immersion Lock Without a Mounted Solid-Electrolyte Sensor” safeguard must be overcome.

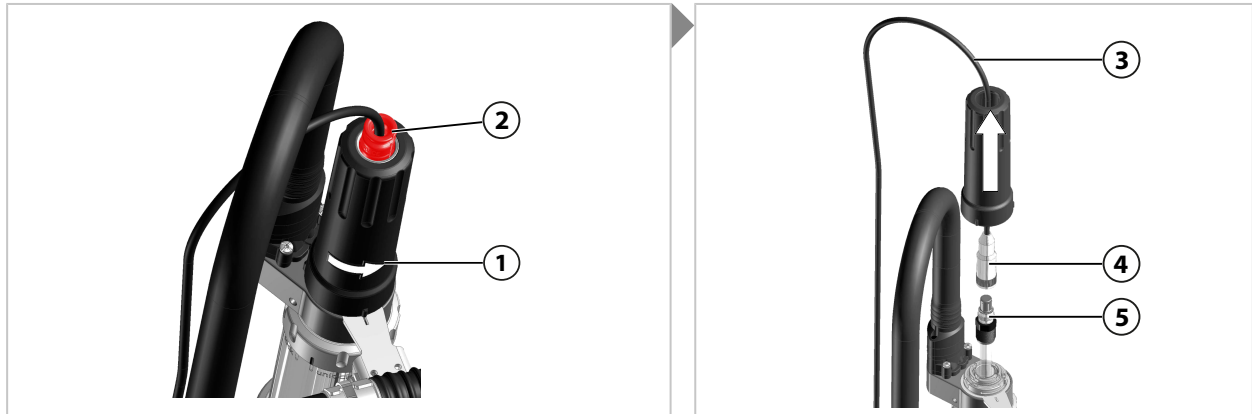
12. During first-time installation: Remove the two-part red service cap **(5)** from the extension **(6)**. Retain the service cap **(5)** for later use.
13. During first-time installation: Guide the socket **(8)** through the extension **(6)**.
14. Connect the socket **(8)** of the sensor cable **(7)** to the sensor head **(9)**.



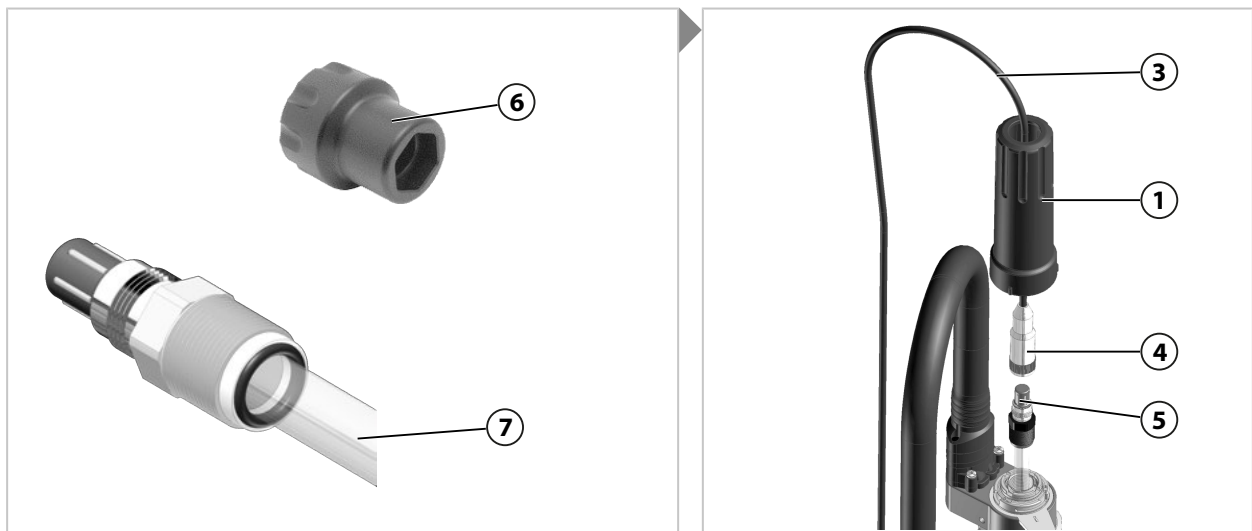
15. Put on the extension **(6)** and turn it clockwise until the bayonet coupling snaps in.
✓ The protrusion **(10)** is aligned with the marking.
16. During first-time installation: Mount the two-part red service cap **(5)** on the sensor cable **(7)**.
17. During first-time installation: Slide the service cap **(5)** above the extension **(6)** into the extension until the service cap **(5)** clearly snaps in.
18. During first-time installation: Route the sensor cable **(7)** in an arch and fasten it with the clip **(11)**. While doing so, ensure that the sensor cable has sufficient arch length to prevent the SensoGate WA130's lifting movement from being obstructed by the sensor cable.
19. During first-time installation: Connect the equipotential bonding line to the terminal **(12)**.
20. Optional: Install the ZU0759/1 protective cap. → *Accessories, p. 53*
21. Set the SensoLock to “unlock” by rotating the upper coupling nut.

5.3.5 Solid Electrolyte Sensor, Long 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.



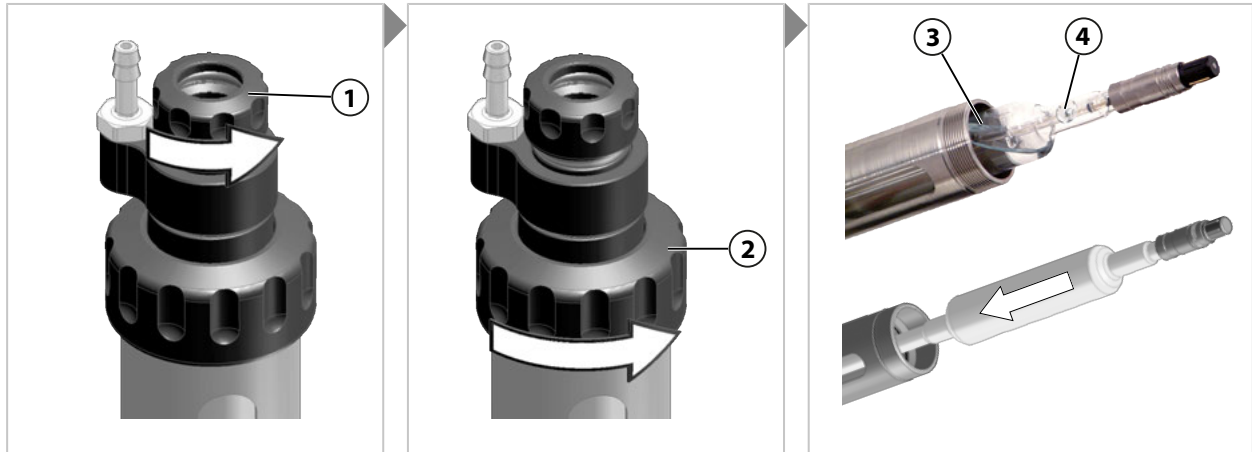
01. Move SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 47*
03. Optional: Remove the ZU0759 protective cap.
04. Set the SensoLock to "lock" by rotating the upper coupling nut.
05. Turn the extension (1) counterclockwise until the bayonet coupling of the extension (1) unlocks.
Note: The extension cannot be unlocked outside of the service position (SERVICE limit position). To unlock it, the red service cap (1) must be visible.
→ *Limit Positions, Service and Process Position, p. 21*
06. Move the extension (1) in the direction of the arrow until the socket (4) is accessible.



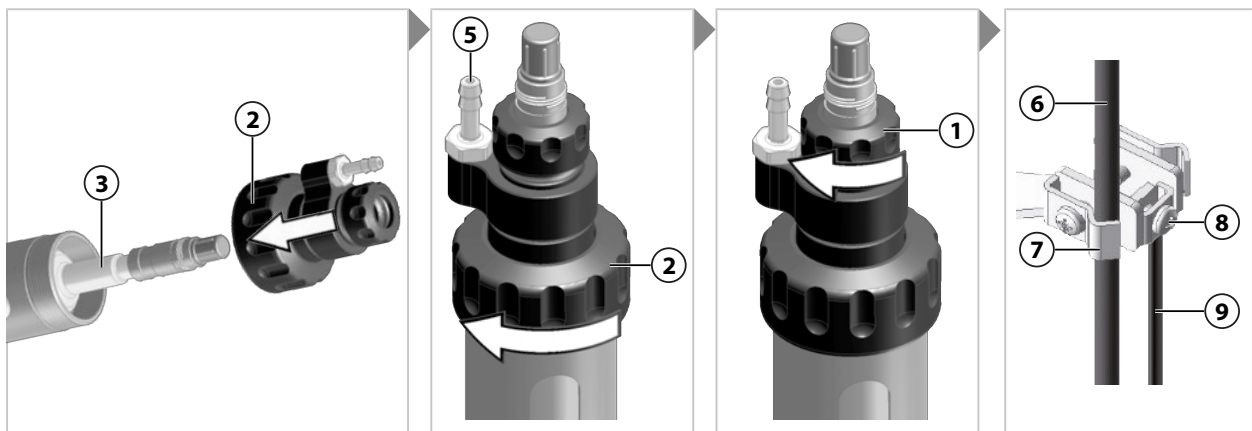
07. Disconnect the socket (4) of the sensor cable (3) from the sensor head (5).
08. Loosen the sensor (7) using the spanning wrench (6) (A/F 19). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 57*
09. Pull the sensor (7) out of the SensoGate WA130.
10. If the sensor glass is broken, check the seal of the immersion tube for damage and replace if damaged. → *Immersion Tube: Disassembly, p. 43*

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 SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
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. 47*
03. Set the SensoLock to "lock" by rotating the upper coupling nut.
04. Check that the sensor is permitted. → *Intended Use, p. 5*
 - ✓ Length 250 or 450 mm
 - ✓ Body diameter 11.5 ... 12.0 mm
 - ✓ Pressure resistance permitted for process → *Specifications, p. 65*
05. Loosen the small coupling nut (1) by a few rotations, but do not remove it completely.
06. Completely unscrew the large coupling nut (2) and pull off the entire unit.
07. Check the sensor for damage. Replace damaged sensors.
08. Remove the clasp of the filling hole (4) of 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 WA130. Observe any deviating direction of installation specified by the sensor manufacturer.
09. Slide the sensor (3) into the SensoGate WA130.

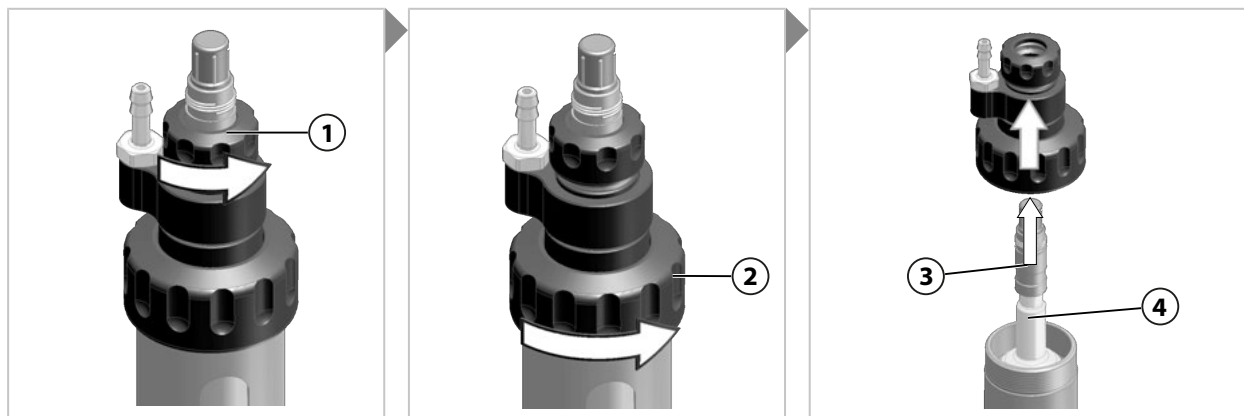


10. Place the large coupling nut (2) on and tighten it by hand.
11. Tighten the small coupling nut (1) by hand.
12. Connect the socket of the sensor cable (6) to the sensor head.

13. When installing for the first time: Route the sensor cable **(6)** in an arch and fasten it with the clip **(7)**. While doing so, ensure that the sensor cable has sufficient arch length to prevent the SensoGate WA130's lifting movement from being obstructed by the sensor cable.
14. During first-time installation: Connect the air pressure intake for the sensor pressure chamber to the hose insert **(5)**. → *Specifications, p. 65*
15. When installing for the first time: Connect the equipotential bonding line **(9)** to the terminal **(8)**.
16. Set the SensoLock to "unlock" by rotating the upper coupling nut.

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 SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
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. 47*
03. Set the SensoLock to "lock" by rotating the upper coupling nut.
04. Disconnect the socket of the sensor cable from the sensor head.
05. Loosen the small coupling nut **(1)** by a few rotations, but do not remove it completely.
06. Completely unscrew the large coupling nut **(2)** and pull off the entire unit.
07. Pull the sensor **(3)** out of SensoGate WA130.
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 seal of the immersion tube for damage and replace if damaged. → *Immersion Tube: Disassembly, p. 43*

5.4 Storage of Sensors in Retractable Fittings

If sensors are stored in the retractable fitting, the medium's effects on the material compatibility of the retractable fitting must be taken into account.

Material resistance	3 mol/l KCl solution	Buffer solution pH 4	Buffer solution pH 7	Water
Stainless steel (1.4404, 1.4435)	5	1	3	3
Hastelloy C22, titanium	1	1	3	3
Plastic (PEEK, PP, PVDF)	1	1	3	3

1 = recommended 3 = conditional, growth of organisms possible 5 = not suitable, risk of pitting corrosion

6 Maintenance

6.1 Inspection

6.1.1 Inspection and Maintenance Intervals

NOTICE! Different process conditions (e.g., pressure, temperature, chemically aggressive media) impact the inspection and maintenance intervals. Analyze the specific application and its process conditions. Determine qualified experiences from comparable applications and derive suitable intervals.

Interval ¹⁾	To Do
Initial inspection after a few days/weeks	Move SensoGate WA130 into the service position (SERVICE limit position). In case of leakage, process medium will escape from the outlet hose. → <i>Moving into the Service Position (SERVICE Limit Position)</i>, p. 30 Replace damaged process-wetted (subject to dynamic load) O-rings. → <i>Seal Kits</i>, p. 50 Check leakage bores for process deposits. → <i>Safeguards</i>, p. 6 Replace damaged process-wetted (subject to dynamic load) O-rings. → <i>Seal Kits</i>, p. 50
After 6 ... 12 months ²⁾	Repeat the initial inspection measures.
After 10,000 ... 20,000 strokes	Replace damaged process-wetted (subject to dynamic load) O-rings. → <i>Seal Kits</i>, p. 50
After approx. 2 years	For chemically aggressive cleaners in particular, check the rinse-wetted seals and replace if damaged. → <i>Seal Kits</i> , p. 50
After approx. 5 years	Maintain drive unit, replace O-rings and grease again. → <i>Repair</i> , p. 41

6.1.2 Immersion Lock without 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 WA130 with the corresponding safeguard.
→ *Safeguards*, p. 6

01. Move SensoGate WA130 into the service position (SERVICE limit position).

→ *Moving into the Service Position (SERVICE Limit Position)*, p. 30

02. Set the SensoLock to “unlock” by rotating the upper coupling nut.

03. Loosen the sensor by a maximum of 1.5 rotations.

⚠ WARNING! In the event of a malfunction, the pressurized process medium may leak from the SensoGate WA130 and contain hazardous substances. Only loosen the sensor by a maximum of 1.5 rotations to ensure pressure resistance in the event of a malfunction.

04. Move SensoGate WA130 into the process position (PROCESS limit position).

→ *Moving into the Process Position (PROCESS Limit Position)*, p. 29

✓ SensoGate WA130 does not move to the process position (PROCESS limit position).

05. Fully screw in the sensor and tighten with max. 3 Nm.

06. Move SensoGate WA130 into the process position (PROCESS limit position).

→ *Moving into the Process Position (PROCESS Limit Position)*, p. 29

07. Repeat the functional test every 12 months. As applicable, adjust the interval to match the specific application for which the SensoGate WA130 is used.

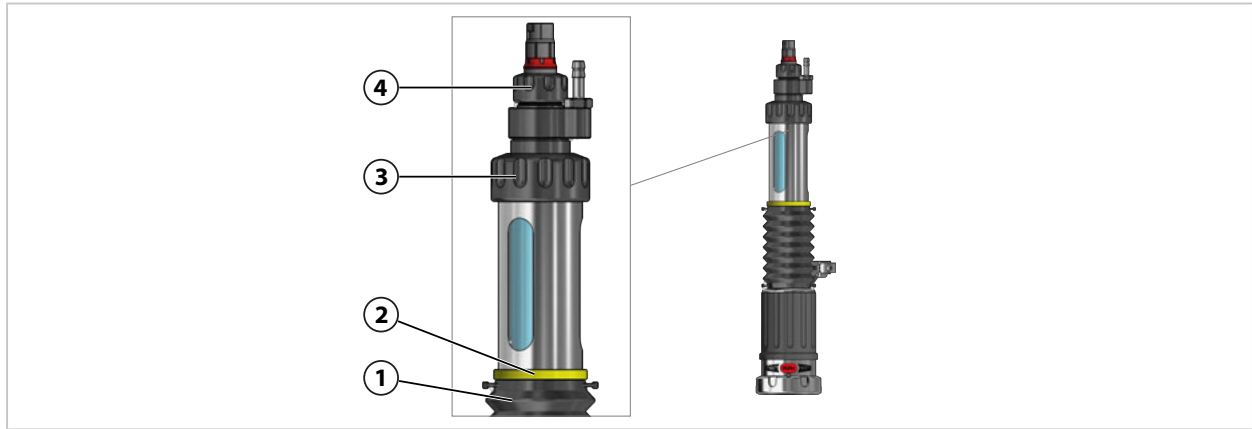
¹⁾ The intervals listed are approximate recommendations based on the experience of Knick. The actual intervals depend on the specific application.

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 Mounted Liquid Electrolyte Sensor: Functional Test

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

Note: The safeguard "Immersion Lock Without a Mounted Liquid-Electrolyte Sensor" can be seen at the yellow indicator ring **(2)** above the bellows **(1)**. → *Safeguards, p. 6*



01. Move SensoGate WA130 into the service position (SERVICE limit position).

→ *Moving into the Service Position (SERVICE Limit Position), p. 30*

02. Set the SensoLock to "unlock" by rotating the upper coupling nut.

03. Loosen the small coupling nut **(4)** a bit but do not remove completely.

⚠ WARNING! In the event of a malfunction, pressurized process medium may escape from the SensoGate WA130. Do not completely loosen the large coupling nut **(3)** to ensure that pressure resistance is still available in the event of a malfunction.

04. Loosen the large coupling nut **(3)** by approx. 1.5 turns but do not remove completely.

05. Move SensoGate WA130 into the process position (PROCESS limit position).

→ *Moving into the Process Position (PROCESS Limit Position), p. 29*

✓ SensoGate WA130 does not move to the process position (PROCESS limit position).

06. Tighten the large coupling nut **(3)** by hand.

07. Tighten the small coupling nut **(4)** by hand.

08. Repeat the functional test every 12 months. As applicable, adjust the interval to match the specific application for which the SensoGate WA130 is used.

6.2 Preventive Maintenance

6.2.1 Approved Lubricants

Application	Pharma and Food		Chemicals and Wastewater
Lubricant	Beruglide L ¹⁾ (silicone-free)	Paraliq GTE 703 ²⁾ (containing silicone)	Syntheso Glep 1 (silicone-free)
Elastomer seal materials			
FKM	-	-	+
FFKM	-	-	+
EPDM	-	-	+
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.

6.2.2 Properties of Wetted Materials

Note: The stated values are reference values and provide general information. Concentrations of acids or alkalis, temperatures, mechanical effects, and the duration of the effect impact the materials to a greater or lesser degree. Therefore, no guarantee is given for the stated values. A pretest is recommended for cases where there has been no prior experience using the material in the process. Mixtures of substances constitute a prime example.

	Mechanical strength	Temperature resistance	Resistance to acids	Resistance to alkalis	Resistance to salt solutions	Resistance to cleaning agents or solvents
Stainless steel material no. 1.4571	1	1	3 ³⁾	2	3	2
Hastelloy C-22 material no. 2.4602	1	1	2	1	1	1
PEEK (carbon fiber-reinforced)	1	1	2 ⁴⁾	1	1	2
PVDF (carbon fiber-reinforced)	2	2	2 ⁵⁾	2	1	2
PP (carbon fiber-reinforced)	3	4 ⁶⁾	3 ⁷⁾	3	2	2
Titanium Grade 2 material no. 3.7035	1	1	2	1	1	1
			1 = very well suited		5 = unsuitable	

See also

→ *Product Code*, p. 12

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

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

³⁾ Not resistant to saline or sulphuric acids.

⁴⁾ Not resistant to highly oxidizing media (concentrated sulphuric acids, nitric acids, or hydrogen fluoride).

⁵⁾ Not resistant to ketones, amines, smoking sulphuric acids, and nitric acids.

⁶⁾ Max. 80 °C (176 °F)

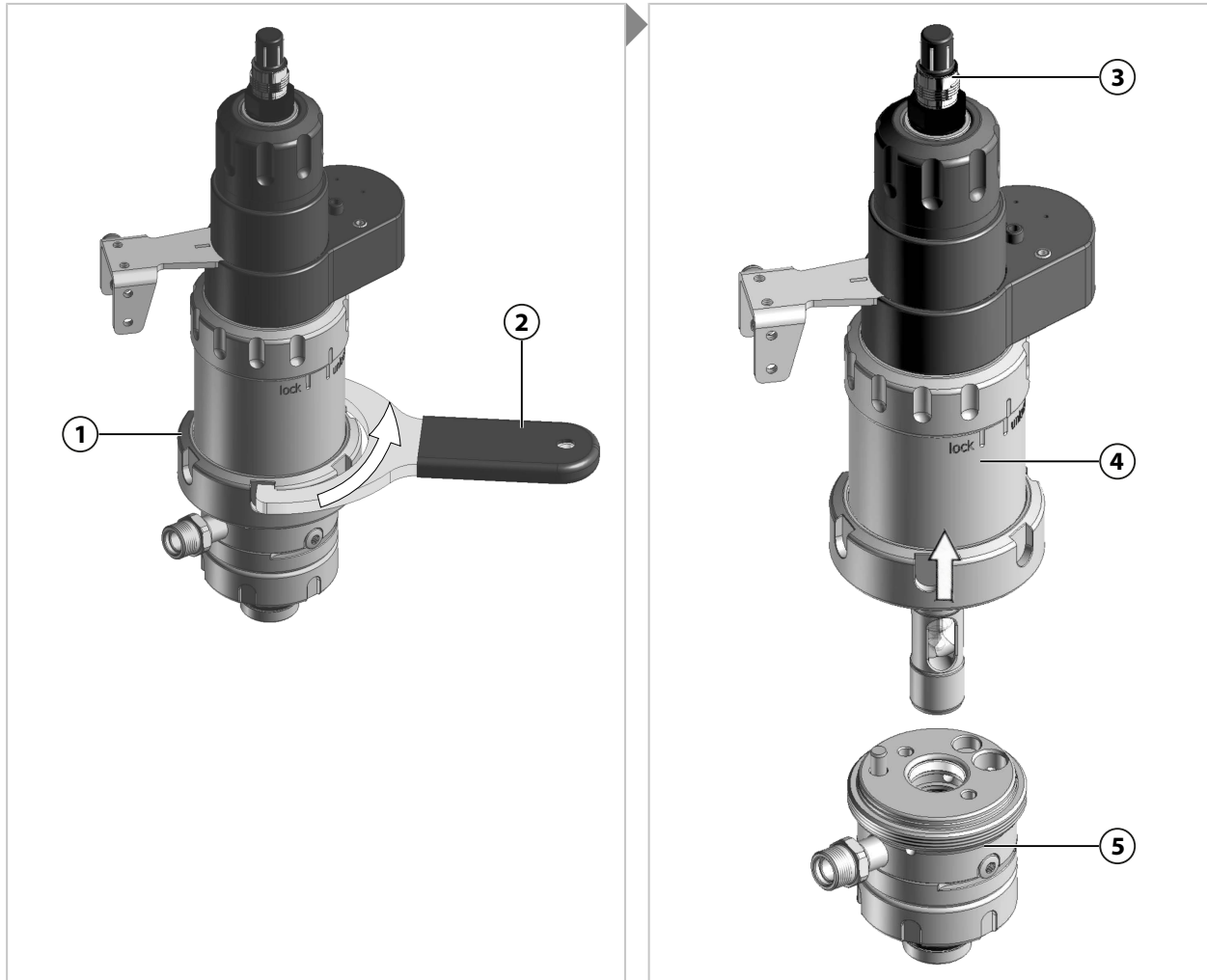
⁷⁾ Not resistant to highly oxidizing media (e.g., nitric acid, chromic acid, or halogens)

6.3 Repair

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA130. 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.

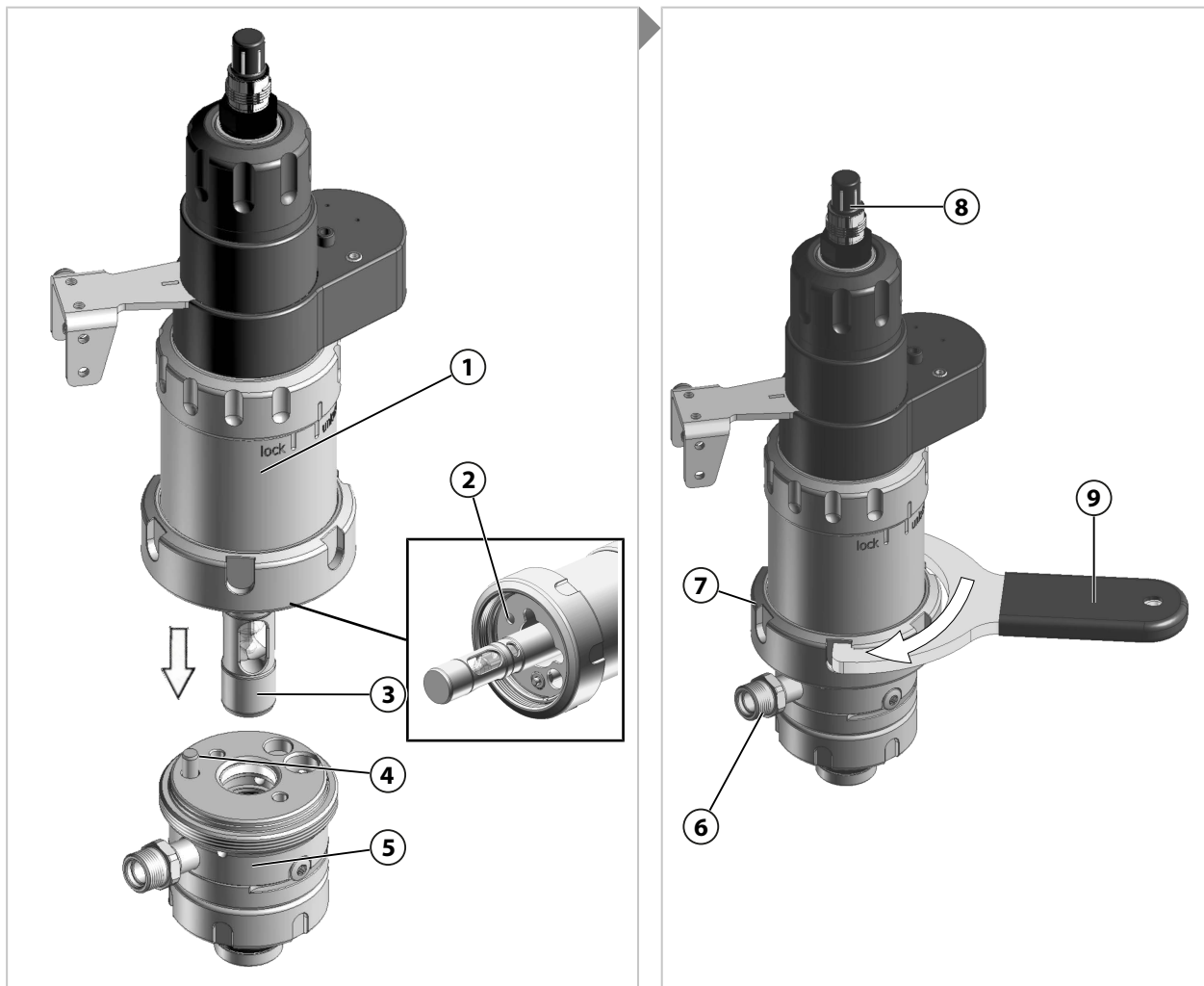
6.3.1 Drive Unit: Removal



01. Safely disconnect SensoGate WA130 from the process. → *Retractable Fitting: Removal, p. 49*
02. Disconnect the media connection. → *Multiplug: Installation, p. 26*
03. Move SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
04. Set the SensoLock to "lock" by rotating the upper coupling nut.
05. Disconnect the sensor cable from the sensor head and, if necessary, remove the sensor (3).
→ *Installing and Removing Sensors, p. 31*
06. Loosen the coupling nut (2) by turning the spanning wrench (1) 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. 57*
07. Pull the drive unit (4) out of the process unit (5).

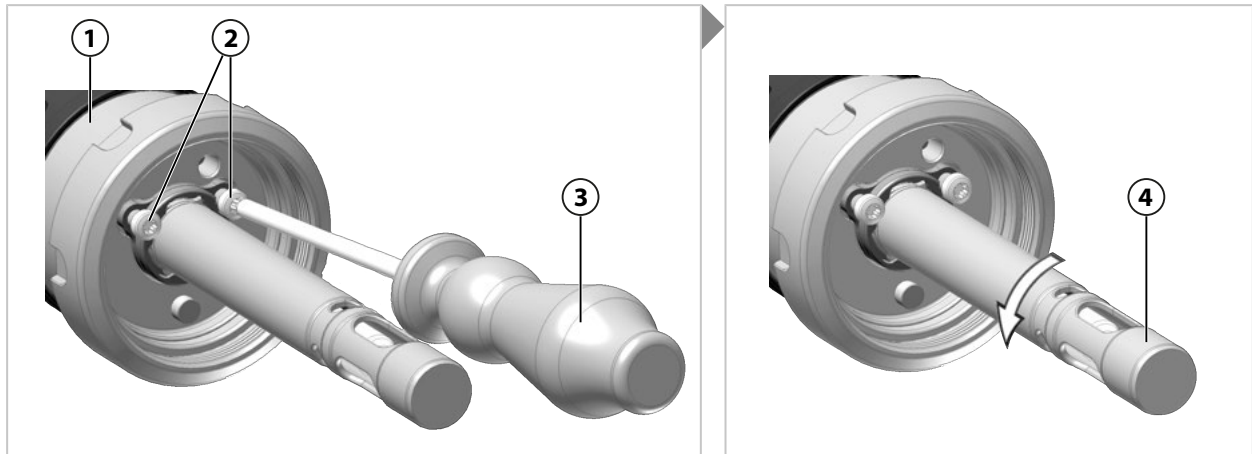
6.3.2 Drive Unit: Installation

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.

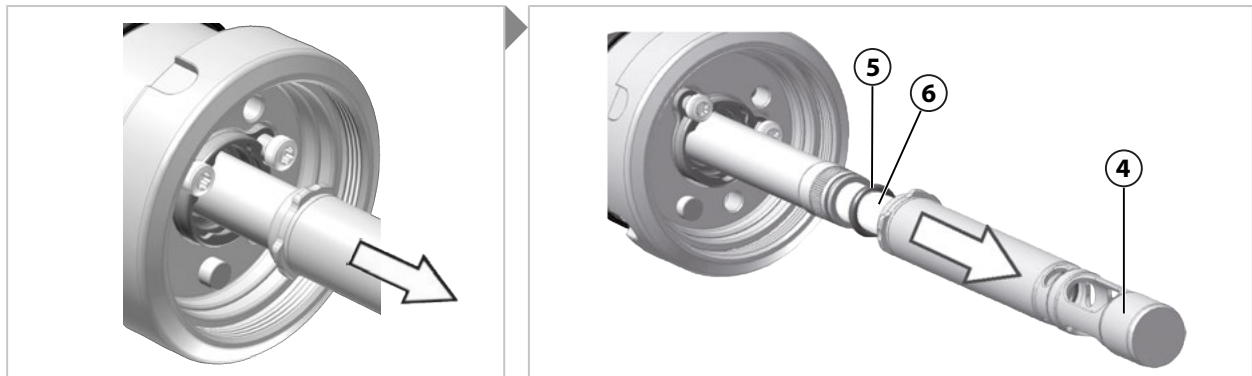


01. Set the SensoLock to "unlock" by rotating the upper coupling nut.
✓ SensoGate WA130 is unlocked.
02. Slide the drive unit (1) with immersion tube (3) into the process unit (5). While doing so, position the coding pin (4) in the hole (2).
03. Put on the coupling nut (7) and use a spanning wrench (9) to tighten it clockwise by hand or with a force of approx. 10 Nm.
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. 57*
04. Install the media connection → *Multiplug: Installation, p. 26*
05. If the sensor has been removed: Install the sensor (8) and connect the sensor cable to the sensor head. → *Installing and Removing Sensors, p. 31*

6.3.3 Immersion Tube: Disassembly

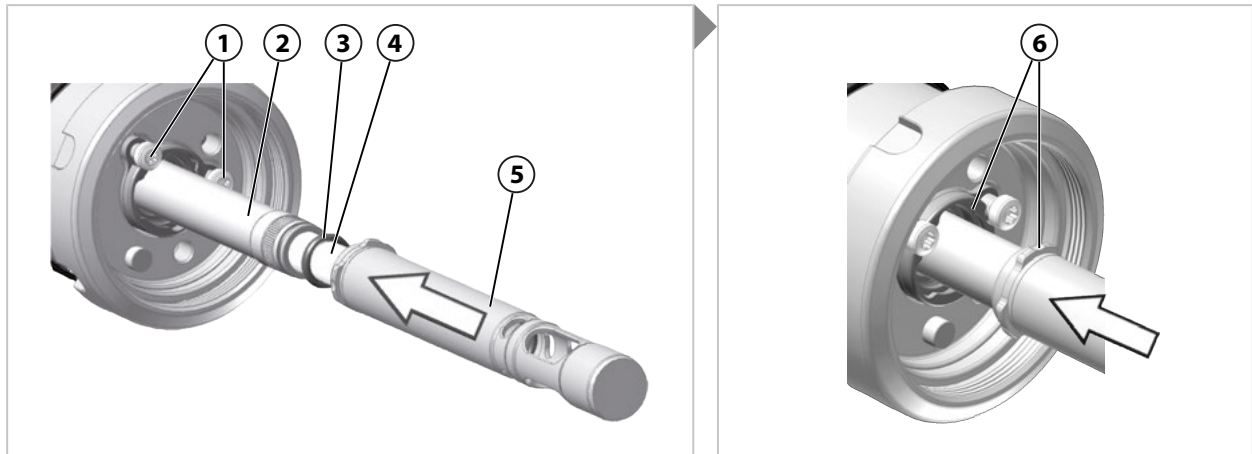


01. Disconnect the drive unit **(1)** from the process unit. → *Drive Unit: Removal, p. 41*
02. Set the SensoLock to "unlock" by rotating the upper coupling nut.
✓ SensoGate WA130 is unlocked.
03. Pull the immersion tube **(4)** until it reaches the process position (PROCESS limit position).
04. Use the type TX25 screw driver **(3)** to loosen the screws **(2)** by approximately 4 rotations (do not completely unscrew them).
05. Rotate the immersion tube **(4)** counterclockwise by about 60° until the bayonet coupling of the immersion tube **(4)** is opened.

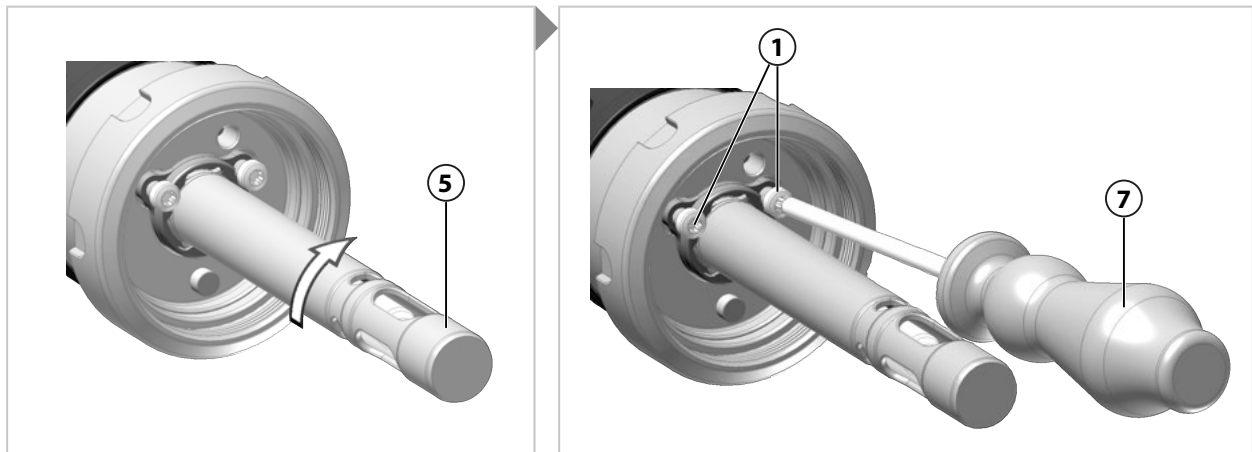


06. Pull the immersion tube **(4)** off the sensor **(6)**.
✓ The O-ring **(5)** will become visible or the O-ring **(5)** may be in the dismantled immersion tube **(4)**.
07. Check the O-ring **(5)** for damage; replace the O-ring **(5)** if damaged. → *Seal Kits, p. 50*

6.3.4 Immersion Tube: Assembly



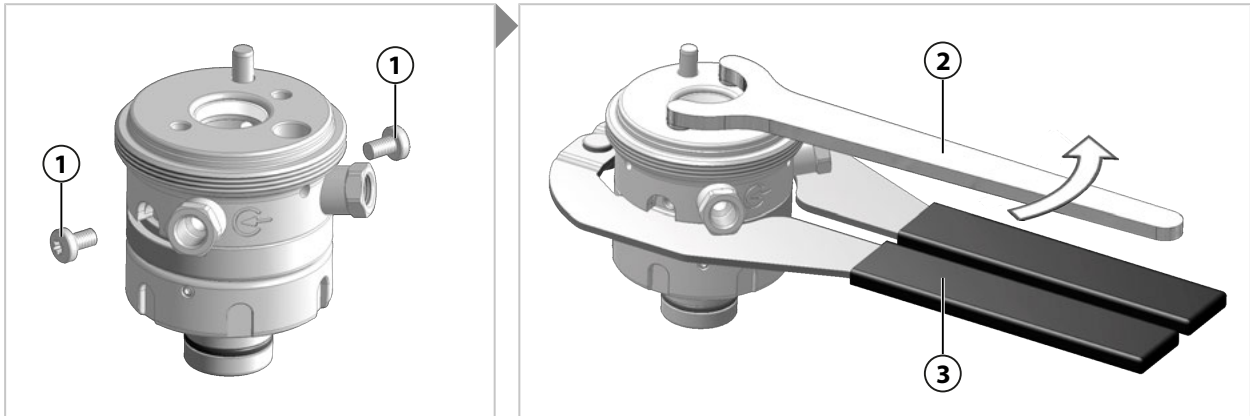
01. Install the sensor. → *Installing and Removing Sensors, p. 31*
02. If the drive unit is not in the process position (PROCESS limit position): Slide the immersion tube (5) onto the sensor protection tube. Firmly press into the bayonet coupling (6) and turn approx. 60° clockwise until it firmly stops.
Pull immersion tube (5) until reaching the process position (PROCESS limit position).
03. Check the O-ring (3) for damage; replace the O-ring (3) if damaged. → *Seal Kits, p. 50*
04. Completely slide the O-ring (3) onto the sensor (4).
05. If the screws (1) have not already been loosened during the disassembly, loosen them by approx. 4 rotations using a type TX25 screwdriver (7) (do not completely unscrew them).
06. Carefully slide the immersion tube (5) onto the sensor (4) and insert it into the bayonet coupling (6).
Note: An O-ring may have accidentally been left in the immersion tube during disassembly. Remove this O-ring from the immersion tube before assembly.



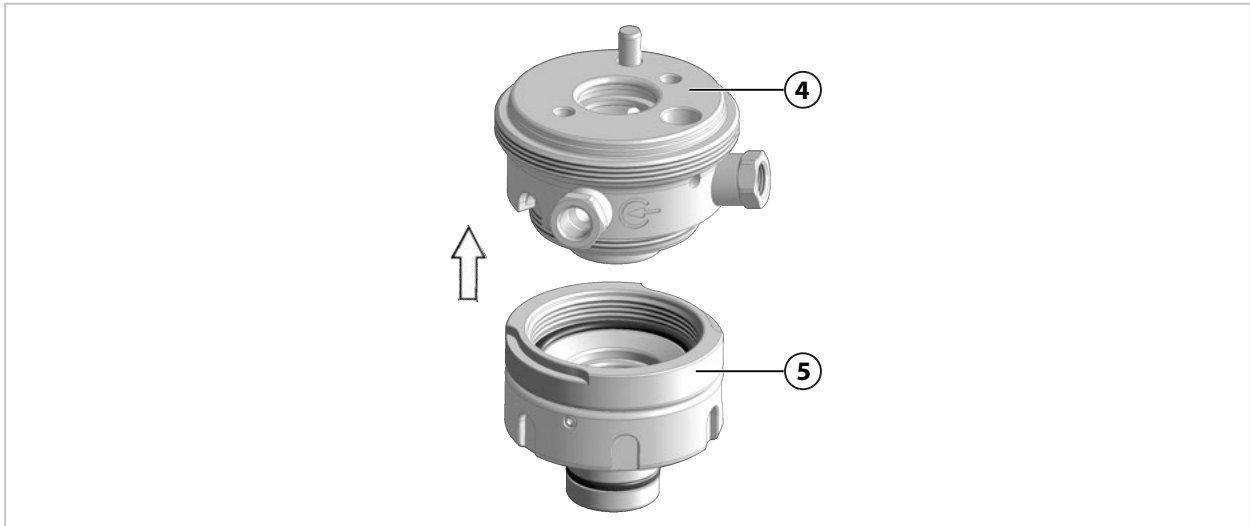
07. Firmly press the immersion tube (5) into the bayonet coupling (6) while rotating it approx. 60° clockwise until it firmly stops.
08. Tighten the screws (1) using a type TX25 screwdriver (7).
Note: The bayonet coupling is locked by the form-fit screw heads. The immersion tube, however, remains movable to compensate for tolerances.

6.3.5 Calibration Chamber: Removal

Note: Service sets ZU0754 or ZU0740 are required to remove the calibration chamber. → *Tools, p. 57*



01. Remove the process unit from the drive unit. → *Drive Unit: Removal, p. 41*
02. Unscrew the screws **(1)** using a type TX25 screwdriver. Retain the screws **(1)** for later assembly.
03. Apply the pliers **(3)** and use the face pin spanner wrench **(2)** to loosen the screw connection of the two-part calibration chamber.

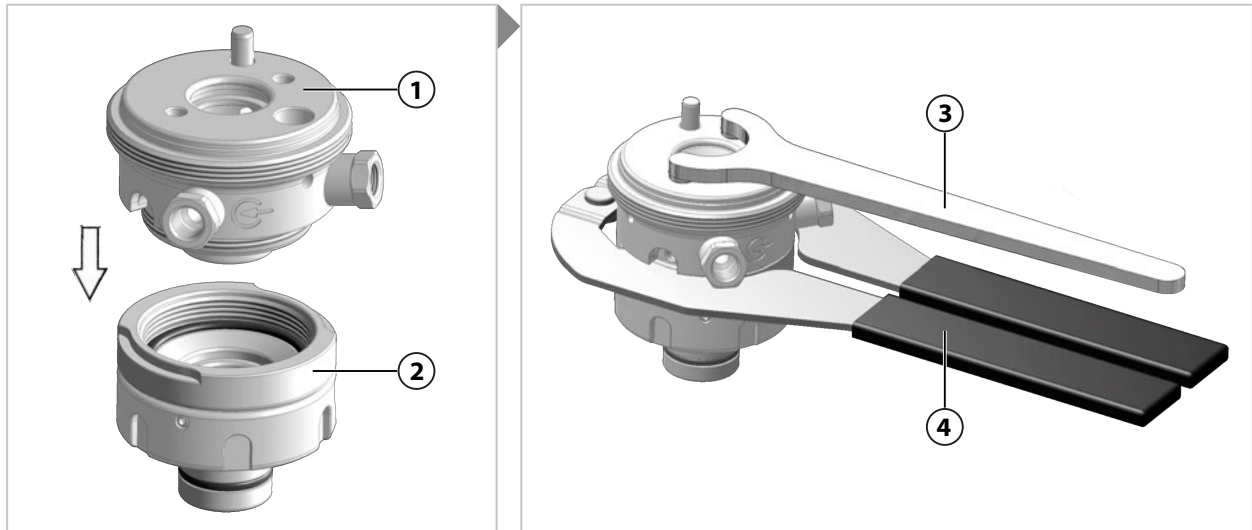


04. Unscrew the top **(4)** of the calibration chamber from the bottom **(5)** and disconnect them.

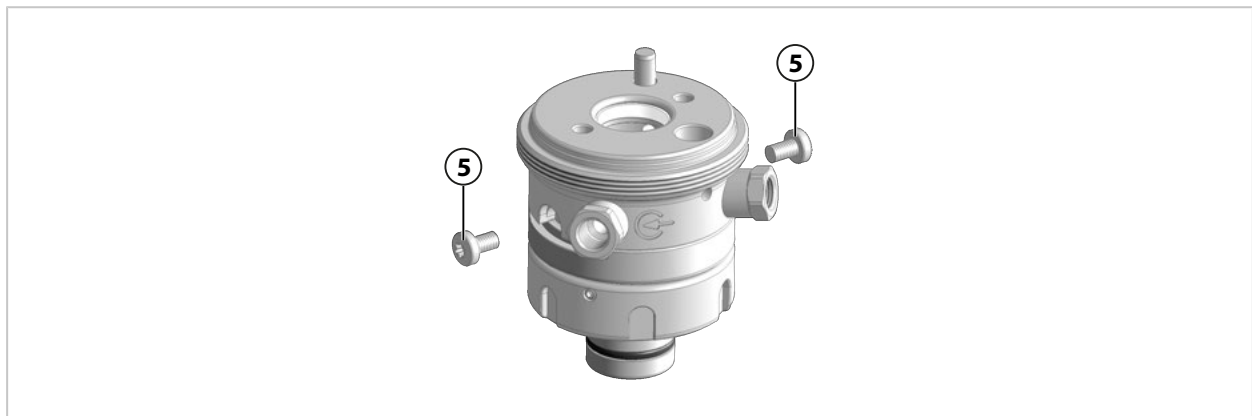
6.3.6 Calibration Chamber: Installation

Note: Service sets ZU0754 or ZU0740 are required to install the calibration chamber. → *Tools, p. 57*

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. 57*



01. Check the O-rings and scraper ring for damage; if necessary, replace the O-rings and scraper rings.
→ *Seal Kits, p. 50*
02. Connect the top (1) of the calibration chamber to the bottom (2) and screw them hand-tight together.
03. Apply the pliers (4) and use the face pin spanner wrench (3) to screw the calibration chamber tight.



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) using a type TX25 screwdriver.

6.3.7 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⁾ → <i>Seal Kits, p. 50</i>
Sensor glass shattered.	Mechanical impact on the sensor glass (e.g., by process medium).	Replace faulty sensor. → <i>Installing and Removing Sensors, p. 31</i> Remove any glass splinters from the SensoGate WA130. Check immersion tube seal and replace if necessary. → <i>Seal Kits, p. 50</i>
Medium escapes from the connection point of the multiplug.	Multiplug installed incorrectly.	Install the multiplug correctly. → <i>Multiplug: Installation, p. 26</i>
	Seals or O-rings of the multiplug damaged or missing.	Check seals and O-rings of the multiplug for correct position and damage; replace if necessary.
	Connection point soiled.	Clean the connection point and multiplug.
	Foreign body between connection point and multiplug.	Remove any foreign bodies (e.g., old O-rings).
	Multiplug defective.	Send the media connection to the responsible local representative for repair. → <i>knick-international.com</i>
SensoGate WA130 is not moving.	Multiplug installed incorrectly.	Install the multiplug correctly. → <i>Multiplug: Installation, p. 26</i>
	Sensor installed incorrectly.	Install the sensor correctly. → <i>Installing and Removing Sensors, p. 31</i>
	Compression ring or O-ring of the sensor damaged or missing.	Check the compression ring and O-ring of the sensor for correct position and damage; replace if necessary.
	Foreign body in the sensor holder.	Remove any foreign bodies (e.g., old compression ring or old O-ring).
	Seals or O-rings of the drive unit damaged.	Replace the seals or O-rings of the drive unit and the calibration chamber.
	Drive unit defective.	Send the SensoGate WA130 to the responsible local representative for repair. → <i>knick-international.com</i>
	Compressed air supply interrupted.	Install the multiplug correctly. → <i>Multiplug: Installation, p. 26</i> Check the compressed air system for proper functioning. Check the electro-pneumatic controller for proper functioning. Check the industrial transmitter for error messages.

¹⁾ After replacing the damaged O-rings, clean the leakage bores so that any further escape of process medium can be detected.

Fault status	Possible cause	Remedy
No or wrong measured value displayed.	Faulty sensor.	Replace the sensor. → <i>Installing and Removing Sensors</i> , p. 31
	Defective plug connection or damaged sensor cable.	Fasten plug connection or replace damaged sensor cable. → <i>Installing and Removing Sensors</i> , p. 31
The "immersion lock with dis-mounted sensor" safeguard is not functioning.	Corrosion or sticking due to ingress of process medium ¹⁾ .	Send SensoGate WA130 to the responsible local representative for repair. → knick-international.com

See also

→ *Repair*, p. 41

→ *Knick Repair Service*, p. 46

→ *Return*, p. 49

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. 65
✓ 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 necessary, remove the drive unit. Perform maintenance on the drive unit or check the functionality of the process unit using a substitute drive.
03. Troubleshooting unsuccessful: Stop process, depressurize or discharge process medium if necessary. Remove SensoGate WA130 and send to the local representative responsible for repairs.
→ knick-international.com

See also

→ *Drive Unit: Removal*, p. 41

→ *Retractable Fitting: Removal*, p. 49

¹⁾ 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 explosions from mechanically generated sparks if used in potentially explosive atmospheres. Implement measures for avoiding mechanically generated sparks. Follow the safety instructions. → *Operation in Explosive Atmospheres, p. 9*

⚠ WARNING! Process or rinsing medium, potentially containing hazardous substances, may escape from the SensoGate WA130 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 SensoGate WA130 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 30*
03. Set the SensoLock to "lock" by rotating the upper coupling nut.
04. Switch off the compressed air supply and vent the compressed air system.
05. Remove the multiplug or the accessory "Adapter for free hose connection".
06. Remove the sensor. → *Installing and Removing Sensors, p. 31*
07. Remove the outlet hose.
08. Optional: Disconnect the equipotential bonding cable from the grounding connection and remove it.
09. Optional: Remove installed safety accessories (e.g., ZU0818 retainer clamp).
10. Release the process connection.
11. Remove SensoGate WA130 from the process port of the customer.
12. Seal the process port suitably.

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 WA130 can contain various materials, depending on the version concerned.
→ *Product Code, p. 12*

9 Spare Parts, Accessories, and Tools

9.1 Seal Kits

Different seal kits with different materials are needed for repair, depending on the version ordered. The ordered version of the SensoGate WA130 is coded in the product code. → *Product Code, p. 12*

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

The expanded seal kits (designated Set X/2) contain additional O-rings with contact to the rinsing medium.

Each seal kit contains documentation. The documentation presents information on the package contents, installation location of the O-rings included, and the lubrication points. The replaced O-rings must be lubricated with the accompanying grease.

Accessory tools ZU0746 and ZU0747 are recommended for mounting the O-rings and the scraper ring properly. The associated product documentation describes how to handle the accessory tools.

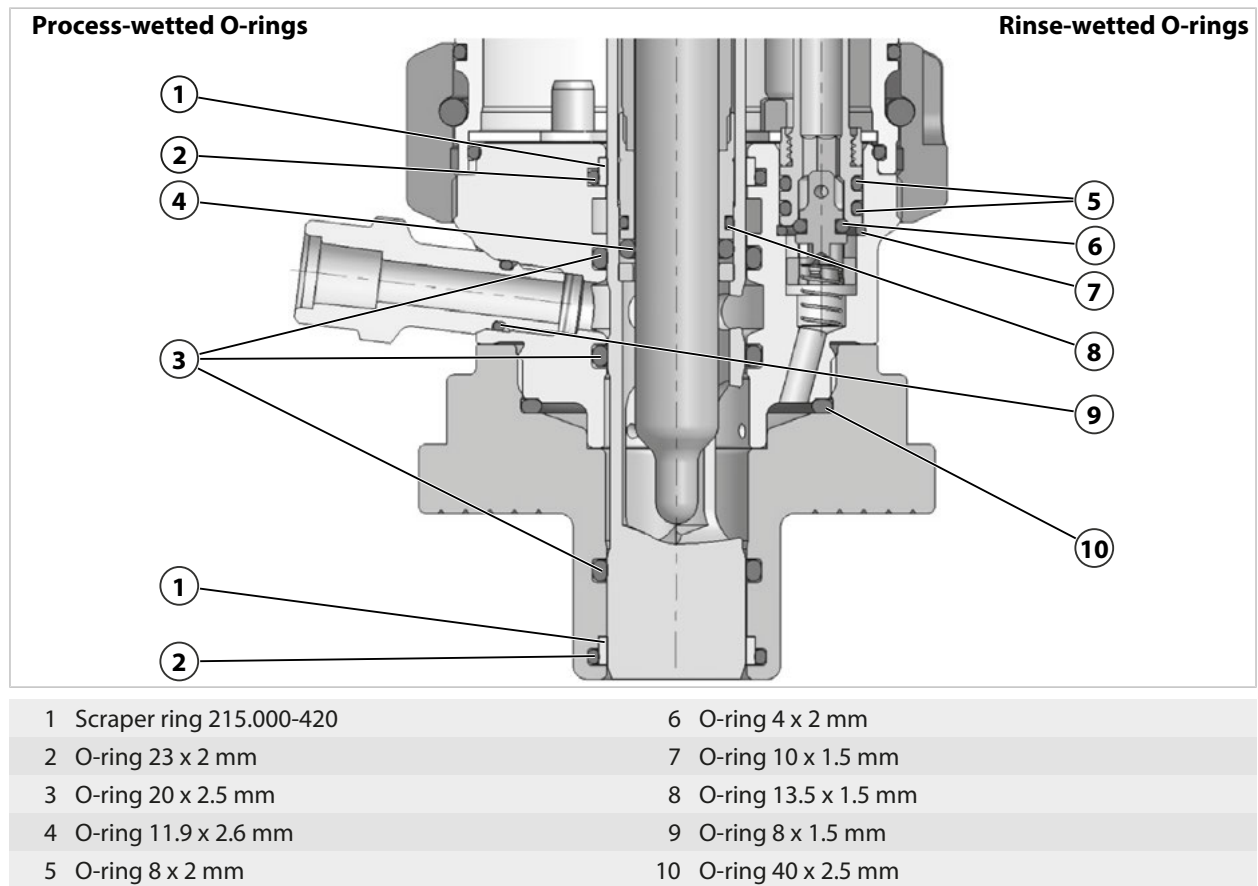
→ *Tools, p. 57*

Seal Kits		Order No.	
Process connection flange, dairy pipe	Set A/1	Process-wetted seal material: FKM	ZU0689/1
	Set A/2	Process-wetted seal material: FKM, Wetted by rinsing medium: FKM	ZU0689/2
	Set B/1	Process-wetted seal material: EPDM	ZU0690/1
	Set B/2	Process-wetted seal material: EPDM, Wetted by rinsing medium: EPDM	ZU0690/2
	Set C/1	Process-wetted seal material: FFKM	ZU0691/1
	Set C/2	Process-wetted seal material: FFKM, Wetted by rinsing medium FKM	ZU0691/2
	Set D/1	Process-wetted seal material: FFKM	ZU0691/1
	Set D/2	Process-wetted seal material: FFKM, Wetted by rinsing medium EPDM	ZU0827
	Set E/1	Process-wetted seal material: EPDM FDA	ZU0692/1
	Set E/2	Process-wetted seal material: EPDM FDA, Wetted by rinsing medium: EPDM FDA	ZU0692/2
	Set H/1	Process-wetted seal material: FFKM FDA	ZU0730/1
	Set H/2	Process-wetted seal material: FFKM FDA Wetted by rinsing medium FFKM	ZU0730/2
	Set K/1	Process-wetted seal material: FFKM	ZU0691/1
	Set K/2	Process-wetted seal material: FFKM, Wetted by rinsing medium: FFKM	ZU0730
Process connection Ingold socket	Set A/1	Process-wetted seal material: FKM	ZU0693/1
	Set A/2	Process-wetted seal material: FKM, Wetted by rinsing medium: FKM	ZU0693/2
	Set B/1	Process-wetted seal material: EPDM	ZU0694/1
	Set B/2	Process-wetted seal material: EPDM, Wetted by rinsing medium: EPDM	ZU0694/2
	Set C/1	Process-wetted seal material: FFKM	ZU0695/1
	Set C/2	Process-wetted seal material: FFKM, Wetted by rinsing medium FKM	ZU0695/2
	Set D/1	Process-wetted seal material: FFKM	ZU0695/2
	Set D/2	Process-wetted seal material: FFKM, Wetted by rinsing medium EPDM	ZU0828

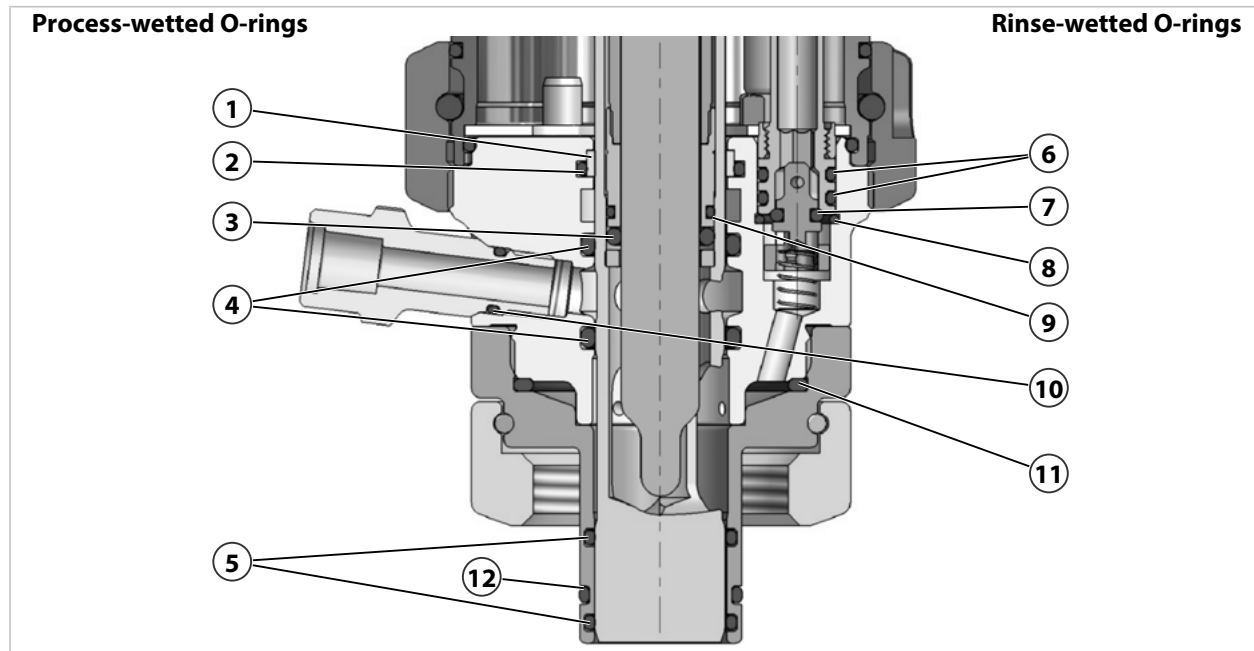
Seal Kits			Order No.
Set E/1	Process-wetted seal material: EPDM FDA		ZU0696/1
Set E/2	Process-wetted seal material: EPDM FDA, Wetted by rinsing medium: EPDM FDA		ZU0696/2
Set H/1	Process-wetted seal material: FFKM FDA		ZU0696/1
Set H/2	Process-wetted seal material: FFKM FDA, Wetted by rinsing medium: FFKM FDA		ZU0898
Set K/2	Process-wetted seal material: FFKM		ZU0899
Set K/2	Process-wetted seal material: FFKM, Wetted by rinsing medium: FFKM		ZU0731

Note: Further seal kits are available on request.

Seal Kits for Flange Process Connection or Dairy Pipe



Seal Kits for Process Connection Ingold Socket

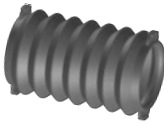


1 Scraper ring 215.000-420	7 O-ring 4 x 2 mm
2 O-ring 23 x 2 mm	8 O-ring 10 x 1.5 mm
3 O-ring 11.9 x 2.6 mm	9 O-ring 13 x 1.5 mm
4 O-ring 20 x 2.5 mm	10 O-ring 8 x 1.5 mm
5 O-ring 20 x 2 mm	11 O-ring 40 x 2.5 mm
6 O-ring 8 x 2 mm	12 O-ring 21 x 2 mm

9.2 Spare Parts

	Metal Immersion Tube, Short (149 mm) Materials: ZU0722, 1.4571 stainless steel ¹⁾ ZU0853, Hastelloy ZU0893, titanium
	Metal Immersion Tube, Long (204 mm) Materials: ZU0723, 1.4571 stainless steel ¹⁾ ZU0854, Hastelloy ZU0894, titanium
	Plastic Immersion Tube, Short (149 mm) Materials: ZU0825, PP ZU0724, PEEK (HD) ZU0726, PVDF (HD)
	Plastic Immersion Tube, Long (204 mm) Materials: ZU0826, PP ZU0725, PEEK (HD) ZU0727, PVDF (HD)

¹⁾ Material 1.4571: alternatively 1.4404 at discretion of manufacturer



ZU0739 Bellows

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

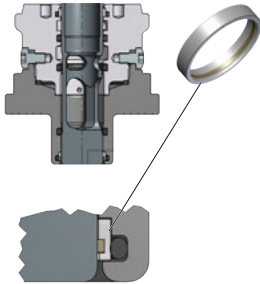


ZU0889 Outlet Hose

The outlet hose is used to drain auxiliary media from the calibration chamber.

→ *Outlet Hose: Installation, p. 24*

Available lengths: 3.5 m, 10 m, and 15 m



ZU0760 Scraper Ring, Reinforced, PTFE/PEEK

A reinforced scraper ring (with PEEK edge) for applications with adhering, sticky media. Use the ZU0746 accessory tool to mount the scraper ring properly.



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.

9.3 Accessories



ZU0733 Adapter for Free Hose Connection with Electrical Limit Switches, PP Enclosure

This adapter is used to operate the SensoGate WA130 without Unical 9000 and the associated media connection via multiplug.



ZU0734 Adapter for Free Hose Connection without Electrical Limit Switches, PP Enclosure

This adapter is used to operate the SensoGate WA130 without Unical 9000 and the associated media connection via multiplug.



ZU0742 Adapter for Free Hose Connection with Electrical Limit Switches, PEEK Enclosure

This adapter is used to operate the SensoGate WA130 without Unical 9000 and the associated media connection via multiplug.

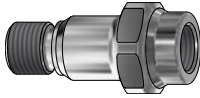


Flange Protector

The flange protectors protect plastic process connections with DIN flanges and nominal sizes of DN 80 or DN 100 from contact with the process medium.

Materials:

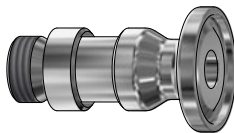
ZU0755, PEEK/FFKM DN 80
ZU0756, PEEK/FFKM DN 100
ZU0757, PVDF/FFKM DN 80
ZU0758, PVDF/FFKM DN 100



ZU1117 Outlet Port with Female Thread 1/8"

The outlet port is used to connect an outlet hose with 1/8" male thread to the SensoGate WA130. The following materials are available to choose from:

	ZU1117/ _ _	
Material	1.4404	H
	PEEK	C
	PVDF	D
O-ring material	FKM	A
	EPDM	B
	EPDM-FDA	E
	FFKM	K
	FFKM-FDA	H
	FFKM-Kalrez	M



ZU1186 Adapter for Additional Medium, Clamp 1/2"

The adapter ZU1186 is used to convert the connection for the additional medium of the SensoGate WA130 from the female thread G1/8" to a clamp 1/2" connection. The following materials are available to choose from:

	ZU1186/ _ _	
O-ring material	EPDM-FDA	E
	FFKM-FDA	H
Adapter material	1.4435	A



ZU1207 Adapter, Clamp 1/2"

The adapter ZU1207 is used to convert the outlet of the SensoGate WA130 from the female thread G1/8" to a clamp 1/2" connection. The following materials are available to choose from:

	ZU1207/ _ _	
O-ring material	EPDM-FDA	E
	FFKM-FDA	H
Adapter material	1.4435	A
	Hastelloy 2.4602	B



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 WA130 for liquid-electrolyte sensors.



ZU0953 Kit for Connecting Compressed Air Supply to the Sensor Pressure Chamber

The connection kit enables installation of accessory ZU0670 "Air supply for pressurized sensors" to customers' permanently installed 1/4" pipes.

ZU0953 is an elastic connection between the permanent piping (solid 1/4" pipes) and the moving parts of the SensoGate WA130.



ZU0759 and ZU0759/1 Protective Cover

The protective cover is used to protect against the weather and the ingress of liquids or particulate matter from outside into the area with the sensor plug-in 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, G1 1/4")



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

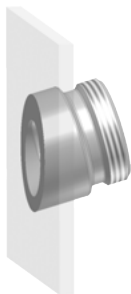
Process connection: Ingold socket (Ø 25 mm, G1 1/4")

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, G1 1/4")



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

For connection with Ingold socket (Ø 25 mm, G1 1/4")

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")

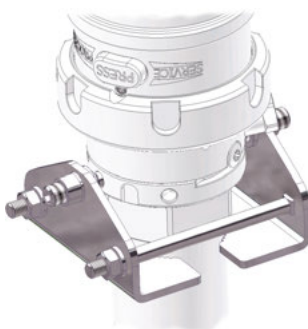
Adapted to DN50 ZU0923/DN50
Adapted to DN65 ZU0923/DN65
Adapted to DN80 ZU0923/DN80
Adapted to DN100 ZU0923/DN100



ZU0877 Locking Clamp for Process Connection G1, G1 ¼, R1, R1 ¼, 1" NPT

The locking clamp ZU0877 prevents the process screw joint of an installed SensoGate WA130 with threaded connection from accidentally coming loose. The locking clamp is available for process connections with the following threads: G1, G1¼, R1, R1¼, 1" NPT.

The locking clamp can be used with threaded couplings with a minimum length of 10 mm and an outer diameter of 39 mm to 57 mm.





ZU0818 Retainer Clamp for Ingold Socket, 25 mm

The retainer clamp ZU0818 prevents the coupling nut of the Ingold socket (25 mm) screw joint from accidentally coming loose.

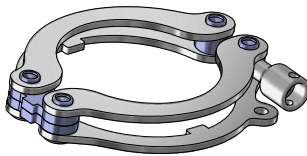
The wires of the retainer clamp connect SensoGate WA130 to the customer's process port. A locking lug on the retainer clamp engages in the groove of the coupling nut (form-fit).



ZU1055 Retainer Clamp for Process Connection K8

The retainer clamp ZU1055 prevents the coupling nut of the screw joint for a K8 process connection from accidentally coming loose.

The wires of the retainer clamp connect SensoGate WA130 to the customer's process port. A locking lug on the retainer clamp engages in the groove of the coupling nut (form-fit).

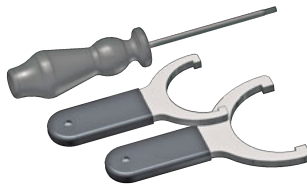


ZU1138 Retainer Clamp for SensoGate Retractable Fitting

The retainer clamp ZU1138 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 retractable fitting's drive unit to the coupling nut. The locking lugs on the retainer clamp engage in the grooves of the coupling nut and secure the screw joint.

9.4 Tools



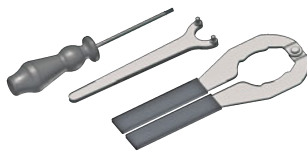
ZU0680 SensoGate Service Set, Basic Equipment

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 WA130 can be fully dismantled using this tool set.



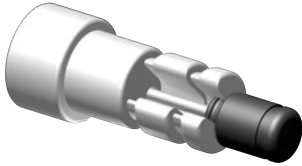
ZU0754 SensoGate Service Set, Calibration Chamber

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 WA130.



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 WA130.



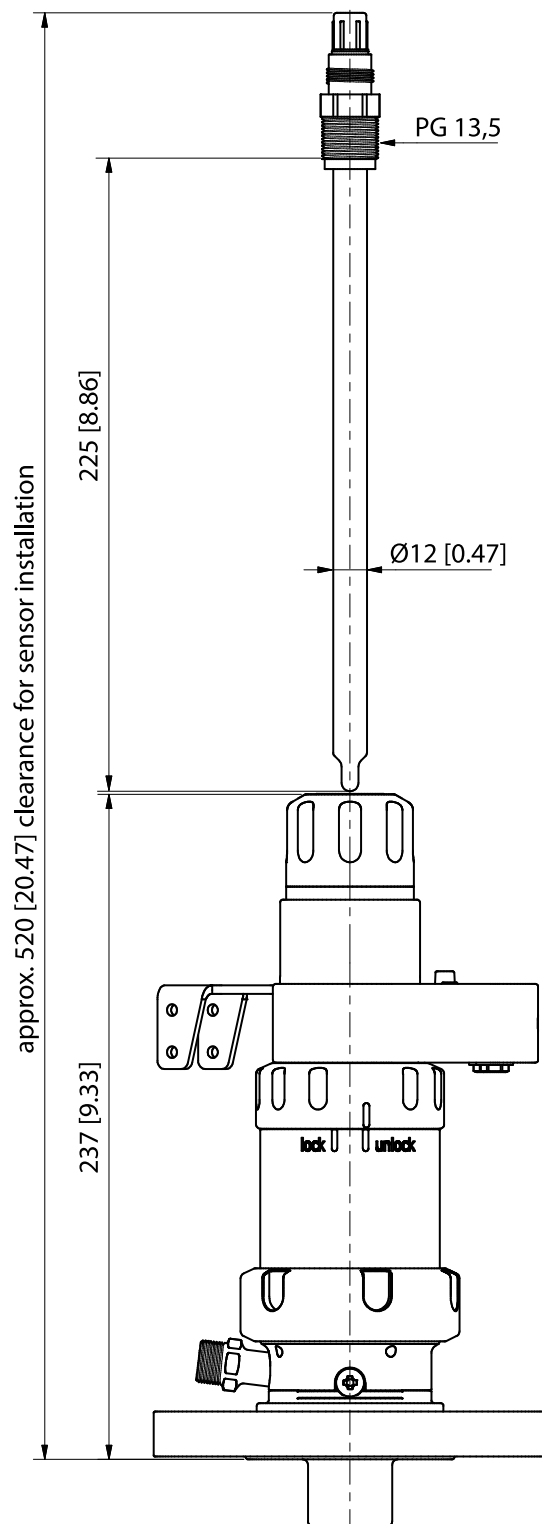
ZU0647 Sensor Spanning Wrench

The 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 Dimension Drawings

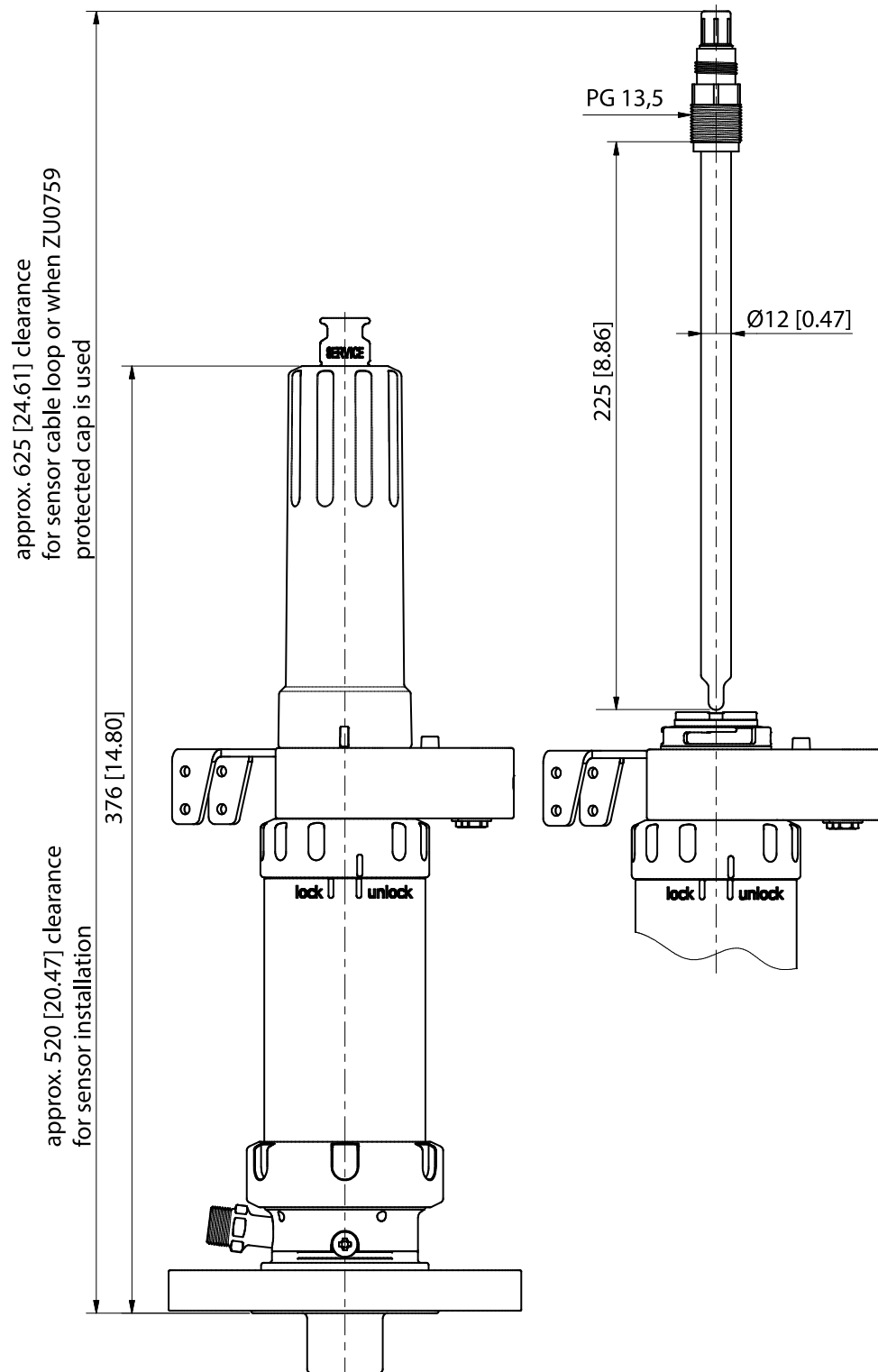
Retractable Fitting for Solid-Electrolyte Sensor, Short Immersion Depth

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



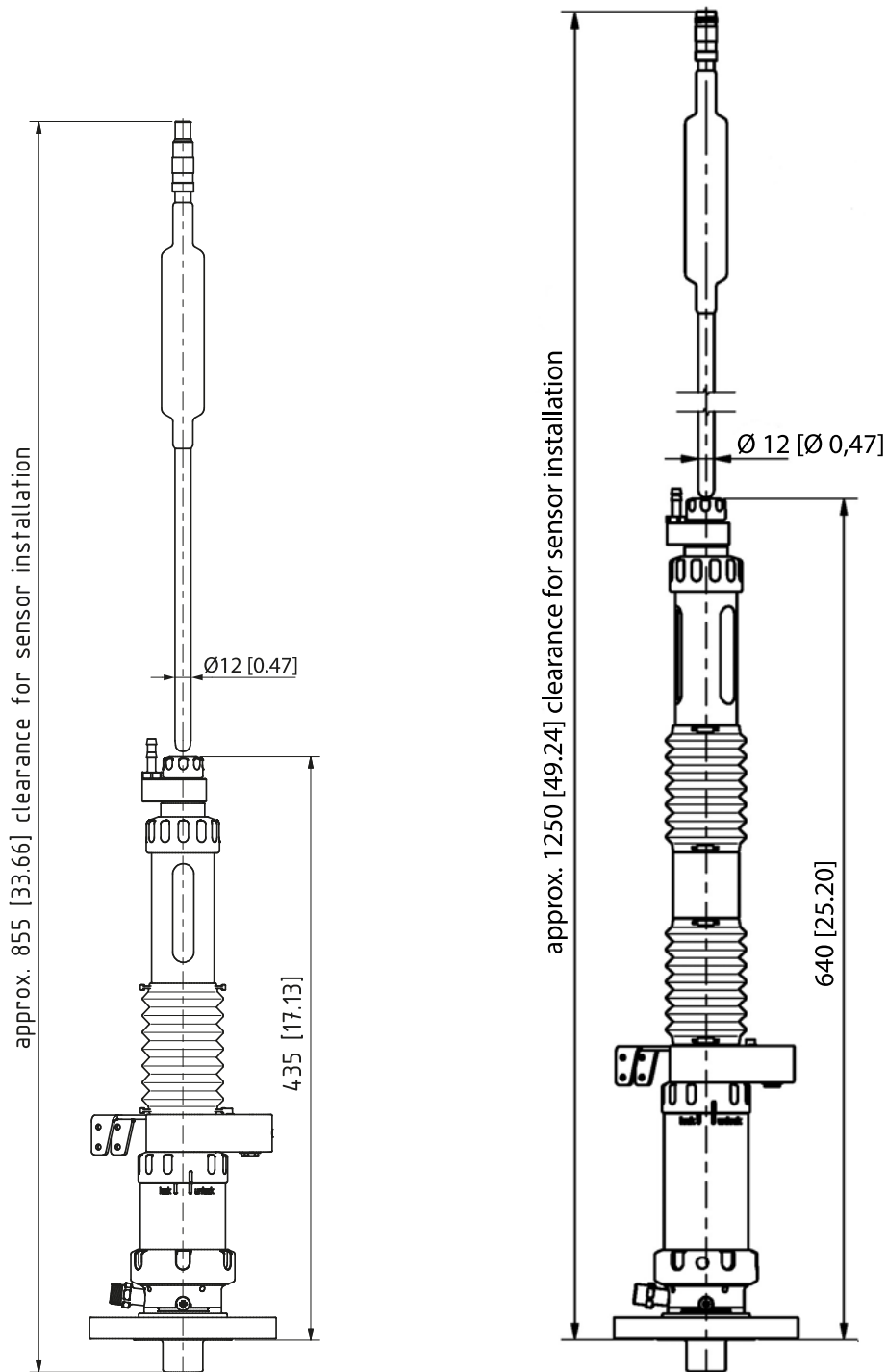
Retractable Fitting for Solid-Electrolyte Sensor, Long Immersion Depth

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

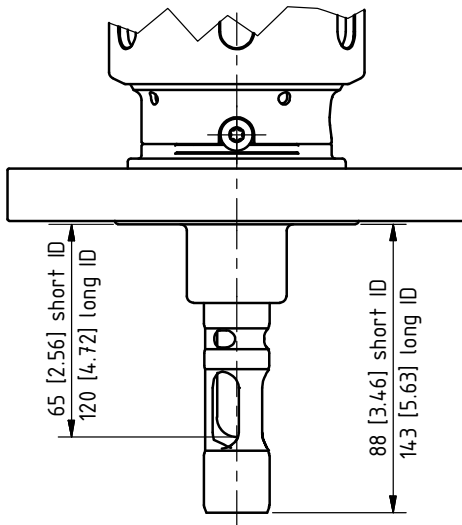


Retractable Fitting for Liquid-Electrolyte Sensor, Short and Long Immersion Depths

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



Process Connections

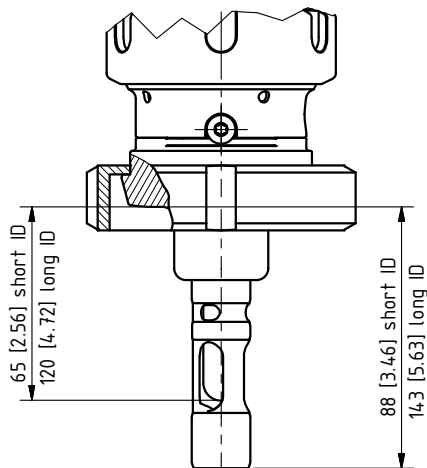


Flange, loose, 1.4571, PN10/16, DN 32 ... DN 100
Flange, loose, 1.4571, PN40, DN 32 ... DN 100

Flange, loose, ANSI 316, 150 lbs, 1½" ... 4"
Flange, loose, ANSI 316, 300 lbs, 1½" ... 3"

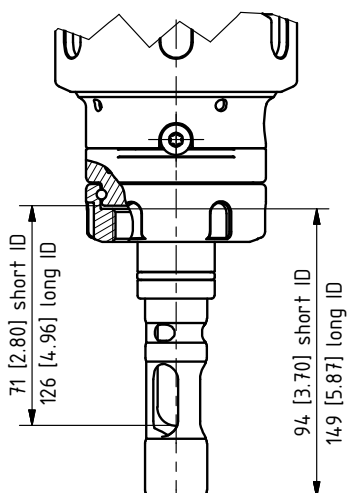
Fitting DIN 3237-1/-2, PN13; DN 25 ... DN 80

Short and long immersion depth (ID)



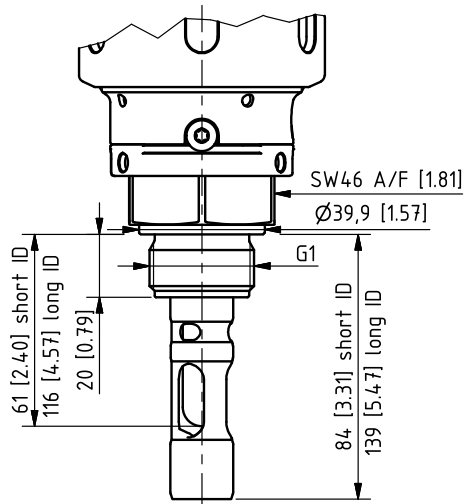
Dairy pipe DN50 ... DN100

Short and long immersion depth (ID)

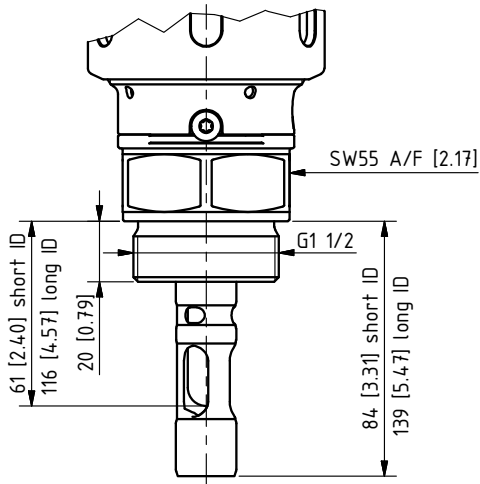


25 mm Ingold socket

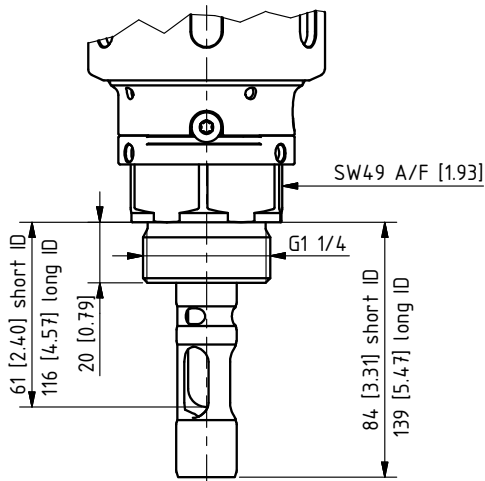
Short and long immersion depth (ID)



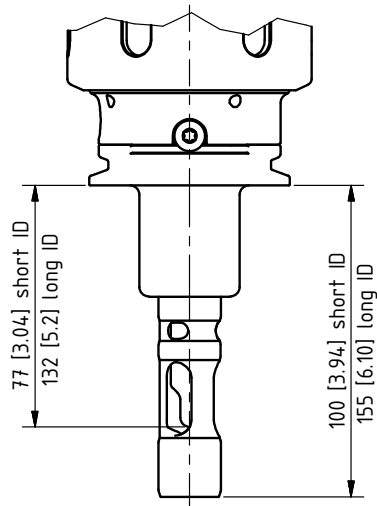
G1 male
Short and long immersion depth (ID)



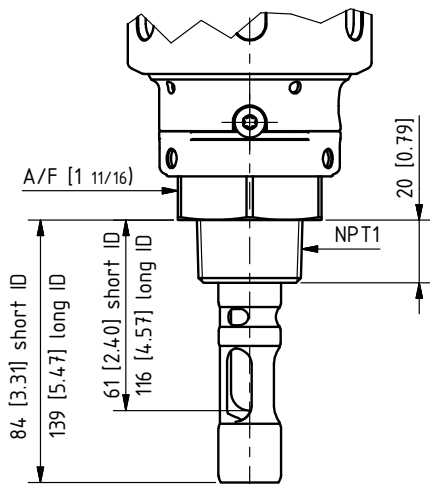
G1 1/2" male
Short and long immersion depth (ID)



G1 1/4" male
Short and long immersion depth (ID)



Clamp 1.5" and clamp 2"
Short and long immersion depth (ID)



1" NPT outer
Short and long immersion depth (ID)

11 Specifications

Generally permitted process pressure and temperature

Process connection 1.4571 / Hastelloy: 0 ... 140 °C (32 ... 284 °F)	10 bar (150 psi)
PEEK HD process connection: 0 ... 140 °C (32 ... 284 °F)	10 bar (150 psi)
PVDF HD process connection: 0 ... 120 °C (32 ... 248 °F)	10 bar (150 psi)
140 °C (284 °F) max. 30 min	6 bar (90 psi)
PEEK / PVDF process connection: 0 ... 40 °C (32 ... 104 °F)	6 bar (90 psi)
40 ... 120 °C (104 ... 248 °F)	Linear drop to 2 bar (29 psi)
PP process connection: 5 ... 30 °C (41 ... 86 °F)	6 bar (90 psi)
30 ... 80 °C (86 ... 176 °F)	Linear drop to 1 bar (14.5 psi)
Titanium grade process connection: 20 ... 140 °C (32 ... 284 °F)	10 bar (150 psi)

Only static in service position (SERVICE limit position)

0 ... 40 °C (32 ... 104 °F)	16 bar (230 psi)
PP process connection: 5 ... 20 °C (41 ... 68 °F)	10 bar (150 psi)
Ambient temperature	-10 ... 70 °C (14 ... 158 °F)
Protection rating	IP66
Enclosure material	Stainless steel A2 / PP
Permitted pressure for probe controller	4 ... 7 bar (58 ... 101 psi)

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)
Sensors	→ <i>Product Code, p. 12</i>
Process connection	→ <i>Product Code, p. 12</i>

Connections

Outlet	Hose (EPDM) DN8 3m
For pressurized sensors	Hose connection DN 6, Pressure in sensor pressure chamber 0.5 ... 1 bar (7.25 ... 14.5 psi) via process pressure, max. 7 bar (101.5 psi)
For compressed air (control air retractable fitting)	Unical 9000 multiplug
Immersion depths / installation dimensions	→ <i>Dimension Drawings, p. 59</i>
Wetted materials	→ <i>Product Code, p. 12</i>

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 (inside diameter)
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 (certification body for electrotechnical equipment)
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).

Technical Terms

CE mark

Manufacturer's declaration in accordance with EU Regulation 765/2008 that the product meets the applicable requirements set out in the European Union harmonization legislation relating to its attachment.

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

Measure undertaken to determine the actual condition of an item in order to assess its state. (Source: EN 13306 – Maintenance – Terms)

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 - Terms)

Preventive Maintenance

Combination of planned measures to delay the deterioration of the functional state of an item. (Source: EN 13306 – Maintenance – Terms)

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)



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website under the corresponding product description.

TA-215.000-KNEN06



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