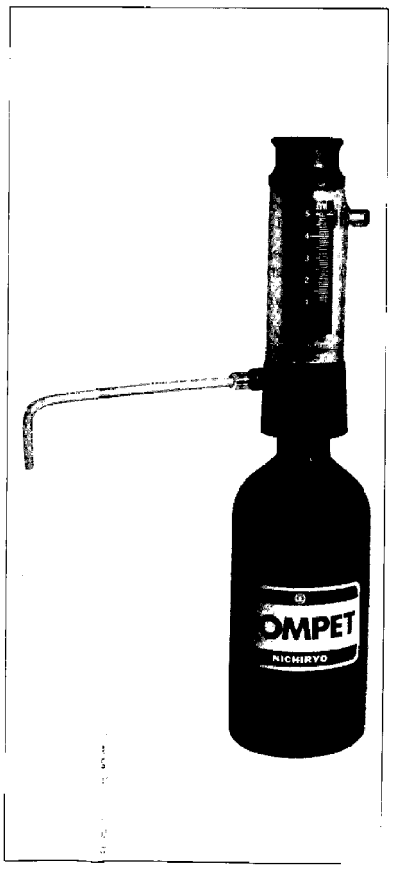
NICHIRYO

COMPET™

Bottle Top Dispenser



FEATURES

- Dispensing mechanism is chemically inert, permitting use with most liquids except Hydrofluoric Acid.
- A recycling hole on the top of the threaded base of 1 ml, 2 ml, 5 ml and 10 ml model permits priming of the extension dispense tube without loss of reagent. A hole on the top of the threaded base of 25 ml and 50 ml model can be used only as a receptacle of the extension dispense tube during storage but not for recycling.
- Optional bottle-top adaptors are available with which the Compet can be attached to the threaded neck of most standard reagent bottles.
- ETFE coated ceramic plunger (1 ml, 2 ml, 5 ml and 10 ml model) provides smooth operation.
- The glass cylinder is protected with dual plastic sleeves.
- The Teflon® extension dispense tube provided permits liquid to be dispensed without moving either the Compet or the receptacle.
- The Compet is autoclavable at 121°C or below.

SPECIFICATIONS

Accuracy: < ±1.0%

Reproducibility: < ±0.2%

Cat. No.	Volume Range	Increments	Size of provided bottle
CP-1	0.2 ~ 1.0 ml	0.05 ml	200 ml
CP-2	0.4 ~ 2.0 ml	0.1 ml	200 ml
CP-5	1.0 ~ 5.0 ml	0.1 ml	350 ml
CP-10	2.0 ~ 10.0 ml	0.25 ml	1000 ml
CP-25	5.0 ~ 25.0 ml	0.5 ml	none
CP-50	10.0 ~ 50.0 ml	1.0 ml	none

1 ml, 2 ml, 5 ml and 10 ml Compet fits reagent bottle with 28 mm threads and is supplied with a glass bottle as above, one each of 25 mm, 33 mm and 45 mm bottle-top adaptor, a dispense nozzle, an extension dispense tube, a dispense nozzle cap, two inlet tubes and a small wrench.

25 ml and 50 ml Compet fits reagent bottle with 33 mm threads and is supplied with one each of 38 mm and 45 mm bottle-top adaptor, a dispense nozzle with a holder, an extension dispense tube, a dispense nozzle cap, two inlet tubes and a small wrench, but with no bottle.

PARTS AND MATERIALS (1 ml, 2 ml, 5 ml & 10 ml)

1. Plunger Handle (Polypropylene)
2. Plunger (ETFE-coated Aluminium Oxide)
3. Outer Sleeve (TPX®)
4. Inner Sleeve with Scale (Polypropylene)
5. Guide Ring for Inner Sleeve (Polypropylene)
6. Cylinder (Pyrex® Glass)
7. Set Screw (Chrome plated brass)
8. Volume Indicator (Stainless Steel)
9. Outlet Valve Seal (Teflon®)
10. Dispense Nozzle Connector (CTFE)
11. Dispense Nozzle (Teflon®)
12. Dispense Nozzle Cap (Polypropylene)
13. Outlet Valve (Tefzel®, Aluminium Oxide & Platinum Iridium)
14. Threaded Base (Tefzel®)
15. Inlet Valve (Tefzel®, Aluminium Oxide & Platinum Iridium)
16. Inlet Tube Connector (CTFE)
17. Inlet Tube (Teflon®)
18. Priming Hole Cap (Polypropylene)
19. Extension Dispense Tube (Teflon® & Polypropylene)
20. Wrench (Stainless Steel)
21. Bottle-Top Adaptor (Polypropylene)

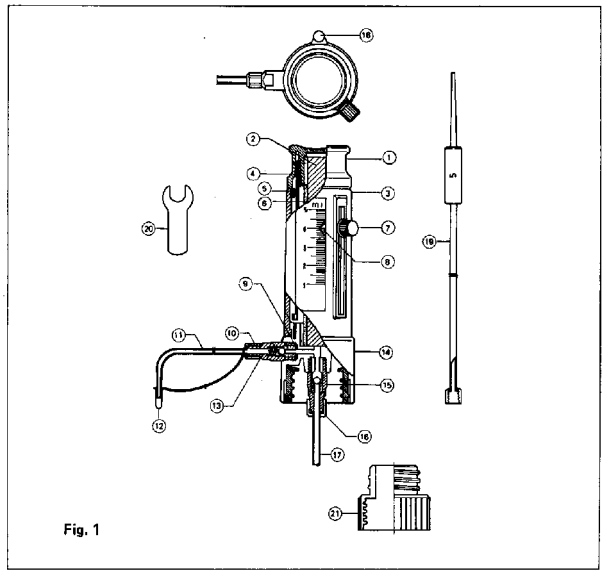


Fig. 1

PARTS AND MATERIALS (25 ml & 50 ml)

1. Plunger Handle (Polypropylene)
2. Plunger (Pyrex® Glass)
3. Outer Sleeve (TPX®)
4. Inner Sleeve with Scale (Polypropylene)
5. Guide Ring for Inner Sleeve (Polypropylene)
6. Cylinder (Pyrex® Glass)
7. Set Screw (Chrome plated brass)
8. Volume Indicator (Stainless Steel)
9. Outlet Valve Seal (Teflon®)
10. Dispense Nozzle Holder (Polypropylene)
11. Dispense Nozzle Stoppers (Polypropylene)
12. Dispense Nozzle (Teflon®)
13. Dispense Nozzle Cap (Polypropylene)
14. Outlet Valve (Tefzel®, Aluminium Oxide & Platinum Iridium)
15. Threaded Base (Tefzel®)
16. Inlet Valve (Tefzel®, Aluminum Oxide & Platinum Iridium)
17. Inlet Tube Connector (CTFE)
18. Inlet Tube (Teflon®)
19. Extension Dispense Tube Receptacle Cap (Polypropylene)
20. Extension Dispense Tube (Teflon® & Polypropylene)
21. Wrench (Stainless Steel)
22. Bottle-Top Adaptor (Polypropylence)

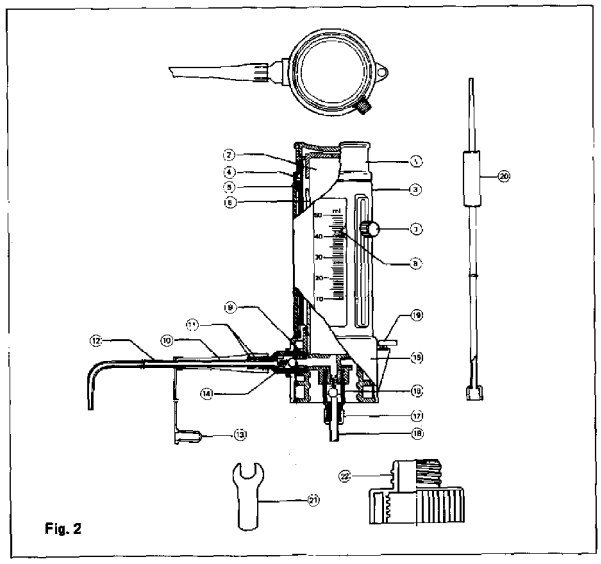


Fig. 2

OPERATION

1. Attach the dispense nozzle onto the outlet valve by tightening the dispense nozzle connector (1 ml, 2 ml, 5 ml & 10 ml) or the dispense nozzle holder (25 ml & 50 ml) firmly so that the open end of the dispense nozzle faces to vertically downwards. When attaching the dispense nozzle of 25 ml or 50 ml model, place the dispense nozzle stoppers in correct direction. (See Fig. 3)
2. Attach the inlet tube onto the inlet valve by tightening the inlet tube connector firmly. (Incomplete tightening causes air to leak into the cylinder.)
3. When using a reagent bottle other than the one provided, select a bottle-top adaptor appropriate to the bottle and cut the spare inlet tube to the correct length for the bottle.
4. Set the volume indicator to the desired volume and lock it by tightening the set screw. Attach the Compet to the bottle.
5. Remove all air bubbles in the glass cylinder and fill the dispense nozzle with liquid by pumping the plunger several times using short strokes. It is recommended to hold the instrument tilted so that the outlet valve faces upward in order to make priming easier. When using the extension dispense tube on 1 ml, 2 ml, 5 ml and 10 ml, insert the far end of the tube into the priming hole on top of the threaded base. This allows "no waste" recycling of the liquid while priming. In order to ensure safe priming with the extension dispense tube make sure that the end of the tube is inserted far enough so that the tube end can be seen through the bottle. 25 ml and 50 ml model does not have facility of "no waste" recycling of the liquid. Use a hole on top of the threaded base only as the receptacle of the far end of the extension dispense tube when storing.
6. Touch the end of the dispense nozzle (or extension dispense tube) to the inside wall of the receptacle.
7. Gently pull the plunger up as far as it will go to draw the liquid into the cylinder, and gently depress the plunger as far as it will go to deliver the preset volume of the liquid.
8. When the extension dispense tube is used, keep the end of the tube inserted into the priming hole while the instrument is not being operated.

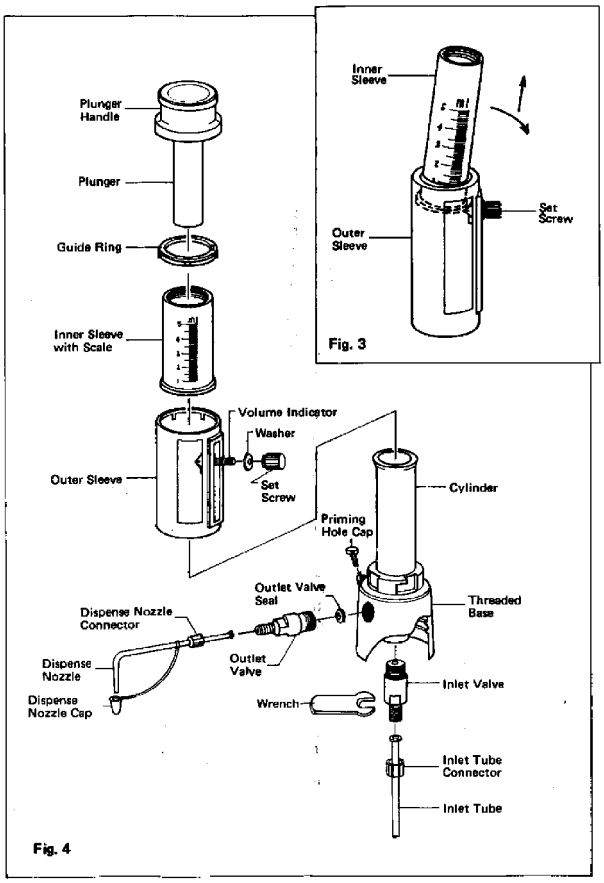


Fig. 4

DISMANTLING AND REASSEMBLING

A. Cylinder Assembly (Fig. 4)

1. Pull the plunger up, and hold the "inner sleeve with scale" with one hand. Remove the plunger and plunger handle assembly from the inner sleeve by turning it counter-clockwise.
2. Turn the outer sleeve counter-clockwise until it will go no further. Pull the outer sleeve up gently so that the outer sleeve comes spart from the threaded base together with the inner sleeve.
3. Fix the set screw at the top position of the scale. Pull the inner sleeve off the outer sleeve, tilting the inner sleeve toward the set screw. A guide ring will come off together with the inner sleeve. (Fig. 3)
4. Remove the guide ring from the inner sleeve.
5. Unscrew the set screw so that the volume indicator can be removed.
6. After cleaning or replacing the parts, return all parts to their original positions in accordance with the reverse procedures of the above. For assembling the instrument, make sure that the rib on the inner sleeve fits into the gap on the guide ring, and the printed scale on the inner sleeve faces the transparent part of the outer sleeve. If the plunger handle is not tightened completely, the plunger moves even when the set screw is fixed at the zero position. Tighten the plunger handle until this does not occur.

B. Valve Assembly (Fig. 4)

1. Unscrew the inlet tube connector. Remove the inlet tube connector from the inlet tube. The inlet tube may be replaced with the spare tube provided, which should then be cut with a blade to the appropriate length for the bottle being used.
2. The inlet and outlet valves are easily removed with the small wrench provided.

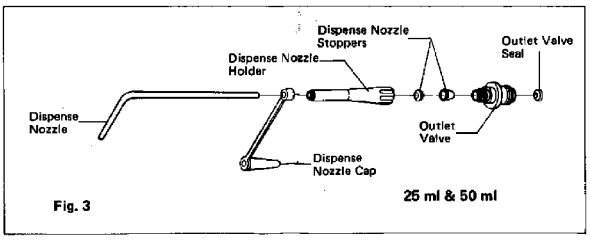


Fig. 3

CLEANING

1. After use, rinse the instrument with 6 to 10 dispenses of distilled water.
2. Prior to prolonged storage, rinse it thoroughly with a good quality detergent for laboratory glassware and thereafter multiple dispenses of distilled water.
3. If the check valves do not seem to be working smoothly, or if liquid draws backward into the dispense nozzle when the plunger is pulled up, dispense either hot distilled water or a strong solvent to dissolve and flush out any possible chemical build-up on the ball and/or seat.
4. When the instrument has sat empty and unused (even overnight) it is possible for the dried residue from the last reagent (or even distilled water) to cause the ball to "stick" in the seat, because the valve ball and seat are precision ground and matched to ensure reliable check valve performance. In most cases the valve ball can be released from the seat by pumping the plunger strongly. If it is impossible to release the ball from the seat, remove the inlet tube connector from the inlet valve. Then, using a narrow probe with a blunt end (a straightened paper clip will do), gently push the probe up through the hole in the inlet valve seat and against the ball to raise it up out of the seat.
5. If the plunger does not work smoothly, dismantle it and rinse the plunger with hot water and a good quality detergent.
6. If the plunger seems stuck in the glass cylinder DO NOT FORCE IT TO MOVE. Remove the reagent bottle and the dispense nozzle and emerse the entire instrument in hot water. After a few minutes and while the instrument is still emersed slowly pull the plunger. When the plunger is moving freely in the cylinder fully dispense 6 to 10 cycles of the hot water. Then remove the instrument from the water, shake dry, and reassemble bottle and tubing.
7. To prolong the life of the instrument and to keep the plunger and glass cylinder free of scratches from any particulate build-up, it is recommended that the procedure in step number 6 be carried out periodically as routine maintenance – especially if the plunger movement becomes unsmooth.

STERILIZING

All parts are autoclavable without dismantling at 121°C or below at presure of one atmosphere. Use the instrument after it has cooled to room temperature. If the outlet or inlet valve is loose after autoclaving, tighten with the sterilized wrench before operating the instrument.

REPLACEABLE PARTS (1 ml, 2 ml, 5 ml & 10 ml)

Part Number in Figure 1	Part Name	Part Number in Figure 1	Part Name
1 + 2	*Plunger Assembly	12	*Dispense Nozzle Cap
3	*Outer Sleeve	15	Inlet Valve Assembly
4	*Inner Sleeve with Scale	16	*Inlet Tube Connector
5	*Guide Ring	17	*Inlet Tube
6 + 14	*Cylinder and Threaded Base Assembly	18	Priming Hole Cap
7 + 8	*Volume Indicator with Set Screw	19	*Extension Dispense Tube
9 + 13	*Outlet Valve Assembly and Seal	20	Wrench
10	Dispense Nozzle Connector	21	Bottle-Top Adaptor
11	*Dispense Nozzle		

State the catalogue number and volume range of the instrument when ordering parts which are marked with an asterisk(*).

Bottle-Top Adaptors are available as optional accessories.
Order the suitable size(s) from the following selection.

a. 19 mm
b. 22 mm
c. 25 mm
d. 33 mm
e. 38 mm
f. 45 mm

REPLACEABLE PARTS (25 ml & 50 ml)

Part Number in Figure 2	Part Name	Part Number in Figure 2	Part Name
1 + 2	*Plunger Assembly	13	*Dispense Nozzle Cap
3	*Outer Sleeve	16	Inlet Valve Assembly
	*Inner Sleeve with Scale	17	Inlet Tube Connector
5	*Guide Ring	18	Inlet Tube
6 + 15	*Cylinder and Threaded Base Assembly	19	Extension Dispense Tube Receptacle Cap
7 + 8	*Volume Indicator with Set Screw	20	*Extension Dispense Tube
9 + 14	*Outlet Valve Assembly and Seal	21	Wrench
10	Dispense Nozzle Holder	22	Bottle-Top Adaptor
11	Dispense Nozzle Stoppers		

State the catalogue number and volume range of the instrument when ordering parts which are marked with an asterisk (*).

For repair service or further information please contact:

MANUFACTURER: NICHIRYO CO., LTD.

10C-10-94(E)