

# Installation Instructions

## **Liquiline System CA8x analyzer**

Maintenance kit CAV800



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# 1 Overview

## 1.1 Product structure

| CAV800- | Parameter |                                                                   |                             |                    |                                                |
|---------|-----------|-------------------------------------------------------------------|-----------------------------|--------------------|------------------------------------------------|
|         | AA        | CA80AM, NH <sub>4</sub> -N, indophenol blue method                |                             |                    |                                                |
|         | AF        | CA80CR, Cr(VI), diphenylcarbazine method                          |                             |                    |                                                |
|         | EA        | CA80PH, PO <sub>4</sub> -P, blue method                           |                             |                    |                                                |
|         | EB        | CA80PH, PO <sub>4</sub> -P, yellow method                         |                             |                    |                                                |
|         | GG        | CA80NO, NO <sub>2</sub> -N, nitrite naphthylamine method          |                             |                    |                                                |
|         | MM        | CA80FE, Fe, ferrozine method                                      |                             |                    |                                                |
|         | N1        | CA80AL, Al, pyrocatechol violet method                            |                             |                    |                                                |
|         | R2        | CA80HA, CaCO <sub>3</sub> , 0 to 80 mg/l, phthalein purple method |                             |                    |                                                |
|         |           | Annual kit, number of years                                       |                             |                    |                                                |
|         |           | 1                                                                 | 1x (for 1 year maintenance) |                    |                                                |
|         |           | 2                                                                 | 2x (for 2 year maintenance) |                    |                                                |
|         |           | 3                                                                 | 3x (for 3 year maintenance) |                    |                                                |
|         |           |                                                                   | Number of measuring points  |                    |                                                |
|         |           |                                                                   | 1                           | 1 measuring point  |                                                |
|         |           |                                                                   | 2                           | 2 measuring points |                                                |
|         |           |                                                                   | Enclosed accessories        |                    |                                                |
|         |           |                                                                   |                             | PS                 | Inlet/outlet hoses                             |
|         |           |                                                                   |                             | PT                 | Liquid Manager, 1 or 2 reagents, without motor |
|         |           |                                                                   |                             | PU                 | Liquid Manager, 3 reagents, without motor      |
|         |           |                                                                   |                             | PV                 | 2 sample collectors                            |
|         |           |                                                                   |                             | PX                 | Foam rubber seal                               |
| CAV800- | xx        | xx                                                                | xx                          | xx                 | Complete order code                            |

## 2 Intended use

- The parts of the kits must only be used as spare parts for CA8x analyzers. Any other use is not permitted!
- Use only original parts from Endress+Hauser.
- In the Device Viewer, check if the spare part is suitable for the device in question.

### 3 Personnel authorized to carry out conversion

- 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 perform the stated tasks.
- The electrical connection may only be established by an electrical technician.
- The technical personnel must have read and understood these Installation Instructions and must follow the instructions they contain.
- Measuring point faults may be repaired only by authorized and specially trained personnel.
- In the case of Ex-certified devices, the technical staff must also be trained in explosion protection.



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

### 4 Safety instructions

#### WARNING

##### **Risk of death due to electric shock!**

- ▶ Perform work on the device with the utmost caution, especially when the device remains fully or partially powered on during maintenance tasks.
- ▶ The analyzer has no power switch. If necessary, use the system-side circuit breaker.
- ▶ Follow the instructions in the relevant chapters of this manual, as the procedure for electrical safety depends on the service kits used.
- ▶ All work must be carried out according to applicable safety standards.
- ▶ Follow the instructions in the Operating Instructions for the device.

#### CAUTION

##### **Risk to health due to contact with the process medium!**

- ▶ Pay attention to the warnings in the safety data sheets.
- ▶ Wear protective gloves, protective goggles and protective clothing, particularly when working with reagents, chemicals or process solutions.
- ▶ In case of contact with eyes or skin, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.

#### WARNING

##### **Risk to health due to contact with chemicals!**

- ▶ When handling chemicals, note the warnings on the safety data sheets. Wear acid-proof protective gloves, a protective coat, and safety goggles.
- ▶ Note the nationally applicable workplace safety regulations for the work area when handling toxic or corrosive chemicals. If necessary, consult a physician and show the safety data sheet or the information on the chemical container.

**⚠ CAUTION****Electronic assemblies are sensitive to electrostatic discharges (ESD)!**

- ▶ Before removing an assembly from the antistatic packaging, it must be discharged, e.g. at a protective ground. Continuous grounding, e.g. with an ESD wristband, is recommended.

**Potential impact on the process**

Before decommissioning an active device, the potential impact on the overall process must be taken into account! This applies in particular when using the switching contacts, the analog signal outputs or the communication interface of the associated measuring instrument to control process variables. Coordinate service tasks with the operator!



Contact Endress+Hauser Service if you have questions: [www.addresses.endress.com](http://www.addresses.endress.com)

# 5 Scope of delivery

The scope of delivery depends on the order version:

2-year maintenance kits contain double the quantity of parts compared with the relevant 1-year kits.

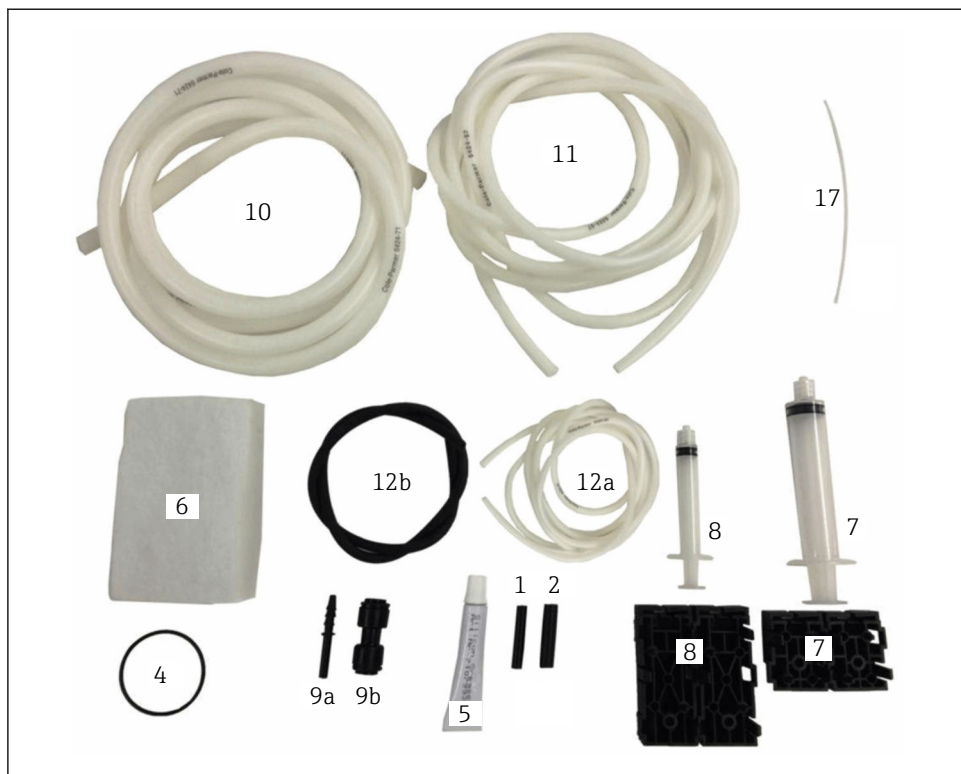
3-year maintenance kits contain triple the quantity of parts compared with the relevant 1-year kits.

## 5.1 CAV800-xxxx = Basic maintenance kit

The kit contains the following parts →  1,  7 and →  2,  7. The quantity and use of the parts depend on the analyzer used →  12:

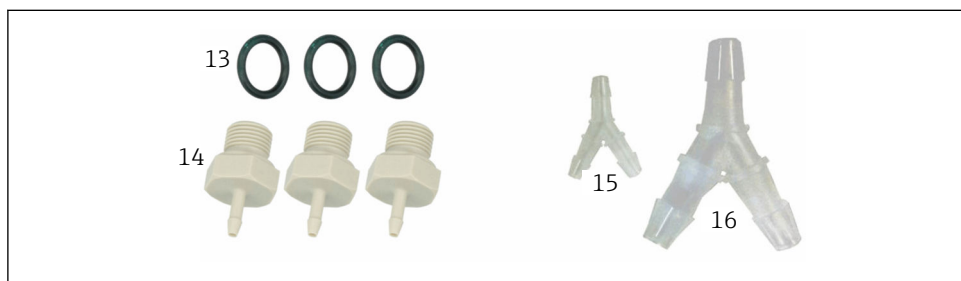
|           |                  |                                             |            |       |                                           |
|-----------|------------------|---------------------------------------------|------------|-------|-------------------------------------------|
| <b>1</b>  | 2 x              | Sealing cap M3 EPDM                         | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm                   |
| <b>2</b>  | 2 x              | Sealing cap M4 EPDM                         | <b>12a</b> | 0.4 m | Hose Norprene A, ID 1.6 mm <sup>1)</sup>  |
| <b>4</b>  | 1 x              | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm <sup>1)</sup> |
| <b>5</b>  | 1 x              | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm         |
| <b>6</b>  | 2 x              | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G½ DN1/16 PP                |
| <b>7</b>  | -- <sup>2)</sup> | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP           |
| <b>8</b>  | -- <sup>2)</sup> | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP           |
| <b>9a</b> | 1 x              | Straight connector, OD 4 mm                 | <b>17</b>  | --    | PTFE hose Ø0.5 mm                         |
| <b>9b</b> | 1 x              | Hose push-fit nozzle 4x3.2 mm               |            | 1 x   | Kit instructions                          |
| <b>10</b> | 1 m              | Hose, C-Flex, ID 6.4 mm                     |            |       |                                           |

1) parameter-dependent  
2) Quantity depends on parameter



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1 CA8x maintenance kit CAV800 for one measuring point, one year



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2 CA8x maintenance kit CAV800, additional parts for two measuring points, one year

5.2 Additional scope of delivery for maintenance kit: Option PS = inlet/outlet hoses

The basic maintenance kit contains the following additional parts →  3,  8:

- 2 m    hose 13x3.8 mm, EPDM
- 3 m    hose ID 1.6 mm, Norpren A



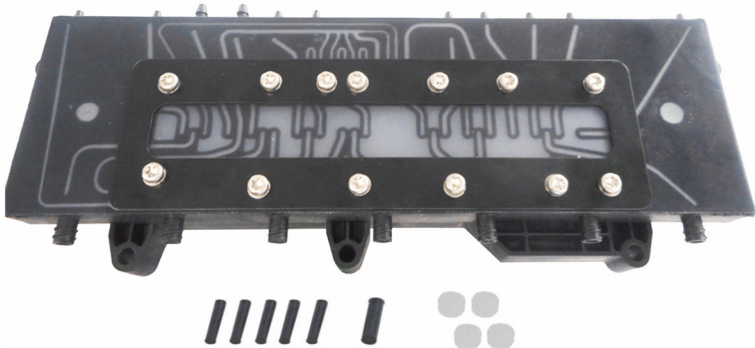
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 3    Kit CAV800, option PS = inlet/outlet hoses

5.3 Additional scope of delivery for maintenance kit: option PT = Liquid Manager for 1 or 2 reagents, without motor

The basic maintenance kit contains the following additional parts →  4,  8:

- 1 x    Liquid Manager for 1 or 2 reagents, without motor
- 5 x    sealing cap M3, EPDM
- 4 x    male Luer plug, closed, PP
- 1 x    sealing cap M4, EPDM



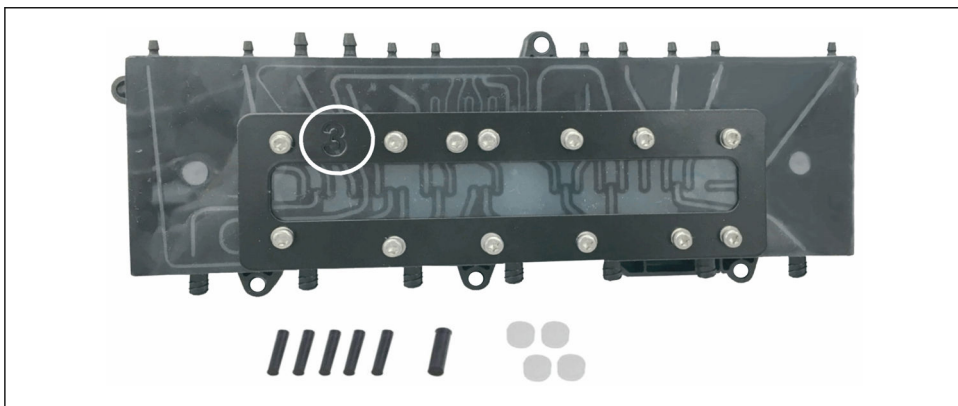
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 4    Kit CAV800, option PT: Liquid Manager for 1 or 2 reagents, without motor

## 5.4 Additional scope of delivery for maintenance kit: option PU = Liquid Manager for 3 reagents, without motor

The basic maintenance kit contains the following additional parts →  5,  9:

|     |                                              |     |                      |
|-----|----------------------------------------------|-----|----------------------|
| 1 x | Liquid Manager for 3 reagents, without motor | 5 x | sealing cap M3, EPDM |
| 4 x | male Luer plug, closed, PP                   | 1 x | sealing cap M4, EPDM |



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 5 Kit CAV800, option PU: Liquid Manager for 3 reagents, without motor

## 5.5 Additional scope of delivery of the maintenance kit: option PV = sample collector

The basic maintenance kit contains the following additional parts →  6,  9:

|     |                  |
|-----|------------------|
| 2 x | Sample collector |
|-----|------------------|



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 6 CAV800 kit, option PV = sample collector

**5.6 Additional scope of delivery of the maintenance kit: option PX = foam rubber seal**

The basic maintenance kit contains the following additional parts →  7,  10:

1 x      Foam rubber seal

2 x Isopropyl alcohol cleaning wipes



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 7 Kit CAV800, option PX = foam rubber seal

## 6 Notes on maintenance work

## 6.1 Description of maintenance measures

 The maintenance measures are described in the operating instructions for the relevant analyzer. Please carry out the maintenance measures as specified in those operating instructions.

 The **O-ring ID 34.65 W 1.78 mm EPDM** (item 4) for the cover of the sample collector must be lightly greased with the supplied silicone grease.

## 6.2 Maintenance intervals

The various maintenance intervals are also explained in the Operating Instructions.

Unauthorized extension of these intervals can lead to measurement errors and voiding of the warranty.

The maintenance intervals may need to be reduced under extreme measuring conditions (cold, heat, dirt, aggressive medium, etc.).

## 6.3 Documentation of maintenance

All maintenance and repair work must be documented.

A maintenance booklet is enclosed with each analyzer for this purpose. Please document all work carried out on the analyzer in this booklet.

A new maintenance booklet is available via the following link →

<https://sft-p.cdn.endress.com/>. Enter the order code or serial number of the analyzer to download the document.

## 6.4 Photometer hose

The hose for the photometer depends on the measurement parameter and the software version. In this regard, please observe the hose routing diagrams or the following table, particularly when performing software updates:

| Parameter     | Up to SW 01.06.08 | From SW 01.07.01 |
|---------------|-------------------|------------------|
| CA80AL        | 125 mm            | 125 mm           |
| CA80AM        | 45 mm             | 45 mm            |
| CA80CR        | 45 mm             | 45 mm            |
| CA80FE        | 125 mm            | 125 mm           |
| CA80HA        | 125 mm            | 125 mm           |
| CA80NO        | 45 mm             | 125 mm           |
| CA80PH blue   | 45 mm             | 45 mm            |
| CA80PH yellow | 45 mm             | 125 mm           |

## 7 Quantity and use of the parts

### 7.1 Scope of delivery of the CAV800-N1 maintenance kit for CA80AL (aluminum), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  8,  13.

|          |     |                                             |            |       |                               |
|----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b> | 2 x | Sealing cap M3 EPDM                         | <b>9a</b>  | 1 x   | Straight connector, OD 4 mm   |
| <b>2</b> | 2 x | Sealing cap M4 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>4</b> | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>5</b> | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>6</b> | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b> | 4 x | Dispenser 10 ml with adapter                |            | 1 x   | Kit instructions              |
| <b>8</b> | 6 x | Dispenser 2.5 ml with adapter               |            |       |                               |

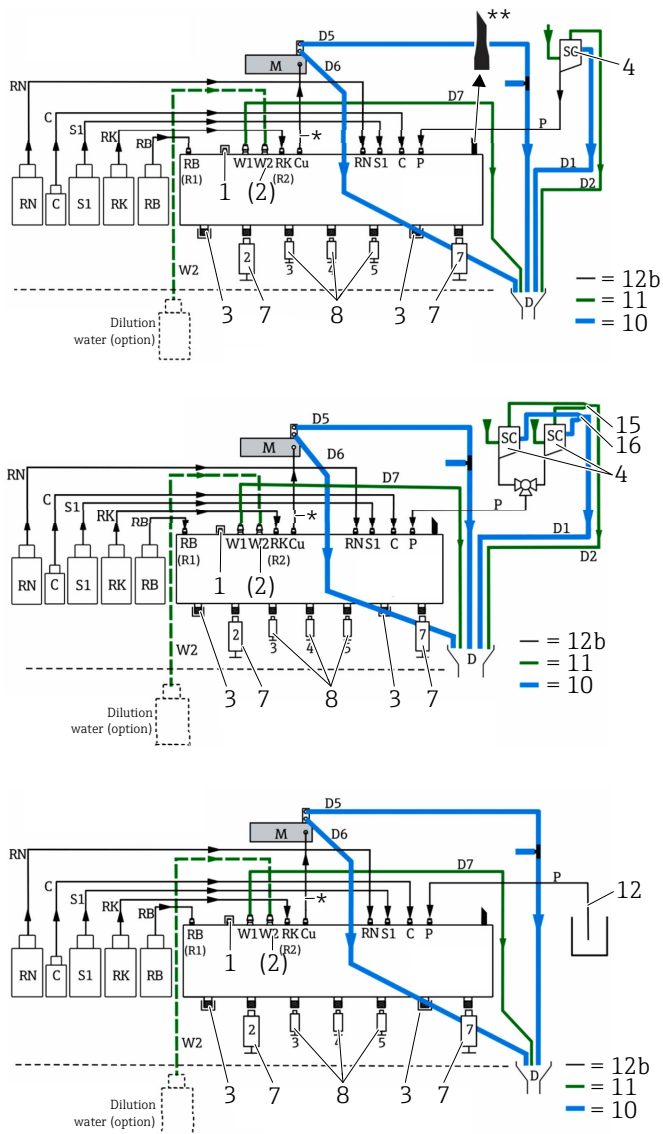
### 7.2 Scope of delivery of the CAV800-N1 maintenance kit for CA80AL (aluminum), for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  8,  13.

|           |     |                                             |            |       |                                         |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>10</b>  | 2 m   | Hose, C-Flex, ID 6.4 mm                 |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm                 |
| <b>4</b>  | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm             |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm       |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G $\frac{1}{8}$ DN1/16 PP |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP         |
| <b>8</b>  | 6 x | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP         |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 |            | 1 x   | Kit instructions                        |
| <b>9b</b> | 2 x | Hose push-fit nozzle 4x3.2 mm               |            |       |                                         |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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# 8 Using the CAV800 kit for CA80AL

\* Hose length: 125 mm

\*\* Sealing cap M8, open, beveled

### 7.3 Scope of delivery of the CAV800-AA maintenance kit for CA80AM (ammonium) for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  9,  15.

|           |     |                                             |            |       |                               |
|-----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>4</b>  | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>12a</b> | 0.4 m | Hose, C-Flex, ID 1.6 mm       |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>17</b>  | 0.1 m | PTFE hose Ø0.5 mm             |
| <b>8</b>  | 4 x | Dispenser 2.5 ml with adapter               |            | 1 x   | Kit instructions              |
| <b>9a</b> | 1 x | Straight connector, OD 4 mm                 |            |       |                               |

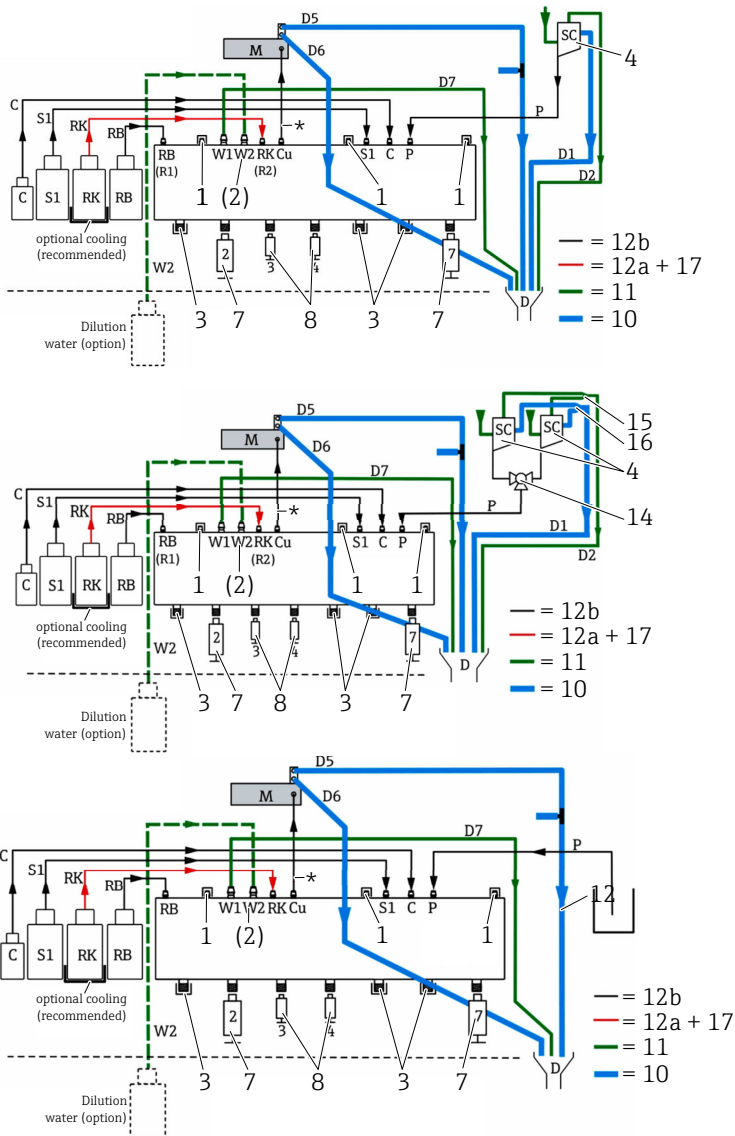
### 7.4 Scope of delivery of the CAV800-AA maintenance kit for CA80AM (ammonium) for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  9,  15.

|           |     |                                             |            |       |                                   |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm           |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>12a</b> | 0.4 m | Hose, C-Flex, ID 1.6 mm           |
| <b>4</b>  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm       |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>17</b>  | 0.1 m | PTFE hose Ø0.5 mm                 |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>14</b>  | 3 x   | Screw fitting G½ DN1/16 PP        |
| <b>8</b>  | 4 x | Dispenser 2.5 ml with adapter               | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP   |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP   |
| <b>9b</b> | 2 x | Hose push-fit nozzle 4x3.2 mm               |            | 1 x   | Kit instructions                  |
| <b>10</b> | 2 m | Hose, C-Flex, ID 6.4 mm                     |            |       |                                   |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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# 9 Using the CAV800 kit for CA80AM

\* Hose length: 45 mm

## 7.5 Scope of delivery of the CAV800-AF maintenance kit for CA80CR (chromium VI), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  10,  17.

|          |     |                                             |            |       |                               |
|----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b> | 2 x | Sealing cap M3 EPDM                         | <b>9a</b>  | 1 x   | Straight connector, OD 4 mm   |
| <b>2</b> | 2 x | Sealing cap M4 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>4</b> | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>5</b> | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>6</b> | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b> | 4 x | Dispenser 10 ml with adapter                |            | 1 x   | Kit instructions              |
| <b>8</b> | 4 x | Dispenser 2.5 ml with adapter               |            |       |                               |

## 7.6 Scope of delivery of the CAV800-AF maintenance kit for CA80CR (chromium VI) for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  10,  17.

|           |     |                                             |            |       |                                   |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>10</b>  | 2 m   | Hose, C-Flex, ID 6.4 mm           |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm           |
| <b>4</b>  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm       |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G½ DN1/16 PP        |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP   |
| <b>8</b>  | 4 x | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP   |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 |            | 1 x   | Kit instructions                  |
| <b>9b</b> | 2 x | Hose push-fit nozzle 4x3.2 mm               |            |       |                                   |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



### 7.7 Scope of delivery of the CAV800-MM maintenance kit for CA80FE (iron), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  11,  19.

|   |     |                                             |     |       |                               |
|---|-----|---------------------------------------------|-----|-------|-------------------------------|
| 1 | 2 x | Sealing cap M3 EPDM                         | 9a  | 1 x   | Straight connector, OD 4 mm   |
| 2 | 2 x | Sealing cap M4 EPDM                         | 9b  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| 4 | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | 10  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| 5 | 1 x | Silicone grease, medium-viscosity, tube 2 g | 11  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| 6 | 2 x | Filter mat G2 55x95x10 mm                   | 12b | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| 7 | 4 x | Dispenser 10 ml with adapter                |     | 1 x   | Kit instructions              |
| 8 | 2 x | Dispenser 2.5 ml with adapter               |     |       |                               |

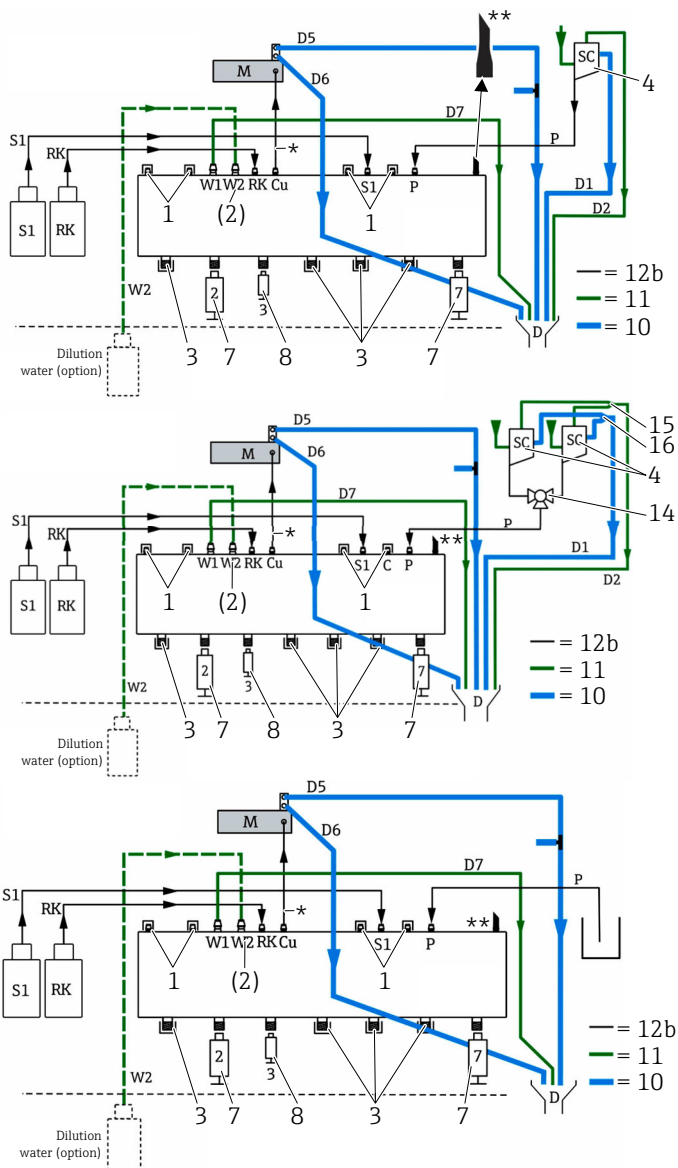
### 7.8 Scope of delivery of the CAV800-MM maintenance kit for CA80FE (iron), for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  11,  19.

|    |     |                                             |     |       |                                   |
|----|-----|---------------------------------------------|-----|-------|-----------------------------------|
| 1  | 2 x | Sealing cap M3 EPDM                         | 10  | 2 m   | Hose, C-Flex, ID 6.4 mm           |
| 2  | 2 x | Sealing cap M4 EPDM                         | 11  | 2.5 m | Hose, C-Flex, ID 3.2 mm           |
| 4  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | 12b | 1 m   | Hose, Norprene A, ID 1.6 mm       |
| 5  | 1 x | Silicone grease, medium-viscosity, tube 2 g | 13  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm |
| 6  | 2 x | Filter mat G2 55x95x10 mm                   | 14  | 3 x   | Screw fitting G½ DN1/16 PP        |
| 7  | 4 x | Dispenser 10 ml with adapter                | 15  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP   |
| 8  | 2 x | Dispenser 2.5 ml with adapter               | 16  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP   |
| 9a | 2 x | Straight connector, OD 4 mm                 |     | 1 x   | Kit instructions                  |
| 9b | 2 x | Hose push-fit nozzle 4x3.2 mm               |     |       |                                   |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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# 11 Using the CAV800 kit for CA80FE

\* Hose length: 125 mm

\*\* Sealing cap M8, open, beveled

## 7.9 Scope of delivery of the CAV800-R2 maintenance kit for CA80HA (hardness, CaCO<sub>3</sub>), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  12,  21.

|          |     |                                             |            |       |                               |
|----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b> | 2 x | Sealing cap M3 EPDM                         | <b>9a</b>  | 1 x   | Straight connector, OD 4 mm   |
| <b>2</b> | 2 x | Sealing cap M4 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>4</b> | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>5</b> | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>6</b> | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b> | 4 x | Dispenser 10 ml with adapter                |            | 1 x   | Kit instructions              |
| <b>8</b> | 2 x | Dispenser 2.5 ml with adapter               |            |       |                               |

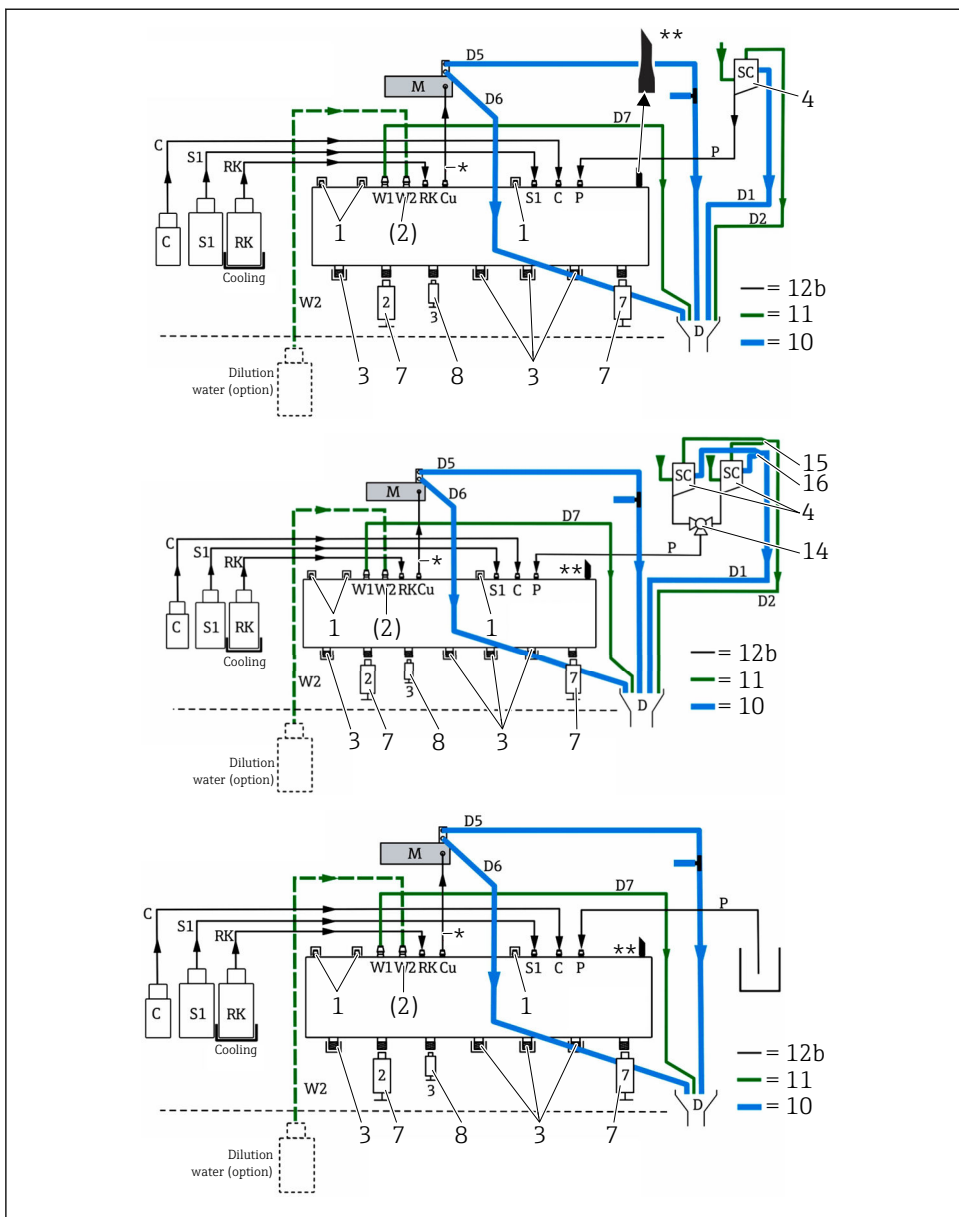
## 7.10 Scope of delivery of the CAV800-R2 maintenance kit for CA80HA (hardness, CaCO<sub>3</sub>) for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  12,  21.

|           |     |                                             |            |       |                                         |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>10</b>  | 2 m   | Hose, C-Flex, ID 6.4 mm                 |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm                 |
| <b>4</b>  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm             |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm       |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G $\frac{1}{8}$ DN1/16 PP |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP         |
| <b>8</b>  | 2 x | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP         |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 |            | 1 x   | Kit instructions                        |
| <b>9b</b> | 1 x | Hose push-fit nozzle 4x3.2 mm               |            |       |                                         |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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## 12 Using the CAV800 kit for CA80HA

\* Hose length: 125 mm

\*\* Sealing cap M8, open, beveled

### 7.11 Scope of delivery of the CAV800-GG maintenance kit for CA80NO (nitrite NO<sub>2</sub>-N), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  13,  23.

|          |     |                                             |            |       |                               |
|----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b> | 2 x | Sealing cap M3 EPDM                         | <b>9a</b>  | 1 x   | Straight connector, OD 4 mm   |
| <b>2</b> | 2 x | Sealing cap M4 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>4</b> | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>5</b> | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>6</b> | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b> | 4 x | Dispenser 10 ml with adapter                |            | 1 x   | Kit instructions              |
| <b>8</b> | 2 x | Dispenser 2.5 ml with adapter               |            |       |                               |

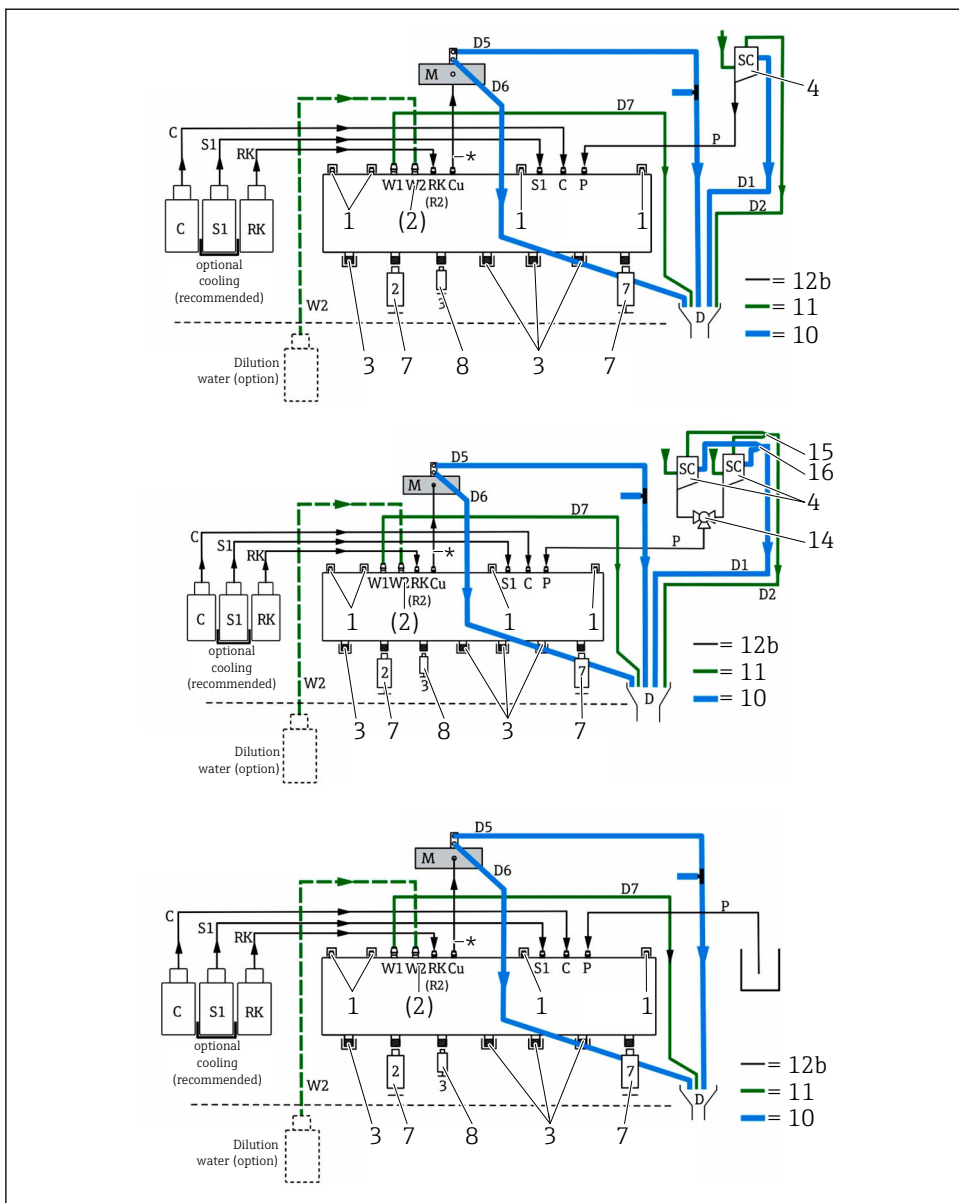
### 7.12 Scope of delivery of the CAV800-GG maintenance kit for CA80NO (nitrite NO<sub>2</sub>-N), for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  13,  23.

|           |     |                                             |            |       |                                         |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>10</b>  | 2 m   | Hose, C-Flex, ID 6.4 mm                 |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm                 |
| <b>4</b>  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm             |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm       |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G $\frac{1}{8}$ DN1/16 PP |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP         |
| <b>8</b>  | 2 x | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP         |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 |            | 1 x   | Kit instructions                        |
| <b>9b</b> | 2 x | Hose push-fit nozzle 4x3.2 mm               |            |       |                                         |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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### 13 Using the CAV800 kit for CA80NO

\* Hose length up to SW 01.06.08: 45 mm, hose length from SW 01.07.01: 125 mm

### 7.13 Scope of delivery of the CAV800-EA maintenance kit for CA80PH blue method (phosphate), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  14,  25.

|          |     |                                             |            |       |                               |
|----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b> | 2 x | Sealing cap M3 EPDM                         | <b>9a</b>  | 1 x   | Straight connector, OD 4 mm   |
| <b>2</b> | 2 x | Sealing cap M4 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>4</b> | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>5</b> | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>6</b> | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b> | 4 x | Dispenser 10 ml with adapter                |            | 1 x   | Kit instructions              |
| <b>8</b> | 4 x | Dispenser 2.5 ml with adapter               |            |       |                               |

### 7.14 Scope of delivery of the CAV800-EA maintenance kit for CA80PH blue (phosphate) for 1 year, for 2 measuring points

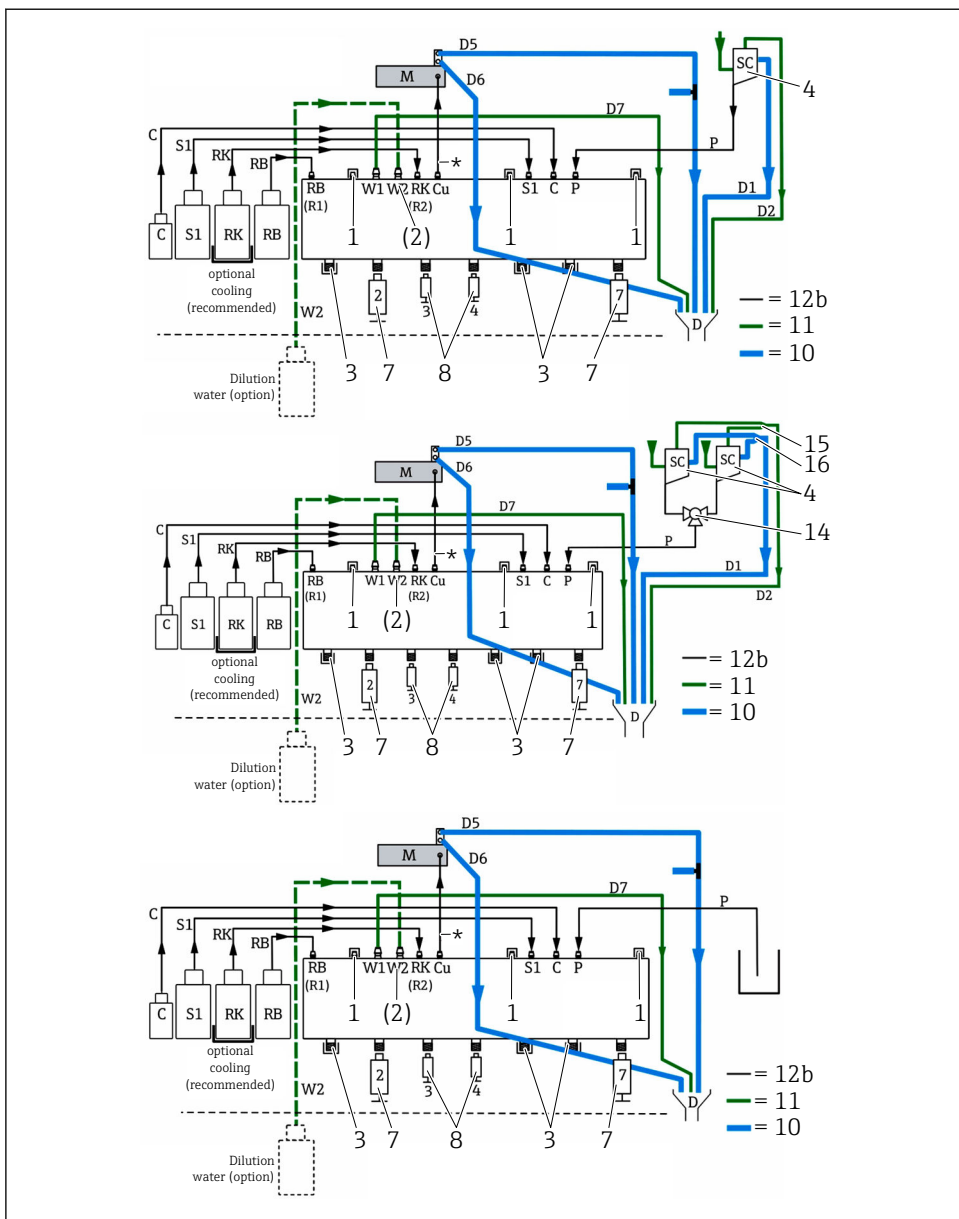
For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  14,  25.

|           |     |                                             |            |       |                                   |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>10</b>  | 2 m   | Hose, C-Flex, ID 6.4 mm           |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm           |
| <b>4</b>  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm       |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G½ DN1/16 PP        |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP   |
| <b>8</b>  | 4 x | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP   |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 |            | 1 x   | Kit instructions                  |
| <b>9b</b> | 2 x | Hose push-fit nozzle 4x3.2 mm               |            |       |                                   |

 In older CA80PH blue analyzers, the hose **RK** may be C-Flex hose. This must be replaced with a Norprene hose. This measure is independent of the SW version.

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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#### 14 Using the CAV800 kit for CA80PH blue

\* Hose length: 45 mm

### 7.15 Scope of delivery of the maintenance kit CAV800-EB for CA80PH yellow method (phosphate), for 1 year, for 1 measuring point

For kit contents and item numbers, see →  1,  7. For use, see →  15,  27.

|          |     |                                             |            |       |                               |
|----------|-----|---------------------------------------------|------------|-------|-------------------------------|
| <b>1</b> | 2 x | Sealing cap M3 EPDM                         | <b>9a</b>  | 1 x   | Straight connector, OD 4 mm   |
| <b>2</b> | 2 x | Sealing cap M4 EPDM                         | <b>9b</b>  | 1 x   | Hose push-fit nozzle 4x3.2 mm |
| <b>4</b> | 1 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>10</b>  | 1 m   | Hose, C-Flex, ID 6.4 mm       |
| <b>5</b> | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>11</b>  | 1.5 m | Hose, C-Flex, ID 3.2 mm       |
| <b>6</b> | 2 x | Filter mat G2 55x95x10 mm                   | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm   |
| <b>7</b> | 4 x | Dispenser 10 ml with adapter                |            | 1 x   | Kit instructions              |
| <b>8</b> | 2 x | Dispenser 2.5 ml with adapter               |            |       |                               |

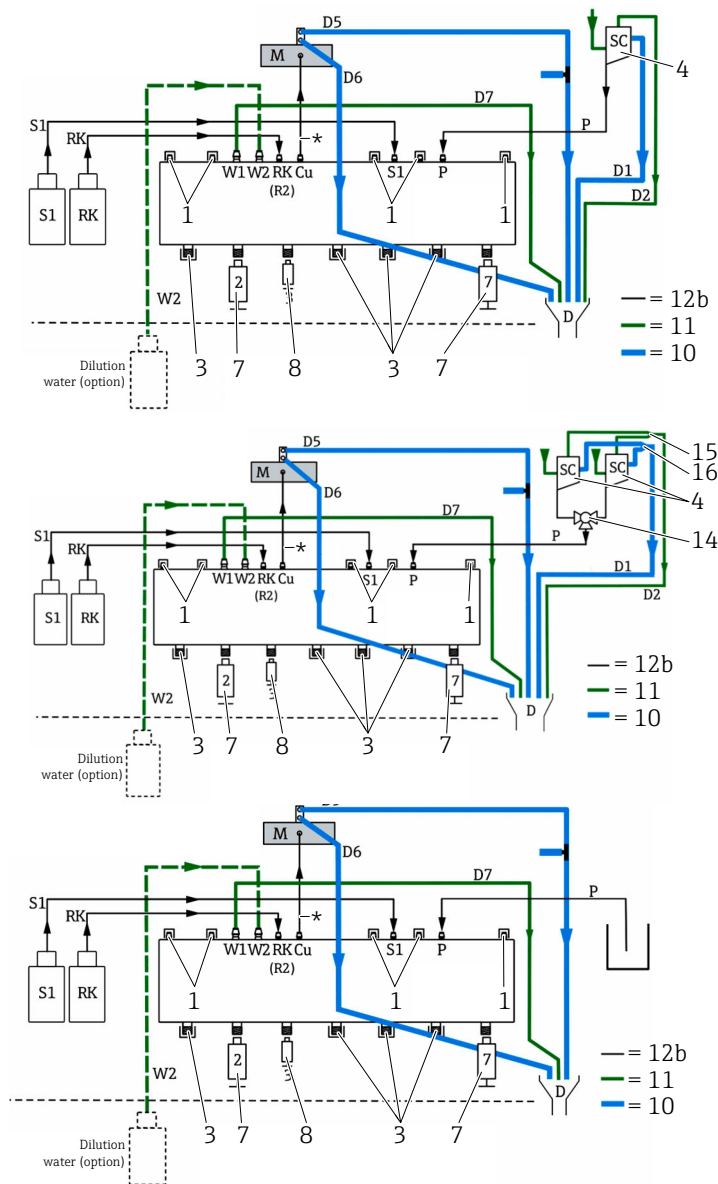
### 7.16 Scope of delivery of the CAV800-EB maintenance kit for CA80PH yellow (phosphate) for 1 year, for 2 measuring points

For kit contents and item numbers, see →  1,  7 and →  2,  7. For use, see →  15,  27.

|           |     |                                             |            |       |                                   |
|-----------|-----|---------------------------------------------|------------|-------|-----------------------------------|
| <b>1</b>  | 2 x | Sealing cap M3 EPDM                         | <b>10</b>  | 2 m   | Hose, C-Flex, ID 6.4 mm           |
| <b>2</b>  | 2 x | Sealing cap M4 EPDM                         | <b>11</b>  | 2.5 m | Hose, C-Flex, ID 3.2 mm           |
| <b>4</b>  | 2 x | O-ring ID 34.65 W 1.78 mm EPDM              | <b>12b</b> | 1 m   | Hose, Norprene A, ID 1.6 mm       |
| <b>5</b>  | 1 x | Silicone grease, medium-viscosity, tube 2 g | <b>13</b>  | 3 x   | O-ring ID 7.65 W 1.78 OD 11.21 mm |
| <b>6</b>  | 2 x | Filter mat G2 55x95x10 mm                   | <b>14</b>  | 3 x   | Screw fitting G½ DN1/16 PP        |
| <b>7</b>  | 4 x | Dispenser 10 ml with adapter                | <b>15</b>  | 1 x   | Y-hose connector 3.2x3.2x3.2 PP   |
| <b>8</b>  | 2 x | Dispenser 2.5 ml with adapter               | <b>16</b>  | 1 x   | Y-hose connector 6.4x6.4x6.4 PP   |
| <b>9a</b> | 2 x | Straight connector, OD 4 mm                 |            | 1 x   | Kit instructions                  |
| <b>9b</b> | 2 x | Hose push-fit nozzle 4x3.2 mm               |            |       |                                   |

 The diagrams below show the following analyzer configurations:

- Top diagram = analyzer with one sample preparation unit
- Middle diagram = analyzer with two sample preparation units
- Bottom diagram = self-priming analyzer



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 15 Using the CAV800 kit for CA80PH yellow

\* Hose length up to SW 01.06.08: 45 mm, hose length from SW 01.07.01: 125 mm

## 8 Additional documentation

Detailed information on the devices can be found in the Operating Instructions for the analyzer and in the other documentation, available at:

- [www.endress.com/device-viewer](http://www.endress.com/device-viewer)
- Smartphone/tablet: Endress+Hauser Operations app

## 9 Disposal

 If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.



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[www.addresses.endress.com](http://www.addresses.endress.com)

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