

***Brinkmann Bottletop Dispenser
and ChemSaver™ Bottletop Dispenser***

Instruction Manual
Mode d'emploi
Manual de Instrucciones
Istruzioni d'impiego
Bedienungsanleitung

Brinkmann Bottletop Dispenser and ChemSaver™ Bottletop Dispenser

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Désignation des pièces

Componentes

- 1 Bouton d'ajustage fin du volume
- 2 Support du piston
- 3 Manchon du cylindre
- 4 Bouton de réglage du volume
- 5 Piston
- 6 Cylindre de verre
- 7 Manchon de protection du cylindre
- 8 Bouton du robinet de distribution
- 9 Manchon de protection du tuyau distributeur
- 10 Tube distributeur
- 11 Robinet de fermeture du

Componenti (Siete pregati di aprire la copertina pieghevole a fronte di questo manuale)

- 1 Manopola di microregolazione volume
- 2 Supporto del pistone
- 3 Manicotto del cilindro
- 4 Manopola di regolazione volume
- 5 Pistone
- 6 Cilindro in vetro
- 7 Manicotto protettivo del cilindro
- 8 Commutatore della valvola di spurgo
- 9 Manicotto del tubo di spurgo
- 10 Tubo di spurgo
- 11 Valvola di spurgo per Brinkmann ChemSaver™ Dispensatore per flaconi
- 12 Valvola di spurgo per Dispensatore per flaconi
- 13 Tappo del tubo di spurgo
- 14 Alloggiamento del blocco valvola
- 15 Blocco valvola (nell'alloggiamento)
- 16 Sfera della valvola
- 17 Valvola di riempimento
- 18 Copertura di disaerazione / Collegamento del filtro
- 19 Anello del cilindro (nel manicotto del cilindro)
- 20 Utensile:
 - a) per 1 / 2,5 / 5 / 10 mL
 - b) per 25 / 50 mL
 - c) rotella di incremento per 100 mL

Einzelteile (Bitte die erste Seite der Bedienungsanleitung ausklappen)

- 1 Feinjustierung
- 2 Kolbenhalter
- 3 Zylinderhülse
- 4 Volumen-Schnellverstellung
- 5 Kolben
- 6 Glaszylinder
- 7 Zylinder-Schutzmantel
- 8 Knebel des Ausstoßventils
- 9 Kanülensicherung
- 10 Ausstoßkanüle
- 11 Ausstoßventil für Brinkmann ChemSaver™ Flaschendispenser
- 12 Ausstoßventil für Flaschendispenser
- 13 Verschlusskappe der Ausstoßkanüle
- 14 Ventilkopfgehäuse
- 15 Ventil (im Gehäuseinneren)
- 16 Ventilkugel
- 17 Ansaugventil
- 18 Entlüftungsabdeckung / Filteranschluß
- 19 Zylinderring (im Inneren der Zylinderhülse)
- 20 Universalwerkzeug
 - a) für die Größen 1 / 2,5 / 5 / 10 mL
 - b) für die Größen 25 / 50 mL
 - c) Vergrößerungsring für die Größe 100 mL

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1 Safety Precautions

- This manual does not purport to address all the safety problems associated with the use of this dispenser. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine applicability of intended use.
- Observe extreme caution when dispensing caustic, poisonous, radioactive or hazardous chemicals.
- Observe general safety regulations for laboratory hazard prevention (eg. wear protective clothing, gloves, and glasses).
- Follow the reagent manufacturer's safety information.
- Every user must be acquainted with this instruction manual and have it readily available at all times.
- Use the instrument only for its proper purpose and within the limits stated in the Operating Limitations. If in doubt as to the suitability of your application or reagent, please be sure to consult Brinkmann Instruments.
- Regularly inspect the instrument for leakage and signs of wear. Before use, make sure all fittings and the connection to bottle are secure.
- Never use force on the instrument. Pull the piston up and press it down gently.
- Make sure the dispensing tube is facing away from the user or other persons when operating. Avoid splashes. Dispense only into suitable vessels.
- Do not dispense without discharge tube sleeve.
- Do not carry a mounted instrument by the cylinder. Always support both the instrument and the reagent bottle.
- Do not depress the piston when the cap for the discharge tube is in place.
- Use only original manufacturer's parts and accessories.
- If an instrument is not operating properly, immediately stop dispensing. Clean and repair the instrument according to the instructions in this manual or contact Brinkmann Instruments.

2 Contents of Package

The following items are included with every Dispenser

- 1 Dispenser
- 2 28 mm adapter
- 3 38 mm, 45 mm adapter with 1 mL, 2.5 mL, 5 mL, 10 mL dispensers, or 33 mm, 38 mm adapter with 25 mL, 50 mL, 100 mL dispensers
- 4 Manual
- 5 Telescoping filling tube
- 6 Assembly / Disassembly Tool
- 7 Performance Documentation on back page of manual

Verify that you have received all the items listed. If you are missing pieces, contact Brinkmann Instruments. Notify the supplier you purchased the instrument from at once if you find the instrument has been damaged in shipment.

3 Components

(Please open up the fold-out cover at the front of this manual)

4 Design Principle

The Brinkmann Bottletop Dispensers are designed for dispensing liquids in the milliliter range directly from a reagent bottle.

When the instrument is used correctly the dispensed reagent comes into contact with the following chemically resistant materials:
PFA, Borosilicate glass, Platinum Iridium, ETFE, PTFE, FEP.

5 Specifications (Includes all dispensers)

<i>Volume range</i>	<i>Setting increments</i>	<i>Dead volume</i>	<i>Systematic error</i> (Inaccuracy)	<i>Random error</i> (Imprecision; CV)
0.50 – 2.5 mL	0.05 mL	0.21 mL	± 0.6 %	≤ 0.1 %
1.00 – 5.0£				

Materials

	<i>Brinkmann Bottletop Dispenser</i>	<i>Brinkmann ChemSaver™ Bottletop Dispenser</i>
Piston Holder	PP	PP
Cylinder Casing	PP	PP
Volume Adjustment Knob	PPN GV2/30	PPN GV2/30
Valve Block Housing	PP	PP
Valve Block	PTFE	PTFE
Air Vent Cap	PP	PP
Telescopic Filling Tube	FEP	FEP
Discharge valve	ETFE	PFA
Discharge Tube	PFA	PFA
Discharge Tube Support	PP	PP
Discharge Tube Cap	PVDF	–
Spring for Discharge Valve	Pt- Ir	Pt- Ir
Valve Balls	Borosilicate (Duran) Glass	Borosilicate (Duran) Glass
Filling Valve	ETFE	ETFE
Cylinder	Borosilicate (Duran) Glass	Borosilicate (Duran) Glass
Protective cylinder sleeve	PTFE	PTFE
Piston 1 – 10 mL	ETFE	ETFE
25 – 100 mL	Duran Glass	Duran Glass
Piston Seal	PTFE	PTFE

6 Operating Limitations

The instrument is suitable for most media with the following exceptions:

- Hydrofluoric acid solutions
- Solutions which tend to crystallize, contain or form solid particles
- Unstable substances which react catalytically with Platinum-Iridium (e.g. H_2O_2)
- Liquids attacking borosilicate glass, PFA, ETFE, PTFE, Platinum-Iridium, FEP
- Oxidizable inorganic solutions which may precipitate metal oxides (e.g. Biuret reagent)

Recommended temperature range for operating the instrument and for reagent is 15 °C to 40 °C. Do not exceed these temperatures.

Caution:

9.1 Removing air from the instrument

(Fig. 5)

Caution: The discharge tube must always point away from the user and others at all times.

For Brinkmann ChemSaver™ Bottletop Dispensers

Caution: Do not move the piston until the instrument is completely mounted and the discharge valve is in the recirculate position ().

- Turn the discharge valve into the recirculate position by turning the

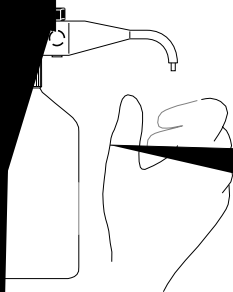
recirculate
of the discharge tube
sleeve.

- Place a collecting vessel below the discharge tube.

Caution: Be careful of chemicals dripping off the discharge tube.

- Raise the piston gently up approximately 2 cm and press down firmly. Repeat this movement until no more bubbles appear in the cylinder and discharge tube.

Turn the discharge valve into the dispensing position by turning the toggle so it lines up parallel with the discharge tube support sleeve and points to the arrow symbol (→). Raise the piston up slightly and down slowly until liquid appears at the end of the discharge tube.



For Brinkmann Bottletop Dispensers

- Place a collecting vessel below the discharge tube.

Remove stopper cap from the discharge tube.

Caution: Be careful of chemicals dripping off the discharge tube and stopper cap.

- Raise the piston gently up approximately 2 cm and depress down firmly. Repeat this movement until no more bubbles appear in the cylinder and discharge tube.

9.2 Setting the volume

- Hold the cylinder casing down (Fig. 6).
- Slide the volume setting knob to the right and move it up or down to adjust to the desired volume.
- When the volume is selected, slide the volume setting knob to the left to lock it into place.

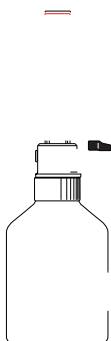


Fig. 6

9.3 Dispensing
(Fig. 7)

Fig. 7


10 Cleaning

In order to maintain safe, accurate and precise operation, the dispenser must be cleaned in any of the following situations:

- Immediately when the piston action becomes difficult to move.
- When changing the reagent.
- Prior to long term storage.
- Prior to any maintenance or repair.
- Daily after use with reagents listed under operating limitations (e.g. solutions prone to crystallization, alkaline solutions, organic solvents, oxidizable inorganic solutions).
- Prior to sterilization.

10.1 Preparations for cleaning

Caution: Wear gloves, safety glasses and a lab coat. Observe procedures for safe handling of hazardous reagents.

- If you are operating a ChemSaver™ Bottletop Dispenser, turn the valve to the recirculate position ().
- Be sure the piston is in the down position, and the cap is securely on the end of the discharge tube of the Brinkmann Bottletop Dispenser.
- Place the mounted instrument into a sink or appropriate container.
- Adjust the volume to the maximum setting.

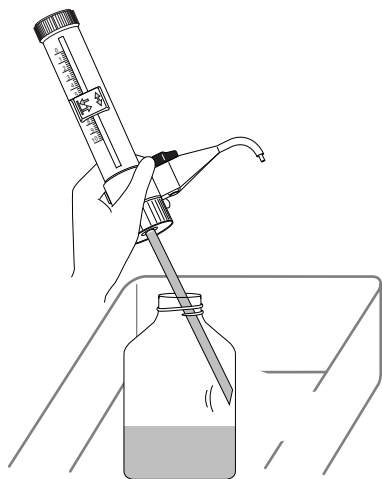


Fig. 8

- Holding the threaded base, disconnect the instrument from the bottle by turning it counter-clockwise at the threaded base. Lift the instrument up far enough so that the filling tube is no longer immersed.
- Carefully tap the filling tube against the bottle from the inside so that the reagent runs back into the bottle (Fig. 8).
- Lift the instrument from the bottle.
- If you are operating a ChemSaver™ Bottletop Dispenser, move the discharge valve toggle into the dispensing position (→).
- Remove the cap from the discharge tube of the Brinkmann Bottletop Dispenser.
- Hold the instrument so that the discharge tube is over the bottle opening and dispense the remaining reagent back into the bottle (Fig. 9).

Caution: During cleaning or changing of bottles, the discharge tube contains liquid even when the discharge valve on the ChemSaver™ Bottletop Dispenser is in the recirculate position.

Fig. 9

10.2 Standard cleaning procedure

- Immerse the filling tube into a suitable neutral cleaning solution. Rinse by repeated dispensing of the maximum volume.
- Remove the dispenser from the cleaning solution and evacuate all solution from the unit.
- Place the filling tube into distilled water and rinse by repeated dispensing of the maximum volume.
- Lift the filling tube out of the distilled water and empty the instrument by repeated dispensing.

10.3 Intensive cleaning procedure

If the instrument becomes heavily soiled or extensive crystallization has formed, it may be partially disassembled for intensive cleaning. Refer to section 14 for 0(o)0(r)i disas

12 Checking the Instrument Performance

The performance of a Brinkmann Dispenser can be checked using gravimetric testing. This involves the weighing of dispensings of distilled water. The method for gravimetric testing and formulas for calculating systematic error and random error are described below:

- Use a semi- micro balance that has been recently calibrated and located in a vibration-free, draft- free environment.
- All equipment used in the testing process must be isothermal (20 °C constant according ISO 8655-6)
- Set the instrument to the maximum volume.
- Dispense distilled water and then record the weight of the water.

13 Calibration of the Brinkmann ChemSaver™ Bottletop Dispenser for Liquids with a Density other than Water

The Brinkmann ChemSaver™ Bottletop Dispenser has been calibrated with water by the manufacturer under the measuring conditions mentioned in section 5. If you are using a liquid that is viscous or has a density significantly different than water, the instrument volume can be fine tuned to compensate for performance differences these types of reagents might cause.

- The instrument and liquid to be dispensed must be equilibrated to the same temperature.
- Set the instrument to the maximum volume.
- Dispense and weigh the maximum volume 10 times.
- Convert the mean value of these weighings to volume using the formula:

Volume =

- If the volume delivered does not match the volume setting on the dispenser, the fine adjustment knob may be used to increase or decrease the volume dispensed at that setting.

14 Maintenance

The instruments may be partially disassembled for cleaning or replacement of parts. Reference fold out diagram on the cover of this manual and section 17 for available spare parts.

Follow proper safety procedures for hazard prevention. Wear goggles, gloves and protective clothing.

Note: Never use force when disassembling or reassembling!

14.1 Disassembly

- Follow the cleaning procedure in section 10 before disassembling the dispenser.

14.1.1 Removing the piston and cylinder sleeve

- The piston (5) may be removed by unscrewing the piston holder (2). Slowly pull the piston (5) out of the glass cylinder by lifting up on the piston holder (2).
- Insert the appropriate end of the tool (20) into the cylinder ring (19) and remove by turning counter clockwise.
- Remove the cylinder sleeve (3).

14.1.2 Removing the discharge tube sleeve and the discharge tube

Caution: Be careful not to splash the liquid remaining in the discharge tube when removing.

For Brinkmann ChemSaver™ Bottletop Dispenser

- Turn the valve toggle (8) to the recirculate position and remove the toggle by lifting up and off.
- Lift the discharge tube sleeve (9) up and off.
- Pull off the discharge tube (10).

For Brinkmann Bottletop Dispenser

- Lift the discharge tube sleeve (9) up and off.
- Pull off the discharge tube (10) and cap for discharge tube (13).

14.1.3 Removing the filling valve

14.2 Cleaning of parts



15 Troubleshooting Guide

<i>Error</i>	<i>Cause</i>	<i>Solution</i>
Piston movement is difficult.	– Cap pushed onto discharge tube.	– Remove stopper cap.
	– Formation of crystals.	– Immediately stop dispensing and follow cleaning procedure (sec. 10).
	– Damaged piston seal.	– Immediately stop dispensing and follow cleaning procedure (sec.10), replace piston or send the dispenser to Brinkmann Instruments for repair if necessary.
No reagent is aspirated.	– Adjusted to minimum volume setting.	– Use volume setting knob to set higher volume.
	– Filling valve clogged or sticking.	– Follow cleaning procedure. Remove filling valve (sec. 10), replace valve if necessary.
Air bubbles in aspirated liquid.	– Instrument not	

16 Sending in for Repair

If a problem cannot be solved with the aid of this instruction manual, we recommend you return the Brinkmann Bottletop Dispenser to Brinkmann Instruments for repair.

The dispenser must be cleaned and decontaminated before returning to Brinkmann Instruments. Never send an instrument filled with reagent. Returned instruments must be free from toxic or biohazardous material.

Instruments from biological applications must be steam sterilized.

The application of force in opening or disassembling of the instrument will void the warranty.

Send the cleaned instrument to Brinkmann Instrument Services, Inc. at the address printed on the back of this manual.

In your package include information describing the observed fault and the liquids which have been dispensed. For warranty claims include a copy of an invoice or purchase order as proof of purchase.

17 Ordering Information

17.1 Bottletop Dispensers

Brinkmann ChemSaver™ Bottletop Dispensers

Adjustable volume

Volume Range (mL)	Thread	Cat.No.
0.1 – 2.5	32 mm	22 22 090-0
1 – 5	32 mm	22 22 100-1
2 – 10	32 mm	22 22 110-8
5 – 25	45 mm	22 22 120-5
10 – 50	45 mm	22 22 130-2
20 – 100	45 mm	22 22 140-0

Brinkmann Bottletop Dispensers

Adjustable volume

Volume Range (mL)	Thread	Cat.No.
0.1 – 2.5	32 mm	22 22 000-4
1 – 5	32 mm	22 22 010-1
2 – 10	32 mm	22 22 020-9
5 – 25	45 mm	22 22 030-6
10 – 50	45 mm	22 22 040-3
20 – 100	45 mm	22 22 050-1

Fixed volume

Volume (mL)	Thread	Cat.No.
1	32 mm	22 22 060-8
5	32 mm	22 22 070-5
10	45 mm	22 22 080-2

17.2 Accessories**Extended Discharge Tube**, 80 cm long

For Dispenser Sizes

1 to 10 mL	22 22 300-3
25 to 100 mL	22 22 305-4

Threaded adapter, polypropylene, set of 3
for 1 – 10 mL

28 mm	22 22 310-1
38 mm	22 22 315-1
45 mm	22 22 320-8
set one of each size 28 mm, 38 mm, 45mm	22 22 335-6

for 25 – 100 mL

33 mm	22 22 312-7
38 mm	22 22 318-6
40 mm	22 22 322-4

Standard tapered joint adapters, polypropylene, pkg. of 1

STJ 24/40	22 22 325-9
STJ 29/42	22 22 330-5

Threaded adapter, Teflon, pkg. of 1**for 1 – 10 mL**

28 mm	22 22 340-2
38 mm	22 22 345-3
45 mm	22 22 350-0

for 25 – 100 mL

33 mm	22 22 352-6
38 mm	22 22 355-1
40 mm	22 22 357-7

Adapter for Drum

45 mm / 2.25 inch	22 22 360-7
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17.3 Spare Parts

For Brinkmann ChemSaver™ Bottletop Dispensers

	Cat.No.
Piston (5) complete with piston holder (2) and fine adjustment (1)	
0.1 – 2.5 mL	22 22 500-6
1 – 5 mL	22 22 505-7
2 – 10 mL	22 22 510-3
5 – 25 mL	22 22 515-4
10 – 50 mL	22 22 520-1
20 – 100 mL	22 22 525-1

Cylinder sleeve (3)

0.1 – 2.5 mL	22 22 600-2
1 – 5 mL	22 22 605-3
2 – 10 mL	22 22 610-0
5 – 25 mL	22 22 615-1
10 – 50 mL	22 22 620-7
20 – 100 mL	22 22 625-8

Discharge tube (10)

0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 560-0
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 565-1

Discharge tube sleeve (9)

0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 550-2
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 555-3

Discharge valve toggle (8)

0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 530-8
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 535-9

For Brinkmann Bottletop Dispensers

Piston (5) complete with piston holder (2)	
0.1 – 2.5 mL	22 22 700-9
1 – 5 mL	22 22 705-0
2 – 10 mL	22 22 710-6
5 – 25 mL	22 22 715-7
10 – 50 mL	22 22 720-3
20 – 100 mL	22 22 725-4
1 mL fixed	22 22 730-1
5 mL fixed	22 22 735-1
10 mL fixed	22 22 740-8

Discharge tube (10)	Cat.No.
0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 765-3
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 565-1
Cylinder sleeve (3)	
0.1 – 2.5 mL	22 22 815-3
1 – 5 mL	22 22 820-0
2 – 10 mL	22 22 825-1
5 – 25 mL	22 22 830-7
10 – 50 mL	22 22 835-8
20 – 100 mL	22 22 840-4
1 mL fixed	22 22 845-5
5 mL fixed	22 22 850-1
10 mL fixed	22 22 855-2
Discharge tube sleeve (9)	
0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 755-6
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 760-2
For both Model Dispensers	
Filling Valve (17)	
0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 765-3
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 765-1
Valve ball (16)	
0.1 – 2.5 mL, 1 – 5 mL, 2 – 10 mL	22 22 660-6
5 – 25 mL, 10 – 50 mL, 20 – 100 mL	22 22 665-7
Telescopic filling tube	22 22 675-4
Drying tube , cpl. (not filled)	27 31 110-5
Tool	22 22 680-1
Enlarging ring f. Tool (for 100 mL)	22 22 682-7

Quality assurance

This Brinkmann ChemSaver™ Bottletop Dispenser has been manufactured and tested under stringent quality controls to ensure its accuracy and precision. It is guaranteed against defects in workmanship or faulty parts

for 12 months

after the date of delivery. Please refer to the notes in this instruction manual. If, in spite of our extensive controls, the Brinkmann ChemSaver™ Bottletop Dispenser is defective, please return it to Brinkmann Instruments.



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