



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services

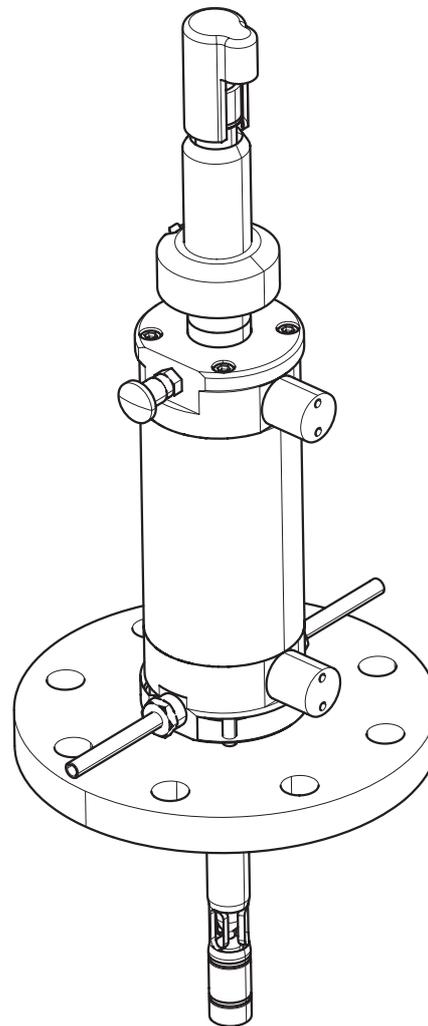


Solutions

Operating Instructions

Cleanfit P CPA472D

Retractable Process Assembly



Brief overview

Here is how to use these Operating Instructions to commission your assembly quickly and safely:

Page 4 ff. Page 5	Safety instructions General safety instructions Explanation of the warning symbols You can find special instructions at the appropriate position in the chapter in question. The significance is indicated with the icons Warning ⚠, Caution ⚡ and Note 📌.
	▼
Page 8 ff. Page 12 ff. Page 16 ff.	Installation Here you can find installation conditions such as the dimensions of the assembly. Refer to these pages to connect limit position switches and rinse water lines. Here you can find how to install a sensor in the assembly.
	▼
Page 21	Operation In this chapter, you can find how to move a manually driven assembly from "Measuring" position to "Service" position and vice versa.
	▼
Page 22 ff. Page 23 ff. Page 25 ff. Page 29 ff.	Maintenance For normal operation of the assembly, it is absolutely essential to carry out maintenance tasks on a regular basis, such as sensor or assembly cleaning. Individual parts are subject to normal wear and tear. Here you can find out how to replace such parts. On the given pages you can find the accessories for the assembly. Here you can find an overview of the spare parts which can be delivered as well as an overview of the assembly parts.
	▼
Page 10 ff. Page 36 ff.	Technical data Dimensions Environment and process, weight, materials etc.
	▼
	▼
Page 38	Index You can find important terms and keywords on the individual sections here. Use the keyword index to find the information you need quickly and efficiently.

Table of contents

1	Safety instructions	4	8	Technical data	36
1.1	Designated use	4	8.1	Environment	36
1.2	Installation, commissioning and operation	4	8.2	Process	36
1.3	Operational safety	4	8.3	Mechanical construction	37
1.4	Return	4			
1.5	Notes on safety icons and symbols	5			
2	Identification	6			
2.1	Nameplate	6			
2.2	Scope of delivery	6			
2.3	Product structure	7			
3	Installation	8			
3.1	Incoming acceptance, transport, storage	8			
3.2	Installation conditions	8			
3.3	Installation	12			
3.4	Sensor installation	16			
3.5	Post-installation check	19			
4	Operation	20			
4.1	First commissioning	20			
4.2	Operating elements	20			
4.3	Manual operation	21			
4.4	Pneumatic operation	21			
5	Maintenance	22			
5.1	Cleaning the assembly	22			
5.2	Cleaning the sensor	22			
5.3	Cleaning agents	23			
5.4	Replacing seals	23			
6	Accessories	25			
6.1	Installation material for rinse connection	25			
6.2	Flow assembly	25			
6.3	Installation seal for flow assembly	25			
6.4	Holder	25			
6.5	Protection cover	25			
6.6	Limit position switches	26			
6.7	Pneumatic throttle	26			
6.8	Sensors	26			
6.9	Buffer solutions	27			
6.10	Measuring cables	27			
6.11	Transmitters	27			
6.12	Measuring, cleaning and calibration systems	28			
7	Trouble-shooting	28			
7.1	Replacing damaged parts	28			
7.2	Spare part kits	29			
7.3	Return	35			
7.4	Disposal	35			
				Index	38

1 Safety instructions

1.1 Designated use

The manually or pneumatically operated retractable assembly Cleanfit P CPA472D is designed for installing pH/redox sensors in tanks and pipes.

Its mechanical design permits its use in pressurized systems (see "Technical data").

Any other use than the one described here compromises the safety of persons and the entire measuring system and is, therefore, not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

1.2 Installation, commissioning and operation

Please note the following items:

- Installation, commissioning, operation and maintenance of the measuring system must only be carried out by trained technical personnel.
The technical personnel must be authorized for the specified activities by the system operator.
- Electrical connection must only be carried out by a certified electrician.
- Technical personnel must have read and understood these Operating Instructions and must adhere to them.
- Before commissioning the entire measuring point, check all the connections for correctness. Ensure that electrical cables and hose connections are not damaged.
- Do not operate damaged products and secure them against unintentional commissioning. Mark the damaged product as being defective.
- Measuring point faults may only be rectified by authorized and specially trained personnel.
- If faults can not be rectified, the products must be taken out of service and secured against unintentional commissioning.
- Repairs not described in these Operating Instructions may only be carried out at the manufacturer's or by the service organisation.

1.3 Operational safety

The assembly has been designed and tested according to the state of the art and left the factory in perfect functioning order.

Relevant regulations and European standards have been met.

As the user, you are responsible for complying with the following safety conditions:

- Installation instructions
- Local prevailing standards and regulations.

1.4 Return

If the assembly has to be repaired, please return it *cleaned* to the sales center responsible.

Please use the original packaging, if possible.

Please enclose the completed "Declaration of contamination" (copy the second last page of these Operating Instructions) with the packaging and the transportation documents.

No repair without completed "Declaration of contamination"!

1.5 Notes on safety icons and symbols



Warning!

This symbol alerts you to hazards. They can cause serious damage to the instrument or to persons if ignored.



Caution!

This symbol alerts you to possible faults which could arise from incorrect operation. They could cause damage to the instrument if ignored.



Note!

This symbol indicates important items of information.

2 Identification

2.1 Nameplate

You can identify the assembly version by the order code on the nameplate. Please compare this code with your order.

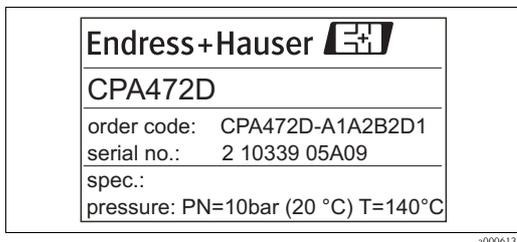


Fig. 1: Example of a nameplate

For possible assembly versions and the resulting order codes see the product structure.

2.2 Scope of delivery

The scope of delivery comprises:

- Cleanfit assembly (ordered version)
- Operating Instructions (English).

If you have any questions, please contact your supplier or your sales center responsible.

2.3 Product structure

Drive type and limit contact switches	
A	Manual without limit contact switches
B	Pneumatic without limit contact switches
C	Pneumatic with 2 pneumatic limit contact switches
D	Pneumatic with 2 electric Ex limit contact switches
E	Pneumatic with 1 electric Ex limit contact switch
Assembly version	
1	Service position
2	Service position + measuring position
Electrode type	
A	For gel electrodes / ISFET sensors, 225 mm
B	For gel electrodes, 360 mm
C	For liquid KCl electrodes, 360 mm
Immersion depth	
1	max 148 mm (5.83")
2	max 280 mm (11.02")
Assembly material (in contact with medium)	
B	In contact with medium: PEEK
C	In contact with medium: PVDF
D	In contact with medium: PVDF, conductive
E	In contact with medium: PVDF, electrode holder Hastelloy C4
F	In contact with medium: Hastelloy C4
G	In contact with medium: Titanium
H	In contact with medium: Stainless steel 1.4571; 316Ti
Seal material (in contact with medium)	
2	FPM Viton®
3	FFKM KALREZ®
Process connection	
D	DN 50 flange (acc. to EN 1092), stainless steel
E	DN 80 flange (acc. to EN 1092), stainless steel
F	2" ANSI flange, stainless steel
G	Thread G1 ¼ internal (only with materials F/G/H)
Y	Special version acc. to customer specification
Rinse connection	
1	Without rinse connection
3	With rinse fitting 2 x G ¼ internal thread
4	With rinse fitting 2 x NPT ¼" internal thread
5	With rinse fitting 2 x pipe 8x60 mm Swagelok
CPA472D-	complete order code

3 Installation

3.1 Incoming acceptance, transport, storage

- Make sure the packaging is undamaged!
Inform the supplier about damage to the packaging. Keep the damaged packaging until the matter has been settled.
- Make sure the contents are undamaged!
Inform the supplier about damage to the delivery contents. Keep the damaged products until the matter has been settled.
- Check that the scope of delivery is complete and agrees with your order and the shipping documents.
- The packaging material used to store or to transport the product must provide shock protection and humidity protection. The original packaging offers the best protection. Also, keep to the approved ambient conditions (see "Technical data").
- If you have any questions, please contact your supplier or your sales center responsible.

3.2 Installation conditions

3.2.1 Notes on installation

The assembly is designed for installation on tanks and pipes. Suitable nozzles must be available for this.

When using standard glass electrodes, only installation positions are permitted in which the middle axis of the assembly lies at least at an angle of 15° from the horizontal (see diagram). Otherwise, there will not be a reliable contact between the inner side of the pH membrane and the inner terminal leads via the electrolytes.

When using an ISFET Tophit sensor, there are, in principle, no restrictions for the installation position. An installation angle of 0 to 180° is, however, recommended.

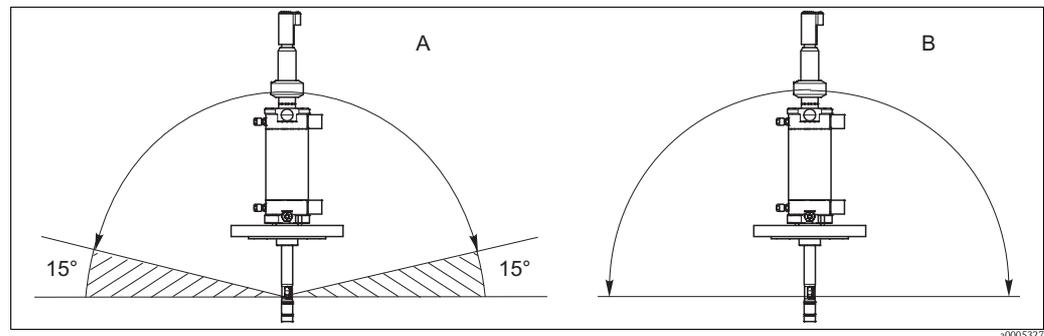


Fig. 2: Installation angle

A Glass electrodes: minimum 15° to the horizontal

B ISFET sensors: recommended $0 \dots 180^\circ$, overhead possible

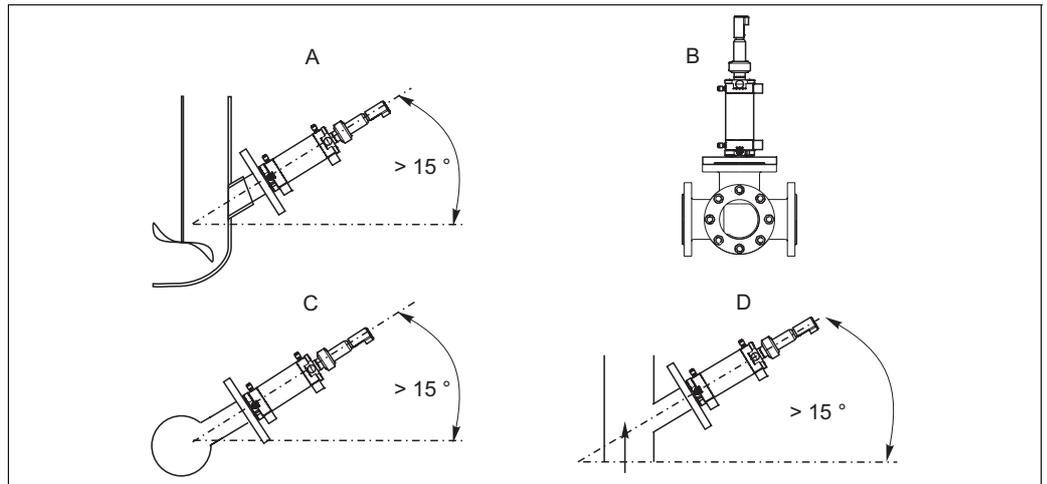


Fig. 3: Installation examples with recommended installation angle (glass electrodes)

- A Tank
- B Flow assembly DN 50/80
- C Horizontal pipe minimum DN 80
- D Ascending pipe minimum DN 80



Caution!

- Avoid a siphon effect¹⁾ at the rinse chamber outlet when installing with inclined orientation. The inlet to the rinse chamber must be from below.



Note!

- The minimum diameter for direct installation in pipework is DN 80. This diameter is required so that the assembly has sufficient distance from the pipe wall when brought into the "Measuring" position.
- Use a flow assembly to install the assembly in smaller pipe diameters (see Accessories).
- When designing the installation nozzle, please take into account the total immersion depth in operation (sensor holder not inserted). Ensure that the sensor is always immersed in the medium during operation (see "Dimensions").

1) Siphon effect: line emptied by vacuum

3.2.2 Dimensions

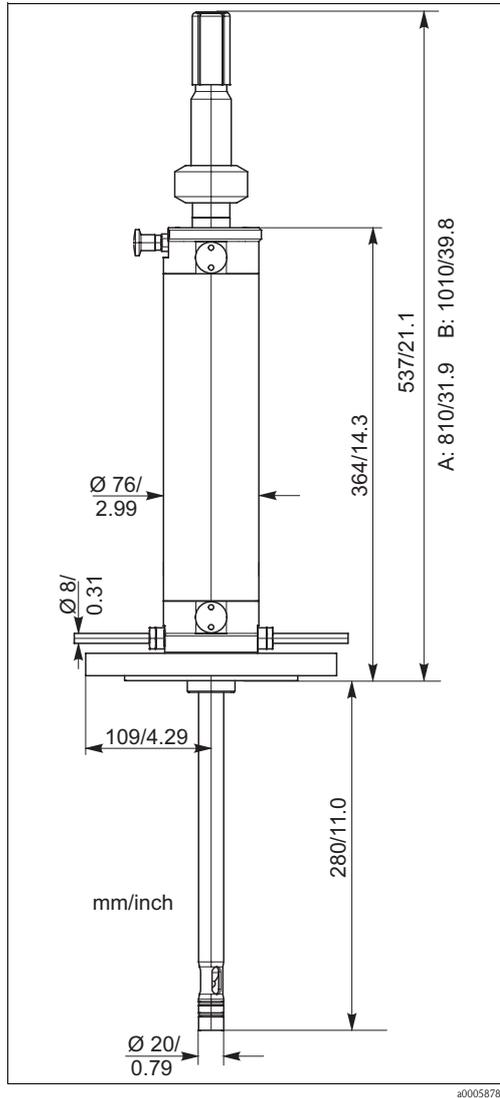


Fig. 4: Assembly version: long, for gel sensors

- A Length when extended
- B Required mounting clearance

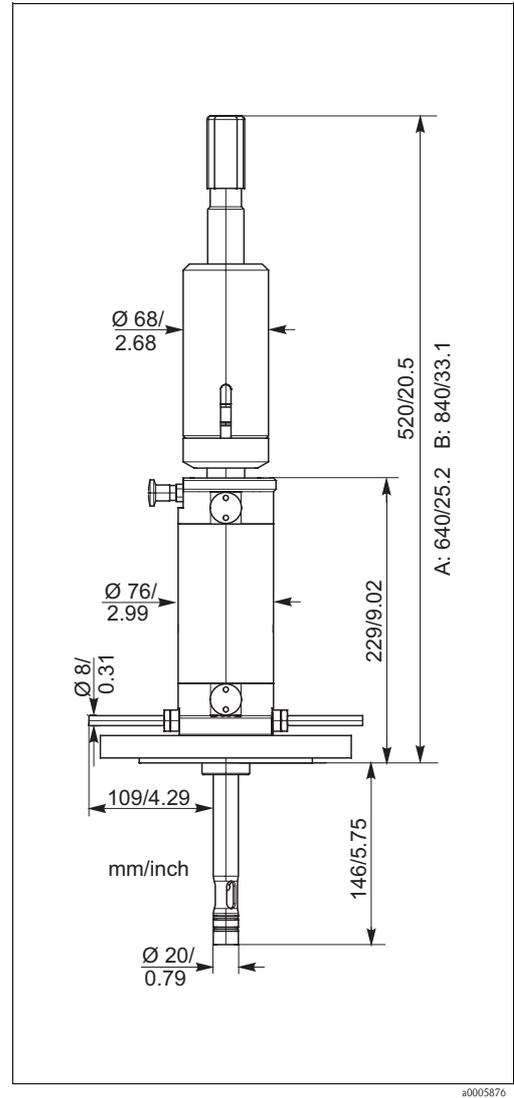


Fig. 5: Assembly version: standard, for KCl sensors

- A Length when extended
- B Required mounting clearance

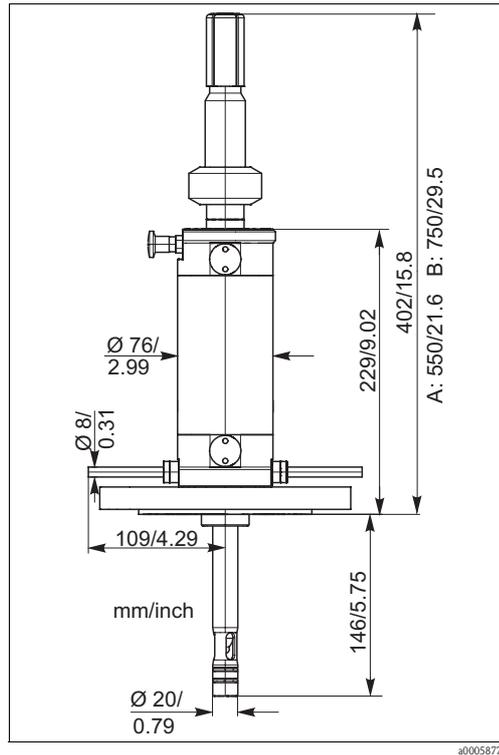


Fig. 6: Assembly version: standard, for gel sensors

- A Length when extended
- B Required mounting clearance

3.2.3 Process connections

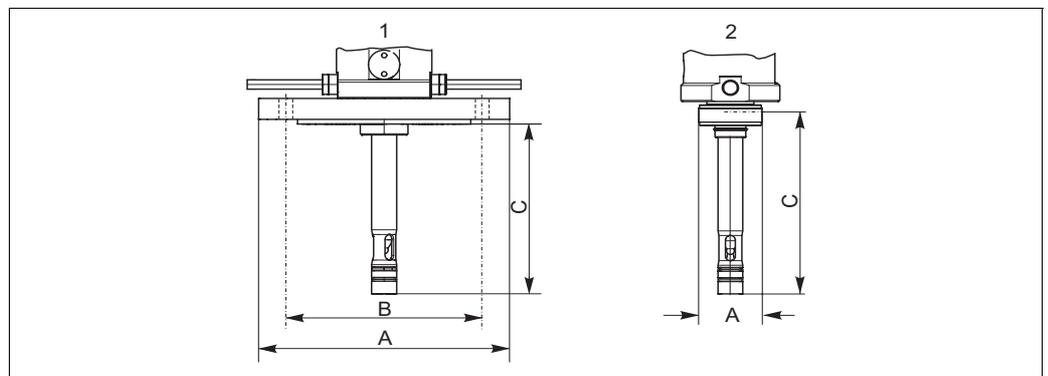


Fig. 7: Process connections

- 1 Flange DN 50 / DN 80 / ANSI 2"
- 2 Internal thread G 1 1/4

Connection	A	B	C (standard)	C (long)
DN 50	165/6.50	125/4.92	146/5.75	280/11.0
DN 80	200/7.87	160/6.30	146/5.75	280/11.0
ANSI 2"	152.4/6.00	120.7/4.75	146/5.75	280/11.0
G 1 1/4	51/2.01	—	156/6.14	290/11.4
Dimensions in mm/inch				

3.3 Installation

3.3.1 Measuring system

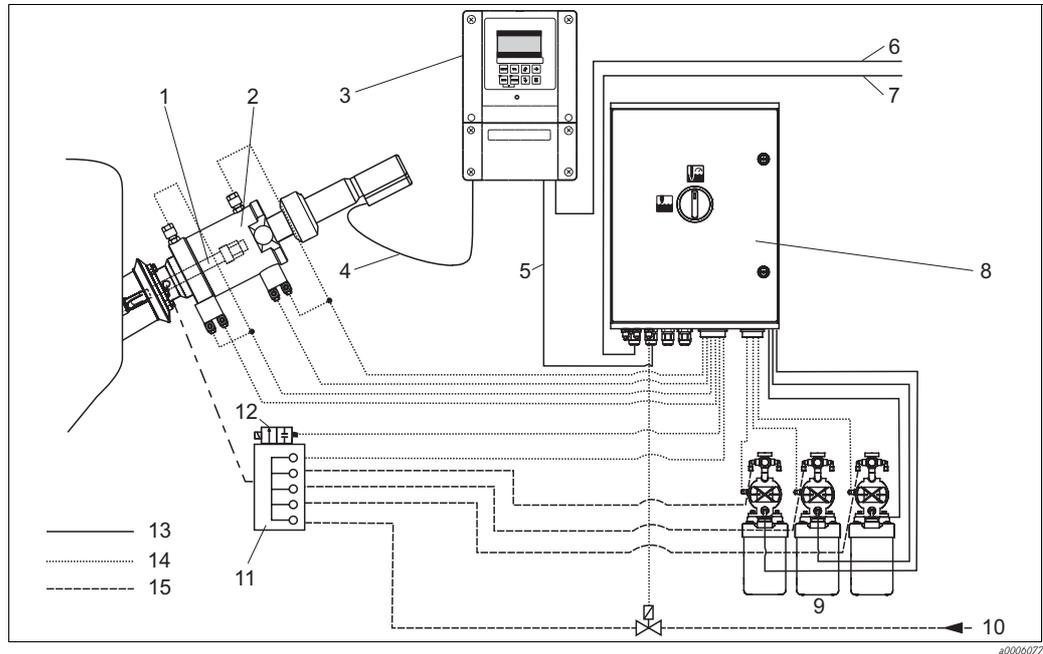


Fig. 8: Measuring system with pneumatic control

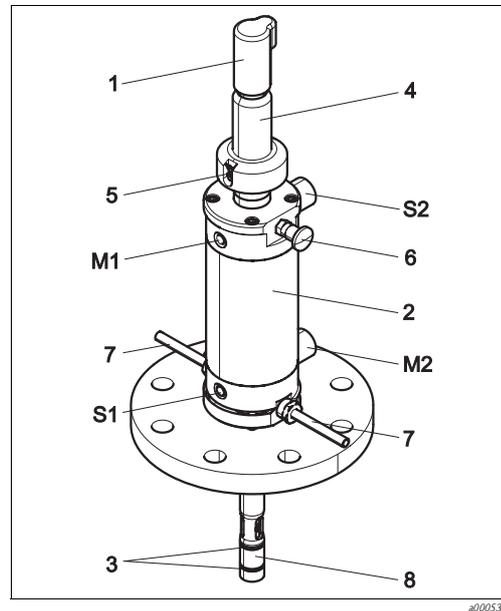
- | | | | |
|---|------------------------------------|----|---|
| 1 | pH/redox sensor | 9 | Canisters for cleaning and buffer solutions |
| 2 | Assembly Cleanfit P CPA472D | 10 | Superheated steam/water/cleaning solutions (optional) |
| 3 | Transmitter Mycom S CPM153 | 11 | Rinse block |
| 4 | Special measuring cable | 12 | Rinse water valve |
| 5 | Communication and extension cables | 13 | Power/signal cable |
| 6 | Power supply Mycom | 14 | Air hoses |
| 7 | Power supply CPG310 | 15 | Medium |
| 8 | Control unit CPG310 | | |

3.3.2 Installing the assembly into the process



Note!

Before installing the assembly into the process check the seal between the flanges.



M = Measuring

S = Service

M1 Pneumatics "Assembly measuring"

M2 Limit position switch "Assembly measuring" ¹⁾

S1 Pneumatics "Assembly Service"

*S2 Limit position switch "Assembly Service" ¹⁾
(see chapter "Pneumatic operation")*

1 Splash protection cap

2 Assembly housing (cylinder)

3 Seals, in contact with medium

4 Retractable pipe

5 Potential matching

6 Stop lock bolt

7 Rinse fitting Swagelok (optional)

8 Sensor holder (= sensor guide)

Fig. 9: Pneumatics and limit position switches

1) pneumatic or electric limit position switch depending on assembly version (see product structure)

1. Move the assembly into the "Service" position (electrode holder inserted in the assembly).
2. Secure the assembly to the tank or the piping using your selected process connection.
3. Follow the instructions for compressed air and rinse water connection (if used) given in the following chapters.

3.3.3 Pneumatic connection (optional)

Requirements:

- air pressure of 5 to 6 bar (72.5 to 87 psi)
- air must be filtered (40 µm) and be free of water and oil
- no continuous air consumption
- minimum nominal diameter of the air lines: 4 mm (0.16 ").



Caution!

There must be a pressure-reducing valve upstream if the air pressure can increase to above 6 bar (87 psi) (including any short pressure surges).

We recommend you also use a pneumatic throttle for lower pressures. This results in a smoother assembly operation. Endress+Hauser offers such a throttle as an accessory (see chapter "Accessories").

Limit position switch

Pneumatic: 3/2 way valve
 Electric: inductive (NAMUR type)

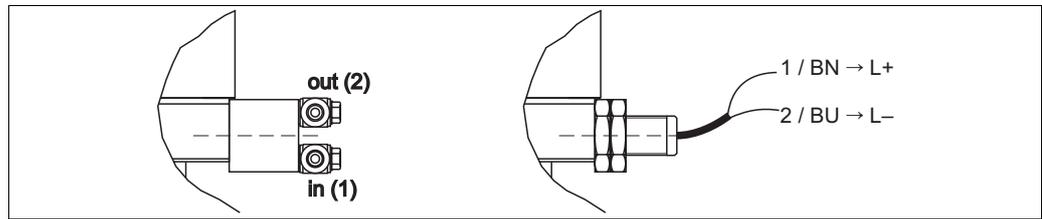


Fig. 10: Limit position switches, left: pneumatic (1 = compressed air inlet, 2 = compressed air outlet)
 right: electric (NAMUR)



Note!

The position of the input resp. the output may be different from the figure. Please, refer to the marks at the limit position switch: "1" is the input (in), "2" is the output (out).

Connection of the compressed air and pneumatic limit position switches



Note!

Following, you find the connection of the compressed air lines to the assembly. The compressed air supply and the tapping of the position feedback signals are described for Topcal S CPC310 resp. Topclean S CPC30 as an example.

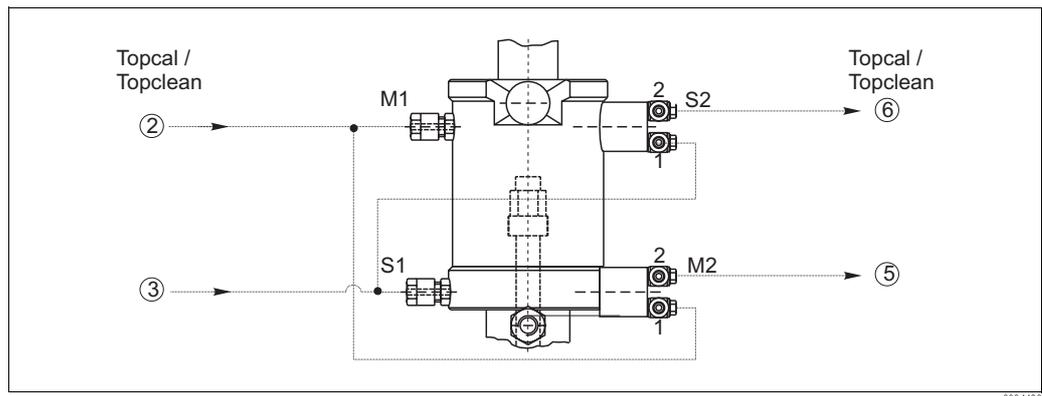


Fig. 11: Pneumatic connections and pneumatic limit position switches (1=inlet, 2=outlet)

- M1 Pneumatics "Assembly measuring"
- M2 Position feedback signal "Assembly measuring"
- S1 Pneumatics "Assembly service"
- S2 Position feedback signal "Assembly service"
- ② Topcal/Topclean: hose no. 2
- ③ Topcal/Topclean: hose no. 3
- ⑤ Topcal/Topclean: hose no. 5
- ⑥ Topcal/Topclean: hose no. 6

The pneumatic limit position switches serve as control elements and determine the sequence of the individual steps.

1. Connect the compressed air supply line for "Assembly measuring" (Topcal/Topclean: hose no. ②) to the upper G 1/8 pneumatics connection (Fig. 11).
2. Also, connect the compressed air supply line no. ② to the inlet (1) of the lower limit position switch (M2, via T-piece). This limit position switch supplies the position feedback signal "Assembly measuring".
3. When the "Measuring" position is reached, the air applied to the inlet M2 (1) is switched through and can be tapped at the outlet M2 (2) (Topcal/ Topclean: connect hose ⑤ to the limit position switch outlet).

4. Connect the compressed air supply line for "Assembly service" (Topcal/Topclean: hose no. ③) to the lower G 1/8 pneumatics connection.
5. Also, connect the compressed air supply line no. ③ to the inlet (1) of the upper limit position switch (S2, via T-piece). This limit position switch supplies the position feedback signal "Assembly service".
6. When the position "Service" is reached, the air applied to the inlet S2 (1) is switched through and can be tapped at the outlet S2 (2) (Topcal/ Topclean: hose no. ⑥).

Connection of the electric limit position switches

Like the pneumatic limit position switches, the electric limit position switches also serve as control elements and determine the sequence of the individual steps.

Connect the NAMUR limit position switches to the corresponding terminals at the transmitter.

Please, refer to the Operating Instructions of the transmitter for the terminal numbers. The following figure shows the electric limit position switch connection to the terminals 11 to 14 of the Topcal S control unit, as an example.

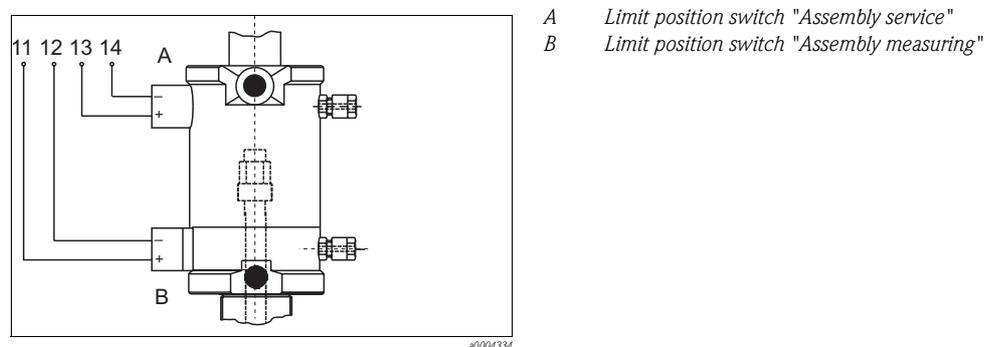


Fig. 12: Electric limit position switches to Topcal

3.3.4 Rinse water connection (optional)

The rinse chamber allows you to clean the electrode with water or cleaning solution with a pressure of 2 to max. 6 bar (30 to max. 87 psi). When using water, you have to install a check valve and a filter (100 µm) at the inlet side. When you operate the assembly with pneumatic actuation and use a cleaning solution, you have to install the chemically resistant ON/OFF valve (see "Accessories"). Install an outlet valve at the outlet side of the rinse chamber (see "Accessories").



Caution!

There must be a pressure-reducing valve (see "Accessories") upstream if the water pressure can increase to above 6 bar (87 psi) (including any short pressure surges).



Note!

Connect the rinse connections to the in-house facilities via ball valves. If you do not use the rinse function, please leave the dummy plug installed.

3.4 Sensor installation

3.4.1 Preparing sensor and assembly

1. Remove the protection cap from the sensor. Make sure the sensor shaft is fitted with the O-ring and the thrust collar (Fig. 13).
2. Moisten the sensor shaft before installing the sensor.
3. Depending on the assembly version:
 - a. *Manually driven assembly:*
Pull the retractable pipe as far as possible out of the assembly.
 - b. *Pneumatically driven assembly:*
Move the assembly into the "Service" position.
4. Turn the stop lock bolt through 90° so that the plastic grooves are located above the recesses (Fig. 14, A).
5. Turn the retractable pipe **clockwise** until the stop lock bolt engages (B).

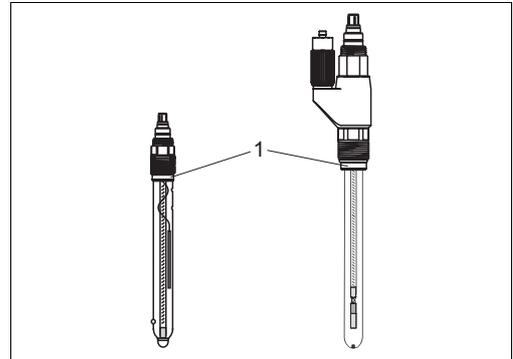


Fig. 13: Sensor installation

1 Thrust collar and O-ring

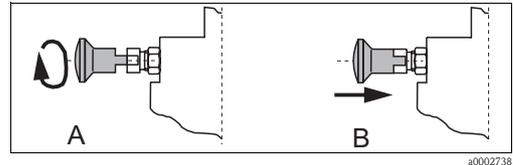


Fig. 14: Stop bolt



Caution!

If turned in the opposite direction, the stop lock bolt does not engage. This could, however, loosen the sensor holder. The reason for this is adhesions on the lower part of the sensor holder. These can cause the sensor holder to get stuck, producing a counterforce when unscrewing the sensor holder.

3.4.2 Gel sensor installation

1. Remove the splash protection cap (Fig. 15, pos. 1) from the assembly.
2. Take care that the surface of the retractable pipe (pos. 3) is not damaged. The surface is a seal face. Loosen the retractable pipe by turning it counterclockwise.
3. Install the sensor (pos. 7) instead of the dummy plug (pos. 4):
 - first screw by hand
 - then tighten the sensor by approx. $\frac{1}{4}$ turn using an open end wrench (AF 17).
4. Insert the measuring cable (pos. 6) through the retractable pipe :
 - Fixed cable:
from the bottom through the retractable pipe, from the sensor to the transmitter
 - Plug-in head sensor:
from the top to the sensor head
5. *Plug-in head sensor only:*
Connect sensor and cable.
6. Screw the retractable pipe back onto the electrode holder (pos. 5)(clockwise, by hand).
7. Place the measuring cable in the splash protection cap and place the cap on the retractable pipe.
8. Put the PML plug onto the PML terminal (PML = potential matching line, pos. 2)

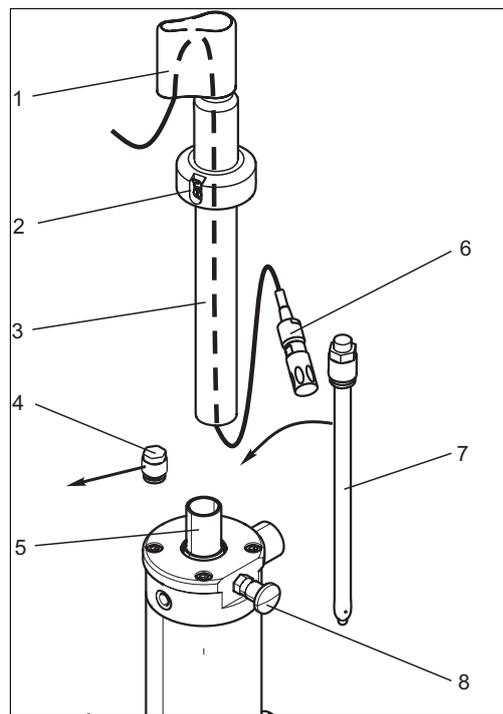


Fig. 15: Sensor installation

- | | |
|---|--|
| 1 | Splash protection cap |
| 2 | PML terminal (potential matching line) |
| 3 | Retractable pipe |
| 4 | Dummy plug |
| 5 | Electrode holder with guidance |
| 6 | Measuring cable with cable plug |
| 7 | Sensor or electrode |
| 8 | Stop lock bolt |

Remove the sensor in the reverse sequence of operations.



Note!

In case of symmetrical pH measurement, you must push the PML connector onto the PML connection (PML = potential matching line, position 1). Please, read the Operating Instructions of the transmitter.

3.4.3 Sensor with liquid KCl electrolyte

1. Remove the splash protection cap (Fig. 16, pos. 6) and the KCl hood (pos. 7) incl. the protective tube from the assembly.
2. Then slacken the retractable pipe (pos. 3) by turning it counterclockwise.
3. Screw in the sensor:
 - a. Unscrew the tension sleeve (pos. 12) from the inner pipe (pos. 11) and pull the inner pipe out of the retractable pipe.
 - b. Install the sensor (pos. 10) into the inner pipe:
 - first screw by hand
 - then tighten the sensor by approx. ¼ turn using an open end wrench (AF 17).
 - c. Push the inner pipe with the sensor into the retractable pipe and screw the tension sleeve to the inner pipe.
4. Screw the retractable pipe with the sensor onto the assembly (clockwise, by hand).
5. Insert the measuring cable through the protective tube and the KCl hood (pos. 7):
 - Fixed cable: from the sensor upwards to the transmitter
 - Sensor with plug-in head: from the top through the KCl hood to the sensor
6. *Plug-in head sensor only:* Connect sensor and cable.
7. Connect the electrolyte supply tube (pos. 1) to the electrolyte connection of the sensor.
8. Affix the supplied tubing support (pos. 9) to the electrolyte supply tube directly above the electrolyte connection.
9. Attach the KCl hood to the retractable pipe. Guide the electrolyte supply tube through the lateral slot of the hood.
10. Place the measuring cable in the splash protection cap and place the cap on the protective tube of the KCl hood.

Remove the sensor in the reverse sequence of operations.



Note!

In case of symmetrical pH measurement, you must push the PML connector onto the PML connection (PML = potential matching line, pos. 2). Please, read the Operating Instructions of the transmitter.

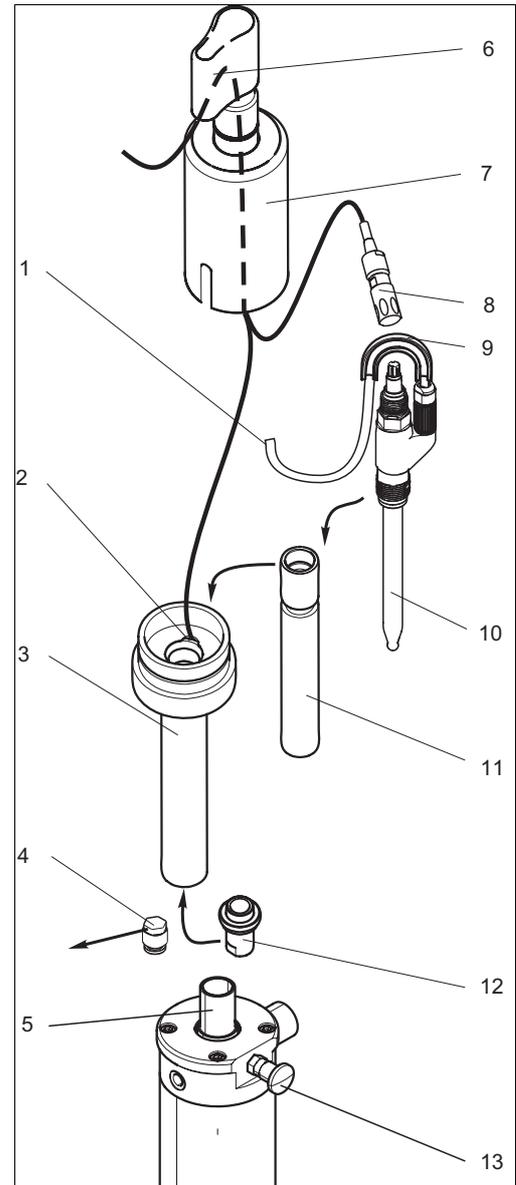


Fig. 16: Liquid KCl electrolyte sensor installation

- 1 Liquid KCl supply tube
- 2 PML connection
- 3 Retractable pipe
- 4 Dummy plug
- 5 Electrode holder with guidance
- 6 Splash protection cap
- 7 KCl hood
- 8 Plug-in head cable
- 9 Tubing support
- 10 Sensor with liquid KCl connection
- 11 Inner pipe
- 12 Tension sleeve
- 13 Stop lock bolt

3.5 Post-installation check

- After installation, check that all connections are firmly in position and leak-tight.
- Ensure that the hoses cannot be removed without force.
- Check all hoses for damage.

4 Operation

4.1 First commissioning

Before the first commissioning, make sure of the following items:

- All seals are correctly seated (on the assembly and process connection).
- The sensor is correctly installed and connected.
- The water supply line is correctly connected to the rinse connections (if fitted).



Warning!

Danger of squirting medium.

Before applying the process pressure to the assembly, make sure the connections are correctly fitted. If you use a manual outlet valve for the rinse chamber as a vent valve, ensure the counter side of the rinse chamber is closed by the dummy plug. Otherwise the assembly may **not** be put into the process!

4.2 Operating elements

Use the stop lock bolt to lock or release the retractable pipe (Fig. 17, Fig. 18).

When using manually operated assemblies, the retractable pipe can be locked in both, the "Measuring" position and the "Service" position. When using pneumatically operated assemblies, this can only be done in the "Service" position.

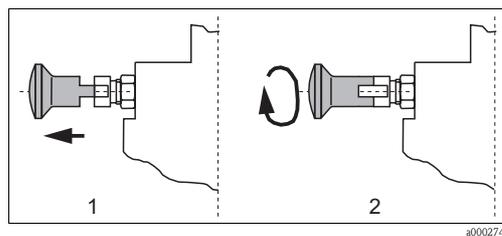


Fig. 17: Releasing the stop lock bolt

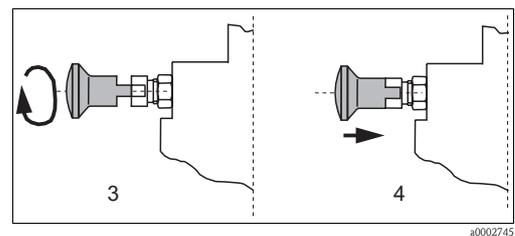


Fig. 18: Locking the stop lock bolt

Releasing the stop lock bolt:

1. Pull the bolt out.
2. Turn the bolt by 90° so that the plastic grooves rest on the metal edge.

Locking the stop lock bolt:

3. Turn the stop lock bolt through 90° so that the plastic grooves are located above the recesses.
4. When the retractable pipe is turned clockwise, the bolt engages.

4.3 Manual operation

Moving the assembly from the "Service" position to the "Measuring" position

1. Release the stop lock bolt catch.
2. Push the retractable pipe so that the sensor holder is inserted fully into the process.
3. Lock the sensor holder with the stop lock bolt. This prevents the retractable pipe from returning inadvertently into the "Service" position.



Warning!

Risk of injury!

Always lock the sensor holder. Otherwise, the retractable pipe may exit uncontrolled as a result of the process pressure and injure somebody.

Moving the assembly from the "Measuring" position to the "Service" position

1. Release the stop lock bolt catch.
2. Pull the retractable pipe out as far as possible ("Service" position).
3. Lock the sensor holder with the stop lock bolt.
4. Complete the necessary service tasks.

4.4 Pneumatic operation

Operation of the pneumatic version depends on the used control unit. Refer to the operating manual of the control unit for instructions.



Caution!

- During maintenance work (e.g. installing and removing the sensor), always lock the assembly in the "Service" position by the stop lock bolt.
- During the automatic rinse process, do not lock the retractable pipe by the stop lock bolt. Otherwise the assembly can no longer move automatically to the "Measuring" position.
- If a maintenance switch is fitted on the transmitter, set it to "Maintenance" or "Service".



Note!

It is not possible to lock the assembly in the "**Measuring**" position. The pneumatic system maintains the back pressure to the process pressure.

5 Maintenance



Warning!

Risk of injury!

Before starting maintenance work on the assembly, make sure that the process line and the tank are depressurized, empty and rinsed.

Move the assembly to the "Service" position and lock the retractable pipe by the stop lock bolt.

5.1 Cleaning the assembly

To ensure a reliable measurement, the assembly and the sensor must be cleaned at regular intervals. The frequency and intensity of the cleaning operation depend on the process medium.

5.1.1 Manually operated assembly

All parts in contact with the medium, e.g. the sensor and the sensor holder, must be cleaned at regular intervals. Remove the sensor¹⁾.

- Remove light dirt using suitable cleaning agents (see chapter "Cleaning agents").
- Remove severe fouling with a soft brush and a suitable cleaning agent.
- Remove persistent fouling by soaking in a liquid cleaner and if necessary by cleaning with a soft brush.

5.1.2 Pneumatically operated assembly

Pneumatically-controlled cleaning can be carried out regularly via the rinse connection and the corresponding equipment, e.g. with the fully automatic cleaning and calibration system Topcal S CPC310.

5.2 Cleaning the sensor

You have to clean the sensor:

- before every calibration
- regularly during operation
- before being returned for repair

You can remove and clean the sensor manually or perform cleaning during automatic operation²⁾ via the rinse connection.



Note!

- Clean ORP electrodes only mechanically and with water, do not use any chemical cleaning agents. These cleaning agents apply a potential to the electrode that takes several hours to decay. This potential causes measuring errors.
- Do not use any abrasive cleaning agents. This can lead to irreparable damage of the sensor.
- After cleaning the sensor, rinse the rinse chamber of the assembly with copious amounts of water (possibly distilled or de-ionised). Otherwise, remaining residues of cleaning agent can corrupt measurement.
- If required, re-calibrate after cleaning.

1) in reverse sequence of operations to the installation procedure

2) with the corresponding assembly equipment only

5.3 Cleaning agents

The selection of the cleaning agent is dependent on the degree and type of contamination. The most common contaminations and the suitable cleaning agents are listed in the following table.

Type of contamination	Cleaning agent
Greases and oils	Hot water or tempered substances containing tensides (alkaline) ¹⁾ or water-soluble organic solvents (e.g. Ethanol)
Calciferous deposits, metal hydroxide deposits, lyophobic biological deposits	Approx. 3% hydrochloric acid
Sulphide deposits	Mixture of 3% hydrochloric acid and thiocarbamide (commercially available)
Protein deposits	Mixture of 3% hydrochloric acid and pepsin (commercially available)
Fibres, suspended substances	Water under pressure, poss. with surface-active agents
Light biological deposits	Water under pressure

1) do not use for Tophit ISFET sensors! Instead, use commercially available acidic cleaning agents for the food industry (e.g. P3-horolith CIP, P3-horolith FL, P3-oxonia active).



Caution!

Do not use organic solvents containing halogen or acetone. These solvents could destroy plastic components of the assembly or the sensor and it is also partly suspected that they cause cancer (e.g. Chloroform).

5.4 Replacing seals

To replace the seals of the assembly you have to interrupt the process and to remove the assembly completely



Warning!

Beware of medium residues and higher temperatures when handling components that were in contact with medium. Wear protection gloves and protection glasses.

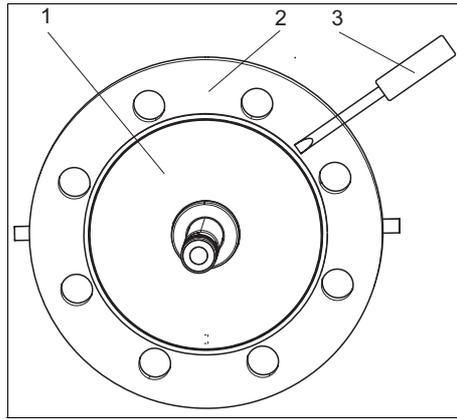
Clean the assembly before replacing the seals (see chapter "Cleaning the assembly").

Preparation:

1. Interrupt the process. Beware of medium residues, residual pressure and higher temperatures.
2. Move the assembly to the "Service" position. Secure this position by the stop lock bolt.
3. Dismount the sensor.
4. Dismount the assembly from the process connection.
5. Clean the assembly (see chapter "Cleaning the assembly")

Dismantling the assembly

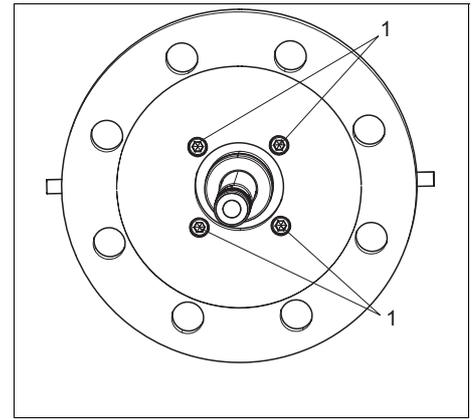
1. Remove the clip-on raising face. Use a screw driver to loosen the raising face (see Fig. 19).
2. Loosen the four bolts (see Fig. 20) and remove the flange and the rinse chamber.
3. Unscrew the retractable pipe (counterclockwise).
4. Unscrew the electrode.
5. Release the stop lock bolt.
6. Pull the electrode holder out of the bottom side of the assembly body.
7. Loosen the four bolts of the cylinder head and remove the cylinder head.



a0006014

Fig. 19: Remove the raising face

- 1 Raising face
- 2 Flange
- 3 Screw driver



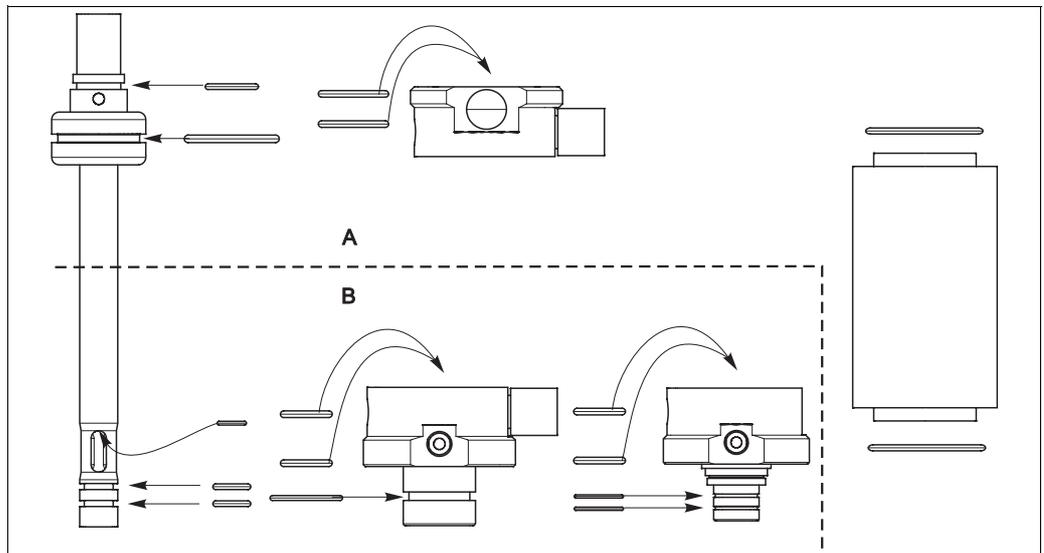
a0006013

Fig. 20: Remove flange and rinse chamber

- 1 Bolts

Replacing the seals

1. Apply a thin layer of grease to the new seals (e.g. Syntheso Glep1).
2. Replace the seals shown in Fig. 21.
3. Re-assemble the assembly.



a0006012

Fig. 21: Position of the seals

6 Accessories

6.1 Installation material for rinse connection

- Filter set CPC300
Water filter (dirt trap) 100 µm, complete, incl. angle bracket;
order no. 51511336
- Pressure reducer kit
complete, incl. manometer and angle bracket;
order no. 51505755
- Rinse connection adapter CPR40 for connecting 2 or 4 different media.
Order acc. to product structure, see Technical Information (TI342C/07/en).
- Hose nozzles for rinse connections G $\frac{1}{4}$, DN 12,
PVDF, 2 pieces;
order no. 50090491
- Manual outlet safety seal for rinse chamber outlet,
G $\frac{1}{4}$, order no. 51511937
NPT $\frac{1}{4}$ ", order no. 51511938
- Rinse chamber input valve, pneumatically ON - OFF, PVDF with bellows, connection G $\frac{1}{4}$,
(on request)

6.2 Flow assembly

- Flow assembly with sight glass, PFA lined, conductive (see Fig. 22)
DN 50, length 230 mm (9,06 "), only for CPA472D-xxx1xxDx, order no. 51515653
DN 80, length 310 mm (12,20 "), order no. 71024439
- Flow assembly (without sight glass), PFA lined, conductive
DN 50, length 230 mm (9,06 "), only for CPA472D-xxx1xxYx with C-PA060418-50 for stroke
reduction and flange adaption, order no. 71024441
DN 80, length 310 mm (12,20 "), order no. 71024442

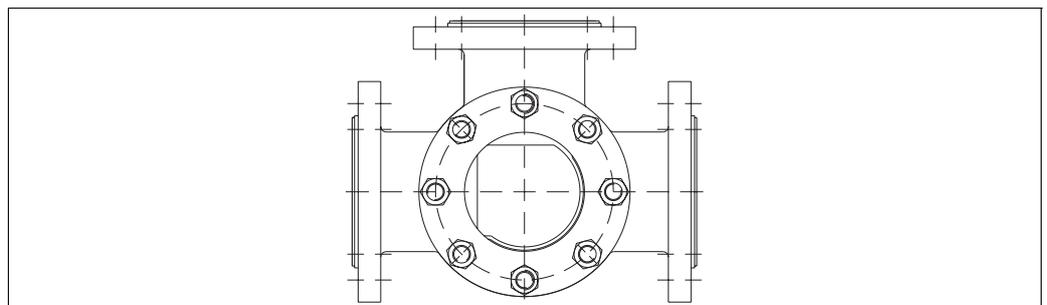


Fig. 22: Flow assembly with integrated sight glass

6.3 Installation seal for flow assembly

- Profile seal
DN 50, PTFE, order no. 51515675
DN 80, PTFE, order no. 51515677

6.4 Holder

- Holder for retraction pipe, material: PP
order no. 51518530

6.5 Protection cover

- On request at TSP

6.6 Limit position switches

- Set of pneumatic limit position switches (2 pieces);
order no. 51502874
- Set of electric limit position switches, Ex and Non-Ex (2 pieces);
order no. 51502873

6.7 Pneumatic throttle

- Pneumatic throttle for the reduction of the assembly moving speed,
order no. 51511990

6.8 Sensors

6.8.1 Glass electrodes

- Orbisint CPS11/CPS11D
pH electrode for process applications, with PTFE diaphragm, Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI028/C07/en)
- Orbisint CPS12/CPS12D
ORP electrode for process applications, with PTFE diaphragm, Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI367/C07/en)
- Ceraliquid CPS41/CPS41D
pH electrode with ceramics diaphragm and liquid KCl electrolyte, Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI079/C07/en)
- Ceraliquid CPS42/CPS42D
ORP electrode with ceramics diaphragm and liquid KCl electrolyte, Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI079/C07/en)
- Ceragel CPS71/CPS71D
pH electrode with double chamber reference system and integrated bridge electrolyte,
Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI245/C07/en)
- Ceragel CPS72/CPS72D
ORP electrode with double chamber reference system and integrated bridge electrolyte,
Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI374/C07/en)
- Orbipore CPS91/CPS91D
pH electrode with open aperture for media with high dirt load, Memosens technology as option;
Ordering acc. to product structure, see Technical Information (TI375C/07/en)

6.8.2 ISFET sensors

- Tophit CPS471/CPS471D
Sterilizable and autoclavable ISFET sensor for food and pharmaceuticals, process technology,
water treatment and biotechnology;
Ordering acc. to product structure, see Technical Information (TI283/C07/en)
- Tophit CPS441/CPS441D
Sterilizable ISFET sensor for media with low conductivity, with liquid KCl electrolyte;
Ordering acc. to product structure, see Technical Information (TI352/C07/en)
- Tophit CPS491/CPS491D
ISFET sensor with open aperture for media with high dirt load;
Ordering acc. to product structure, see Technical Information (TI377/C07/en)

6.9 Buffer solutions

6.9.1 pH

Technical buffer solutions, accuracy 0.02 pH, acc. to NIST/DIN

- pH 4.0 red, 100 ml (3.4 fl.oz.), order no. CPY2-0
- pH 4.0 red, 1000 ml (34 fl.oz.), order no. CPY2-1
- pH 7.0 green, 100 ml (3.4 fl.oz.), order no. CPY2-2
- pH 7.0 green, 1000 ml (34 fl.oz.), order no. CPY2-3

Technical buffer solutions for single use, accuracy 0.02 pH, acc. to NIST/DIN

- pH 4.0 20 x 20 ml (0.68 fl.oz.), order no. CPY2-D
- pH 7.0 20 x 20 ml (0.68 fl.oz.), order no. CPY2-E

6.9.2 ORP

Technical buffer solutions for ORP electrodes

- +220 mV, pH 7.0, 100 ml (3.4 fl.oz.); order no. CPY3-0
- +468 mV, pH 0.1, 100 ml (3.4 fl.oz.); order no. CPY3-1

6.10 Measuring cables

- CPK9 special measuring cable
For pH/ORP sensors with TOP68 plug-in head, for high-temperature and high-pressure applications, IP 68
Ordering acc. to product structure, see Technical Information (TI118C/07/en)
- CPK1 special measuring cable
For pH/ORP electrodes with GSA plug-in head
Ordering acc. to product structure, see Technical Information (TI118C/07/en)
- CPK12 special measuring cable
For pH/ORP glass electrodes and ISFET sensors with TOP68 plug-in head
Ordering acc. to product structure, see Technical Information (TI118C/07/en)
- CYK10 Memosens data cable
For digital pH sensors with Memosens technology (CPSxxD)
Ordering according to product structure, see Technical Information (TI376C/07/en)

6.11 Transmitters

- Liquiline M CM42
Modular two-wire transmitter, stainless steel or plastic, field or panel instrument, various Ex approvals (ATEX, FM, CSA, Nepsi, TIIS), HART, PROFIBUS or FOUNDATION Fieldbus available
Ordering acc. to product structure, see Technical Information (TI381C/07/en)
- Liquisys M CPM223/253
Transmitter for pH and ORP, field or panel-mounted housing, HART or PROFIBUS available
Ordering acc. to product structure, see Technical Information (TI194C/07/en)
- Mycom S CPM153
Transmitter for pH and ORP, one or two channel version, Ex or non-Ex, HART or PROFIBUS available
Ordering acc. to product structure, see Technical Information (TI233C/07/en)

6.12 Measuring, cleaning and calibration systems

Topcal S CPC310

- Fully automatic measuring, cleaning and calibration system; Ex or non-Ex
- In-situ cleaning and calibration, automatic sensor monitoring
- Ordering acc. to product structure, Technical Information TI404C/07/en

Topclean S CPC30

- Fully automatic measuring and cleaning system; Ex or non-Ex
- In-situ cleaning, automatic sensor monitoring
- Ordering acc. to product structure, see Technical Information TI235C/07/en

7 Trouble-shooting

7.1 Replacing damaged parts



Warning!

Damage to the assembly which affects the pressure safety must **only** be repaired by authorized technical personnel.

After every repair and maintenance activity, suitable measures must be taken to test whether the assembly shows any signs of leaking. The assembly must then correspond to the specifications stated in the technical data.

Replace all other damaged components immediately. To order accessories and spare parts, please use the "Accessories" and "Spare parts" chapters or contact your sales center responsible.

7.2 Spare part kits

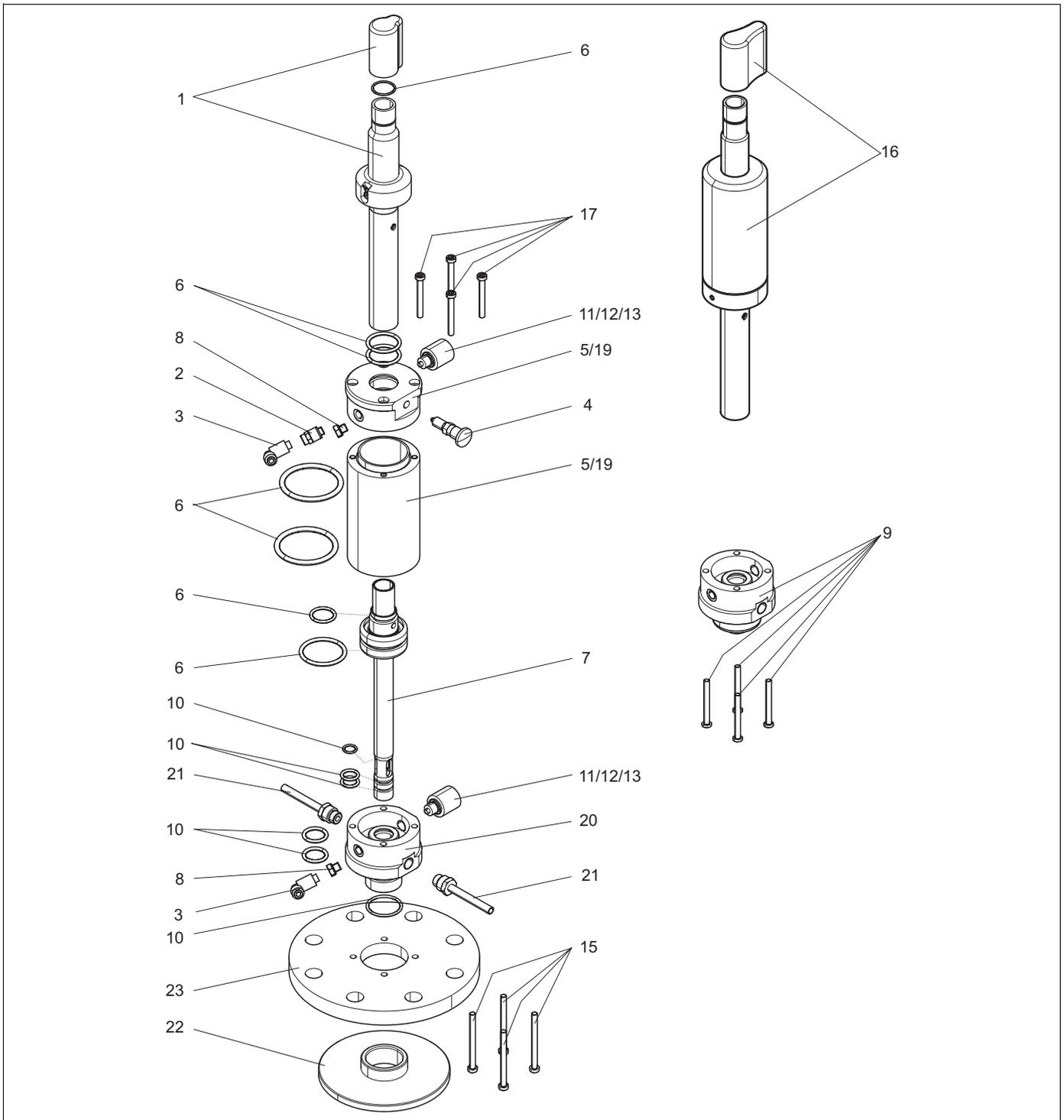


Fig. 23: Spare parts (all assembly versions)



Note!
Please, refer to the following table for the spare part kits ordering numbers acc. to the positions in Fig. 23.

Position	Description and kit content	Spare part kit order no.
1	Retractable pipe for gel electrodes 360 mm For assembly version: – manual – long, immersion depth up to 280 mm Kit 472D long, manual	71026649
	Retractable pipe for gel electrodes 360 mm For assembly version: – pneumatic – long, immersion depth up to 280 mm Kit 472D long, pneumatic	71026651
	Retractable pipe for gel electrodes 225 mm For assembly version: – manual – short, immersion depth up to 148 mm Kit 472D short, manual	71026652
	Retractable pipe for gel electrodes 225 mm For assembly version: – pneumatic – short, immersion depth up to 148 mm Kit 472D short, pneumatic	71026653
2, 8	Exhaust air restrictor (pos. 2) and SS 1.4404 (AISI 316L) dummy plug (pos. 8) For assembly version: – manual 5 pieces each	51503732
3	G1/8 pneumatic elbow connections , material: stainless steel For assembly version: – pneumatic 2 pieces	71027935
4	Stop bolt with handle	51503731
5	PA cylinder 1.4404 with cylinder head For assembly version: – short, immersion depth up to 148 mm	71026658
6	Set of seals, not in contact with medium FPM (Viton)	71024454
7	Sensor holder, material: PEEK For assembly version: – long, immersion depth up to 280 mm	71026659
	Sensor holder, material: PVDF For assembly version: – long, immersion depth up to 280 mm	71026660
	Sensor holder, material: PVDF conductive For assembly version: – long, immersion depth up to 280 mm	71026661
	Sensor holder, material: Hastelloy C4 For assembly version: – long, immersion depth up to 280 mm	71026662
	Sensor holder, material: titanium For assembly version: – long, immersion depth up to 280 mm	71026663
	Sensor holder, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – long, immersion depth up to 280 mm	71026664

Position	Description and kit content	Spare part kit order no.
7	Sensor holder, material: PEEK For assembly version: – short, immersion depth up to 148 mm	71026665
	Sensor holder, material: PVDF For assembly version: – short, immersion depth up to 148 mm	71026666
	Sensor holder, material: PVDF conductive For assembly version: – short, immersion depth up to 148 mm	71026667
	Sensor holder, material: Hastelloy C4 For assembly version: – short, immersion depth up to 148 mm	71026669
	Sensor holder, material: titanium For assembly version: – short, immersion depth up to 148 mm	71026670
	Sensor holder, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – short, immersion depth up to 148 mm	71026671
9	Rinse chamber, complete, G1¼ internal thread, material: Hastelloy C4 For assembly version: – process connection: internal thread G1¼ – without rinse fittings	71026755
	Rinse chamber, complete, G1¼ internal thread, material: titanium For assembly version: – process connection: internal thread G1¼ – without rinse fittings	71026756
	Rinse chamber, complete, G1¼ internal thread, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – process connection: internal thread G1¼ – without rinse fittings	71026757
	Rinse chamber, complete, G1¼ internal thread, material: Hastelloy C4 For assembly version: – process connection: internal thread G1¼ – with rinse fittings G¼	71026759
	Rinse chamber, complete, G1¼ internal thread, material: titanium For assembly version: – process connection: internal thread G1¼ – with rinse fittings G¼	71026760
	Rinse chamber, complete, G1¼ internal thread, material: stainless steel 1.4571 For assembly version: – process connection: internal thread G1¼ – with rinse fittings G¼	71026762
	Rinse chamber, complete, G1¼ internal thread, material: Hastelloy C4 For assembly version: – process connection: internal thread G1¼ – with rinse fittings NPT ¼"	71026763
	Rinse chamber, complete, G1¼ internal thread, material: titanium For assembly version: – process connection: internal thread G1¼ – with rinse fittings NPT ¼"	71026764

Position	Description and kit content	Spare part kit order no.
9	Rinse chamber, complete, G1¼ internal thread, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – process connection: internal thread G1¼ – with rinse fittings NPT ¼"	71026765
10	Set of seals, in contact with medium FPM (Viton), for flange version	71024242
	Set of seals, in contact with medium FPM (Viton), for G1¼ version	71024299
	Set of seals, in contact with medium Kalrez, for flange version	71024247
	Set of seals, in contact with medium Kalrez, for G1¼ version	71024302
11	M12x1 stopper For assembly version: – pneumatic, without limit position switch 10 pieces	51503733
12	Set of pneumatic limit position switches For assembly version: – pneumatic 2 pieces	51502874
13	Set of electric limit position switches, Ex and Non-Ex For assembly version: – pneumatic 2 pieces	51502873
15	M6x70 screws, DIN 69612 A-4/2, 20 pieces	71026789
16	Retractable pipe for 360 mm (14.2") liquid KCl electrodes For assembly version: – pneumatic – short, immersion depth up to 148 mm Kit 472D short, pneumatic	71026655
	Retractable pipe for 360 mm (14.2") liquid KCl electrodes For assembly version: – manual – short, immersion depth up to 148 mm Kit 472D short, manual	71026654
17	M6x45 screws, DIN 69612 A-4/3 20 pieces	51503738
19	PA cylinder stainless steel 1.4404 (AISI 316 L) with cylinder head For assembly version: – long, immersion depth up to 280 mm	71026656

Position	Description and kit content	Spare part kit order no.
20	Rinse chamber complete, material: PEEK For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – without rinse fittings	71026672
	Rinse chamber complete, material: PVDF For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – without rinse fittings	71026673
	Rinse chamber complete, material: conductive PVDF For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – without rinse fittings	71026674
	Rinse chamber complete, material: Hastelloy C4 For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – without rinse fittings	71026675
	Rinse chamber complete, material: titanium For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – without rinse fittings	71026676
	Rinse chamber complete, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – without rinse fittings	71026677
20	Rinse chamber complete, material: PEEK For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with G $\frac{1}{4}$ rinse fittings	71026679
	Rinse chamber complete, material: PVDF For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with G $\frac{1}{4}$ rinse fittings	71026680
	Rinse chamber complete, material: conductive PVDF For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with G $\frac{1}{4}$ rinse fittings	71026681
	Rinse chamber complete, material: Hastelloy C4 For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with G $\frac{1}{4}$ rinse fittings	71026682
	Rinse chamber complete, material: titanium For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with G $\frac{1}{4}$ rinse fittings	71026695
	Rinse chamber complete, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with G $\frac{1}{4}$ rinse fittings	71026696

Position	Description and kit content	Spare part kit order no.
20	Rinse chamber complete, material: PEEK For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with NPT ¼" rinse fittings	71026697
	Rinse chamber complete, material: PVDF For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with NPT ¼" rinse fittings	71026698
	Rinse chamber complete, material: conductive PVDF For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with NPT ¼" rinse fittings	71026699
	Rinse chamber complete, material: Hastelloy C4 For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with NPT ¼" rinse fittings	71026700
	Rinse chamber complete, material: titanium For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with NPT ¼" rinse fittings	71026702
	Rinse chamber complete, material: stainless steel 1.4571 (AISI 316 Ti) For assembly version: – process connection: flange DN 50 / DN 80 / ANSI – with NPT ¼" rinse fittings	71026704
21	Rinse connection nozzle G ¼, Hastelloy C4, Swagelok	71026794
	Rinse connection nozzle G ¼, titanium, Swagelok	71026795
	Rinse connection nozzle G ¼, stainless steel 1.4571 (AISI 316 Ti), Swagelok	71026796
22	Raised face, PEEK, for DN 50 and ANSI 2"	71026766
	Raised face, PVDF, for DN 50 and ANSI 2"	71026767
	Raised face, conductive PVDF, for DN 50 and ANSI 2"	71026768
	Raised face, Hastelloy C4, for DN 50 and ANSI 2"	71026770
	Raised face, titanium, for DN 50 and ANSI 2"	71026771
	Raised face, stainless steel 1.4571 (AISI 316 Ti), for DN 50 and ANSI 2"	71026772
	Raised face, PEEK, for DN 80	71026781
	Raised face, PVDF, for DN 80	71026783
	Raised face, conductive PVDF, for DN 80	71026784
	Raised face, Hastelloy C4, for DN 80	71026785
	Raised face, titanium, for DN 80	71026786
Raised face, stainless steel 1.4571 (AISI 316 Ti), for DN 80	71026787	
23	Flange DN 50	71026774
	Flange DN 80	71026775
	Flange ANSI 2"	71026776

7.3 Return

If the assembly has to be repaired, please return it *cleaned* to the sales center responsible. Please use the original packaging, if possible.

Please enclose the completed "Declaration of contamination" (copy the second last page of these Operating Instructions) with the packaging and the transportation documents. No repair without completed "Declaration of contamination"!

7.4 Disposal

Remove electronic components, e.g. electric limit position switches. Dispose of these components in accordance with regulations on the disposal of electronic waste.

You have to separately dispose of pressure cylinder, sensor holder and other components according to their material.

Please observe local regulations.

8 Technical data

8.1 Environment

Ambient temperature	Ambient temperature not below 0 °C (32 °F). The maximum permissible temperature for electric limit position switches (NAMUR type) is 90 °C (194 °F).
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8.2 Process

Process temperature range	0 to 140 °C (32 to 284 °F)
Process pressure	0 to max. 4 bar (0 to max. 58 psi) overpressure for manual actuation 0 to 10 bar (0 to 145 psi) overpressure for pneumatic actuation

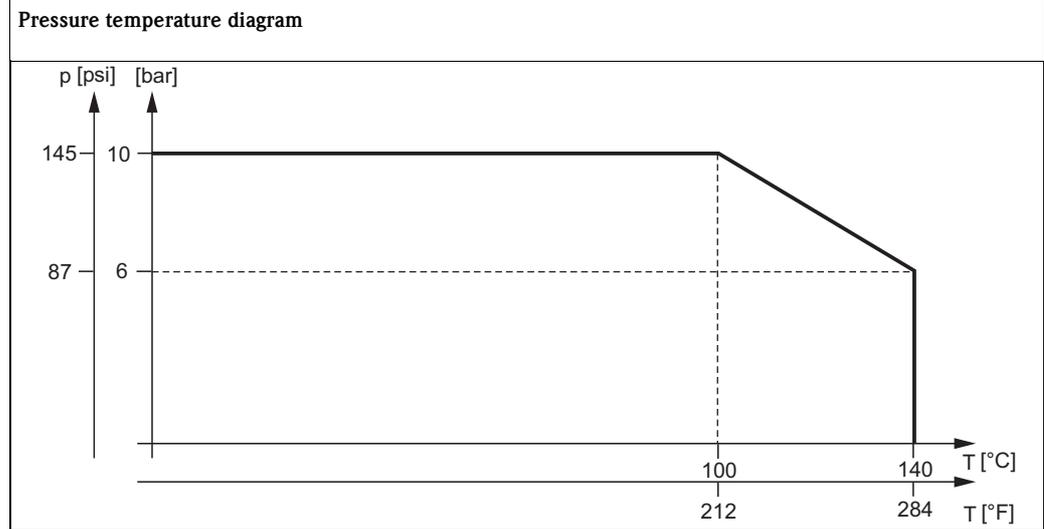


Fig. 24: Pressure temperature diagram

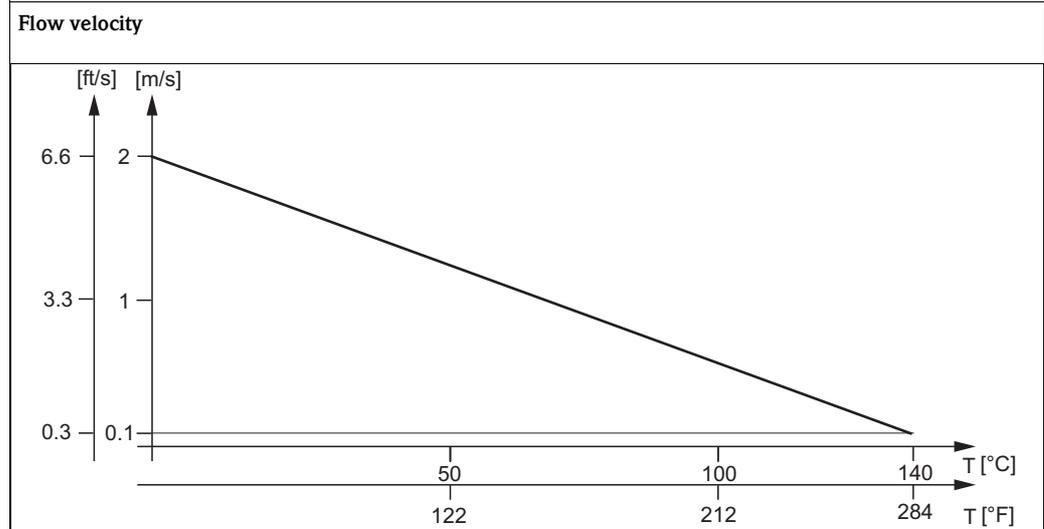


Fig. 25: Permissible medium velocity in m/s (ft/s) depending on the medium temperature in °C (°F)



Note!
To prevent measurable electric potential at the electrode, the medium velocity should not exceed 2 m/s (6.6 ft/s).

8.3 Mechanical construction

Design, dimensions	see chapter "Installation"	
Weight	Depending on the material: 7.5 to 12.0 kg (16.54 to 26.46 lbs)	
Material (in contact with medium)	Electrode holder Rinse chamber and raised face Seals	PEEK, PVDF, conductive PVDF, Hastelloy C4, titanium, stainless steel 1.4571 (AISI 316 Ti) PEEK, PVDF, conductive PVDF, Hastelloy C4, titanium, stainless steel 1.4571 (AISI 316 Ti) FPM (Viton)/FFKM (Kalrez®)
Material (not in contact with medium)	Housing Seals Limit position switches (NAMUR-type)	Stainless steel 1.4404 (AISI 316 L) FPM Front surface PBT, cable PVC
Rinse fittings	2 x G $\frac{1}{4}$ " (internal) or 2 x NPT $\frac{1}{4}$ " (internal) or 2 x pipe 8 x 60 Swagelok as nozzle	

Index

A

Assembly	
Cleaning	22

C

Checking	
Installation	19
Cleaning	
Agents	23
Assembly	22
Sensor	22
Commissioning	4, 20
Connection	
Electric limit position switches	15
Pneumatic	13
Pneumatic limit position switches	14
Rinse water	15

D

Designated use	4
Dimensions	10
Dirt trap	25
Disposal	35

E

Environment	36
-------------	----

G

Gel sensors	17
-------------	----

I

Icons	5
Immersion depth	9
Incoming acceptance	8
Installation	4, 8, 12
Immersion depth	9
ISFET sensor	8

L

Liquid KCl sensor	18
-------------------	----

M

Maintenance	22
Manual operation	21
Measuring	21
Measuring system	12
Mechanical construction	37

N

Nameplate	6
-----------	---

O

Operating elements	20
Operation	4
Manually	21
Pneumatically	21
Operational safety	4
Ordering information	7

P

Parts	
Replacing	28
Pneumatic connection	13
Pneumatic operation	21
Pneumatic throttle	13
Pressure reducer	25
Pressure surges	13
Process	36
Process connection	11
Product structure	7

R

Replacing	
Parts	28
Retractable pipe	16
Return	4, 35
Rinse water connection	15

S

Safety icons	5
Scope of delivery	6
Seals replacement	23
Sensor	
Cleaning	22
Sensor holder	16
Service	21
Spare parts	29
Splash protection cap	16
Stop lock bolt	16, 20
Storage	8
Symbols	5

T

Transport	8
-----------	---

U

Use	4
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W

Wall spacing	9
Water filter	25

Declaration of Hazardous Material and De-Contamination *Erklärung zur Kontamination und Reinigung*

RA No.

Please reference the Return Authorization Number (RA#), obtained from Endress+Hauser, on all paperwork and mark the RA# clearly on the outside of the box. If this procedure is not followed, it may result in the refusal of the package at our facility.
Bitte geben Sie die von E+H mitgeteilte Rücklieferungsnummer (RA#) auf allen Lieferpapieren an und vermerken Sie diese auch außen auf der Verpackung. Nichtbeachtung dieser Anweisung führt zur Ablehnung ihrer Lieferung.

Because of legal regulations and for the safety of our employees and operating equipment, we need the "Declaration of Hazardous Material and De-Contamination", with your signature, before your order can be handled. Please make absolutely sure to attach it to the outside of the packaging.
Aufgrund der gesetzlichen Vorschriften und zum Schutz unserer Mitarbeiter und Betriebseinrichtungen, benötigen wir die unterschriebene "Erklärung zur Kontamination und Reinigung", bevor Ihr Auftrag bearbeitet werden kann. Bringen Sie diese unbedingt außen an der Verpackung an.

Type of instrument / sensor **Serial number**
Geräte-/Sensortyp _____ *Seriennummer* _____

Used as SIL device in a Safety Instrumented System / Einsatz als SIL Gerät in Schutzeinrichtungen

Process data / Prozessdaten Temperature / *Temperatur* _____ [°C] Pressure / *Druck* _____ [Pa]
Conductivity / *Leitfähigkeit* _____ [S] Viscosity / *Viskosität* _____ [mm²/s]

Medium and warnings
Warnhinweise zum Medium



	Medium /concentration <i>Medium /Konzentration</i>	Identification CAS No.	flammable <i>entzündlich</i>	toxic <i>giftig</i>	corrosive <i>ätzend</i>	harmful/ irritant <i>gesundheitsschädlich/ reizend</i>	other * <i>sonstiges*</i>	harmless <i>unbedenklich</i>
Process medium <i>Medium im Prozess</i>								
Medium for process cleaning <i>Medium zur Prozessreinigung</i>								
Returned part cleaned with <i>Medium zur Endreinigung</i>								

* explosive; oxidising; dangerous for the environment; biological risk; radioactive
* *explosiv; brandfördernd; umweltgefährlich; biogefährlich; radioaktiv*

Please tick should one of the above be applicable, include safety data sheet and, if necessary, special handling instructions.
Zutreffendes ankreuzen; trifft einer der Warnhinweise zu, Sicherheitsdatenblatt und ggf. spezielle Handhabungsvorschriften beilegen.

Description of failure / Fehlerbeschreibung _____

Company data / Angaben zum Absender

Company / <i>Firma</i> _____	Phone number of contact person / <i>Telefon-Nr. Ansprechpartner:</i> _____
Address / <i>Adresse</i> _____	Fax / E-Mail _____
	Your order No. / <i>Ihre Auftragsnr.</i> _____

"We hereby certify that this declaration is filled out truthfully and completely to the best of our knowledge. We further certify that the returned parts have been carefully cleaned. To the best of our knowledge they are free of any residues in dangerous quantities."
"Wir bestätigen, die vorliegende Erklärung nach unserem besten Wissen wahrheitsgetreu und vollständig ausgefüllt zu haben. Wir bestätigen weiter, dass die zurückgesandten Teile sorgfältig gereinigt wurden und nach unserem besten Wissen frei von Rückständen in gefahrbringender Menge sind."

(place, date / *Ort, Datum*) _____ Name, dept./*Abt.* (please print / *bitte Druckschrift*) _____ Signature / *Unterschrift*

www.endress.com/worldwide

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People for Process Automation

