

Flow fittings

ⒼⒷ Installation and operating instructions

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1. General

This instruction manual contains all important information for the operation of the flow fittings:

- Technical data
- Instructions for commissioning, operating and maintenance
- Safety information

Should you require further information, or should problems occur which are not handled in sufficient depth in this instruction manual, please contact Grundfos Alldos directly. We will be pleased to support you with our comprehensive measurement and control technology know-how as well as our water treatment expertise.

Please do not hesitate to contact us if you have any suggestions on how we can make our instruction manual even more user-friendly.

1.1 Warranty

A warranty claim in the sense of our general conditions of sale and delivery can only be recognised if:

- The device is used according to the information in this instruction manual,
- The device is not opened or handled incorrectly in any manner,
- Repairs are only carried out by authorised and qualified personnel,
- Only original spare parts are used for repairs,
- Only components approved by Grundfos Alldos are used throughout the entire system.

Typical parts subject to wear are excluded from the guarantee, e.g.

- Gaskets, O-rings

2. Safety information

The Grundfos Alldos flow fittings are used for the installation of pH and redox single-rod electrodes within the scope of the possible uses described in this instruction manual.



Warning

Other applications are classed as non-approved, and are not permissible. Grundfos Alldos accepts no liability for any damage resulting from incorrect use.

2.1 Obligations on the part of the operator

The operator of the system is responsible for

- Compliance with country-specific safety regulations
- Training of operating personnel
- Provision of prescribed protective gear
- Arranging regular maintenance
- Avoidance of danger



Warning

The device and associated additional components should only be installed and connected by qualified personnel
Observe the local safety regulations

2.2 Recognising warning signs

The safety instructions Warning, Caution and Note have the following meanings:



Warning

Risk of accidents and injury

Caution

Risk of malfunction or damage to the device

Note

There is an exceptional feature.

3. Flow fitting 96609169 (322-001)

3.1 Technical data

Ambient temperature	+10 °C to +50 °C
Operating temperature	max. 50 °C
Operating pressure	max. 10 bar
Number of electrodes	1
Length of electrodes	120 mm
Required cross-section	DN 20
Weight	approximately 0.2 kg
Material	PVC

3.2 Dimensions

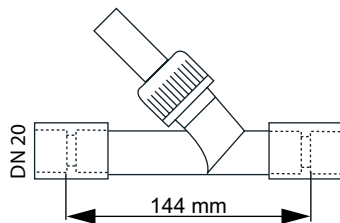


Fig. 1 Dimensional drawing of flow fitting

4. Installation

4.1 Transport and Storage

- Transport the unit carefully. Never throw it.
- Store in a cool, dry location.

4.2 Assembly



Warning

The flow fitting must be depressurised before assembly or disassembly.

Depending on the application, any fluids that may escape may be corrosive.

4.2.1 Installing the fitting

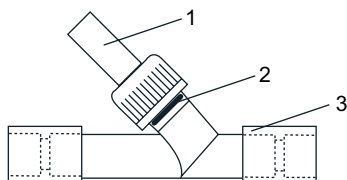


Fig. 2 Assembly drawing of the flow fitting

No.	Description
1	Pg 13.5 electrode support
2	O-ring
3	DN 20 adhesive joint

4.2.2 Installing the electrodes

Only those electrodes that fulfil the following prerequisites may be installed:

- Pg 13.6 threaded plug head
- 120 mm shaft length
- 12 mm shaft diameter

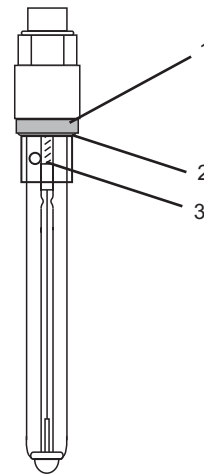


Fig. 3 Preparing the electrodes

No.	Description
1	Thrust collar
2	O-ring
3	Lock

1. Remove the protective cap on the electrode.
2. Ensure that the O-ring (2), thrust collar (1) and lock (3) are present on the electrode shaft.
3. Screw the electrode into the flow fitting by hand.

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TM04 1207 0908

TM04 1208 0908

5. Flow fitting 95701690 (322-010.1) (quick-change fitting)

The quick-change fitting, which can be operated manually, allows the installation and removal of the electrode under process conditions, i. e. without interrupting the affected circuit or main current.

Typical applications:

- Measurements in closed liquid circuits, e. g. pH measurement in cooling and waste-water plants,
- Measurements in closed containers and tanks,
- pH final check in the outflow, in cases where a bypass is not possible.

5.1 Technical data

Temperature range	-30 °C to +135 °C *)
Degree of protection	IP 65
Operating pressure	max. 10 bar
Number of electrodes	1
Length of electrodes	120 mm
Connection	Screw-in thread G3/4
Weight	approximately 1.2 kg
Materials	Stainless steel 1.4571, FPM (Viton®)

*) The temperature is dependent on the sensor used.

5.2 Dimensions

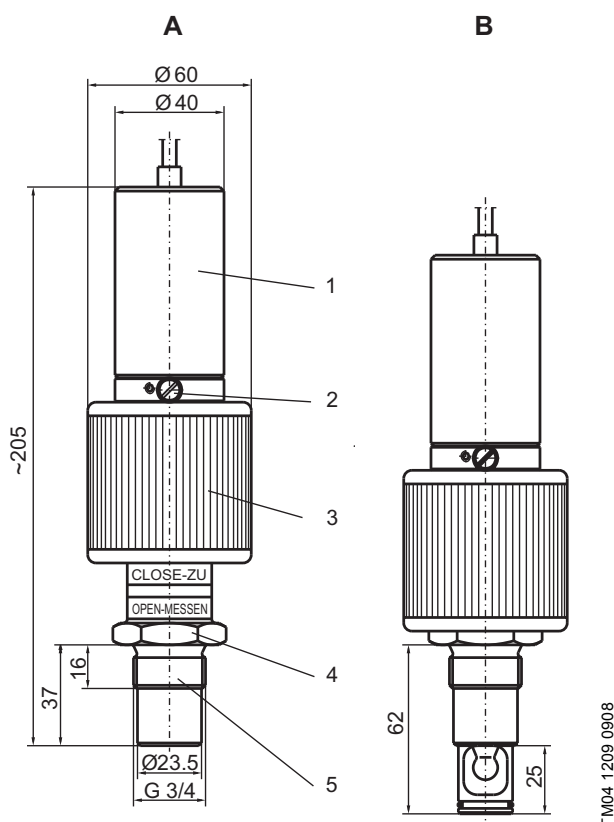


Fig. 4 Dimensional drawing of the quick-change fitting

No.	Description
A	Position: "Service, install / remove sensor"
B	Position: "Measurement"
1	Protective cap PP
2	Earthing screw
3	Union nut PP (adjustable)
4	36 mm hexagon-head screw
5	Connection VA

5.3 Installation

5.3.1 Transport and Storage

- Transport the unit carefully. Never throw it.
- Store in a cool, dry location.

5.3.2 Installing the fitting



Warning

The quick-change fitting must be depressurised before assembly or disassembly.

Depending on the application, any fluids that may escape may be corrosive.

- The operating location is generally unrestricted, but depends on the individual electrode.
- Depending on the installation, it may be necessary to earth the quick-change fitting. Earthing screws, see Chapter 5.2 Dimensions.

Installation example:

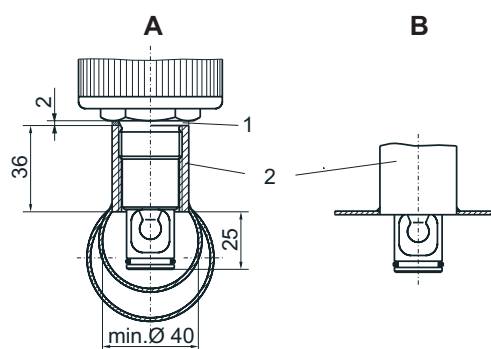


Fig. 5 Installing the electrodes

No.	Description
A	Installation in pipework
B	Installation in a tank
1	Gasket (not included in delivery)
2	DIN 2986-3/4 socket

5.3.3 Positioning the sensor pocket in the pipework

For numbering, see Fig. 6 Aligning the quick-change fitting

- Unscrew or remove the protective cap (1).
- Slacken the grub screw (2) using a 2mm hexagon socket wrench (included in delivery), remove the ring (3).
- Unscrew union nut (4) by hand.
- Slacken the grub screw (6) in the adjusting ring (7) using a 2mm hexagon socket wrench.
- Align the electrode pocket (5) parallel to the flow system (see surface marking 8).
- Assemble the quick-change fitting in the reverse order.

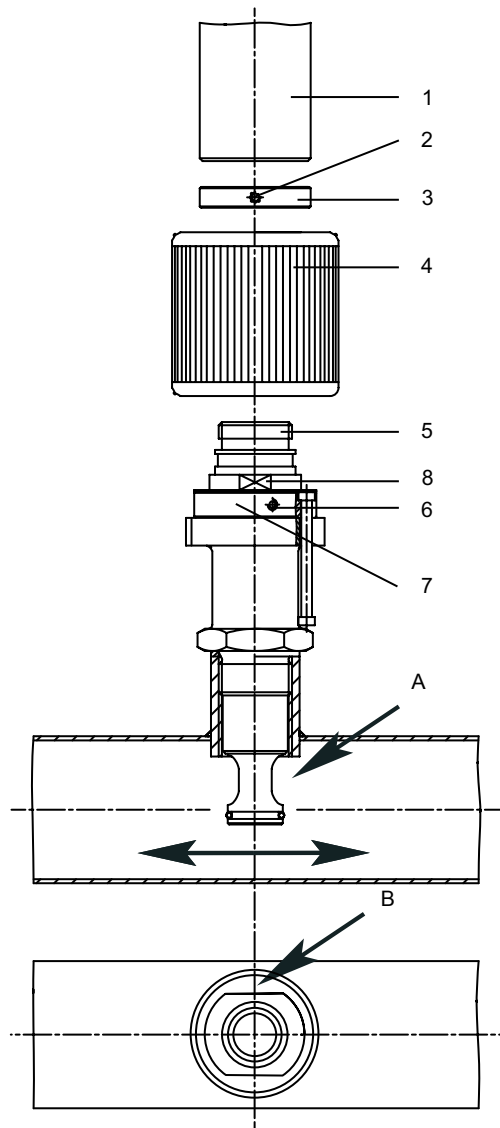


Fig. 6 Aligning the quick-change fitting

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No.	Description
A	Opening in flow direction, for correct measurements
B	Surface marking (8) parallel to flow direction in pipework system
1	Protective cap
2	Grub screw
3	Ring
4	Union nut
5	Electrode pocket
6	Grub screw
7	Adjusting ring
8	Surface marking

5.4 Function / operation

- Turning the union nut (X) moves the sensor within the quick-change fitting.

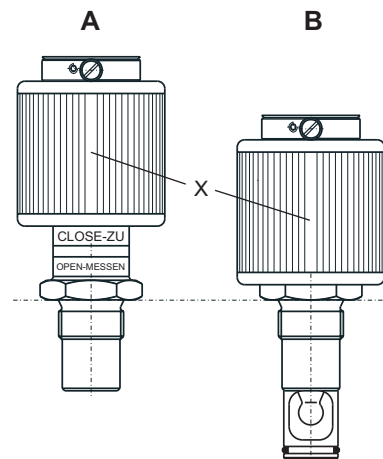


Fig. 7 Turning the fitting

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No. Description

- | | |
|---|---|
| A | "CLOSE - ZU" position for service, installing / removing sensor |
| B | "OPEN - MESSEN" position for measurement |
| X | Union nut |

5.4.1 Installing / removing an electrode

Only those electrodes that fulfil the following prerequisites may be installed:

- Pg 13.6 threaded plug head
- 120 mm shaft length
- 12 mm shaft diameter

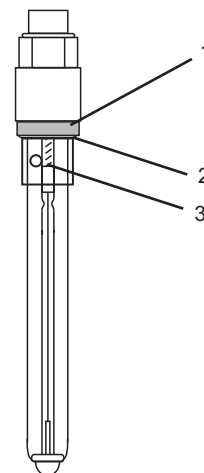


Fig. 8 Preparing the electrodes

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No. Description

- | | |
|---|---------------|
| 1 | Thrust collar |
| 2 | O-ring |
| 3 | Lock |

1. Turn the union nut (X) to the right up to the stop.
2. When the marking "CLOSE - ZU" becomes visible when looking at the quick-change fitting from the side, the electrode can be installed or removed. See Fig. Z, position A.

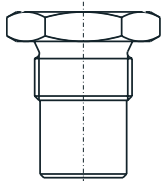


Fig. 9 Position: "CLOSE - ZU"

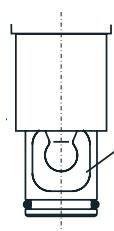
3. Remove the protective cap on the electrode.
4. Ensure that the O-ring (2), thrust collar (1) and lock (3) are present on the electrode shaft.
5. Screw the electrode into the quick-change fitting by hand.

Take all the necessary precautions when removing the sensor.

If the union nut can only be moved by using considerable force or the end stop cannot be reached (marking "CLOSE - ZU" not wholly visible), there may be blockages or dirt deposits on the electrode or the protective basket. The pipework system must be locked or depressurised or the container must be emptied to below the installation level of the fitting. The fitting must then be completely removed and serviced.

Caution

5.4.2 Measurement mode



Protective basket

Fig. 10 Position: "OPEN - MESSEN"

1. Turn the union nut (X) to the left up to the stop.
2. The protective basket of the fitting is immersed in the liquid together with the sensor.
3. With correct and unimpeded immersion of the protective basket, the marking "OPEN - MESSEN" below the union nut X will disappear. See Fig. Z, position B.

6. Maintenance



Warning

All settings and maintenance work on the quick-change fitting may only be performed in a depressurised condition.

- Depending on the application (temperature / pressure requirements, contamination and frequency of operation), a maintenance interval must be scheduled. This involves servicing the moving parts of the quick-change fitting as described below.

Spare parts: Replacement O-rings are included in delivery. Suitable are: FPM (Viton®) O-rings 25 x 2 and 16 x 2.

Procedure:

For numbering, see Fig. 11 Maintenance

1. Unscrew or remove the protective cap (1).
2. Slacken the grub screw (2) using a 2mm hexagon socket wrench (included in delivery), remove the ring (3).
3. Unscrew the union nut (4) by hand.
4. Slacken the grub screw (6) in the adjusting ring (7) using a 2mm hexagon socket wrench.
5. Remove the locking pin (9).
6. Pull out the electrode pocket (5) from the screw-in pocket (11) (see surface marking 8).
7. Clean the electrode pocket (5) and screw-in pocket (11).
8. Check the O-rings (10) and replace if necessary (accessory).
9. Grease the O-rings before fitting.

Caution

Always use suitable greases, e. g. Vaseline, acid-free greases, silicone oil.

Check compatibility with the solution.

10. Assemble the quick-change fitting in the reverse order.

During assembly make sure you:

Caution

- Fit the locking pin (9).
- Screw in the grub screws (2) and (6).

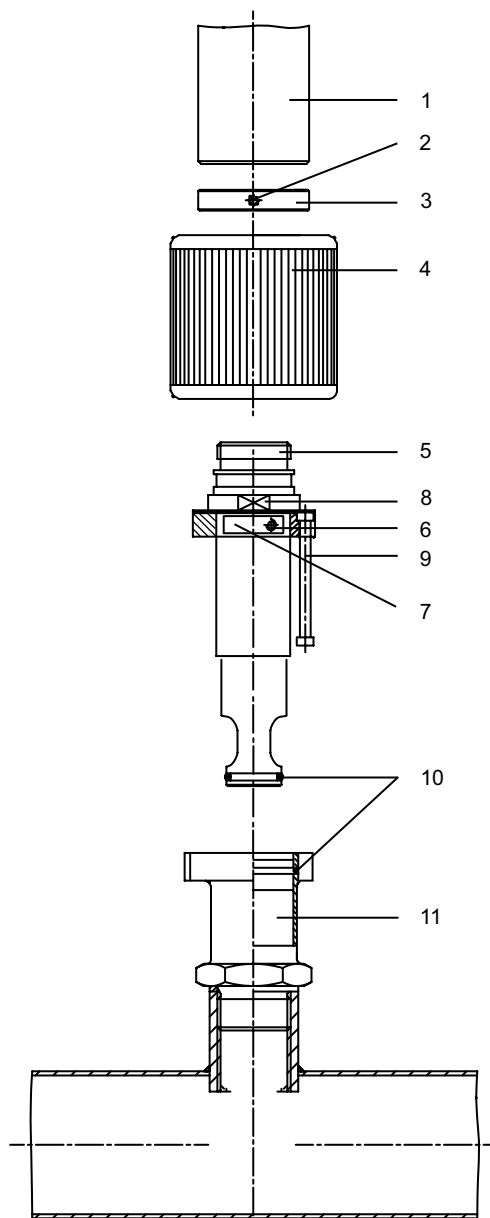


Fig. 11 Maintenance

No.	Description
1	Protective cap
2	Grub screw
3	Ring
4	Union nut
5	Electrode pocket
6	Grub screw
7	Adjusting ring
8	Surface marking
9	Locking pin
10	O-rings
11	Screw-in pocket

7. Accessories

7.1 Impedance converter

- Mains independent,
- Subsequent assembly possible,
- Allows the option of longer line lengths,
- Signal stabilising.
- Order no: 95704730 (336-312)

7.2 Electrodes

Order no.	Description
96609158 (312-100)	pH electrode with ceramic diaphragm
96609159 (312-103)	pH electrode with PTFE diaphragm
96609161 (312-106)	pH electrode with hole diaphragm
96609162 (313-100)	Redox electrode with ceramic diaphragm
96609163 (313-103)	Redox electrode with PTFE diaphragm

7.3 Buffer solutions

Order no.	Description
96609165 (549-050)	Set of 3 pH buffer solutions (pH 4.01; pH 7.00; pH 9.18)
96609166 (549-051)	Redox buffer solution (220 mV)
96688696 (549-052)	3-molar KCl solution for storing electrodes

7.4 Cables

Order no.	Description
96609182 (321-252)	1m coaxial cable for connecting pH and redox electrodes to an N plug
96609183 (321-250)	3m coaxial cable for connecting pH and redox electrodes to an N plug
96701441 (321-250/10)	10m coaxial cable for connecting pH and redox electrodes to an N plug
95703576 (321-250/25)	25m coaxial cable for connecting pH and redox electrodes to an N plug

8. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use appropriate waste collection services.
2. If this is not possible, contact the nearest Grundfos or Grundfos Alldos company or service workshop.

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