EA01519C/07/EN/01.25-00
71693653
2025-01-31

Installation Instructions
CA72TOC

Couplings and fittings

Endress+Hauser
People for Process Automation

Table of contents

1 Intended use

- The parts of the kits are to be used exclusively as spare parts for the CA72TOC analyzers . Any other use is not permitted!
- Use only original parts from Endress+Hauser.
- In the W@M Device Viewer, check if the spare part is suitable for the existing device.

2 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.

3 Safety instructions

WARNING

Risk of electric shock!

- ▶ Perform work on the device with the utmost caution, especially when the device remains powered on during maintenance tasks.
- ▶ 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.

WARNING

Risk of burns!

- ▶ Contact with hot components in the vicinity of the combustion furnace may cause injuries. Where necessary, wear heat-resistant gloves.

⚠ CAUTION

Risk to health due to contact with the process medium!

- ▶ Wear protective gloves, protective goggles and protective clothing, particularly when working with reagents, chemicals or process solutions.
- ▶ Immediately rinse splashes with plenty of water and a 1% sodium bicarbonate solution ($NaHCO_3$, baking soda).
- ▶ In case of eye contact, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.

⚠ CAUTION

Risk of infection when working with wastewater!

- ▶ Wear protective gloves, protective goggles and protective clothing,
- ▶ Observe applicable workplace safety regulations.
- ▶ In case of eye contact, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.

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!

The following must never be used for cleaning:

- Concentrated mineral acids or alkaline solutions
- Benzyl alcohol
- Methylene chloride
- High-pressure steam

4 Scope of delivery

4.1 71101617 Kit CA72TOC couplings + fittings

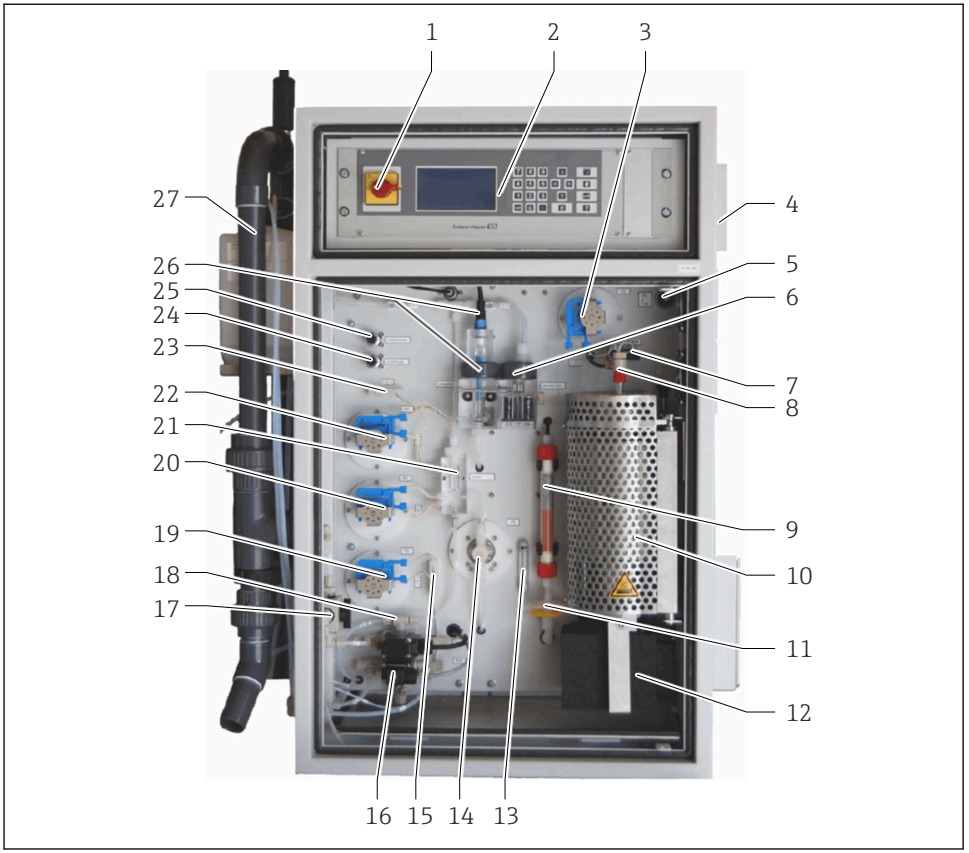
The kit contains the following parts :

5 x	Sealing ring G¼" PVC	5 x	Sealing ring G⅛" PVC
1 x	Angled swivel connector, machined	1 x	Coupling nut 1½" PVC, machined
1 x	Coupling D 6/8 × G¼" PVDF	1 x	Coupling D 4/6 × G⅜" PVDF
1 x	Bulkhead coupling on one end, female thread	2 x	Bulkhead coupling D 4/6 PP
2 x	Coupling D 4/6 × G⅛" PP	1 x	T-coupling D 6/8 × 6/8 × 4/6 PVDF
1 x	Coupling D 4/6 × G½" PVDF	2 x	Angled swivel connector D 4/6mm × G¼" PP
2 x	Angled coupling D 4/6 × G¼" PP	1 x	Angled coupling D 4/6 × G⅛" PP
1 x	Plug G ⅛ "PP	2 x	Coupling with short thread ⅛" × 28UNF ETFE
10 x	Cone for coupling ⅛" × 28UNF ETFE	2 x	Coupling with nozzle ¼" × 28 D 1.55 ETFE
2 x	Coupling with nozzle ¼" × 28 D 3.20 ETFE	1 x	Coupling D 4/6 × G¼" × 4/6 PP
3 x	Long coupling ⅛" / ¼" × 28UNF ETFE	1 x	Coupling D 3.2 × GL 14 PVDF
2 x	Coupling D 4/6 × GL 14 PP	1 x	Kit instructions

5 Overview, use and localization

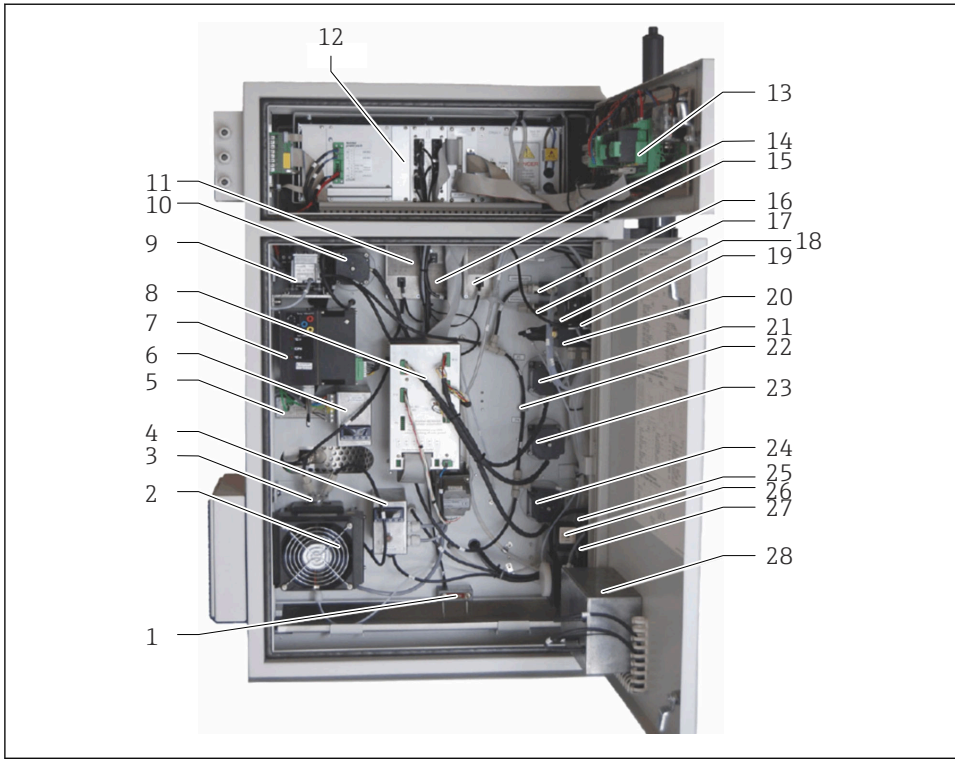
5.1 CA72TOC interior views

Using figure 1, figure 2, and the table in Section 5.2, you can identify the installation positions of all components of the CA72TOC.



1 *Front-panel overview, with open front doors*

1 Main switch
2 Computer
3 Pump P2 (sample)
4 Mains junction box
5 Compressor switch
6 Separation chamber
7 Dosing valve
8 Injection unit
9 Acid filter
10 Tube furnace
11 Combination filter
12 Salt trap (optional)
13 Flowmeter
14 Dilution pump P5
15 Acid pump adapter
16 Solenoid valve MV4
17 Sample channel switching
18 Solenoid valve MV1
19 Pump P3 (acid)
20 Pump P4 (optional)
21 Mixing chamber (opt.)
22 Pump P1 (condensate)
23 Condensate adapter
24 Stripping gas valve
25 Carrier gas valve
26 Strip chamber with pH electrode
27 Sample conditioning



A0057351

2 *Rear overview, with rear doors open*

1 Leak detection contact
2 Peltier cooler
3 Radiator glass insert
4 Heating regulator
5 Temp. amplifier
6 Controller for furnace heating
7 Controller f. Peltier cooler
8 Motor controller P1-6
9 Compressor
10 Motor P2 (sample)
11 Pressure-amplifier
12 Computer unit
13 Power distribution
14 Magnetic stirrer control
15 pH amplifier
16 Carrier gas valve
17 Stripping gas valve
18 Valve MV7
19 Valve MV3
20 Gas connection block
21 Motor P1 (sample)
22 Check valve
23 Motor P4 (sample)
24 Motor P3 (acid)
25 Valve MV2
26 Valve MV5
27 Water connection block
28 IR detector

5.2 Usage and localization

Designation	Usage	Localization	Description
Sealing ring G¼" PVC	Gas generator Standby circuit PA-3 Standby circuit PA-2 Solenoid valve 3/2-way	→ 5, 12 (→ 1, 6, item 27) (→ 1, 6, item 27) (→ 1, 6, item 16)	Section 6.2, → 11
Sealing ring G ⅛"PVC	Gas generator Water connection, base assembly Gas connection, base assembly	→ 5, 12 (→ 2, 7, item 27) (→ 2, 7, item 27)	Section 6.3, → 14
Angled swivel connector, machined	Solenoid valve, 3/2-way, all versions	(→ 1, 6, item 16)	Section 6.4, → 15
Coupling nut 1½" PVC, machined	Separation chamber type II Strip chamber type II	(→ 1, 6, item 6) (→ 1, 6, item 26)	Section 6.5, → 16
Coupling D 6/8 × G¼" PVDF	Gas generator Separation chamber type II	→ 4, 12 (→ 1, 6, item 6)	Section 6.6, → 16
Coupling D 4/6 × G⅜" PVDF	Adapter for frit (TOC) Gas connection, base assembly	(→ 1, 6, item 26) (→ 2, 7, item 20)	Section 6.7, → 17
Bulkhead coupling on one end Female thread	Sample outlet	→ 18, 18	Section 6.8, → 18
Bulkhead coupling D 4/6 PP	Standard furnace, connection without heating filter Gas discharge	→ 1, 6, behind item 10 → 20, 19	Section 6.9, → 19
Coupling D 4/6 × G⅛" PP	Sample pump adapter Water connection with dilution Gas type I connection Water connection, base assembly Mixing chamber Heating filter	→ 1, 6, instead of item 21 (→ 2, 7, item 27) (→ 2, 7, item 20) (→ 2, 7, item 27) (→ 1, 6, item 21) (→ 1, 6, item 12)	Section 6.10, → 20
T-coupling D 6/8 × 6/8 × 4/6	Mounting plate TOC II with dilution	→ 1, 6, above item 26	Section 6.11, → 23
Coupling D 4/6 × G½" PVDF	Mixing chamber	(→ 1, 6, item 21)	Section 6.12, → 23
Angled swivel conn. D 4/6mm × G¼" PP	Solenoid valve, 3/2-way, all versions Sample conditioning PA-3 / PA-2	(→ 1, 6, item 16) (→ 1, 6, item 27)	Section 6.13, → 24
Angled coupling D 4/6 × G¼" PP	Strip chamber type II Sample channel switching	(→ 1, 6, item 26) (→ 1, 6, item 17)	Section 6.14, → 25
Angled coupling D 4/6 × G⅛" PP	Water connection, base assembly	(→ 2, 7, item 27)	Section 6.15, → 27

Designation	Usage	Localization	Description
Plug G ⅛ "PP	Water connection without dilution	(→ 2, 7, item 27)	Section 6.16, → 28
Coupling with short thread ⅛" × 28UNF	Adapter for condensate d. Acid supply Acid pump adapter Mixing chamber	→ 39, 30 (→ 1, 6, item 15) (→ 1, 6, item 21)	Section 6.17, → 28
Cone for coupling ⅛ "× 28UNF	Adapter for condensate drain, acid s. Acid pump adapter Mixing chamber Condensate pump adapter Strip chamber type II	→ 40, 31Figure 42 (→ 1, 6, item 15) (→ 1, 6, item 21) (→ 1, 6, item 23) (→ 1, 6, item 26)	Section 6.18, → 31
Coupling with nozzle ¼" × 28 D 1.55	Acid pump adapter Condensate pump adapter	(→ 1, 6, item 15) (→ 1, 6, item 23)	Section 6.19, → 33
Coupling with nozzle ¼" × 28 D 3.20	Sample pump adapter Strip chamber type II Mixing chamber	→ 1, 6, instead of item 21 (→ 1, 6, item 26) (→ 1, 6, item 21)	Section 6.20, → 34
Coupling D 4/6×G¼" × 4/6 PP	Solenoid valve, 3/2-way, all versions	(→ 1, 6, item 16)	Section 6.21, → 36
Long coupling ⅛" / ¼" × 28UNF	Adapter for condensate drain, acid s. Acid pump adapter Condensate pump adapter Strip chamber type II	→ 39, 30 (→ 1, 6, item 15) (→ 1, 6, item 23) (→ 1, 6, item 26)	Section 6.22, → 36
Coupling D 3.2 × GL 14 PVDF	Cooler, glass insert below	(→ 2, 7, item 3)	Section 6.23, → 37
Coupling D 4/6 × GL 14 PP	Cooler, gas insert above	(→ 2, 7, item 3)	Section 6.24, → 38

6 Installation instructions for seals and couplings

6.1 Preparation

⚠ WARNING

Risk of electric shock!

- ▶ **First switch off the main switch!** Then open the front and rear lower doors using the special key provided.

⚠ WARNING

Contact with hot components in the vicinity of the combustion furnace may cause injuries.

- ▶ Allow the furnace to cool down or wear heat-resistant gloves.

⚠ WARNING

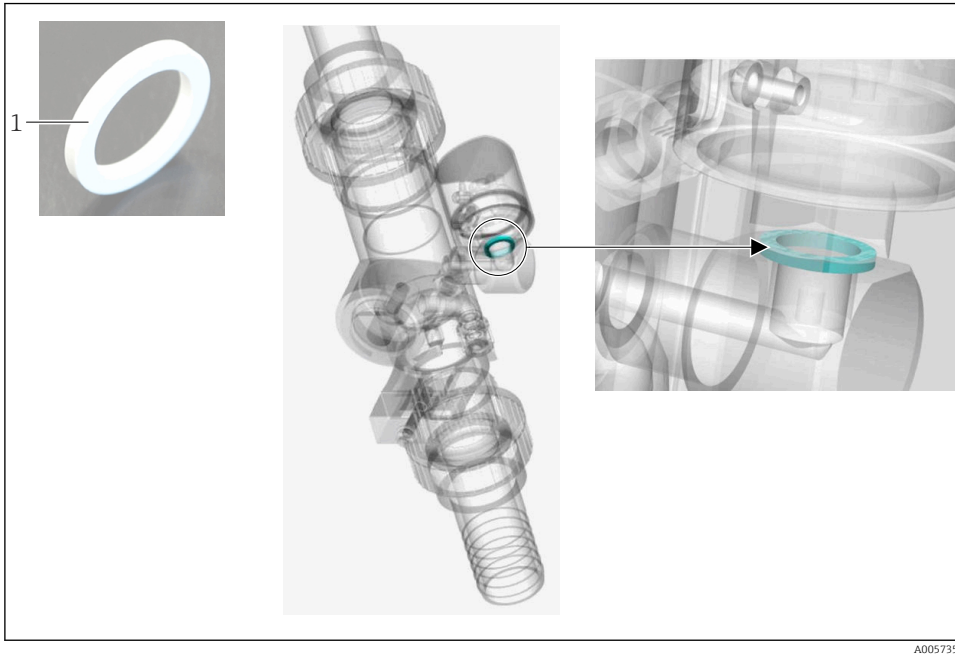
Risk of injury from leaking media!

- ▶ Shut off the supply of all media (water, gas, acid, sample supply) and drain the hoses. Observe the warnings in Chapter 3.

The (▸) arrow indicates the assembly in which the spare part described is used.

6.2 Sealing ring G¼" PVC

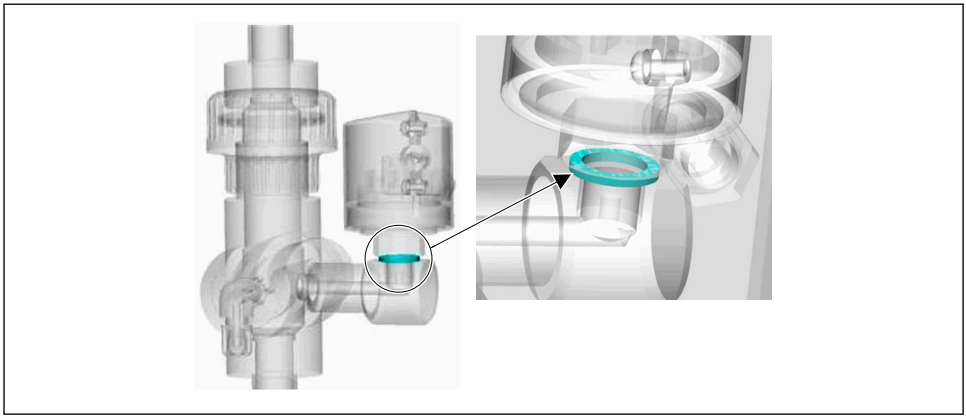
▸ Standby circuit for PA-2	→ 3, 11
▸ Standby circuit for PA-3	→ 4, 12
▸ Gas generator	→ 5, 12
▸ Solenoid valve 3/2-way with backflushing	→ 6, 12
▸ Solenoid valve 3/2-way	→ 7, 13
▸ Solenoid valve, 3/2, aggressive medium	→ 8, 13



A0057352

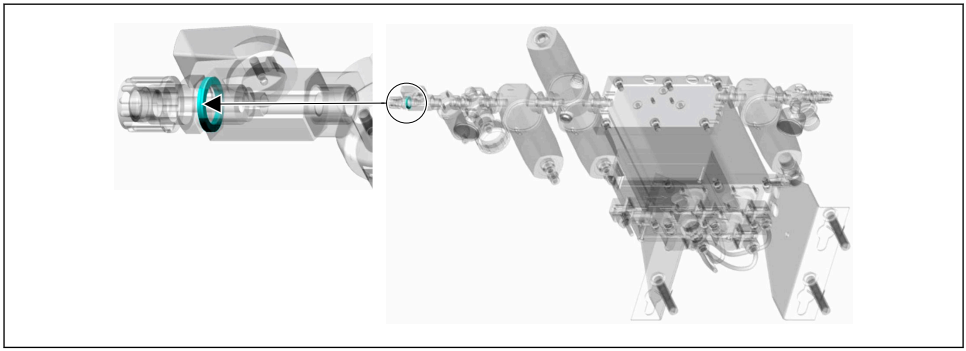
3 *Sealing ring G¼" PVC in standby circuit for PA-2*

1 *Sealing ring G¼" PVC*



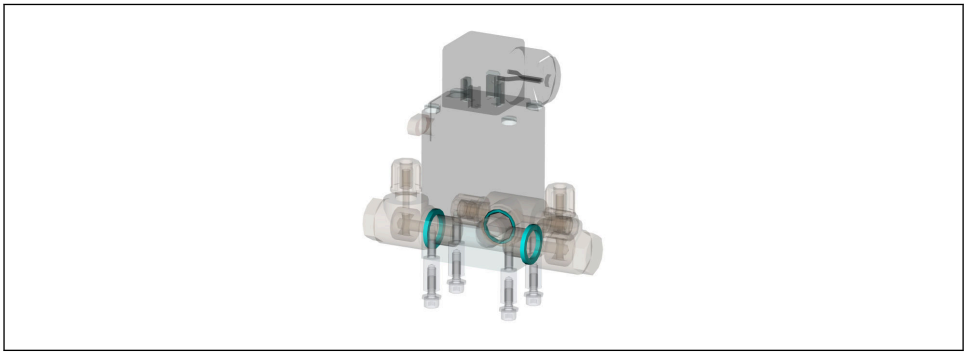
A0057353

4 Sealing ring G¼" PVC in standby circuit for PA-3



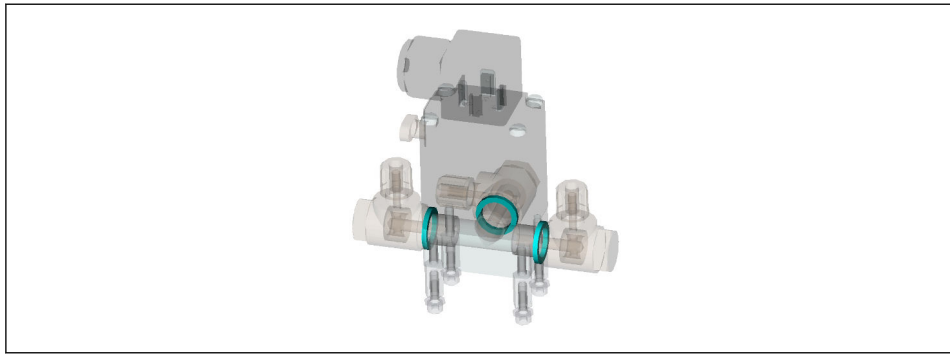
A0057354

5 Sealing ring G¼" PVC in the gas generator



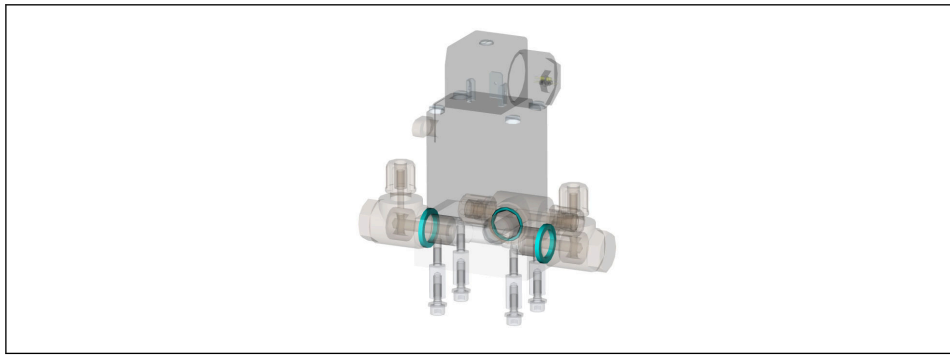
A0057355

6 Sealing rings G¼" PVC in solenoid valve 3/2-way with backflushing



A0057356

7 Sealing rings G ¼" PVC in solenoid valve 3/2-way

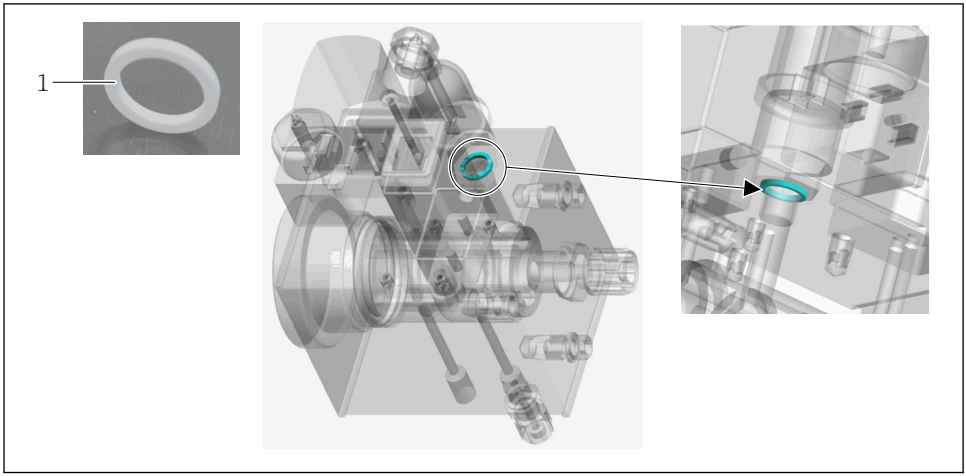


A0057357

8 Sealing rings G ¼" PVC in solenoid valve, 3/2-way for aggressive medium

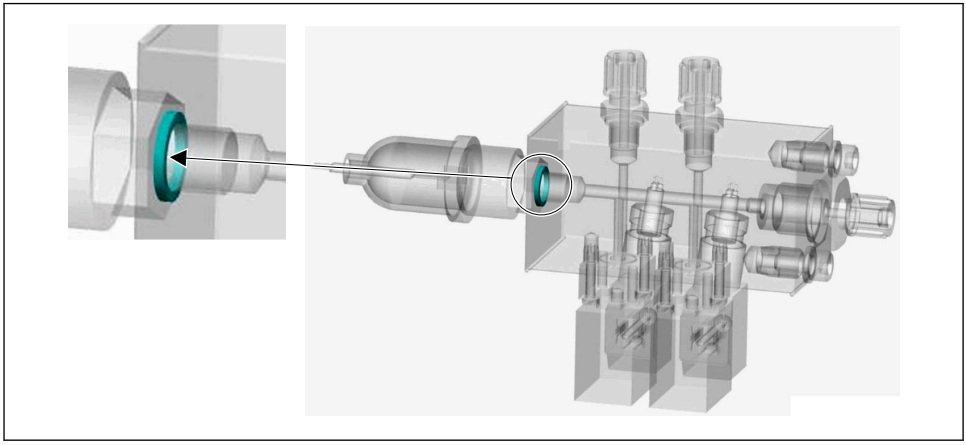
6.3 Sealing ring G⅛" PVC

▸ Water connection block	→ 9, 14
▸ Gas connection block	→ 10, 14
▸ Gas generator	→ 11, 15

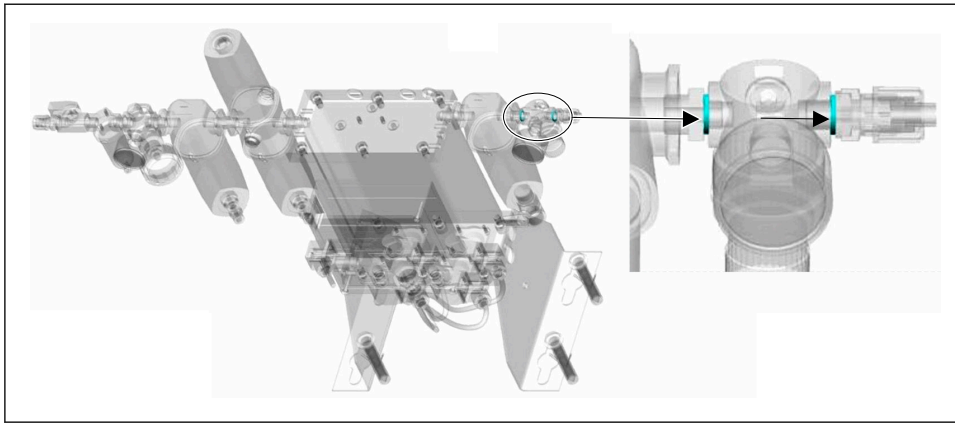


9 *Sealing ring G ⅛"PVC in water connection block*

1 Sealing ring G⅛" PVC



10 *Sealing ring G ⅛"PVC in gas connection block*

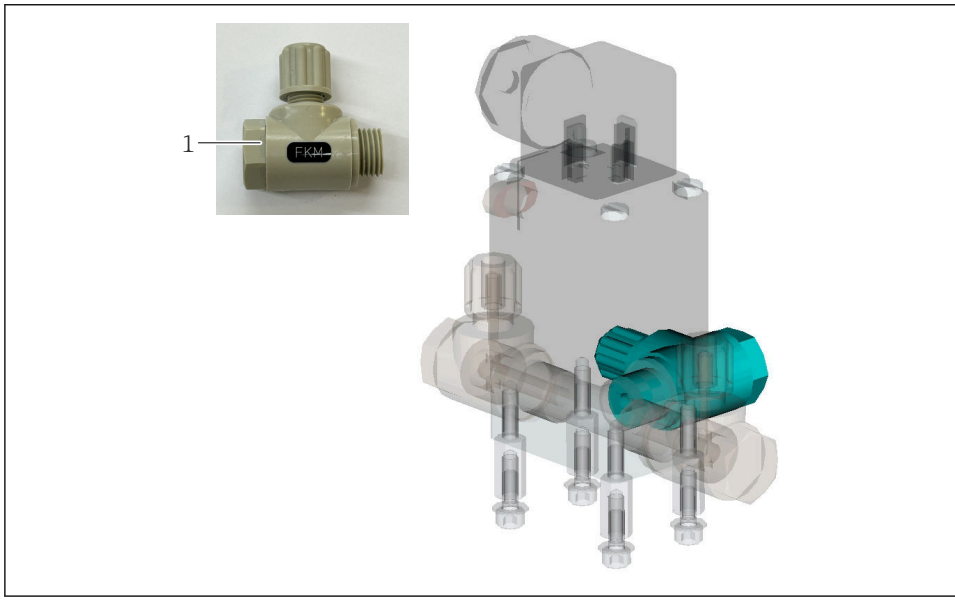


A0057360

11 Sealing rings G ⅛ "PVC in gas generator

6.4 Angled swivel connector, machined

▸ Solenoid valve 3/2-way	→ 12, 15



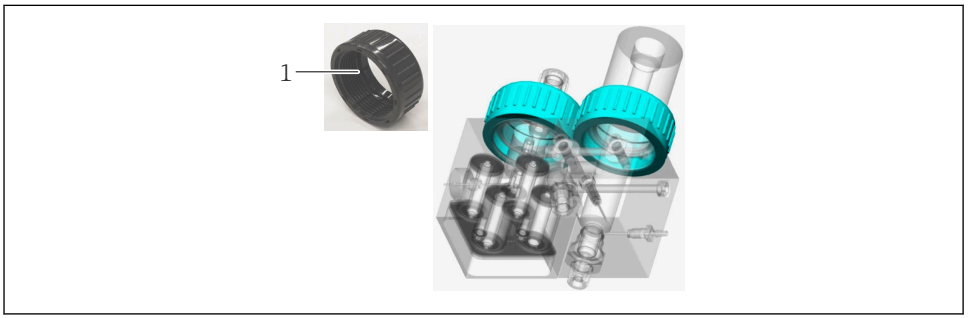
A0057361

12 Angled swivel connectors on the 3/2-way solenoid valve

1 Angled swivel connector, machined

6.5 Coupling nut 1½" PVC, machined

▸ Separation chamber type II	→ 🖼 13, 🗎 16
▸ Strip chamber type II	→ 🖼 13, 🗎 16



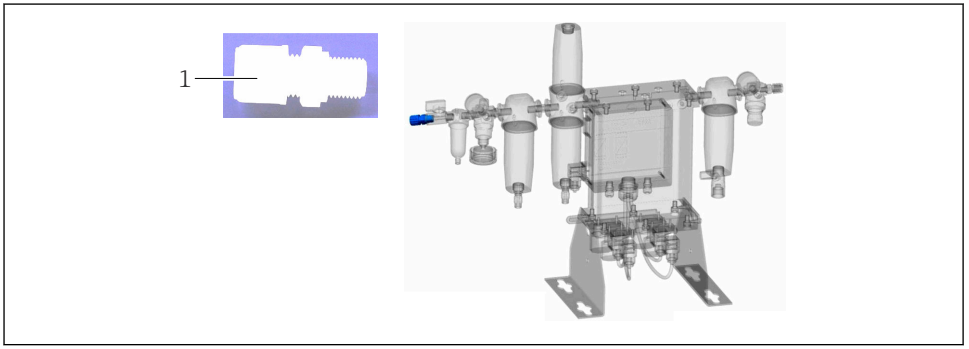
A0057362

🖼 13 *Coupling nut 1½" for separation chamber and strip chamber*

1 Coupling nut 1½"

6.6 Coupling D 6/8 × G¼" PVDF

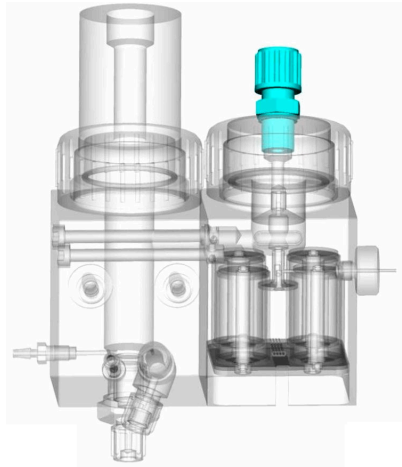
▸ Gas generator	→ 🖼 14, 🗎 16
▸ Separation chamber type II	→ 🖼 15, 🗎 17



A0057363

🖼 14 *Coupling D 6/8 × G ¼" PVDF on gas generator*

1 Coupling D 6/8 × G¼" PVDF

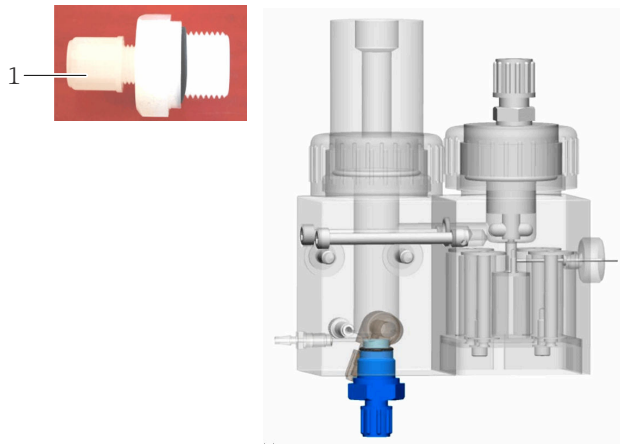


A0057364

15 Coupling D 6/8 × G ¼" PVDF on the separation chamber type II

6.7 Coupling D 4/6 × G⅜" PVDF

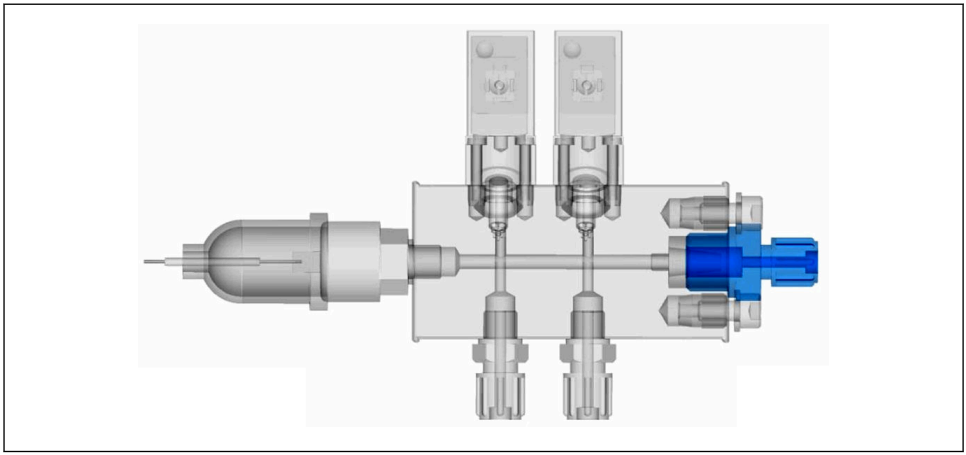
▸ Adapter for frit (TOC)	→ 16, 17
▸ Gas connection base assembly	→ 17, 18



A0057365

16 Coupling D 4/6 × G ⅜"PVDF in strip and separation chamber type II

1 Coupling D 4/6 × G⅜" PVDF

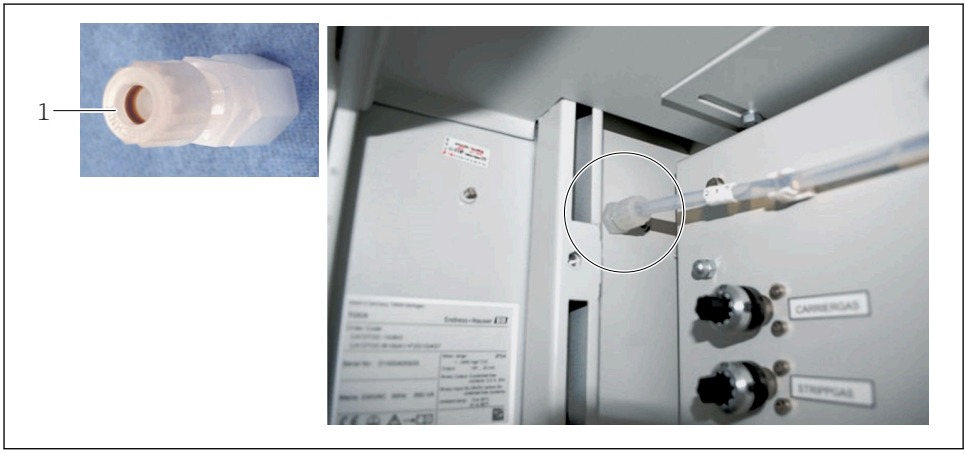


A0057366

17 Coupling D 4/6 × G⅜" PVDF in gas connection type I

6.8 Bulkhead coupling on one end, female thread

▸ Sample outlet	→ 18, 18



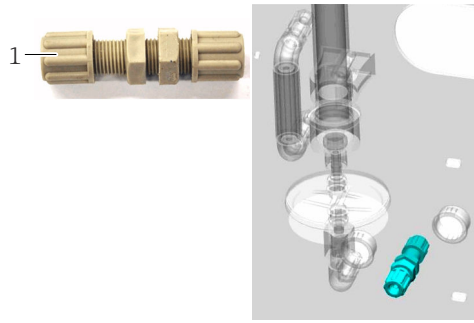
A0057368

18 Installation position of the bulkhead coupling

1 Bulkhead coupling with female thread

6.9 Bulkhead coupling D 4/6 PP

▸ Standard furnace, connection without heating filter (salt trap)	→ 19, 19
▸ Gas discharge	→ 20, 19



A0057370

19 *Bulkhead coupling D 4/6 PP for standard furnace, connection without heating filter (salt trap)*

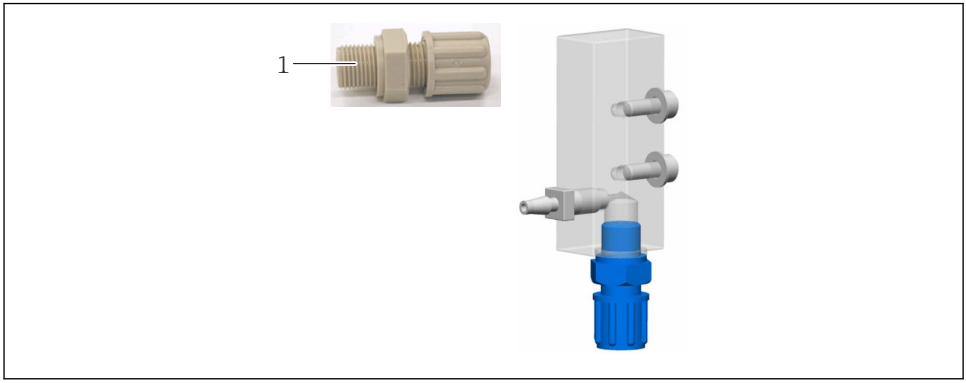
1 Bulkhead coupling D 4/6 PP

A0057371

20 *Bulkhead coupling D 4/6 PP for gas discharge*

6.10 Coupling D 4/6 × G⅛" PP

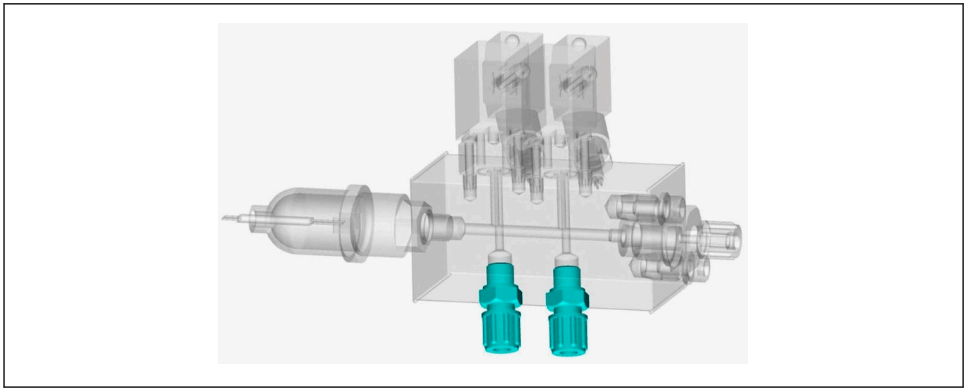
▸ Sample pump adapter	→ 21, 20
▸ Gas connection type I	→ 22, 20
▸ Water connection with dilution	→ 23, 21
▸ Water connection without dilution	→ 24, 21
▸ Heating filter	→ 25, 22
▸ Mixing chamber	→ 26, 22



A0057372

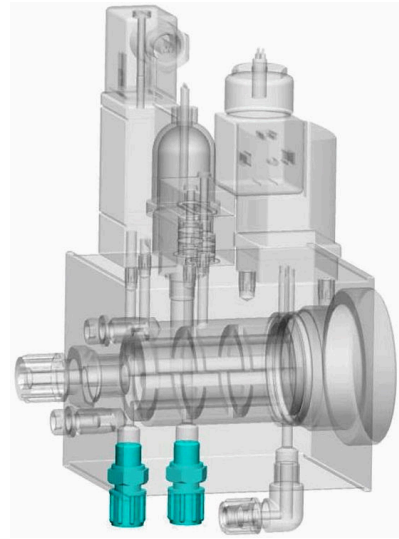
21 Coupling D 4/6 × G ⅛"PP on sample pump adapter

1 Coupling D 4/6 × G⅛" PP



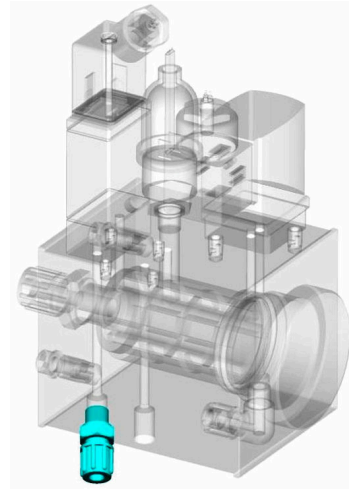
A0057373

22 Coupling D 4/6 × G ⅛" PP on gas connection type I



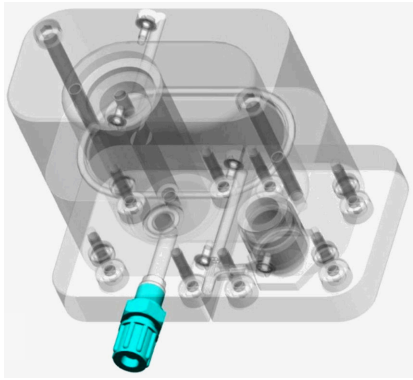
A0057374

23 Coupling D 4/6 × G ⅛" PP on water connection with dilution



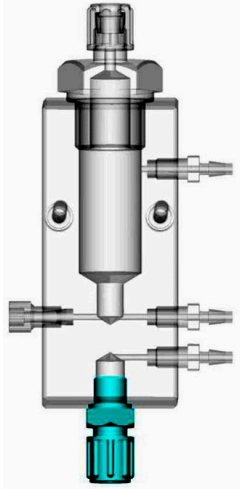
A0057375

24 Coupling D 4/6 × G ⅛" PP on water connection without dilution



A0057376

25 Coupling D 4/6 × G ⅛" PP on heating filter

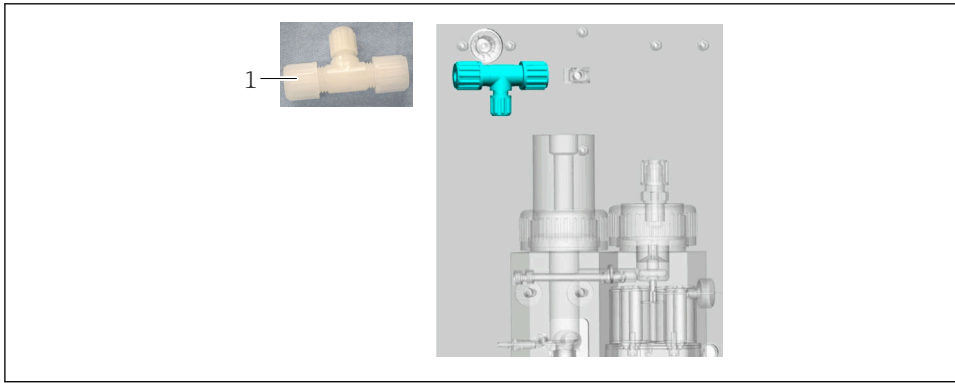


A0057377

26 Coupling D 4/6 × G ⅛" PP on the mixing chamber

6.11 T-coupling D 6/8 × 6/8 × 4/6 PVDF

▸ TOCII mounting plate with dilution	→ 27, 23



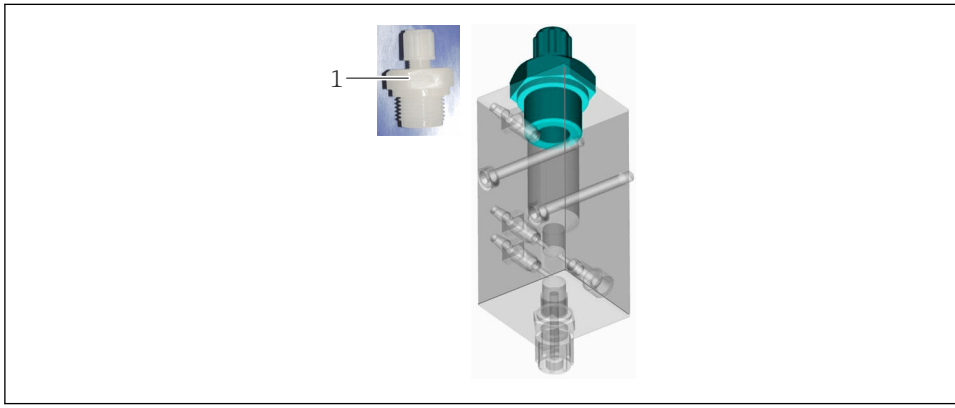
A0057378

27 T-coupling D 6/8×6/8×4/6 PVDF on TOCII mounting plate with dilution

1 T-coupling D 6/8×6/8×4/6

6.12 Coupling D 4/6 × G½" PVDF

▸ Mixing chamber	→ 28, 23



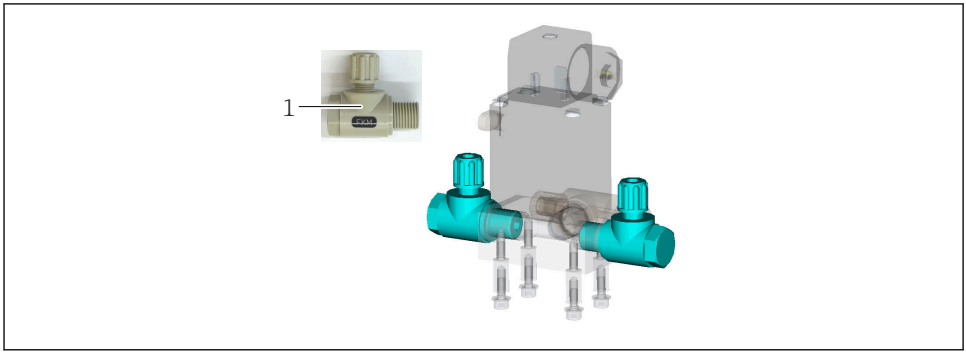
A0057379

28 Coupling D 4/6 × G ½" PVDF on the mixing chamber

1 Coupling D 4/6 × G½" PVDF

6.13 Angled swivel connector D 4/6 × G¼" PP

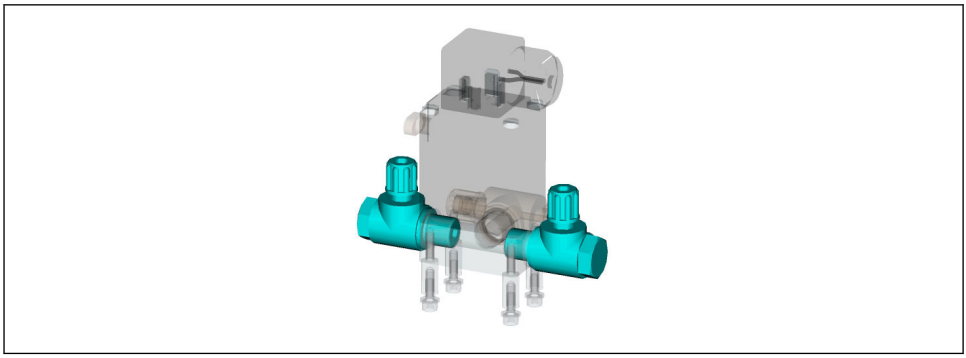
▸ Solenoid valve, 3/2, aggressive medium	→ 29, 24
▸ Solenoid valve, 3/2-way, with backflushing	→ 30, 24
▸ Solenoid valve, 3/2-way, standard	→ 31, 25



A0057380

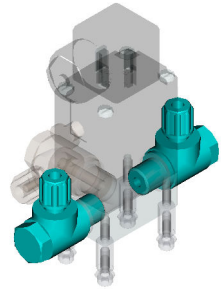
29 *Angled swivel conn. D 4/6mm × G¼" PP on solenoid valve 3/2 for aggressive medium*

1 Angled swivel connector D 4/6 × G¼" PP



A0057381

30 *Angled swivel conn. D 4/6mm × G¼" PP an solenoid valve, 3/2-way with backflushing*

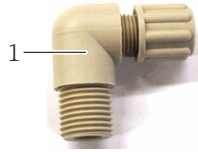


A0057382

31 Angled swivel conn. D 4/6mm × G¼" PP on solenoid valve, 3/2-way, standard

6.14 Angled coupling D 4/6 × G¼" PP

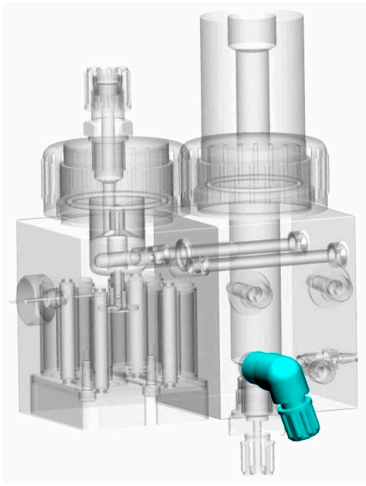
▸ Sample channel switching	→ 32, 25
▸ Stripping vessel type II	→ 33, 26
▸ Sample conditioning PA-2 (without screen)	→ 34, 27
▸ Sample conditioning PA-3 (without screen)	→ 34, 27



A0057383

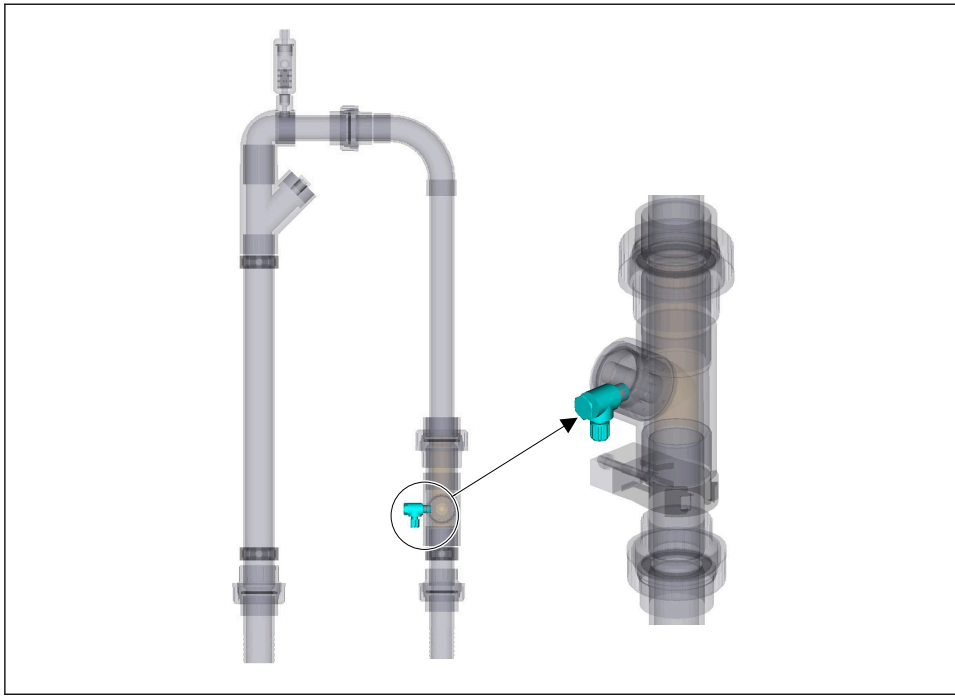
32 Angled coupling D 4/6 × G¼" PP on the sample channel switching

1 Angled coupling D 4/6 × G¼" PP



A0057384

33 *Angled coupling D 4/6 × G¼" PP on stripping vessel type II*

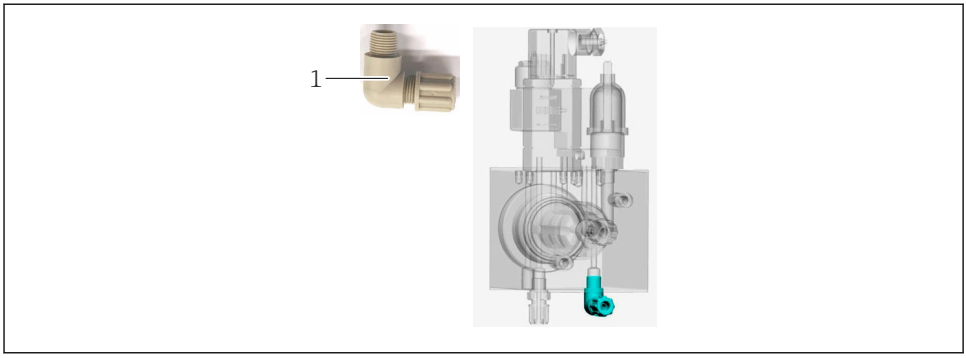


A0057385

34 *Angled swivel coupling D 4/6 × G¼" PP on sample conditioning system PA-2 / PA-3 (illustrative depiction of sample conditioning system PA-2)*

6.15 Angled coupling D 4/6 × G⅛" PP

▸ Water connection without dilution	→ 35, 28



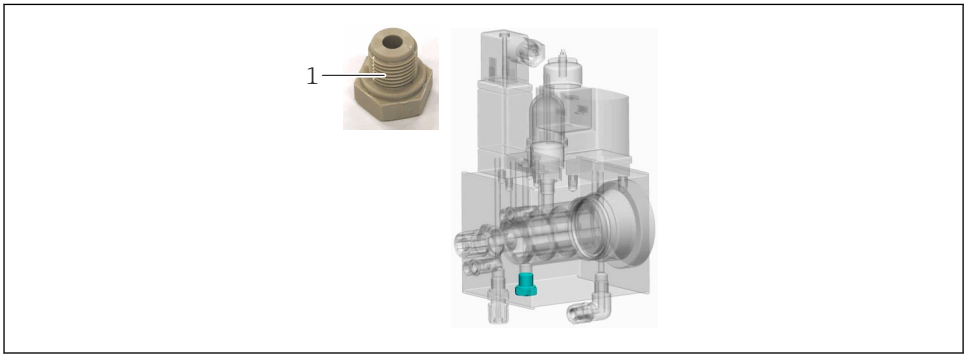
A0057386

35 Angled coupling D 4/6 × G⅛" AG PP on water connection without dilution

1 Angled coupling D 4/6 × G⅛" PP

6.16 Plug G ⅛ "PP

▸ Water connection without dilution	→ 36, 28



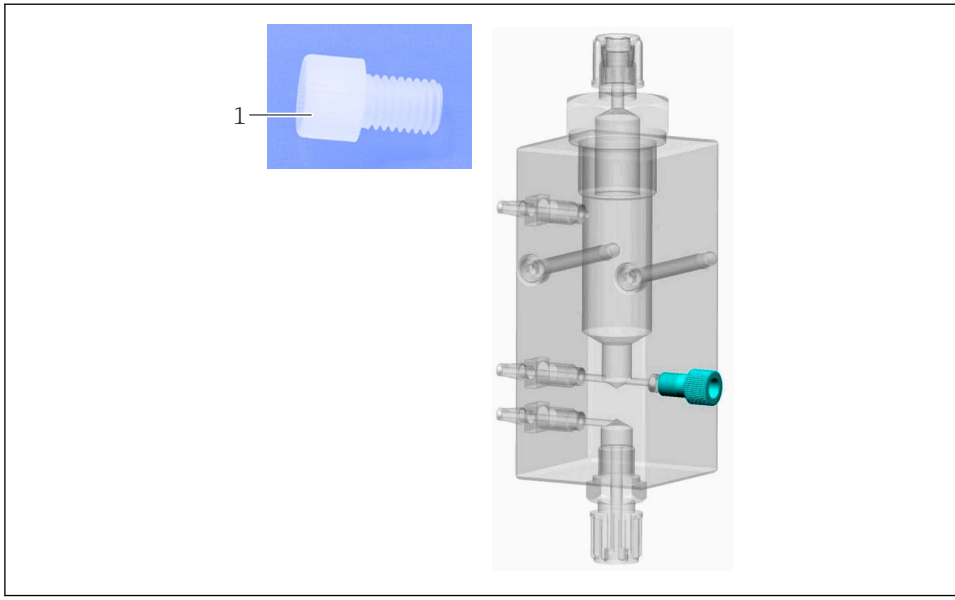
A0057387

36 Plug G ⅛"PP in water connection without dilution

1 Plug G ⅛"PP

6.17 Coupling with short thread ⅛" × 28UNF

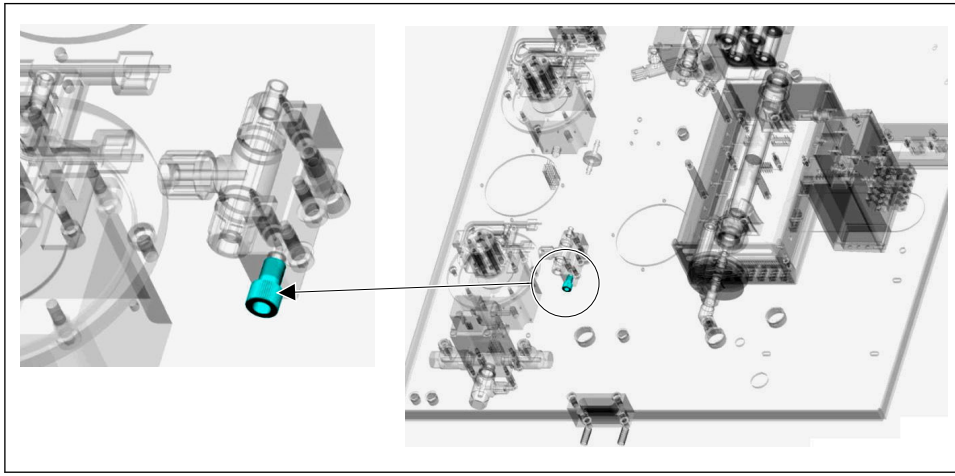
▸ Mixing chamber	→ 37, 29
▸ Acid pump adapter	→ 38, 29
▸ Adapter for condensate drain, acid supply	→ 39, 30



A0057388

37 *Coupling with short thread ⅛" × 28UNF ETFE on the mixing chamber*

1 Coupling with short thread ⅛" × 28UNF



A0057389

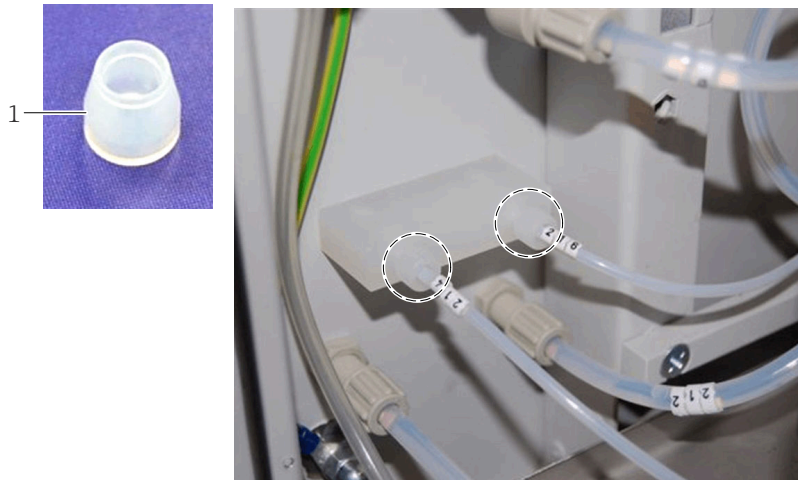
38 *Coupling with short thread ⅛" × 28UNF on the acid pump adapter*

A0057390

39 Coupling with short thread 1/8" × 28UNF on condensate drain adapter for acid supply

6.18 Cone for coupling ⅛" × 28UNF ETFE

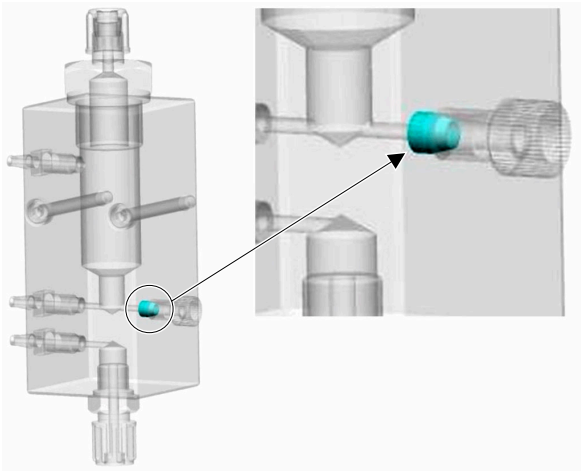
▸ Adapter for condensate drain, acid supply	→ 🖼 40, 🖹 31
▸ Mixing chamber	→ 🖼 41, 🖹 32
▸ Strip chamber type II	→ 🖼 43, 🖹 33
▸ Acid pump adapter	→ 🖼 42, 🖹 32
▸ Condensate pump adapter	→ 🖼 43, 🖹 33



A0057391

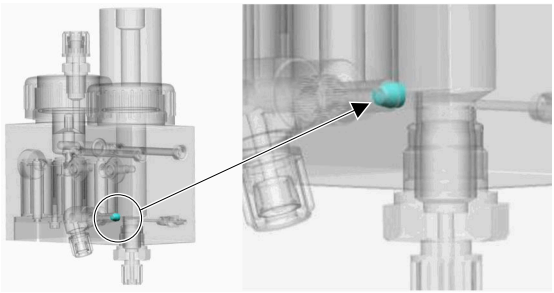
🖼 *40 Cone for coupling ⅛" × 28UNF on condensate adapter for acid supply*

1 Cone for coupling ⅛" × 28UNF



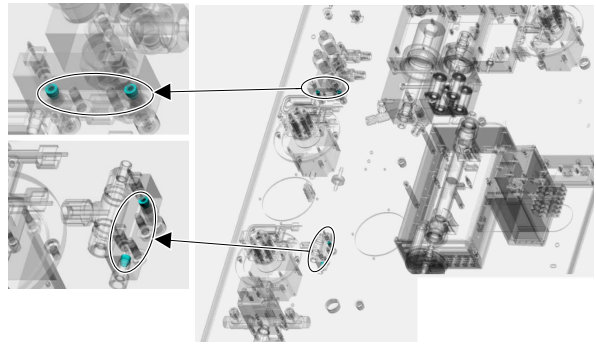
A0057392

41 Cone for coupling ⅛" × 28UNF ETFE in the mixing chamber



A0057393

42 Cone for coupling ⅛" × 28UNF ETFE in the strip chamber type II

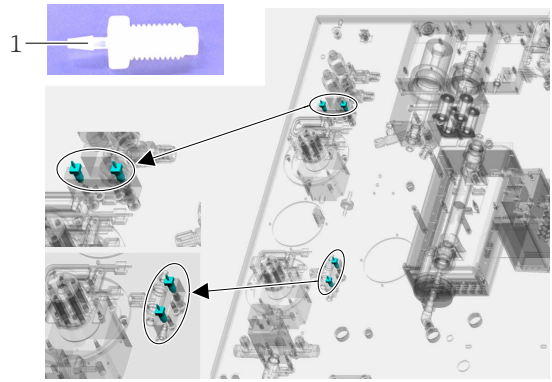


A0057394

43 *Cone for coupling ⅛" × 28UNF ETFE in the condensate pump adapter (above) and in the acid pump adapter (below)*

6.19 Coupling with nozzle ¼" × 28 D 1.55

▸ Acid pump adapter	→ 44, 33
▸ Condensate pump adapter	→ 44, 33

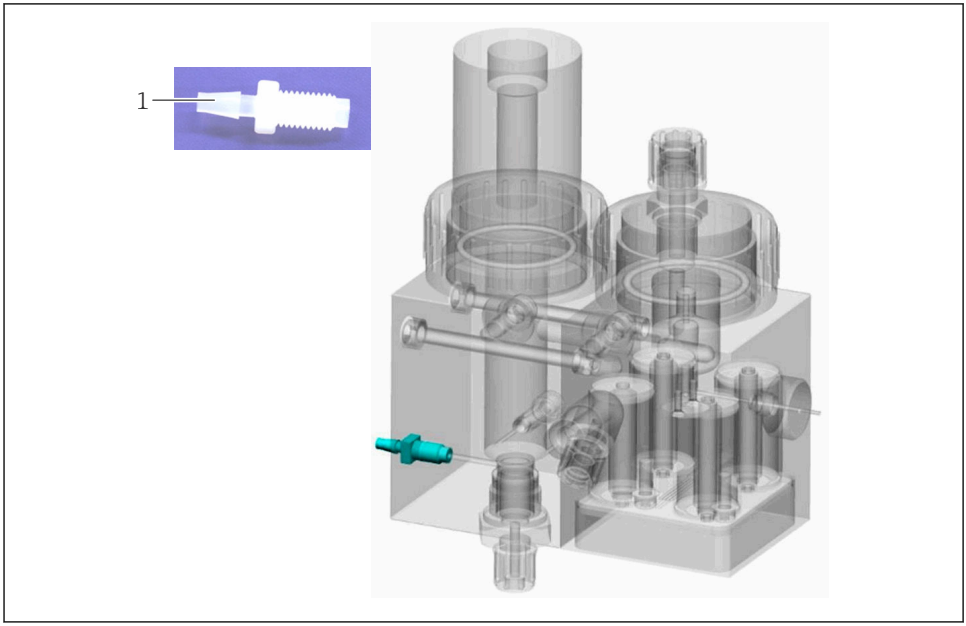


A0057395

44 *Coupling with nozzle ¼" × 28 D 1,55 ETFE in the condensate pump adapter (above) and in the acid pump adapter (below)*

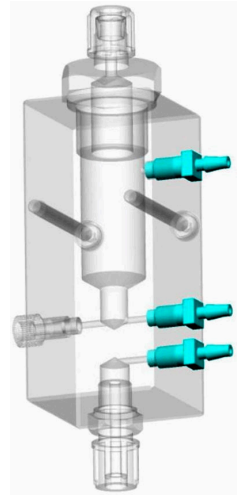
6.20 Coupling with nozzle ¼" × 28 D 3.20

▸ Strip chamber type II	→ 🖼 45, 🖹 34
▸ Mixing chamber	→ 🖼 46, 🖹 35
▸ Sample pump adapter	→ 🖼 47, 🖹 35



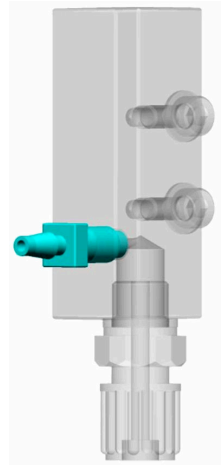
🖼 45 *Coupling with nozzle ¼" × 28 D 3,2 ETFE in strip chamber type II*

1 Coupling with nozzle ¼" × 28 D 3.2 ETFE



A0057397

46 *Coupling with nozzle ¼" × 28 D 3.2 ETFE on the mixing chamber*

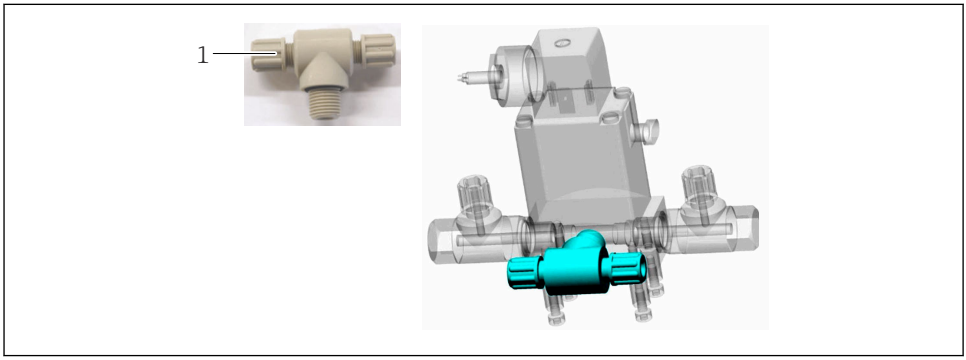


A0057398

47 *Coupling with nozzle ¼" × 28 D 3.2 ETFE on the sample pump adapter*

6.21 Coupling D 4/6 × G¼" × 4/6 PP

▸ Solenoid valve, 3/2, aggressive medium	→ 48, 36
▸ Solenoid valve, 3/2-way, with backflushing	→ 48, 36



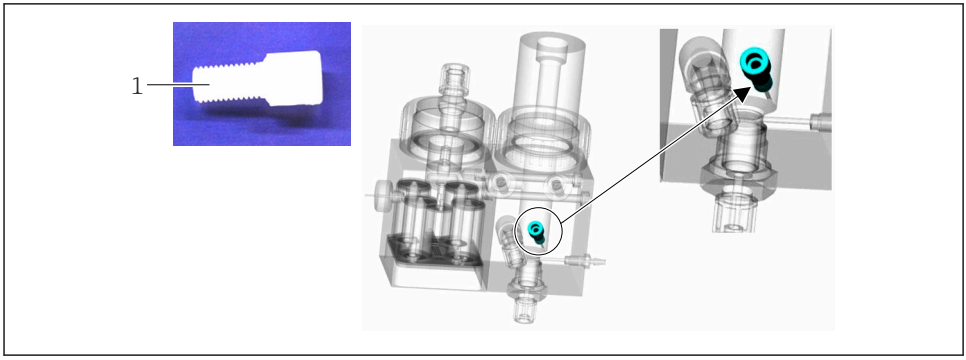
A0057399

48 *Coupling D 4/6 × G¼" × 4/6 PP with O-ring, FPM, on solenoid valve, 3/2-way*

1 *Coupling D 4/6 × G¼" × 4/6 PP with O-ring, FPM*

6.22 Long coupling ⅛" / ¼" × 28UNF ETFE

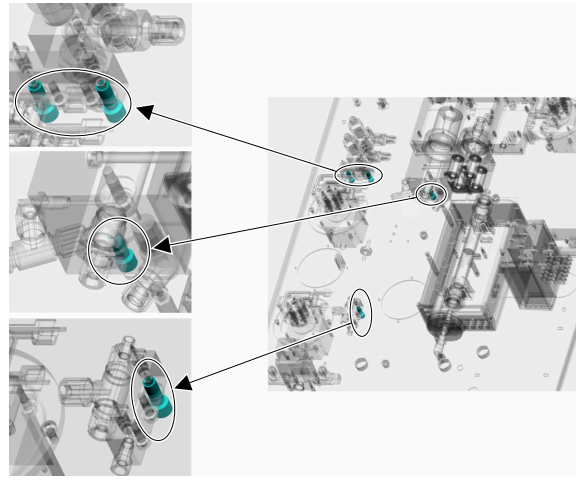
▸ Stripping vessel type II	→ 49, 36
▸ Condensate pump adapter	→ 50, 37
▸ Adapter for condensate drain, acid supply	→ 50, 37
▸ Acid pump adapter	→ 50, 37



A0057400

49 *Long coupling ⅛" / ¼" × 28UNF in the stripping vessel type II*

1 *Long coupling ⅛" / ¼" × 28UNF ETFE*

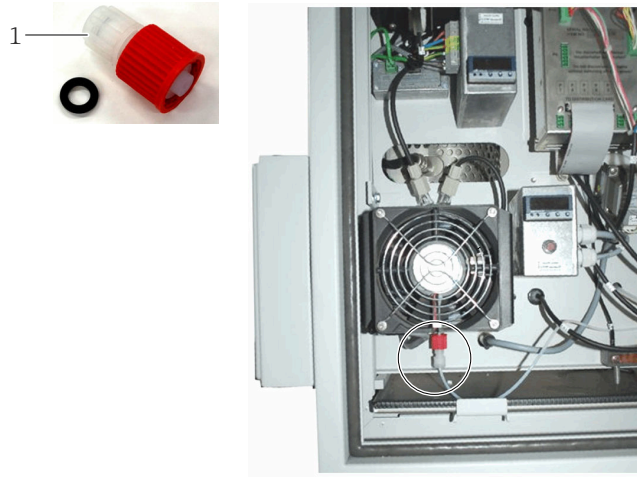


A0057401

50 Long couplings ⅛" / ¼" × 28UNF ETFE

6.23 Coupling D 3.2 × GL14 PVDF

▸ Cooler, glass insert below	→ 51, 37



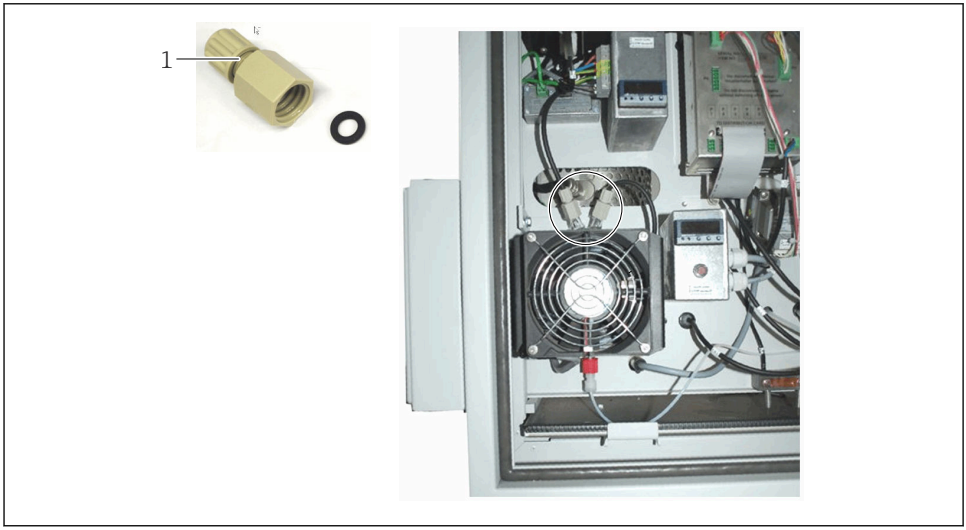
A0057402

51 Coupling D 3,2 × GL14 PVDF on cooler, glass insert below

1 Coupling D 3.2 × GL14

6.24 Coupling D 4/6 × GL14 PP

▸ Cooler, glass insert above	→ 52, 38



52 *Coupling D 4/6 × GL14 PP on cooler, glas insert above*

1 Coupling D 4/6 × GL14

7 Final tasks

1. Restore the supply of all media.
2. Switch on the analyzer at the main switch.
3. Check the seal of the liquid section as described in the Operating Instructions.
4. Check the seal of the gas section as described in the Operating Instructions.
5. Restart the analyzer as described in the Operating Instructions.
6. Close all doors of the analyzer.

8 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.

www.addresses.endress.com

Endress+Hauser

People for Process Automation