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Operating Instructions
CPY7B

Electrolyte vessel

Endress+Hauser
People for Process Automation

Table of contents

1 About this document 3
1.1 Warnings 3
1.2 Symbols used 3

2 Basic safety instructions 4
2.1 Requirements of the personnel 4
2.2 Intended use 4
2.3 Workplace safety 4
2.4 Operational safety 4
2.5 Product security 5

3 Product description 5
3.1 Product design 5

4 Incoming acceptance and product identification 6
4.1 Incoming acceptance 6
4.2 Product identification 6
4.3 Scope of delivery 7
4.4 Certificates and approvals 7

5 Mounting 8
5.1 Mounting requirements 8
5.2 Mounting the electrolyte vessel 11
5.3 Post-mounting check 15

6 Commissioning 16
6.1 Preparations 16

7 Maintenance 19
7.1 Maintenance work 19

8 Repair 20
8.1 General notes 20
8.2 Spare parts 21
8.3 Return 21
8.4 Disposal 21

9 Accessories 21
9.1 Device-specific accessories 22

10 Technical data 22
10.1 Environment 22
10.2 Process 22
10.3 Mechanical construction 23

1 About this document

1.1 Warnings

Structure of information	Meaning
DANGER **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **will** result in a fatal or serious injury.
WARNING **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **can** result in a fatal or serious injury.
CAUTION **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
NOTICE **Cause/situation** If necessary, Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.2 Symbols used

- Additional information, tips
- Permitted
- Recommended
- Not permitted or not recommended
- Reference to device documentation
- Reference to page
- Reference to graphic
- Result of an individual step

1.2.1 Symbols on the device

- Reference to device documentation
- Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

2 Basic safety instructions

2.1 Requirements of the personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

Repairs not described in the Operating Instructions provided must be carried out only directly at the manufacturer's site or by the service organization.

2.2 Intended use

The electrolyte vessel is designed:
- To provide unpressurized or pressurized electrodes with a top-up supply of liquid electrolyte
- To create an electrolyte bridge in measuring devices with reference electrodes

Any use other than that intended puts the safety of people and the measuring system at risk. Therefore, any other use is not permitted.

The manufacturer is not liable for harm caused by improper or unintended use.

2.3 Workplace safety

As the user, you are responsible for complying with the following safety conditions:
- Installation guidelines
- Local standards and regulations

2.4 Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.
2. Ensure that electrical cables and hose connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

During operation:

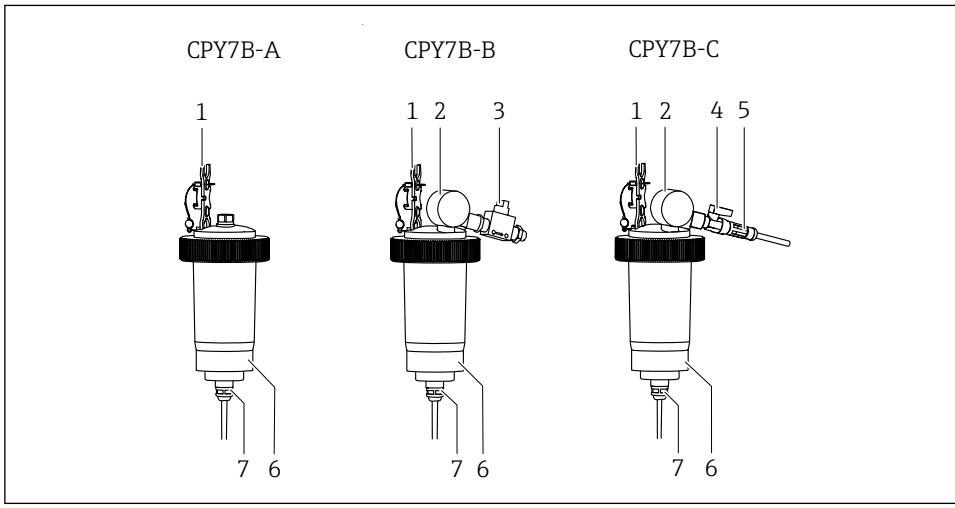
▶ If faults cannot be rectified,
take products out of service and protect them against unintentional operation.

2.5 Product security

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.

3 Product description

3.1 Product design



1 *Electrolyte vessel versions A, B and C*

1 *Open-ended wrench*
2 *Pressure gauge*
3 *Manual valve (with check valve)*
4 *Manual valve*
5 *Hose union*
6 *Spacer tube*
7 *Hose union with lock nut*

4 Incoming acceptance and product identification

4.1 Incoming acceptance

On receipt of the delivery:

1. Check the packaging for damage.
   ↳ Report all damage immediately to the manufacturer.
   Do not install damaged components.
2. Check the scope of delivery using the delivery note.
3. Compare the data on the nameplate with the order specifications on the delivery note.
4. Check the technical documentation and all other necessary documents, e.g. certificates, to ensure they are complete.

If one of the conditions is not satisfied, contact the manufacturer.

4.2 Product identification

4.2.1 Nameplate

The nameplate provides you with the following information on your device:
- Manufacturer identification
- Order code
- Extended order code
- Serial number
- Safety information and warnings

▶ Compare the information on the nameplate with the order.

4.2.2 Identifying the product

Product page

www.endress.com/cpy7b

Interpreting the order code

The order code and serial number of your product can be found in the following locations:
- On the nameplate
- In the delivery papers

Obtaining information on the product

1. Go to www.endress.com.
2. Page search (magnifying glass symbol): Enter valid serial number.
3. Search (magnifying glass).
   ↳ The product structure is displayed in a popup window.

4. Click the product overview.
   ↳ A new window opens. Here you fill information pertaining to your device, including the product documentation.

4.2.3 Manufacturer address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
70839 Gerlingen
Germany

4.3 Scope of delivery

- Electrolyte vessel
- Spacer tube
- 3 m (9.8 ft) PTFE pressure hose 4/6
- Hybrid open-ended wrench 17/19 AF
- Operating instructions
- Additionally, depending on the version:
  - Fixing bracket (CPY7B-A0, CPY7B-B0, CPY7B-C0)
  - Coupling Pg 9 (CPY7B-A0, CPY7B-B0, CPY7B-C0)
  - 2 hose couplings with check valve (CPY7B-B0, CPY7B-C1, CPY7B-C0, CPY7B-C1)
  - Air pump connection (CPY7B-B0, CPY7B-C1, CPY7B-C0, CPY7B-C1)
  - 0.5 m (1.6 ft) Spiral pressure hose (PA12W) CPY7B-B1, CPY7B-C1)
  - Hose connector (CPY7B-B1, CPY7B-C1)

4.4 Certificates and approvals

Current certificates and approvals for the product are available at www.endress.com on the relevant product page:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select **Downloads**.

5 Mounting

5.1 Mounting requirements

NOTICE

Improper installation in pressurized systems will result in medium leakage.

- Only the pressure-resistant versions – CPY7B-B or CPY7B-C – should be operated in pressurized systems.
- Never exceed the maximum working pressure of 10 bar (145 psi) gauge at an ambient temperature of 30 °C (86 °F) .
- Only use the supplied pressurized hose.
- Regularly check the couplings, valves, and hoses for leaks and damage.

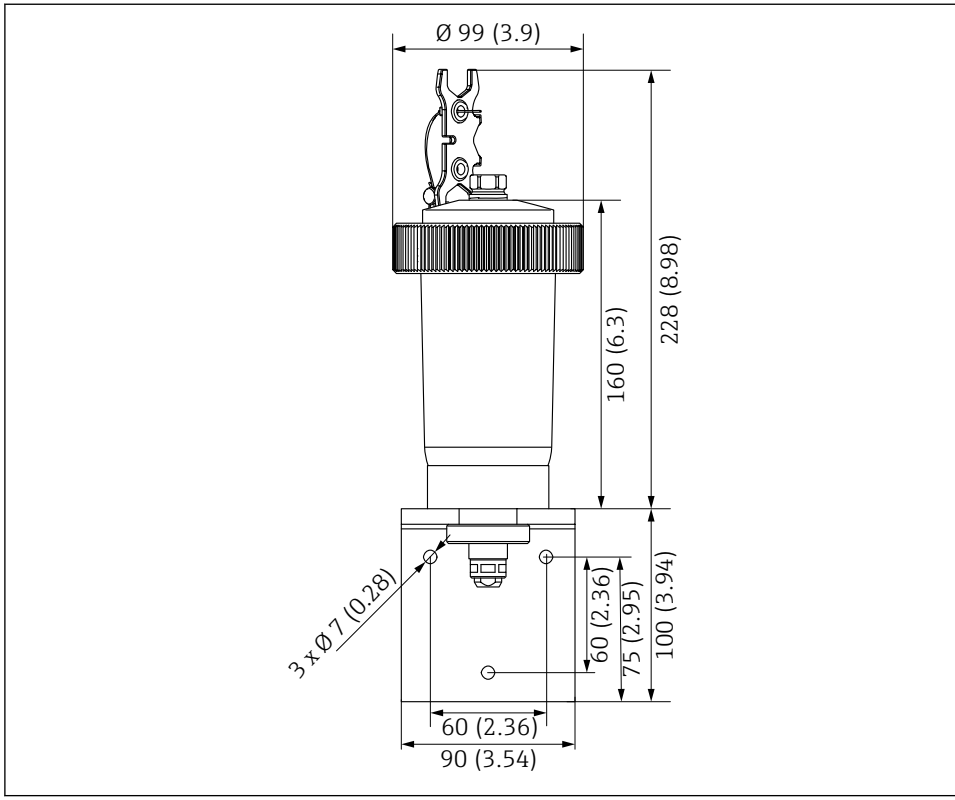
Before installing or removing the electrolyte vessel or filling the vessel:

1. Depressurize the system.
2. Vent the vessel if necessary.

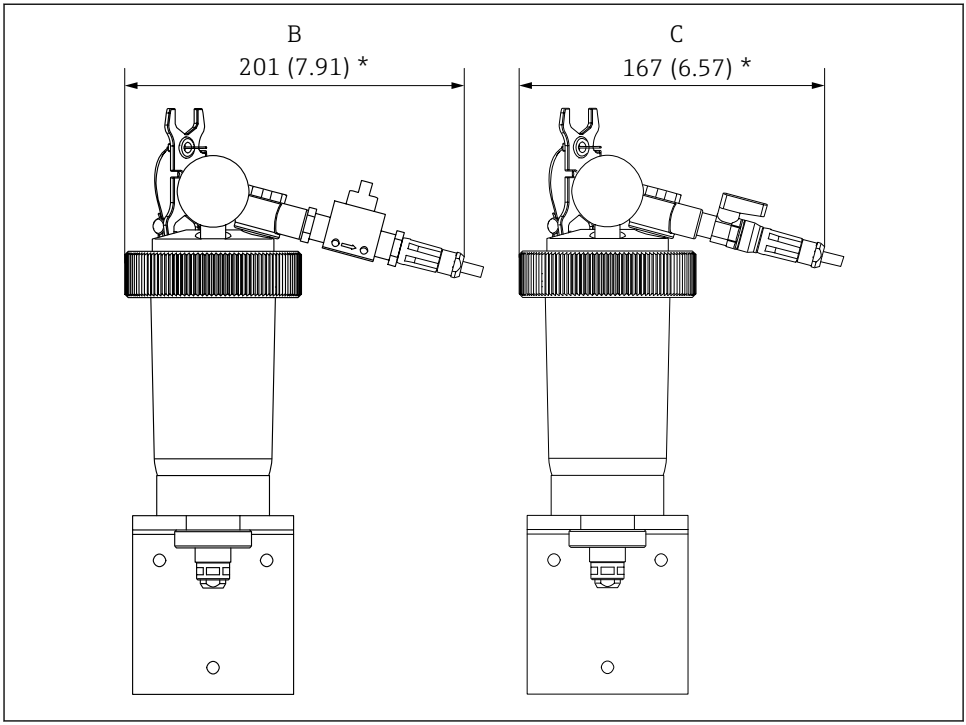
In the event of severely fluctuating medium pressure:

- Regulate the pressure in the electrolyte vessel so that it is always above the medium pressure.

5.1.1 Dimensions



2 Dimensions CPY7B-A. Unit: mm (in)

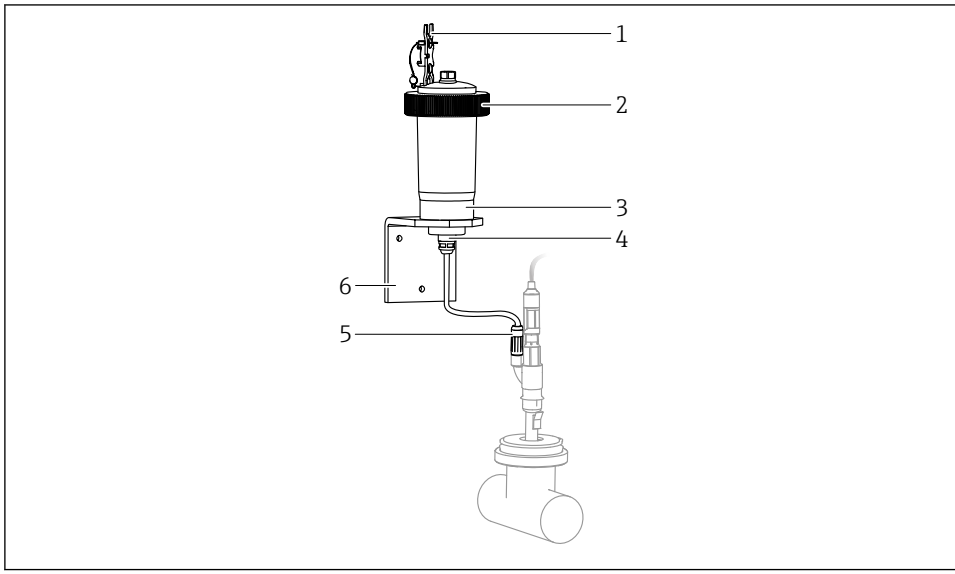


3 Dimensions CPY7B-B and CPY7B-C. Unit: mm (in)

B Version CPY7B-B
C Version CPY7B-C
** Additional 50 mm (1.97 in) bending radius for the hose*

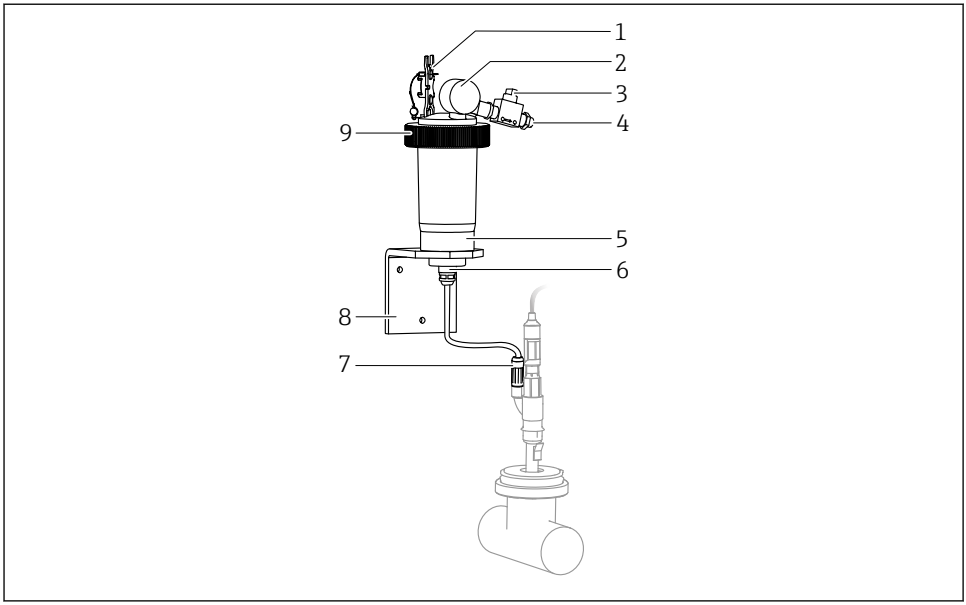
5.2 Mounting the electrolyte vessel

5.2.1 Wall mounting



4 *Wall mounting CPY7B-A0*

1 *Open-ended wrench*
2 *Coupling nut*
3 *Spacer tube*
4 *Hose union with lock nut*
5 *Hose union*
6 *Fixing bracket*



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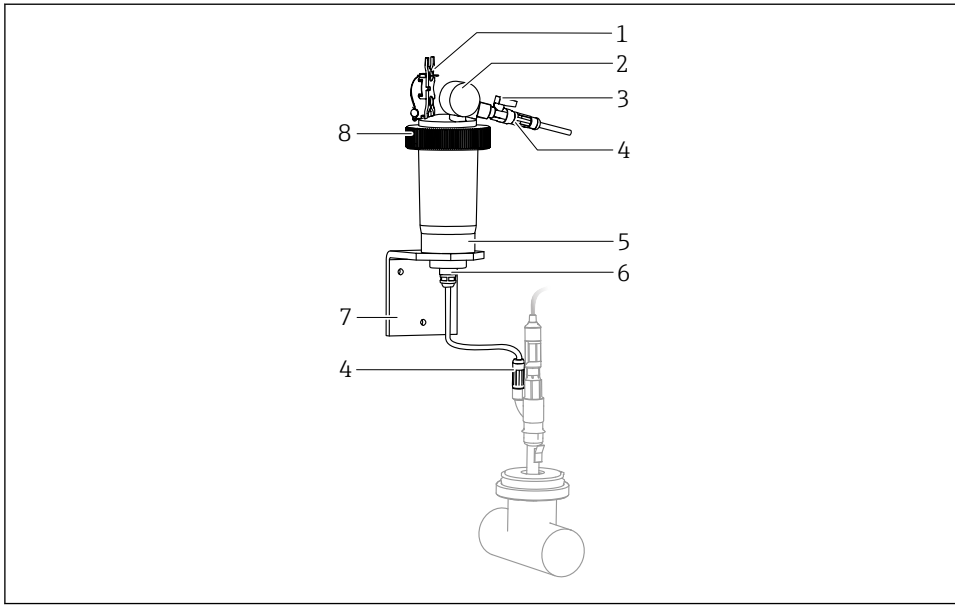
5 Wall mounting CPY7B-B0

1 Open-ended wrench
2 Pressure gauge
3 Manual valve (acts as a check valve in the "closed" position)
4 Lock nut
5 Spacer tube
6 Hose union with lock nut
7 Hose union
8 Fixing bracket
9 Coupling nut



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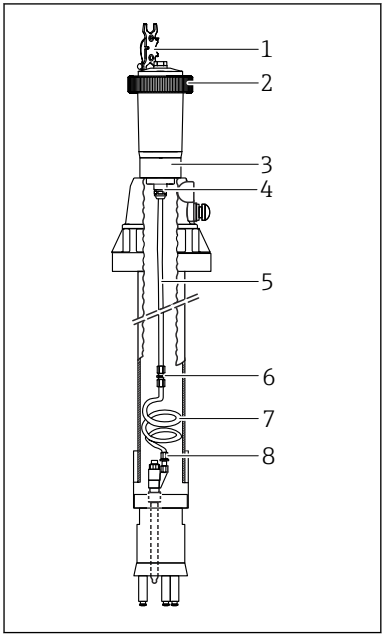
6 *Wall mounting CPY7B-C0*

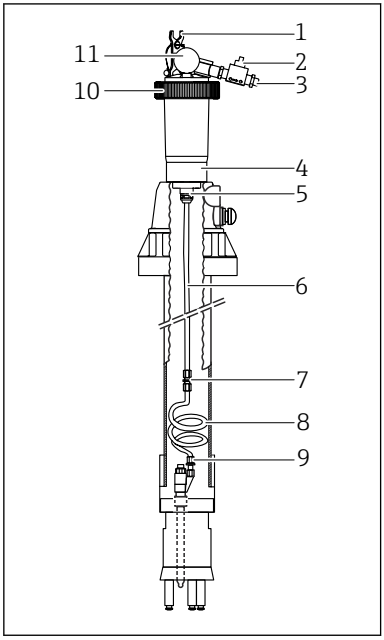
1 *Open-ended wrench*
2 *Pressure gauge*
3 *Manual valve*
4 *Hose union*
5 *Spacer tube*
6 *Hose union with lock nut*
7 *Fixing bracket*
8 *Coupling nut*

5.2.2 Installation on an assembly



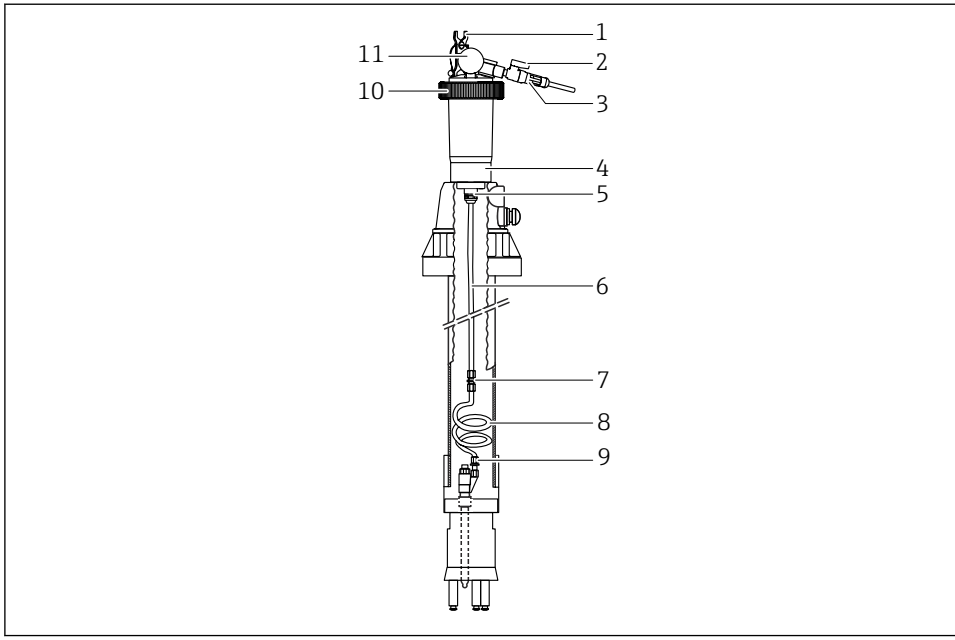
7 Mounting with the CPA111 and CPY7B-A1 assembly

1 *Open-ended wrench*
2 *Coupling nut*
3 *Spacer tube*
4 *Hose union*
5 *Pressure hose*
6 *Hose connector*
7 *Spiral hose*
8 *Hose connection*



8 Mounting with the CPA111 and CPY7B-B1 assembly

1 *Open-ended wrench*
2 *Manual valve (acts as a check valve in the "closed" position)*
3 *Lock nut*
4 *Spacer tube*
5 *Hose union*
6 *Pressure hose*
7 *Hose connector*
8 *Spiral hose*
9 *Hose connection*
10 *Coupling nut*
11 *Pressure gauge*



9 Mounting with the CPA111 and CPY7B-C1 assembly

1 Open-ended wrench
2 Manual valve
3 Hose union
4 Spacer tube
5 Hose union
6 Pressure hose
7 Hose connector
8 Spiral hose
9 Hose connection
10 Coupling nut
11 Pressure gauge

5.3 Post-mounting check

1. After mounting, check all the connections to ensure they are secure and leak-tight.
2. Ensure that the hoses cannot be removed without force.
3. Check the hoses for damage.

6 Commissioning

6.1 Preparations

6.1.1 Filling with electrolyte

NOTICE

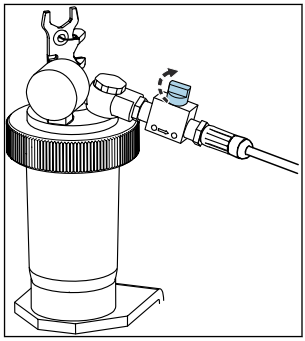
Rupture of manual valve due to excessive application of force when opening vessel!

▶ Only hold the vessel by the open-ended wrench, not by the manual valve.

The compressed air connection can be pivoted by approximately 150° for easier installation.

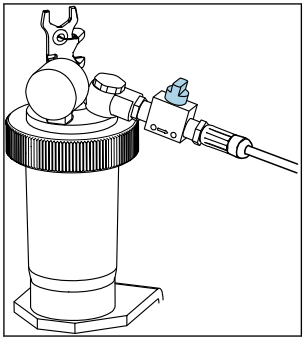
Preparation for pressurized versions (CPY7B-B and CPY7B-C):

1.

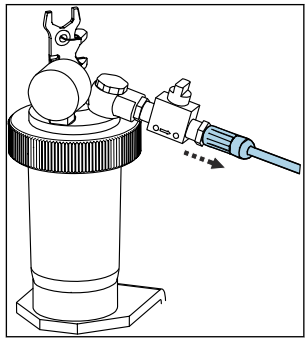


Close the manually operated valve.

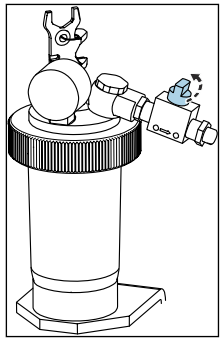
↳



Compressed air is cut off.

2. 

Release the hose coupling.

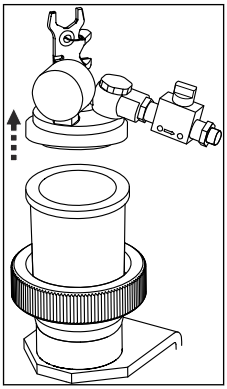
3. 

Open the manually operated valve.

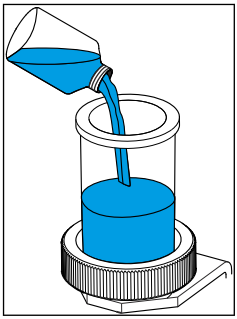
↳ Vessel is vented.

Filling the vessel with electrolyte

1. Release the thread adapter nut.
2. Push down the coupling nut.

3. 

Remove the upper part. Hold the open-ended wrench firmly while doing so.

4. 

Fill the vessel with the electrolyte.

5. Take care not to overfill the vessel.
6. Place the upper part on the vessel.
7. Tighten the coupling nut.

6.1.2 Venting

⚠ CAUTION

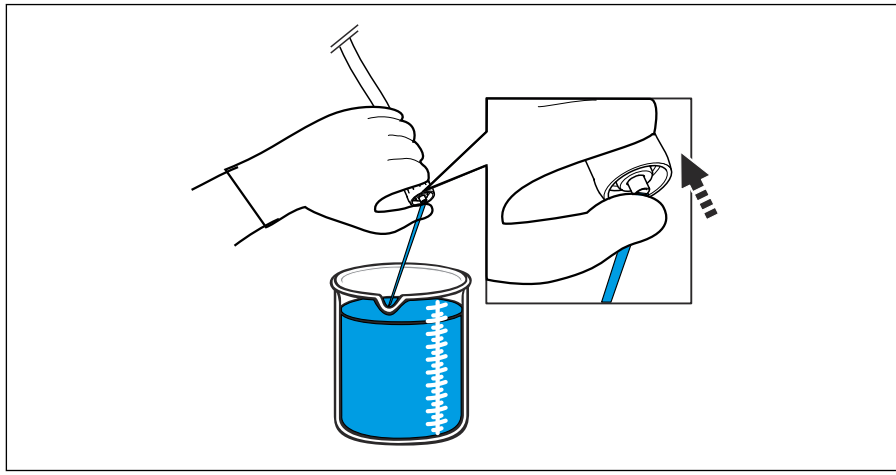
Minor skin or eye injuries are possible as a result of contact with the electrolyte.

▶ Wear protective goggles and safety gloves.

After filling with electrolyte, the electrolyte hose must be vented.

1. Release the electrolyte hose connection on the sensor.

2.



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Press in the tappet of the hose union until there is a flow of electrolyte:

3. Reconnect the electrolyte hose to the sensor.

6.1.3 Assembly

To reassemble, proceed in the reverse order of filling the electrolyte→ 16:

1. Fit the upper part.
2. Hand-tighten the coupling nut (maximum 5 Nm).
3. Close the manually operated valve.
4. Connect the hose union.
5. Open the manually operated valve.

7 Maintenance

7.1 Maintenance work

CAUTION

Minor skin or eye injuries are possible as a result of electrolyte splashes.

► Only carry out maintenance work when the system is depressurized.

NOTICE

Prohibited lubricants

If prohibited lubricants are used, there is a risk of stress cracks forming on the polycarbonate parts.

- ▶ To grease polycarbonate parts, e.g. couplings, only use lubricants approved for the material.
- ▶ Observe the instructions of the lubricant manufacturer.

7.1.1 Version CPY7B-A

- ▶ Check all couplings for leaks at regular intervals.

7.1.2 Version CPY7B-B, CPY7B-C

1. Cut off the compressed air supply using the manually operated valve (toggle to horizontal position).
2. Observe the pressure gauge on the CPY7B. If the pressure has not dropped after 15 minutes, the couplings are leak-tight.
3. Once the pressure has dropped, re-tighten the couplings.
4. Check the seals to ensure they are intact and seated correctly.

Releasing the vessel pressure

- ▶ If using an air pump connection:
  Loosen the valve nipple on the cover by one rotation (AF 19).

If using the compressed air connection:

1. Cut off the compressed air supply using the manually operated valve (toggle to horizontal position).
2. Remove the compressed air hose. To do this, turn the hose coupling by one rotation counterclockwise.
3. Release the pressure from the vessel (toggle bar of manually operated valve in vertical position).

8 Repair

8.1 General notes

The repair and conversion concept provides for the following:

- The product has a modular design
- Spare parts are grouped into kits which include the associated kit instructions
- Only use original spare parts from the manufacturer

- Repairs are carried out by the manufacturer's Service Department or by trained users
- Certified devices can only be converted to other certified device versions by the manufacturer's Service Department or at the factory
- Observe applicable standards, national regulations, Ex documentation (XA) and certificates

1. Carry out the repair according to the kit instructions.
2. Document the repair and conversion and enter, or have entered, in the Life Cycle Management tool (W@M).

8.2 Spare parts

Device spare parts that are currently available for delivery can be found on the website:

https://portal.endress.com/webapp/SparePartFinder

▶ Quote the serial number of the device when ordering spare parts.

8.3 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure the swift, safe and professional return of the device:

▶ Check the website www.endress.com/support/return-material for information on the procedure and general conditions.

8.4 Disposal

▶ Observe the local regulations.

9 Accessories

The following are the most important accessories available at the time this documentation was issued.

Listed accessories are technically compatible with the product in the instructions.

1. Application-specific restrictions of the product combination are possible.
   Ensure conformity of the measuring point to the application. This is the responsibility of the operator of the measuring point.
2. Pay attention to the information in the instructions for all products, particularly the technical data.
3. For accessories not listed here, please contact your Service or Sales Center.

9.1 Device-specific accessories

KCl solution CPY4
- Top-up electrolyte solution, concentration 1.5 or 3 mol/l
- Volume 250 ml (8.5 fl oz) or 1 000 ml (33.8 fl oz)

Junction tube CPY6
- For pH/redox measurement with bridging electrolyte
- Order No. 50068478

Pressure gauge
- 0 to 16 bar (0 to 232 psi), R1/8", D4
- Order No. 71008039

10 Technical data

10.1 Environment

10.1.1 Ambient temperature range

0 to 60 °C (32 to 140 °F)

Maximum 30 °C (86 °F) at 10 bar (145 psi) gauge

Maximum 60 °C (140 °F) at atmospheric pressure

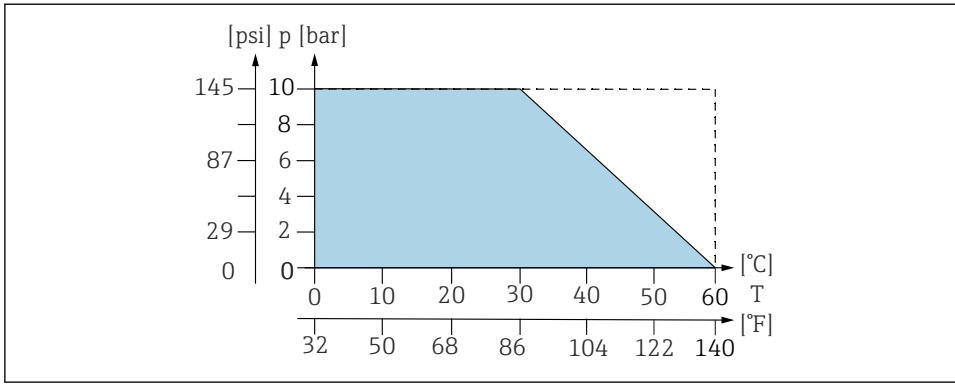
10.2 Process

10.2.1 Pressure range

0 to 10 bar (0 to 145 psi) gauge pressure

10.2.2 Pressure-temperature ratings

The process temperature limits and process pressure limits for the entire system are determined by the limits of the components used (assembly, electrode, cable, accessories).



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10.3 Mechanical construction

10.3.1 Dimensions

→ Section "Installation"

10.3.2 Weight

0.45 kg (1 lb)

10.3.3 Effective capacity

200 ml (6.8 fl oz)

10.3.4 Materials

Pressure vessel	Polycarbonate
O-rings	EPDM
Unpressurized hose	PTFE
Pressure hose	PTFE
Spiral hose	Polyamide PA12W
Cover (unpressurized version)	PVC, black
Cover (pressure version)	PA6G, black (cast polyamide 6, black)

10.3.5 Hose specifications

Pressure port

Pressure hose	ID 4 (0.16")/AD 6 (0.24")
Valve for air pump	Ø 5 mm (0.2 in)

Electrolyte hose connection

ID 4 (0.16")/AD 6 (0.24")

10.3.6 Fitted electrodes

Reference electrode

Coupling	Pg 13.5
Maximum reference electrode shaft length	120 mm (4.7 in)

www.addresses.endress.com

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