

CAPP *Forte*

BOTTLE-TOP DISPENSER

GEBRAUCHSANWEISUNG
USER MANUAL



Masters of precision

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BOTTLE-TOP DISPENSER

User Manual English

1. DIRECTIONS FOR USERS

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1.1. Safety Instructions

Not all the safety problems that might occur during use of the dispenser can be covered by this operating manual. The user themselves are responsible for safe and harmless practices during use of the dispenser.

When dispensing caustic, toxic, radioactive or health-damaging chemicals, the utmost care must be taken at all times.

- Follow general safety rules (e.g. wear protective clothing, eye protection and protective gloves etc.)
- Observe all the specifications of the reagent manufacturer.
- Before use, every user must read the operating manual carefully and comply with it.
- Only use the instrument for its intended purpose and within the limits of its material resistance (see Application Exceptions). In cases of doubt about the suitability of the instrument, always contact the manufacturer first.
- Check the tightness and operation of the instrument every time before using it. Before initial use, carefully check that the insert connections are firmly seated, e.g. tubes etc. Do not use force. Breakage of parts can result in risk to the user or others.
- Never move the piston while the drip-catcher is on the tube.
- Carefully pull up the piston and gently press it down. Do not use force. This applies particularly in the case of sticking parts. In the event of any problems (e.g. piston difficult to move), stop dispensing immediately and clean the instrument (3.1.).
- Avoid any risks to yourself or others. The discharge tube must always be pointing away from the user and from any other persons. Avoid splashes. Only use suitable containers.
- As long as the discharge tube is closed and/or the lever (12) is set to Locked (🔒), the piston must not be pressed down. The discharge tube must not be removed during dispensing or while the dispensing cylinder contains liquid.
- Since reagent can accumulate in the drip-catcher, regular cleaning is essential.
- Prevent small bottles or containers from tipping over. If necessary use a bottle stand.
- Use only original spare parts and accessories from the manufacturer.
- Do not carry the mounted instrument by the top part of its housing. When carrying it, always grip it by the reagent bottle and the dispenser.

1.2. Description of Operation

The Dispenser can dispense liquids directly from containers/bottles. The instrument can be adjusted to various bottles using the adapter.

When the dispenser is used correctly, the dispensed liquid comes into contact only with the materials PFA, borosilicate glass, FEP, ETFE, PTFE, platinum-iridium and PVDF.

The Dispenser is equipped with a 3-way valve (14):

- Lever (12) to Dispensing (▼): The liquid is dispensed from the bottle.
- Lever (12) to Return (↺): To remove air from the dispenser, the liquid is returned to the bottle.
- Lever (12) to Locked (🔒): In the STOP function, the valve is blocked.

The Dispenser can be autoclaved.

1.3. Application Exceptions

The Dispenser is suitable for many liquids, but not for reagents which attack PFA, borosilicate glass, FEP, ETFE, PTFE, PVDF (drip-catcher), PP (adapter, housing) or platinum-iridium, such as solutions containing hydrofluoric acid, solutions containing or forming solid particles, and substances catalytically transformed by platinum-iridium. In the case of non-organic and oxidable solutions (e.g. Biuret reagent), metal oxides can be precipitated. Liquids which form deposits can lead to impairment of the piston (e.g. crystallizing solutions or highly concentrated alkaline solutions).

The user must make sure themselves that the instrument can be used for their specific application.

If inflammable media are to be dispensed, ensure that no static charging of the instrument and the collecting vessels can occur.

Physical limits:

- Temperature +15 °C to + 40 °C for instrument and medium
- Density up to 2.2 g/cm³
- Vapor pressure up to 500 mbar.
- Kinematic viscosity up to 500 mm²/s

1.4. Scope of Supply

1 Dispenser, 1 operating manual,
1 quality certificate, 1 assembly tool, 3 PP adapters,
1 intake tube

1.5. Making ready for use

Where necessary, select the adapter that fits the neck of the bottle and screw it into the dispenser. The adapters supplied are made of PP. They must not be used if the reagent attacks PP. Adapters made of ETFE are available as accessories (9.2.).

2. DISPENSING

Determine the length of the intake tube (matching the bottle to be used) and push the tube in as far as it will go.

Move the lever (12) to the Return (↺).

Do not move the piston until the instrument has been fully assembled!

When screwing the instrument onto the bottle, do not grip it by its housing, but by the threaded base (the same applies when unscrewing it).

Do not carry the instrument by the top part of its housing.

WARNING: Avoid injuries due to chemicals. Wear protective clothing, eye protection and protective gloves. Comply with the general safety instructions and the restrictions on use.

2.1. Precautions

Which liquid is to be dispensed? Observe in full the Application Exceptions (1.3.)! Place a suitable collecting vessel underneath the tube. Wear eye protection, protective clothing and protective gloves. The discharge tube must always be pointing away from the user and any other persons! Follow the general safety instructions! Do not move the piston until the instrument is fully assembled.

2.2. Air Removal

Take off the drip-catcher. Set the lever (12) to Return (↺). Place a suitable collecting vessel underneath the discharge tube, pull the piston up a little and then press it down hard. Repeat the movement in the lower filling area (2-3 cm) of the cylinder. Do not stop this operation until there are no more air bubbles in the cylinder. Set the volume, move the lever (12) to Dispensing (▼), fill the cylinder, and then slowly press down the piston until the liquid becomes visible at the end of the discharge tube. Then set the lever (12) back to Return (↺) and return the liquid that is still inside the cylinder to the bottle.

2.3. Volume Setting

Release the volume setting screw by turning it a little in the counter-clockwise direction. Set the pointer to the required volume and then retighten the volume setting screw.

2.4. Dispensing Operation

Take off the drip-catcher. After air removal and volume setting, place a secured collecting vessel underneath the discharge tube outlet.

Slowly and steadily pull the piston all the way up. Then press the piston down slowly and steadily, to discharge the reagent drawn into the glass cylinder into the vessel.

At the end of dispensing, always set the lever (12) to Return (↺).

CAUTION! Tube may drip! Leave the piston in the lower position and push the drip-catcher onto the discharge tube.

PLEASE NOTE: If the piston is difficult to move, stop dispensing immediately and clean the instrument. (see 3. Cleaning)

3. CLEANING

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3.1. Standard Cleaning

The instrument must be cleaned immediately in the following cases:

- the piston is difficult to move
- change of reagents
- after lengthy periods of non-use
- before any maintenance and repair work
- before sterilisation

3.1.1. Preparations for Cleaning

Wear eye protection, protective clothing and protective gloves. Avoid splashing of reagent.

1. Place the screwed-on instrument together with the bottle in a washbasin.
2. Move the lever (12) to the Return setting (☺).
3. Empty the piston by pressing it down.
4. Unscrew the instrument from the bottle. Then pull out the instrument until the intake tube (11) is no longer immersed in the liquid.
5. Carefully tap the intake tube against the inside of the bottle until the reagent has drained out of the intake tube.
6. Lift the instrument off the bottle.
7. Set the lever (12) to Dispense (▼).
8. Hold the discharge tube above the bottle opening and return any remaining reagent to the bottle.

IMPORTANT! During cleaning or bottle change, reagent is still present in the discharge tube even in the Return setting; after emptying the piston, set the lever (12) to Dispensing (▼) so that the discharge tube can be emptied.

WARNING: Avoid injuries due to chemicals! The instrument, intake tube and discharge tube may still contain reagents, so never point the opening towards the body! Wear eye protection, protective clothing and protective gloves.

3.1.2. Cleaning Process

1. Immerse the intake tube in a suitable cleaning solution. Clean it by repeated dispensing of the maximum volume.
2. Move the lever (12) to the Return setting (☺) and also rinse out the return duct.
3. Use a pure solvent (e.g. distilled water or acetone) for repeated further dispensing.
4. Take the intake tube out of the solution and empty it by pumping several times.

3.2. Intensive Cleaning

3.2.1. Disassembly

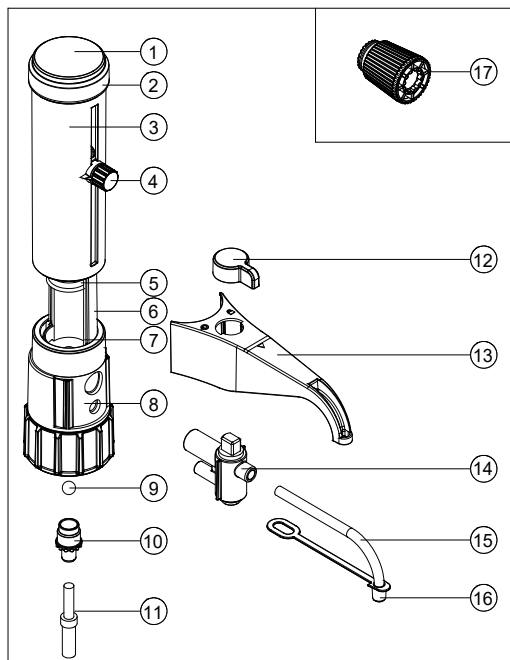
Before disassembling the instrument, carry out standard cleaning! Wear eye protection, protective clothing and protective gloves. Avoid splashing of reagent.

1. Move the lever (12) to the Return setting (☺) and then detach it in the upward direction.
2. Pull out the discharge tube (15).
3. Pull out the discharge valve (14).
4. The adjusting cap (1), piston bearing (2) and piston (5) can be completely removed by unscrewing (2).
5. Apply the tool (17) to the stop ring and unscrew the latter from the protective sleeve.
6. Pull off the outer sleeve (3) in the upward direction.
7. Unscrew the intake valve using the tool (17).
CAUTION! Ball might drop out.

Use soft brushes and suitable cleaning agents to clean the instrument. Then reassemble the instrument in the reverse order. Ensure that the actively sealing piston is not damaged. Set the adjusting cap so that the raised bar of the cap is aligned with the raised bar of the piston bearing. Check the operation and tightness of the instrument.

WARNING: Never use force to disassemble and reassemble the instrument!

3.2.2. Diagram



1. Cap
2. Piston bearing
3. Outer sleeve
4. Volume setting
5. Piston
6. Protective sleeve
7. Glass cylinder
8. Valve head

Size 2.5 - 10 ml GL 32
Size 25 - 50 ml GL 45

9. Valve ball
10. Intake valve
11. Ink tube
12. Securing unit
13. Tube support
14. Discharge valve
15. Tube
16. Drip-catcher
17. Tool

4. STERILISATION

The dispenser can be autoclaved (121°C, 2 bar) without being disassembled. The effectiveness of the sterilisation must be checked by the user in each case.

- First carry out standard cleaning of the instrument.
- Set the volume in the middle (approx. 50% of the nominal volume) of the outer sleeve, lock it and then pull the piston all the way up.
- Place the instrument on a cloth. Avoid touching hot metal surfaces.
- Then the instrument can be completely autoclaved without any further steps.
- After autoclaving, always allow the instrument to slowly cool down to room temperature (about 2 hours).
- Then check all connections for tightness and absence of deformation.

The instrument can also be chemically sterilised (e.g. by rinsing with alcohol, formaldehyde or the like).

5. DISPOSAL

When disposing of the instrument, observe the relevant national disposal regulations.

6. LIABILITY FOR DEFECTS

We warrant trouble-free operation for 12 months after the delivery date, provided it has been used correctly.

Exceptions to this are faults resulting from:

- Changes made to the instrument that were not performed by persons authorized by the manufacturer.
- Forced opening of the instrument,
- Use of non-original parts,
- Results of normal wear and tear (e.g. piston head, valves, glass fracture),
- Non-compliance with operating manual,
- Poor maintenance.

7. TROUBLESHOOTING / MAINTENANCE

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7.1. Self-help

7.1.1. Prevention of valve sticking after lengthy non-use

With the dispensing unit screwed on, ensure that the valves are surrounded by liquid. With the dispensing unit screwed on, ensure the valve system is easy to move by rinsing it with distilled water and/or laboratory cleaning agent. A concluding rinse with alcohol assists this measure.

7.1.2. What to do if ...

- Piston is difficult to move:
Check whether crystals have formed, and if so carry out intensive cleaning.
- Dispensing not possible:
Check the dispensing valve and clean it if necessary.
Check that the lever (12) is set to Dispense (▼).
- Intake not possible:
Check the volume setting.
Check the intake valve and clean it if necessary.
- Air bubbles appear in sucked-in liquid:
Check whether all air has been removed from the instrument, see 2.2. Check the intake tube, if necessary shorten it or replace it. Reagent must be sucked in slowly and steadily. Check the intake valve, if necessary clean it or replace it.

7.2. Sending in for repair

IMPORTANT: Please clean the instrument carefully, as described in Section 3. On no account send in instruments filled with reagent! Sent-in instruments can only be checked and repaired if they have been carefully cleaned and decontaminated beforehand. Forced opening of the instrument invalidates any warranty claim. Enclose with the sent-in instrument a description of the trouble that has occurred and specify which reagents were used.

8. CALIBRATION / ADJUSTMENT

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8.1. Calibration

Liquid: double-distilled water, reference temperature: 20°C, constant, liquid and instrument Number of determinations: 10

1. Dispense and weigh the maximum volume 10 times.
2. Convert the mean value of these weighing results into a volume.
3. Compute the systematic measuring error (%) and random measuring error (%).

The test procedure is described in DIN EN ISO 8655/6.

9. ARTICLE DATA (Dispenser)

9.1. Dispenser

1 Dispenser complete with accessories.

1 Operating manual,

1 Quality certificate,

1 Assembly tool,

3 PP adapters,

1 Intake tube

¹⁾ of nominal volume

Liquid: double-distilled water, reference temperature: 20°C,
constant, liquid and instrument

Number of determinations: 10

Test procedure as per DIN EN ISO 8655/6

Volume	Dispensing steps	Cat. No	Thread	Adapters GL	Accuracy A% ¹⁾	Coefficient of Variation CV% ¹⁾
0,25 - 2,50 ml	0,05 ml	CF2-1	GL 32	28, 40, 45	0,6%	≤0,1%
0,50 - 5,00 ml	0,10 ml	CF5-1	GL 32	28, 40, 45	0,5%	≤0,1%
1,00 - 10,00 ml	0,20 ml	CF10-1	GL 32	28, 40, 45	0,5%	≤0,1%
2,50 - 25,00 ml	0,50 ml	CF25-1	GL 45	38, 40, 38/32	0,5%	≤0,1%
5, 00 - 50,00 ml	1,00 ml	CF50-1	GL 45	38, 40, 38/32	0,5%	≤0,1%

9.2. Accessories and Spare Parts

Dispenser - threaded adaptors, PP, PTFE

Subject to technical modifications, errors and misprints
excepted.

Dispenser Thread	Bottle Neck	Order No. PP	Order No. PTFE
GL 32	GL 25	CF-4110	CF-4118
GL 32	GL 28	CF-4111	CF-4119
GL 32	GL 38	CF-4112	CF-4120
GL 32	S 40	CF-4113	CF-4121
GL 32	GL 45	CF-4114	CF-4122
GL 45	GL 32	CF-4115	CF-4123
GL 45	GL 38	CF-4116	CF-4124
GL 45	S 40	CF-4117	CF-4125



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