

Immersion Fittings

Type 202820/40...

Type 202820/63...



B 202820.0 Operating Instructions

1	Safety information	5
2	General	7
3	Instrument identification	9
3.1	Type 202820/40... ..	9
3.2	Type 202820/63... ..	9
3.3	Order details	10
3.4	Accessories	10
4	Technical data	11
4.1	Type 202820/40... ..	11
4.2	Type 202820/63... ..	11
4.3	Dimensions	12
5	Mounting	13
5.1	Type 202820/40... ..	14
5.2	Accessories and spare parts	16
5.2.1	Pipe clips (standard)	16
5.2.2	Flange DN 32	16
5.2.3	Flange DN 50	17
5.2.4	Wetting cup	18
5.2.5	Holder	20
5.3	Type 202820/63... ..	21
5.4	Accessories and spare parts	23
5.4.1	Pipe clips with spacer (standard)	23
5.4.2	Flange DN 50/DN 65	23
5.4.3	Wetting cup	24
5.4.4	KCl reservoir, pressure-tight, with compressed-air connection	25
6	Maintenance – Malfunction	27
6.1	Maintenance	27
6.2	Malfunction	27

Content

1.1 Warning symbols



DANGER!

This symbol indicates that **personal injury caused by electrical shock** may occur if the respective precautionary measures are not carried out.



WARNING!

This symbol in connection with the signal word indicates that **personal injury** may occur if the respective precautionary measures are not carried out.



CAUTION!

This symbol in connection with the signal word indicates that **damage to assets or data loss** will occur if the respective precautionary measures are not taken.

1.2 Note symbols



NOTE!

This symbol refers to **important information** about the product, its handling, or additional use.

1 Safety information

Immersion fittings are used for holding electrochemical sensors (e.g. pH and redox electrodes, glass conductivity cells, compensation thermometers etc.) with a Pg 13.5 screw-in thread and a fitting length of 120 mm.

Fitting types for up to 3 sensors are available.

The fittings are mounted in open sluices or containers. They protect the installed sensor from breaking and enable measurement in different immersion depths. Thanks to various options and accessories, the fittings can be optimally adjusted to the conditions on site. Two pipe clips for wall mounting are provided for the standard versions, but sliding flanges, which are available as an option, also permit installation in container lids, for example.

The following points have to be taken into account

The fittings must be readily accessible, to ensure that the sensor can be cleaned and serviced at regular intervals.

pH and redox electrodes must not be allowed to remain dry for a prolonged period - this can be prevented by using a wetting cup.

The suitability of the materials (e.g. chemical compatibility) has to be tested by the system designer.



CAUTION!

The fitting must not be pressurized via the measured medium.

2 General

3.1 Type 202820/40...

For installing one sensor with a Pg 13.5 thread.



An impedance converter, type 202995/00... (Data sheet 202995), or a two-wire transmitter, type 202701 (Data Sheet 202701) can be incorporated.

3.2 Type 202820/63...

For installing up to 3 sensors with a Pg13.5 thread.



An impedance converter type 202995/00... (Data Sheet 202995), or a two-wire transmitter type 202701 (Data Sheet 202701) can be incorporated.

3 Instrument identification

3.3 Order details

(1) Basic type	
202820	Immersion fitting
(2) Tube diameter	
40	40 mm
63	63 mm
(3) Fitting length	
0500	Length EL = 500 mm
0800	Length EL = 800 mm
1000	Length EL = 1000 mm
1300	Length EL = 1300 mm
1500	Length EL = 1500 mm
2000	Length EL = 2000 mm
(4) Material of wetted components	
87	Polypropylene (PP)
(5) Extra codes	
000	None
055	Grounding rod ¹
078	Spray cleaning head ²
082	KCl reservoir for fittings with diameter 40 mm ^b
092	Flange DN 50 for sprayer ^b

¹ Only for tube diameter 63 mm.

² Only for tube diameter 40 mm.

Order code **(1)** **(2)** **(3)** **(4)** **(5)**
 Order example 202820 - 40 - 1500 - 87 - 082 , ...¹

¹ List extra codes in sequence, separated by commas.

3.4 Accessories

Description	Part no.
Flange DN 32, complete for type 202820/40... ¹	00083375
Flange DN 50, complete for type 202820/40... ^a	00083376
Flange DN 50, complete for type 202820/63...	00056544
Flange DN 65, complete for type 202820/63...	00056545
Wetting cup, complete for type 202820/40...	00083372
Wetting cup, complete for type 202820/63...	00057581
KCl reservoir, pressure-tight	00060254
Shackle for suspended fitting with diameter 40 mm	00453191

¹ Not in conjunction with extra codes 78 or 82.

4.1 Type 202820/40...

Material	Polypropylene (PP), seals FPM (others on request)
Permissible temperature	0 to 95 °C
Safe pressure	1 bar, up to 90 °C
Electrode holder	Pg 13.5 thread
Immersion tube length	Normally 500 mm and 1000 mm, up to 2000 mm can be implemented, standard lengths 500, 800, 1000, 1300, 1500 and 2000 mm
Mounting	Normally with pipe clips, other mounting forms (flange, etc.) are optionally available
Protection	IP65, EN 60529
Weight	Depending on length

4.2 Type 202820/63...

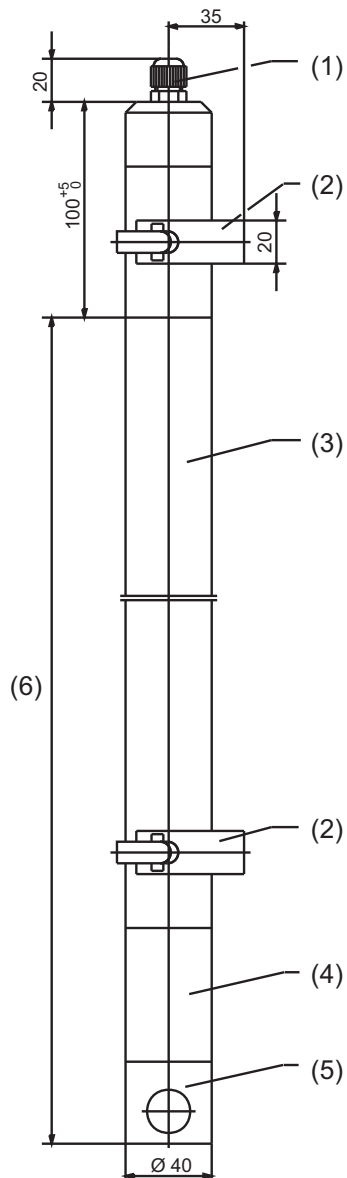
Material	Polypropylene (PP), seals FPM
Permissible temp.	0 to 95 °C
Safe pressure	1 bar, up to 90 °C
Electrode holder	Pg 13.5 threads for 1 to 3 electrodes (blind grommets are included)
Immersion tube length	Ex-stock 500 mm up to 2000 mm can be implemented standard lengths 500, 800, 1000, 1300, 1500 and 2000 mm
Mounting	Normally with pipe clips, other mounting forms (flange, etc.) are optionally available
Protection	IP65, EN 60529
Weight	Depending on length

**NOTE!**

An external KCl reservoir can be used with all immersion fittings.

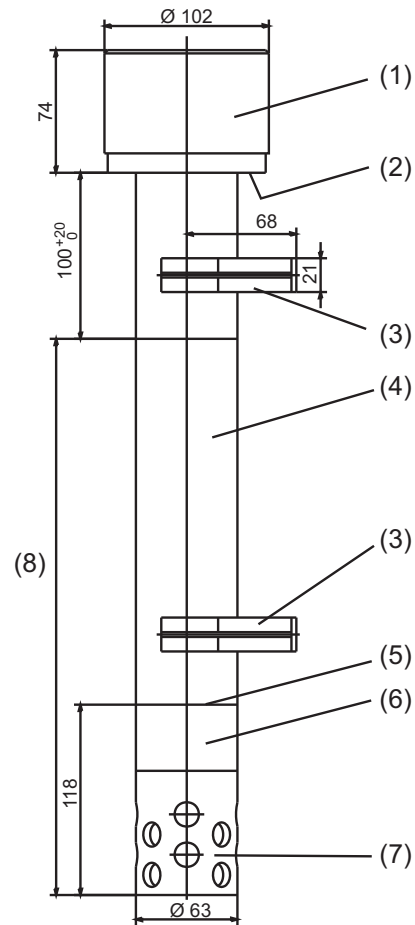
4 Technical data

4.3 Dimensions



Type 202820/40...

- (1) Sealing screw M16 × 1.5 for cable diameter from 5 to 10 mm
- (2) Pipe clip
- (3) Immersion tube
- (4) Electrode holder
- (5) Protection basket
- (6) Immersion length (EL)



Type 202820/63...

- (1) Connection head
- (2) Three Pg 7 glands for cable diameter from 5 to 6 mm
- (3) Pipe clip with spacer
- (4) Immersion tube
- (5) Electrode holder
- (6) Spacer ring
- (7) Protection basket
- (8) Immersion length (EL)

**CAUTION!**

Please make sure that the threads and O-rings are clean, otherwise liquid may leak into the fitting.

**CAUTION!**

When installing a glass electrode, please be aware that the glass membrane is very fragile.

**CAUTION!**

When screwing in the electrodes, only tighten them up to the point where they fit tight. Don't exceed the max. tightening torque (e.g. max. 3 Nm for pH electrodes).

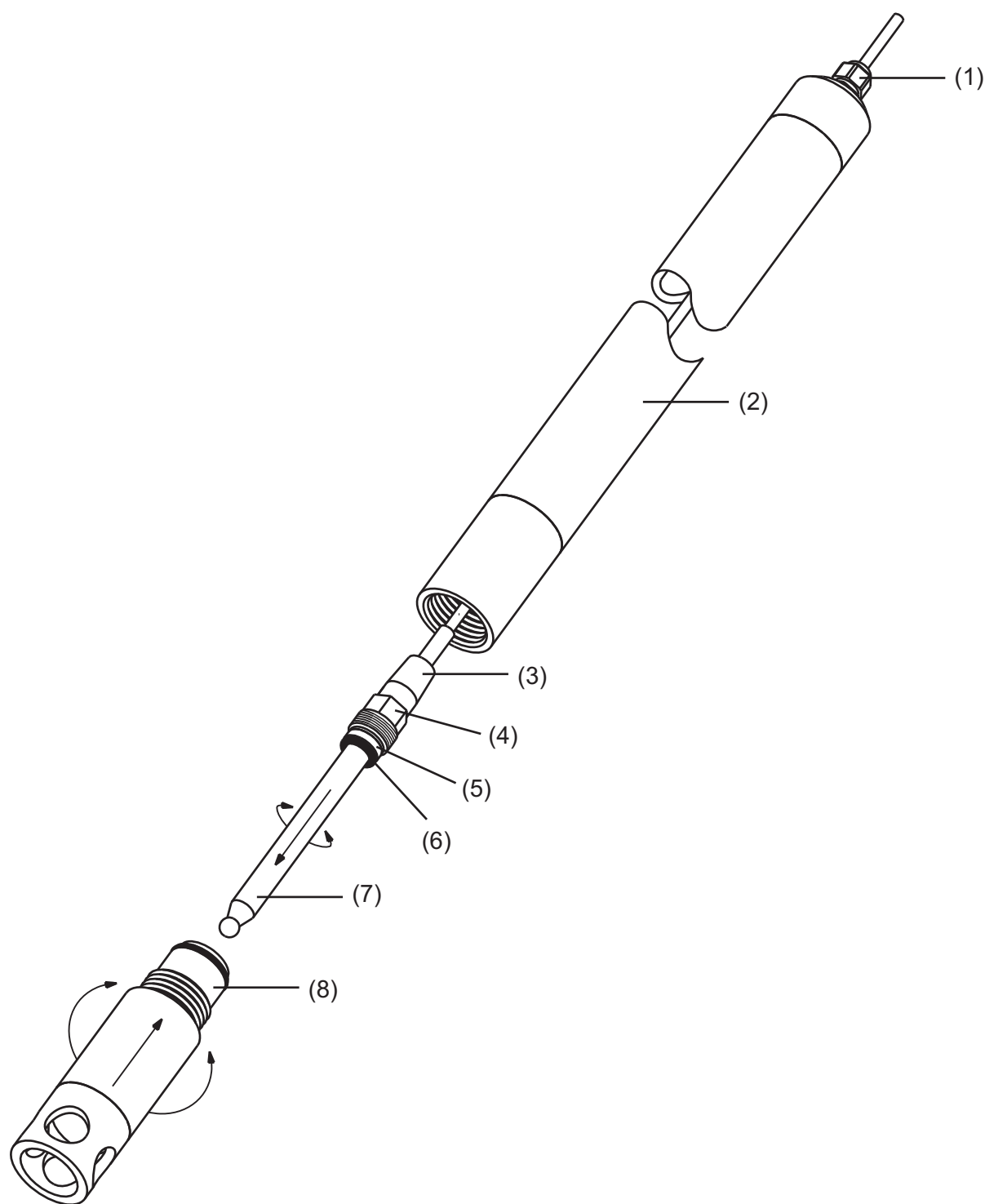
**NOTE!**

An impedance converter (Data sheet 202995) can be mounted between the pH electrode and the N cable connector.

5 Mounting

5.1 Type 202820/40...

Installing the sensor



- (1) Cable gland
- (2) Immersion tube
- (3) N cable connector
- (4) Electrode head

- (5) Washer
- (6) O-ring
- (7) Electrode
- (8) Electrode holder

5 Mounting

Step	Activity
1	Unscrew the electrode holder (8) from the immersion tube (2).
2	Screw sensor into the electrode holder (8).

**Note!**

The washer (5) and the O-ring (6) must be on the electrode (7).
Screw the N cable connector (3) onto the electrode head (4).

Step	Activity
3	Release the cable gland (1).
4	Pass the cable through the immersion tube (2) and the cable gland (1).
5	Screw the electrode holder (8) into the immersion tube (2); tighten the cable gland (1).

5 Mounting

5.2 Accessories and spare parts

5.2.1 Pipe clips (standard)

Mounting

Step	Activity
1	Mount the pipe clips on the tank, spacing them out as appropriate.
2	Snap the fitting into the pipe clips.

Immersion depth of fitting

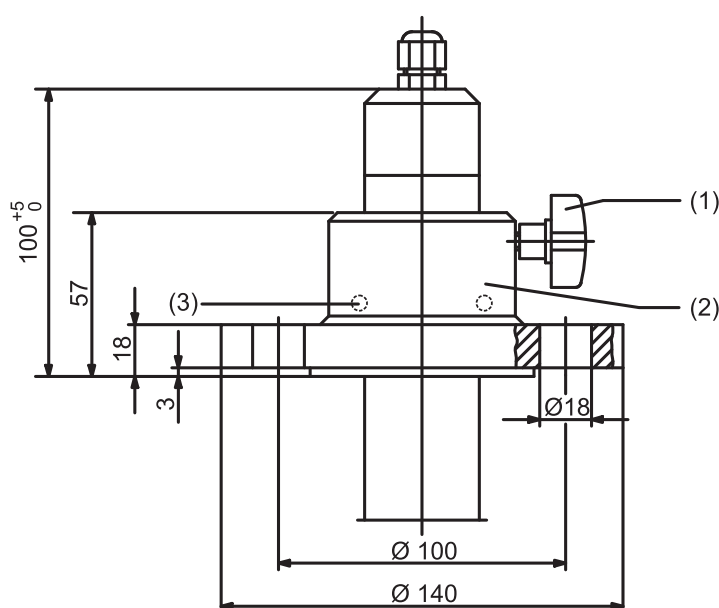


CAUTION!

In order to prevent the ingress of liquid into the fitting, the first 120 mm of the immersion tube (measured from the cable gland) must not be immersed in the liquid to be measured.

5.2.2 Flange DN 32

(Part no. 00083375)



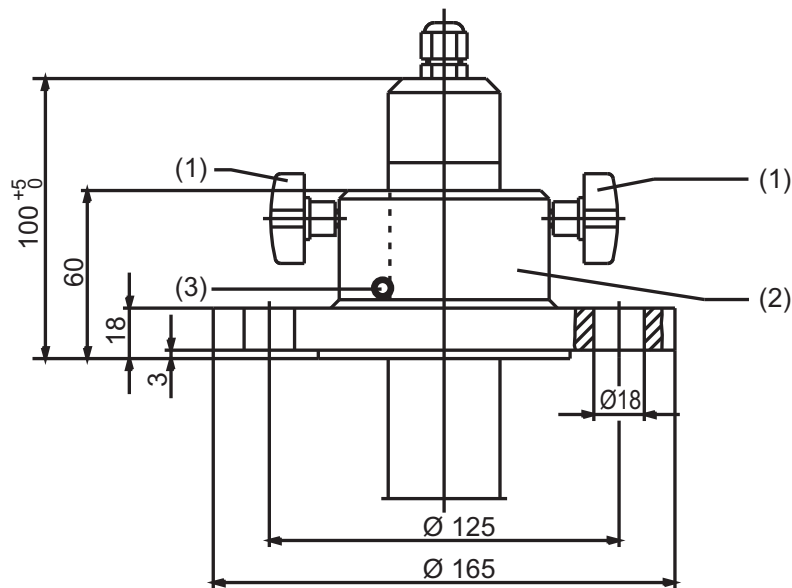
- (1) Fixing screw
- (2) Flange (slidable)
- (3) O-ring

Mounting

Schritt	Tätigkeit
1	Screw the flange onto the tank. If the tank cannot be accessed from the inside, then it is advisable to use fixed studs.

5.2.3 Flange DN 50

(Part no. 00083376)



- (1) Fixing screw
- (2) Flange (slidable)
- (3) O-ring

Montage

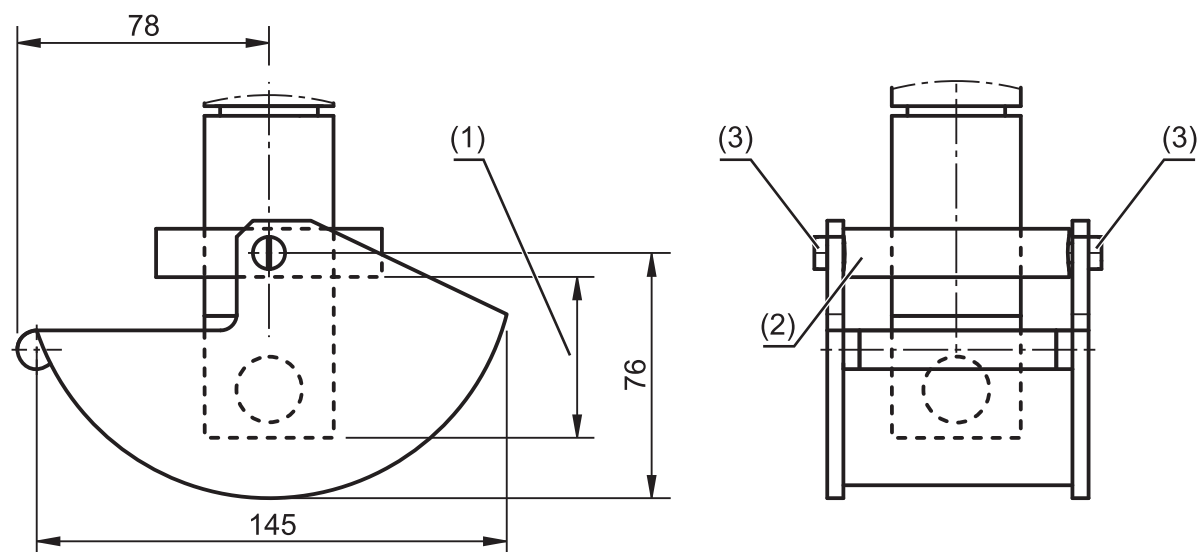
Schritt	Tätigkeit
1	Screw the flange onto the tank. If the tank cannot be accessed from the inside, then it is advisable to use fixed studs.

5 Mounting

5.2.4 Wetting cup

(Part no. 00083372)

Mounting for version without spray cleaning head



- (1) Fitting dimension 50 mm
- (2) Holder
- (3) Screws

Mounting

Step	Activity
1	Release the screws (3).
2	Slide the holder (2) of the wetting cup over the bottom of the immersion fitting.
3	Place the holder (2) to the fitting dimension 50 mm (1).
4	Fix the holder (2) with the screws (3).

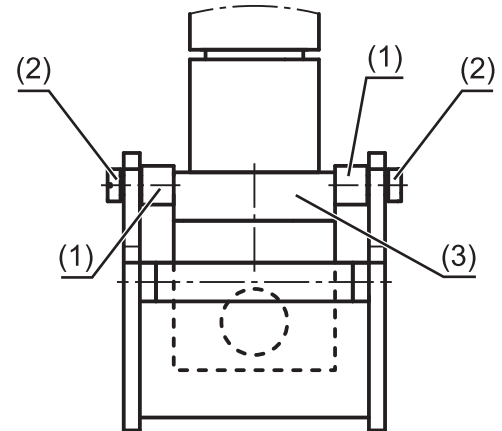
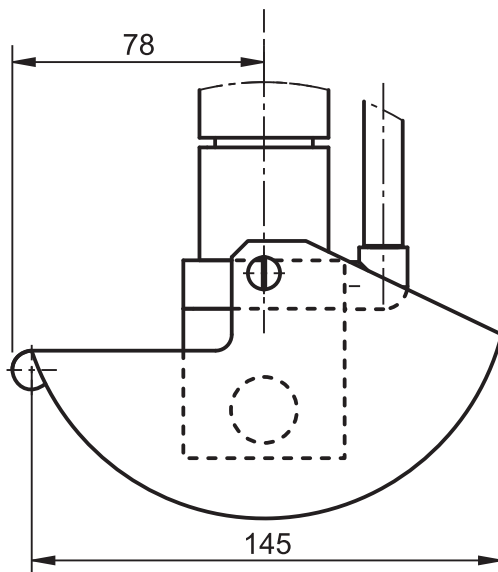


CAUTION!

To ensure the proper functioning of the wetting cup, spacers have to be fitted between the pipe clips and the tank (included in installation kit).

5 Mounting

Mounting for version with spray cleaning head



- (1) Spacer
- (2) Screws
- (3) Nozzle top

Mounting

Step	Activity
1	Place the wetting cup over the bottom end of the immersion fitting.
2	Put the spacers (1) between the upper part of the spray cleaning head (3) and the screw holes of the wetting cup.
3	Pass the screws (2) through the screw holes of the wetting cup and the spacers and screw them into the threaded holes of the spray cleaning head.
4	Tighten the screws.



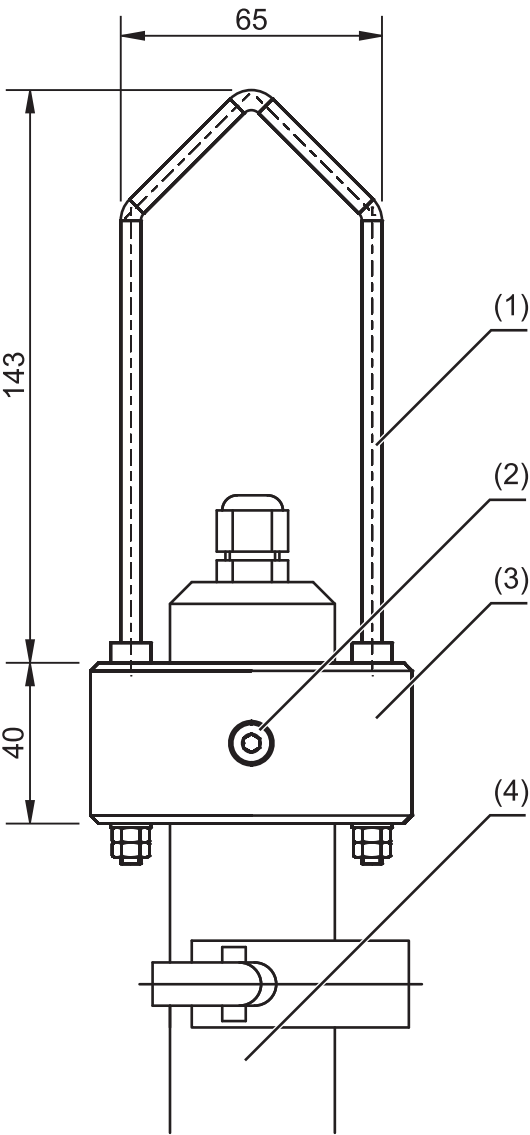
CAUTION!

To ensure the proper functioning of the wetting cup, spacers have to be fitted between the pipe clips and the tank (included in installation kit).

5 Mounting

5.2.5 Holder

(Part no. 00453191)

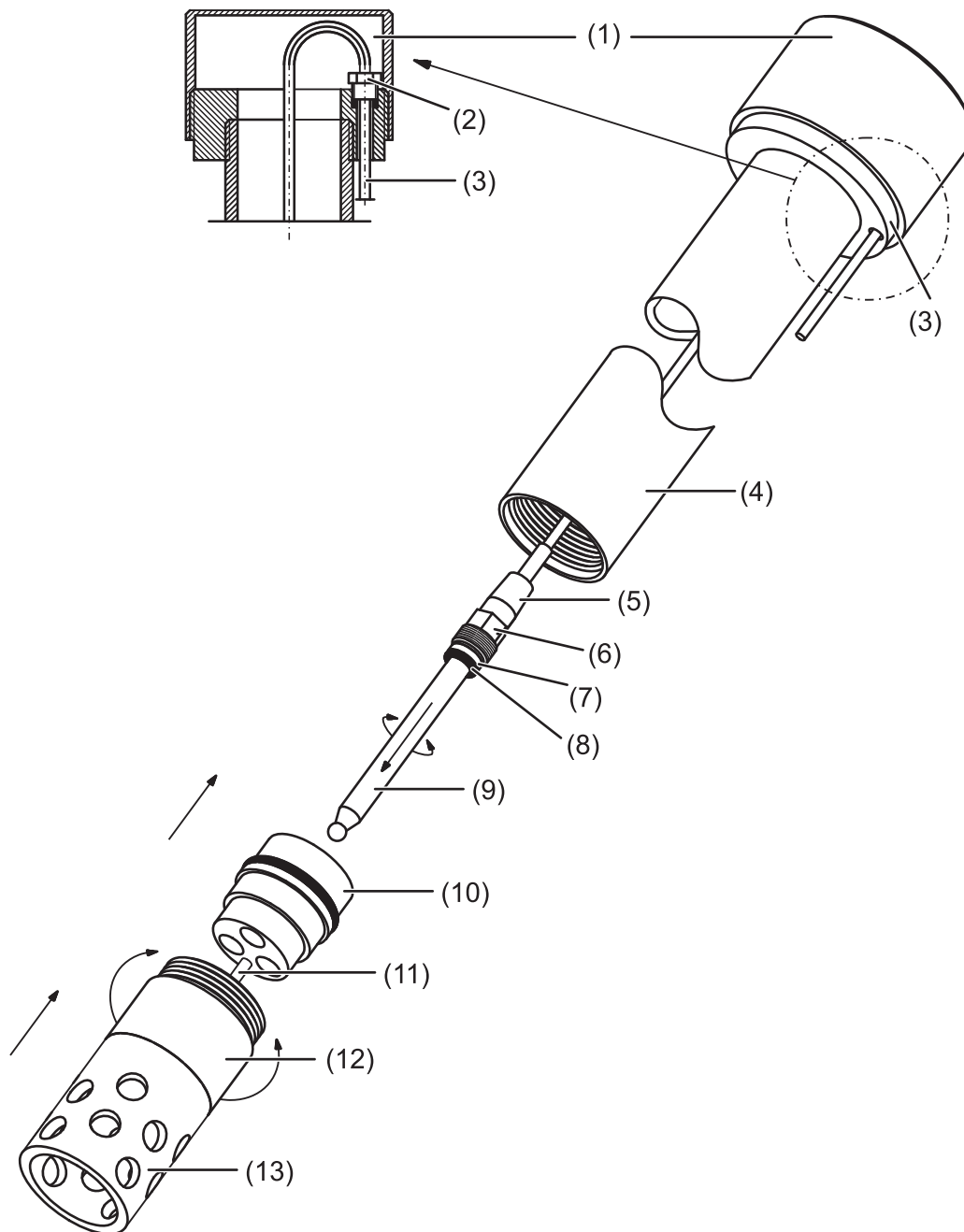


- (1) Holder
- (2) Cylinder head screw
- (3) Seating
- (4) Fitting

Step	Activity
1	Slide the holder (1) with seating (3) over the top of the fitting (4).
2	Fix the seating (3) to the fitting (4) by using the three cylinder head screws (2).

5.3 Type 202820/63...

Installing the sensor



- | | |
|-----------------------|---|
| (1) Cover | (8) O-ring |
| (2) Cable gland | (9) Electrode |
| (3) Internal cable | (10) Electrode holder |
| (4) Immersion tube | (11) Grounding rod (optional, extra code 055) |
| (5) N cable connector | (12) Intermediate ring |
| (6) Electrode head | (13) Protection tube |
| (7) Washer | |

5 Mounting

Step	Activity
1	Screw off cover (1).
2	Screw off protection tube (13).
3	Pull electrode holder (10) out of immersion tube (4).
4	Screw electrode (9) and, if necessary, blind grommets into the electrode holder (10). The tightening torque should be 50 to 100 Ncm.

**NOTE!**

The washer (7) and the O-ring (8) must be fitted on the electrode (9).

Step	Activity
5	Screw the N cable connector (5) onto the electrode head (6).
6	Pass the cable (3) through the immersion tube (4) and cable gland (2).
7	Insert the electrode holder (10) into the immersion tube (4); tighten cable gland (2).
8	Screw the intermediate ring (12) into the immersion tube (4). The tightening torque should be 100 to 150 Ncm.

**NOTE!**

Potential equalization is possible by the optional grounding rod (extra code 055).

Mounting of the grounding rod only factory set!

5.4 Accessories and spare parts

5.4.1 Pipe clips with spacer (standard)

Step	Activity
1	Mount the pipe clips on the tank, spacing them out as appropriate.
2	Snap the fitting into the pipe clips.

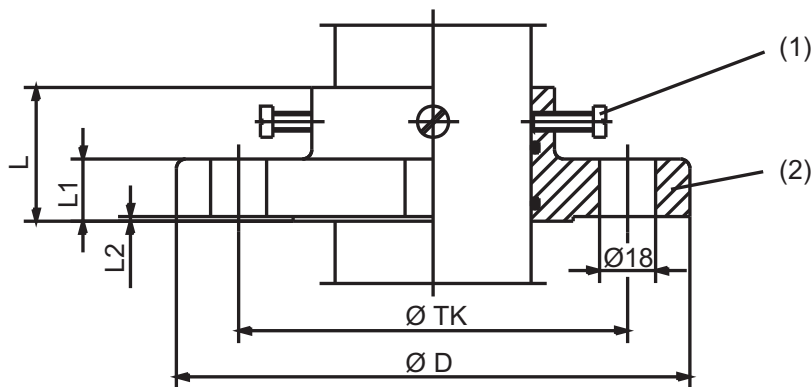
Immersion depth of the fitting



CAUTION!

In order to prevent the ingress of liquid into the fitting, the first 120 mm of the immersion tube (measured from the cable gland) must not be immersed in the liquid to be measured.

5.4.2 Flange DN 50/DN 65



- (1) Fixing screw
- (2) Flange (slidable)

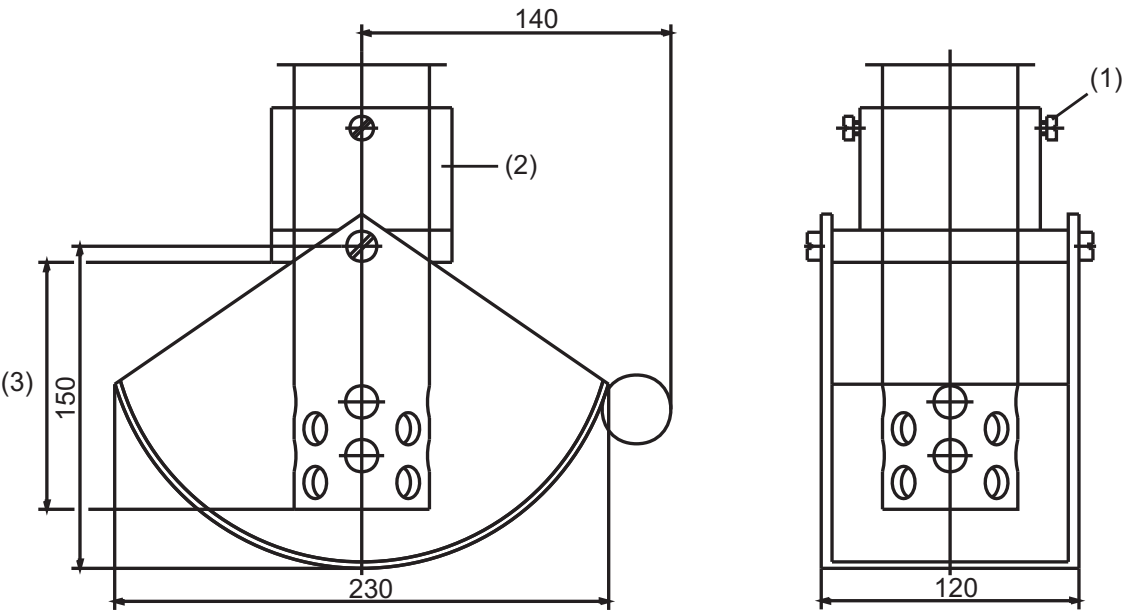
Step	Activity
1	Screw the flange onto the tank. If the tank is not accessible from the inside, then it is advisable to use fixed studs.

Description	DN	D	TK	L	L ₁	L ₁
Flange DN 50, part no. 00056544	50	165	125	43	20	1.5
Flange DN 65, part no. 00056545	65	185	145	49	22	2

5 Mounting

5.4.3 Wetting cup

(Part no. 00057581)



- (1) Screws
- (2) Wetting cup holder
- (3) Fitting dimension 115 mm

Step	Activity
1	Release the screws (1).
2	Slide the holder (2) of the wetting cup over the bottom of the immersion fitting.
3	Place the holder (2) to the fitting dimension 115 mm (3).
4	Fix the holder (2) with the screws (1).

5.4.4 KCl reservoir, pressure-tight, with compressed-air connection

(Part no. 00060254)

The KCl reservoir is suitable for the installation of an electrolyte bridge or its use, when measuring or reference electrodes can be disturbed or chemically attacked by substances contained in the measurement medium.

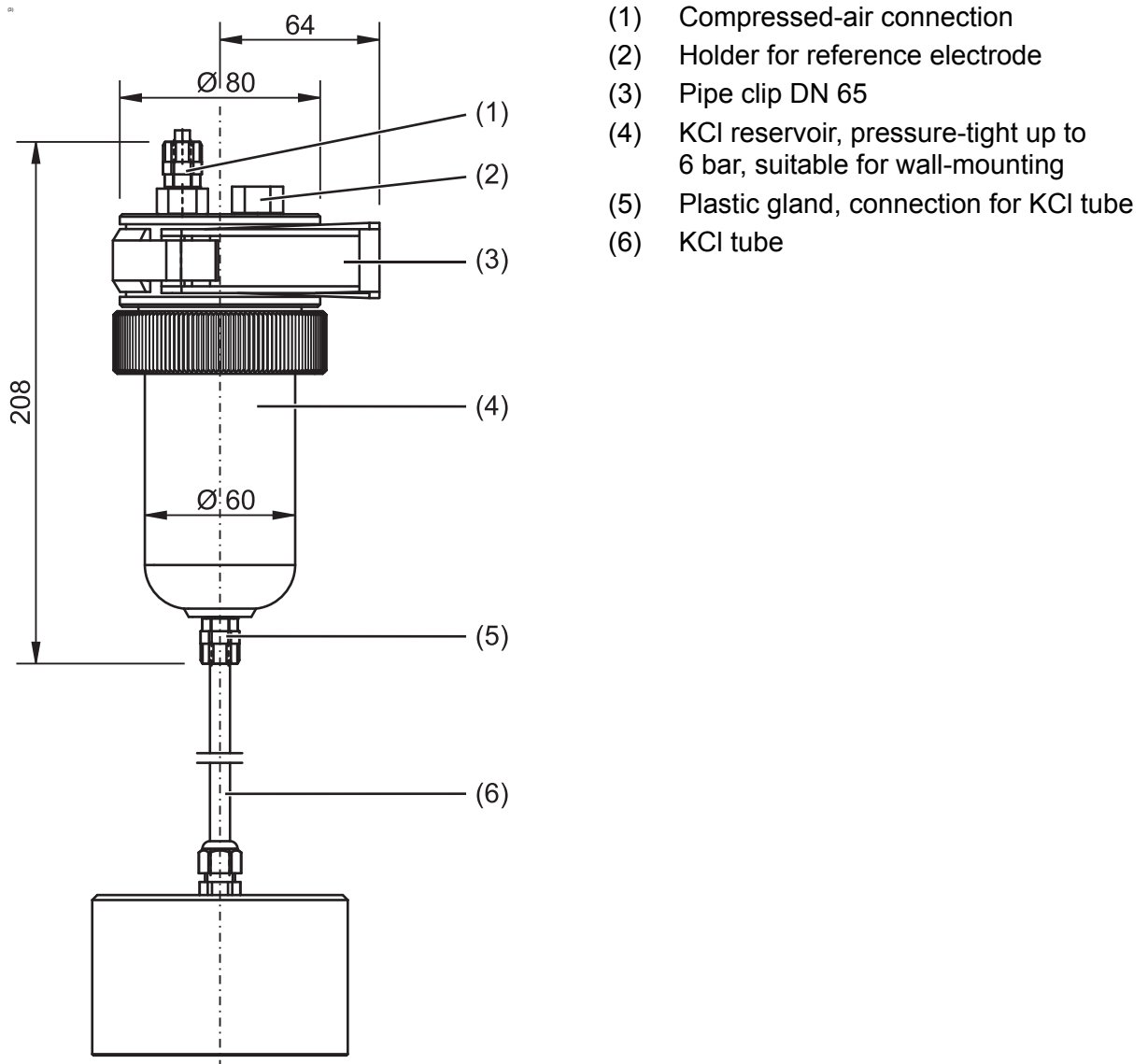
The reservoir is pressure-tight, has a compressed-air connection and can be equipped with an angle bracket made of stainless steel 1.4571 (part no. 00455706) for wall mounting.

The KCl reservoir can be charged with up to 6 bar by the compressed-air connection.

Installation of an electrolyte bridge

For an electrolyte bridge two separated electrodes are required (glass electrode and reference electrode). The connection between reference electrode and measurement medium is made by a diaphragm tube.

The installation of the diaphragm tube takes place in the electrode holder, see figure at „Installing the sensor“, page 21. The reference electrode will be screwed into the holder (2).



5 Mounting

Step	Activity
1	Mount the pipe clip (3) onto the wall.
2	Unscrew the nut of the plastic gland (5) and slide it onto the KCl tube (6).
3	Plug the tube (6) onto the nipple of the plastic gland (5) and secure with the nut.

**NOTE!**

The KCl solution in the tube (6) has to be free from bubbles. Appeared bubbles in the diaphragm tube or in the KCl tube can be eliminated by knocking.

6.1 Maintenance

**NOTE!**

The fitting (including the electrode) must be cleaned at regular intervals. In order to do this, you have to unscrew the protection tube. The sensing part of the electrode is now freely accessible.

Cleaning interval and cleaning agent depend on the type and degree of the contamination.

After each disengagement of the threaded joints, the O-rings have to be lubricated with vaseline or similar (depending on the solution) and the sealing faces have to be checked for damage.

6.2 Malfunction

**NOTE!**

Ingress of liquid into the fitting may be caused by damaged sealing faces or O-rings. Because of its design, the fitting is not pressure-tight.

If...	Then...
the fitting is leaking,	check if all moveable components are screwed in at least hand-tight and make sure that the sealings are inserted and undamaged.
the possibilities of wear and tear depend on chemical exposure,	check the sealings at regular intervals and replace them if necessary.
	pay attention to material changes (embrittlement of plastic etc.).

