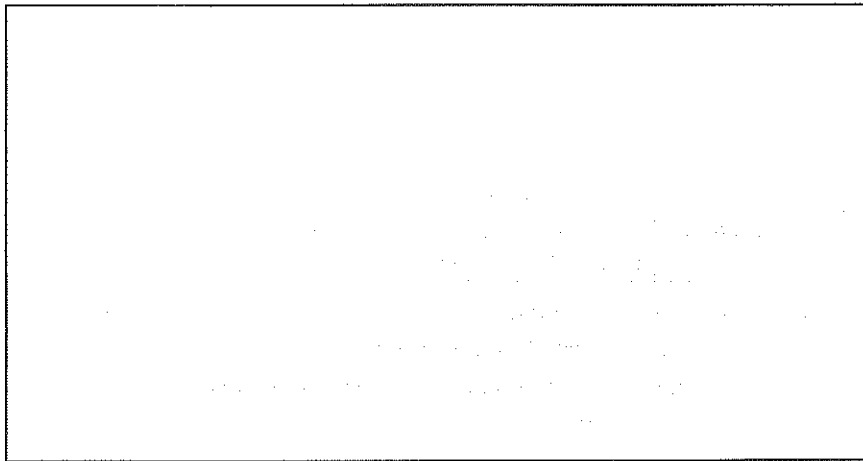


# DISPET™

Bottle Top Dispenser

## User's Manual

For repair, service or information you may contact:



**MANUFACTURER:**



Tokyo office

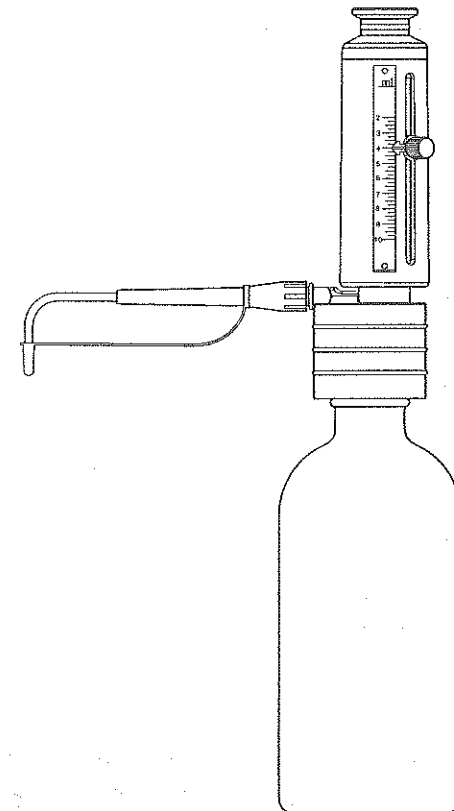
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## 1. Features

- Attachable to all regular size reagent bottles.
- Comes with an adapter (22mm) for attachment to reagent bottles smaller than 100ml.  
\* Only for DP-1 and DP-2.
- Because of the light weight, you can dispense to ex. test tubes while holding the product.
- The glass cylinder (borosilicate glass) is stored with a sleeve.
- The set includes an extra tube (220mm) that can be cut and used for a container of choice.

## 2. Standard accessories

- Inlet tube (Fluorine resin) ..... x 2
- Dispense nozzle (Fluorine resin) ..... x 1
- Dispense nozzle stopper (Fluorine resin) ..... x 1
- Dispense nozzle cap (Polypropylene) ..... x 1
- Dispense nozzle holder (Polypropylene) ..... x 1
- Adapter 22mm \* only for DP-1 and DP-2 (Polypropylene) ..... x 1
- User's Manual ..... x 1

Please check to make sure before use that none of the accessories above are missing.

## 3. Other accessories

- Adapter : 18mm, 19mm, 22mm, 24mm, 25mm, 28mm, 33mm, 38mm, 45mm
- Bottle : 200ml, 350ml, 1000ml

### Safety Precautions

- To ensure safe and proper use of the Dispet, please carefully read the "Safety Precautions" in this section and "Cautions" on the following page before using the product.
- The contents of "Cautions" are matters that require the user's attention, not only for using the Dispet properly but also for preventing accidents and injuries to the user.
- After reading this manual, please store it in a convenient place for quick reference.

Please observe the following to ensure the safe use of this product.

### CAUTIONS

Be sure to observe the following instructions for using your Dispet properly and safely. If the user operates the Dispet improperly, disregarding the following instructions, it may result in injuries to the user and/or other persons as well as physical damage to the instrument and/or other equipments.

1. This manual does not cover all security measures for the use of the product. Please be careful when operating it. If something is unclear, please contact the manufacturer.
2. Do not use for any other purpose than handling liquids.
3. Never modify this instrument as it may cause accidents.
4. Do not use for handling of liquids that will be directly injected into the human body.
5. As certain types of liquids are harmful to the human body, never discharge any liquid samples while pointing the instrument at a person.
6. Make sure to use protective clothing, protective gloves and goggles. When handling reagents, make sure to follow safety recommendations given by the reagent manufacturers.
7. In case harmful liquid splash onto the other than liquid contact parts of the product treat it properly before reusing it. Do not touch the product with your bare hands as it may cause damage to the human body.
8. Place the inlet tube properly to the inlet valve.  
\* A loose inlet tube might cause air bubbles to enter the device.
9. Twist the dispense nozzle holder in and place the dispense nozzle properly.  
\* If the dispense nozzle holder is loose, it may cause leakage from the dispense nozzle as well as the pressure from the discharging causing the dispense nozzle to come off. Splashing liquid and leakage could cause damage and injuries to the human body.
10. Do not place your face near the dispense nozzle as this may cause accidents.
11. Dispense at a constant speed. Do not operate intermittently, hit the product up or down or make the reagent belch. The reagent splashing or the dispense nozzle loosening might cause damages or injuries.
12. Be careful when handling glass products (cylinders and bottles). When changing parts, be careful with the glass as breakage could cause injuries.

**Please observe the following to ensure the safe use of this product.**

13. Clean the product properly after use (See page 8).
  - \* In case the plunger gets stuck inside the cylinder, forcing it may cause damages. If that occurs, please send it to service.
14. This product is not autoclavable.
15. Do not use for chemicals that could damage the product. If unclear, contact the manufacturer.
16. Although the liquid contact parts of this product are designed to resist chemicals, epoxy adhesive is used on the inside. Do not leave chemicals in the body or the bottle for a longer period of time. It may cause the adhesive agent to melt and lead to liquid scattering and leaking which will cause damage.
17. If trouble occurs, stop usage of the product immediately and consult with the local distributor. At this time, please confirm that there has been no contamination by chemicals that are harmful to the human body. In case of contamination, make sure to take proper action to avoid influences to the human body.

**⚠ Matters that require strict observance**

Users are required to strictly observe the following in order for the instrument to keep its excellent precision, reproducibility and original performance for a long time.

1. Make sure to clean the product properly after handling liquids likely to crystallize. If left unattended for a long time, the plunger could get stuck or the valve be clogged.
2. Do not leave liquids in the bottle. This could lead to malfunctions such as the valve being stuck.

## 4. Parts and materials

- |   |  |
|---|--|
| 1 Plunger assembly<br>(1, 2ml: Ceramic 5, 10ml: Borosilicate glass) | 9 Dispense nozzle holder (Polypropylene)     |
| 2 Sleeve (Polypropylene)  | 10 Dispense nozzle (Fluorine resin)          |
| 3 Cylinder (Borosilicate glass)                                     | 11 Dispense nozzle cap (Polypropylene)       |
| 4 Scale plate (Stainless steel)                                     | 12 Dispense nozzle stopper (Fluorine resin)  |
| 5 Volume indicator (Polypropylene)                                  | 13 Cylinder and valve set (Fluorine resin)   |
| 6 Volume setting screw (Chrome plated brass)                        | 14 Inlet valve set (Fluorine resin, ceramic) |
| 7 Cap (Polypropylene)   | 15 Inlet tube (Fluorine resin)               |
| 8 Outlet valve set<br>(Fluorine resin, ceramic, platinum)           | 16 Adapter (Polypropylene)                   |

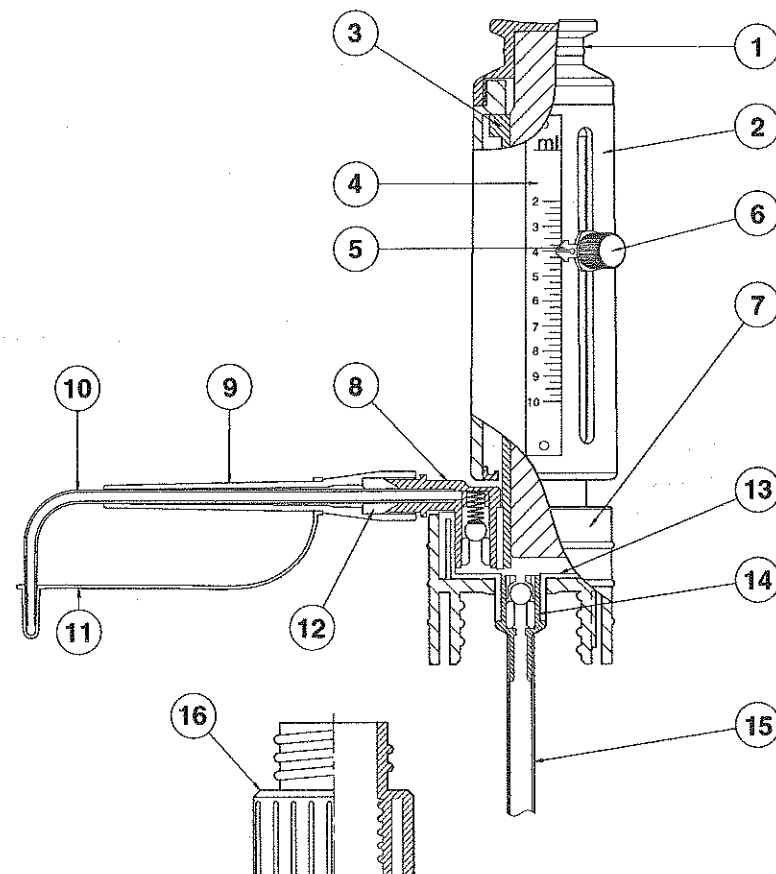


Fig. 1

## 5. Operation

- 1 Twist the dispense nozzle holder in the outlet valve and place the dispense nozzle after checking that the dispense nozzle stopper and the dispense nozzle is connected inside the dispense nozzle holder (Fig. 2).

**⚠ Warning :** If the dispense connector is loose, it may cause liquid to leak or splash.

- 2 Insert the inlet tube firmly into the inlet valve.  
\* If you are using other reagent bottles than proposed by Nichiryo, cut the spare inlet tube into an appropriate length.
- 3 When the reagent is inside the bottle, insert the main body and make sure it is placed.  
\* If you are using other reagent bottles than proposed by Nichiryo, choose a fitting adapter.
- 4 Loosen the volume setting screw, set the volume indicator to the scale, tighten the volume setting screw and place the volume indicator again.
- 5 Use a few short strokes with the plunger to remove the air from inside the bottle.
- 6 Place the tip of the dispense nozzle against the inside wall of the receiving container.
- 7 Pull the plunger gently till it stops.

**⚠ Warning :** If the plunger is pulled too firmly, the volume setting screw could shift.

- 8 Push the plunger gently till it stops. The indicated amount of liquid will be dispensed.
- 9 Repeat 7 and 8.

\* Accuracy is kept by dispensing at a consistent speed.

The stroking time can differ between volume ranges containers but please use the below speed as a standard.

●1-10ml : Full stroke ca 1 sec

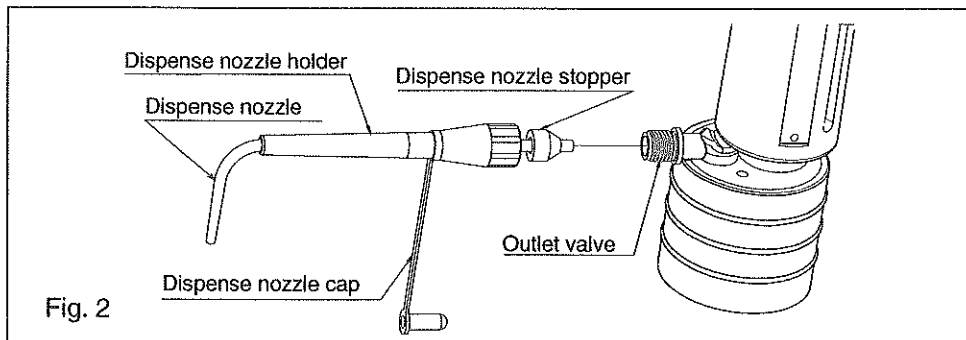


Fig. 2

## 6. Dismantling and reassembling (Fig. 3-4)

### 1. Plunger set

#### ■ Dismantling

Place the volume indicator set to the top of the scale plate groove on the sleeve. Hold the sleeve and loosen the plunger head by turning it counter-clockwise.

#### ■ Reassembling

Do the same process backwards. Make sure the screw parts are properly tightened.

### 2. Sleeve

#### ■ Dismantling

Place the volume indicator set to the bottom of the scale plate groove on the sleeve. Hold the cylinder and pull the sleeve to the top, loosen the sleeve by tilting it until the guide ring comes off.

#### ■ Reassembling

Place the volume indicator set on the bottom of the sleeve groove. Cover the cylinder with the sleeve and attach the protrusive portion of the guide ring to the whole depressed portion of the sleeve from the side.

### 3. Volume indicator set

#### ■ Dismantling

Do 1~3, then turn the volume indicator setting screw counter-clockwise to loosen it.

#### ■ Reassembling

Make sure the volume indicator set is attached before attaching the plunger set, sleeve and guide ring.

#### ⚠ Warning :

1. When dismantling, make sure there is no liquid in the main body or in the tubes. Also make sure the body is clean.
2. Take sufficient care when attaching the cylinder or the plunger. Failure to do so may break the device, causing an accident.
3. Never take the valve apart as this may cause an accident.

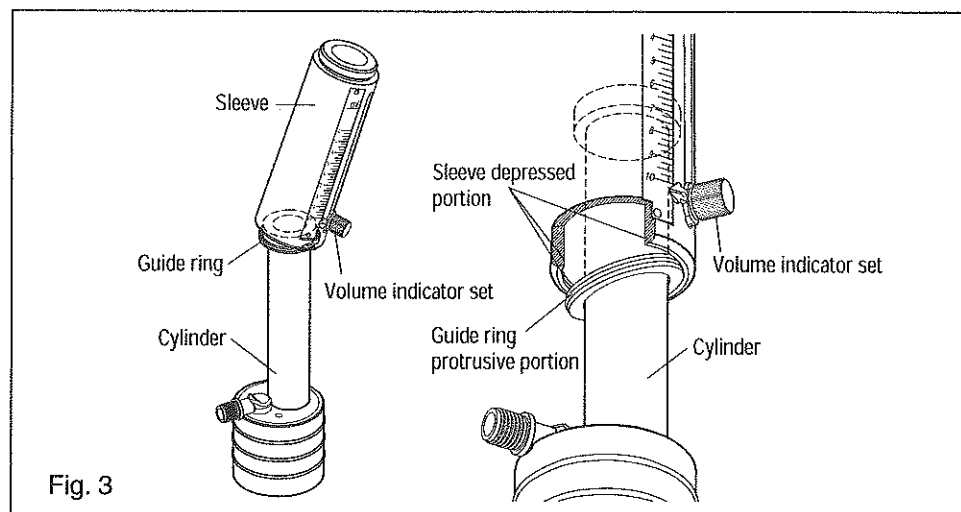


Fig. 3

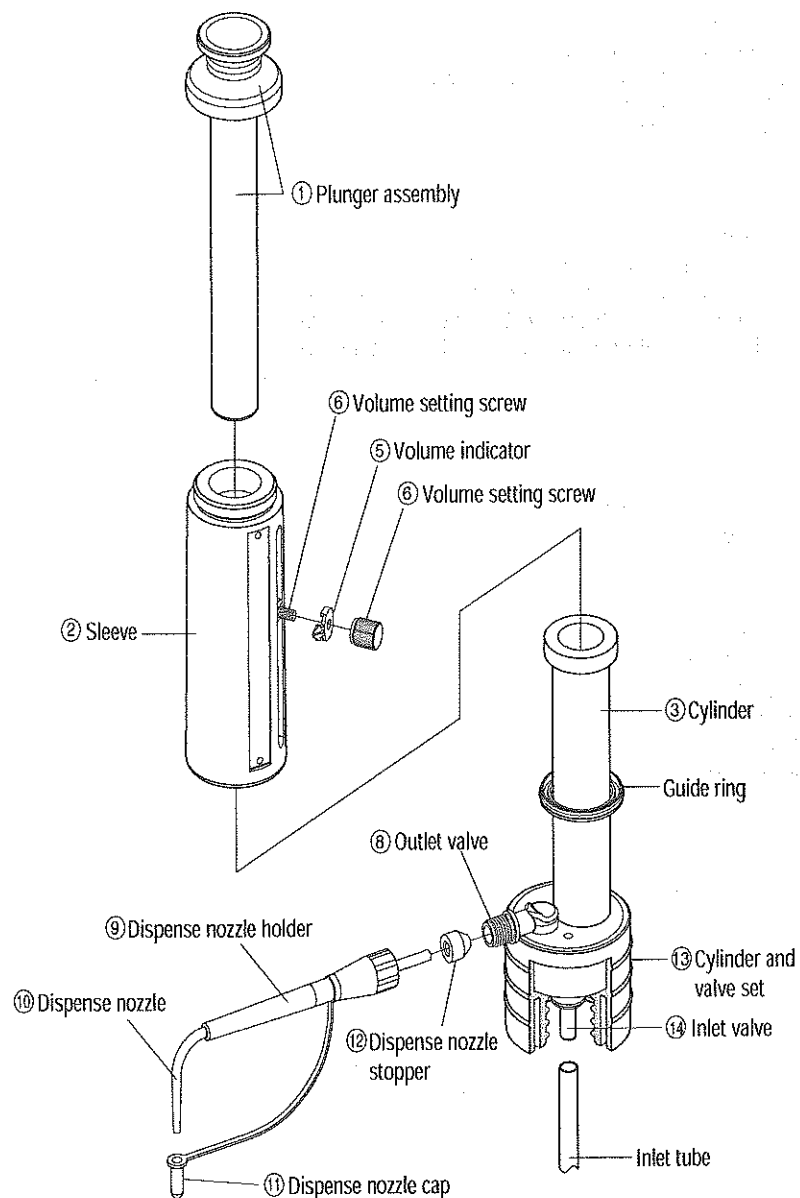


Fig. 4

## 7. Maintenance

- To prolong the life of the instrument, cleansing each time after use and periodic maintenance is necessary.
- After handling crystalliferous solutions or solutions with interfusing particles, it is necessary to clean the instrument properly. It is important to keep the plunger and the cylinder free from damage from any particulate clogged inside the valve. It is recommended that the below procedures be carried out periodically as routine maintenance – especially if the plunger movement becomes unsmooth.

1. After use, rinse the instrument with 6 to 10 dispenses of distilled/purified water.
2. Prior to a longer period of storage or after handling crystalliferous solutions, proper cleansing is necessary. Leaving it without action could cause the plunger to get stuck or the valve to be clogged. Rinse the whole body with a good quality detergent for laboratory glassware and thereafter dispense multiple times with distilled water. Remove all moisture from inside the body before storing.
3. If the valves and the plunger 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/purified water(around 70°C) or a strong solvent to dissolve, and flush out any possible chemical clogged the valve ball and/or valve seat.
4. The valve ball and seat are precision ground and matched to ensure reliable valve performance. If dried residue from the last reagent is left inside the valve, it could cause the valve ball to “stick” in the seat. In most cases the valve ball can be released from the seat by pumping the plunger strongly. However, if the valve ball and the seat are stuck, do as follows:
  - ① If the valve is stuck, dispense either hot distilled water(around 70°C) or a strong solvent with quick strokes to dissolve, and flush out any possible chemical clogged the ball and/or seat.
  - ② Remove the inlet tube from the inlet valve. Push the ball up slightly and release it from the seat by gently pushing through a thin probe with a blunt end (or a straightened paper clip) through the hole in the inlet valve seat.  
\*If the situation does not ameliorate by doing the above, please contact your supplier for maintenance.
5. If the plunger seems stuck in the cylinder, **DO NOT FORCE IT TO MOVE.** It may cause accidents and injuries. Please contact your supplier for support.

## 8. Specifications

Accuracy :  $< \pm 1.0\%$

Reproducibility :  $< 0.2\%$

Code Model No.	Volume range	Increments	Bottle volume
DP-1	0.2 ~ 1.0 ml	0.05 ml	200 ml
DP-2	0.4 ~ 2.0 ml	0.1 ml	200 ml
DP-5	1.0 ~ 5.0 ml	0.1 ml	350 ml
DP-10	2.0 ~ 10.0 ml	0.25 ml	1000 ml

- The bottles of different sizes all have the same size necks and can therefore be combined freely.

## 9. Replacement parts list

Part No. (Fig. 1)		Description
1	DP-0101 ~ 0110	Plunger assembly 1, 2, 5, 10 ml
2&4	DP-0201 ~ 0210	Sleeve with scale plate 1, 2, 5, 10 ml
9	CP-023C	Dispense nozzle holder
10	CP-015AC	Dispense nozzle 1, 2 ml
10	CP-015BC	Dispense nozzle 5, 10 ml
11	N3-0730B	Dispense nozzle cap
12	CP-017A	Dispense nozzle stopper
15	DP-0700	Inlet tube 300 mm (Fluorine resin)
5&6	DP-0300	Volume indicator set
16	DP-1118	Adapter 18 mm
16	DP-1119	Adapter 19 mm
16	DP-1122	Adapter 22 mm
16	DP-1124	Adapter 24 mm
16	DP-1125	Adapter 25 mm
16	DP-1128	Adapter 28 mm
16	DP-1133	Adapter 33 mm
16	DP-1138	Adapter 38 mm
16	DP-1145	Adapter 45 mm
	DP-0800	Bottle 200 ml
	DP-0900	Bottle 350 ml
	DP-1000	Bottle 1000 ml

## 10. Trouble Shooting

Problem	Probable Cause	Solution
No suction of liquid	Inlet tube connection is loose	Cut the inserted part of the inlet tube or use a new inlet tube
	The ball in the inlet valve is stuck	See p.8 no.4, ① and ②
	Dirt in the inlet valve	Remove the inlet valve and clean
	The outlet connector is loose	Retighten
	Dirt on the outlet valve	Clean the outlet valve
	The outlet valve ball is stuck	See p.8 no.4, ①
Air bubbles	Inlet tube connection is loose	Cut the inserted part of the inlet tube or use a new inlet tube
Volume indicator shift	The volume setting screw is loose	Retighten
Liquid leakage from the Outlet valve	The outlet connector is loose	Retighten
	The dispense nozzle is broken from repeated detachment and attachment	Use a new dispense nozzle
	The dispense nozzle stopper is broken from repeated detachment and attachment of the dispense nozzle	Use a new dispense nozzle stopper
No discharge of liquid	Crystallized liquid has adhered to the inlet and outlet valves	See p.8 no. 3

If the problem persists after the above points have been checked, stop usage of the unit immediately and ask the distributor to repair it.

At this time, please confirm that there has been no contamination by chemicals that are harmful to the human body.

## 11. Preparation of the instrument for service

For service of the instrument, please contact your local distributor.

DO NOT send the instrument to NICHIRYO.

1. Please clean the instrument before sending it for service.
2. Please make sure to completely remove all chemicals from the inside of the body.
3. Please confirm that there has been no contamination by chemicals or specimen that are harmful to the human body
4. Please attach a detailed description of the problem and the chemical that was used.