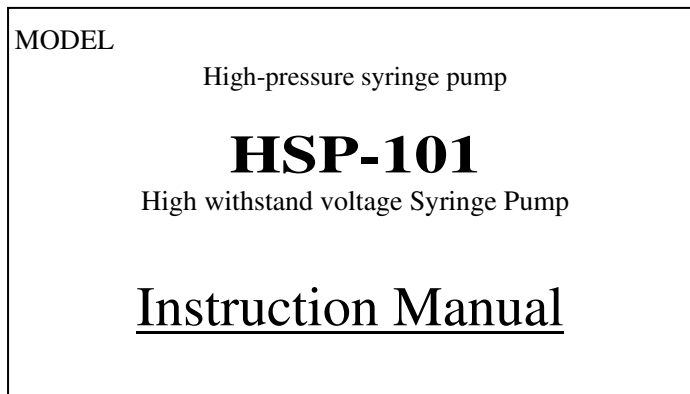


Figure No. 162040110

Issued on: 2020.12.10

Date of revision



- Please read this instruction manual thoroughly to ensure correct use. In particular, be sure to read "To use safely" before use and use it correctly.
- After reading, store it in a place that is easy to remove.

**MECC CO. ,LTD.**

196-1 FUKUDO OGORI-SHI,  
FUKUOKA 838-0137 JAPAN  
TEL:0942-72-7266 FAX:0942-73-3545

# Preface

This manual explains the handling of HSP-101.

## CAUTION

- (1) Copying the whole or part of this manual without notice is strictly forbidden.
- (2) The author reserves the exclusive right to make changes/modifications to this manual.
- (3) The contents of this document have been prepared with utmost care. However, if you have any doubt or error,  
Please contact us if you notice anything, such as omissions.

# Revision history

The manual revision symbol is added to the tail of the figure number above the cover.

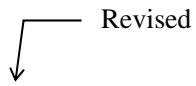


Figure No. 162040110

Revised symbols	Date of revision	Revised parts and contents
0	2020.12.10	First Edition Printing



# **Table of Contents HSP-101 Instructions for Use**

SAFETY PRECAUTIONS.....	1
<b>[1] Before using the chapter</b>	
1-1. Check the main unit and attached items.....	1-1
1-2. Description and Function of Each Part.....	1-1
<b>[2] Chapter Operation</b>	
2-1. How to start up the power supply.....	2-1
2-2. How to attach the syringe.....	2-2
2-3. How to Set Various Parameters.....	2-4
2-4. How to start and stop.....	2-5
<b>[3] How to Maintain the Chapter</b>	
3-1. Cleaning.....	3-1
<b>[4] If I think it is a chapter failure?</b>	
4-1. Unusual events and addressing.....	4-1
<b>Product warranty regulations and services</b>	
<b>External Dimensions</b>	






# SAFETY PRECAUTIONS

## (1) Labeling and Meaning for Safe Use

In this manual, the following symbols are used to indicate the operation and handling of products that are hazardous in order to prevent harm to customers and other people and damage to property. Read the text with a good understanding of the contents.






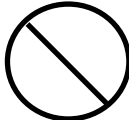

	<p>If the product is used without observing the information given under this symbol, serious injury or death may result.</p>
	<p>Ignoring this indication, it indicates the content that can cause damage to human beings if handled incorrectly, and the content that can cause damage only.</p>

## (2) Explanation of symbols


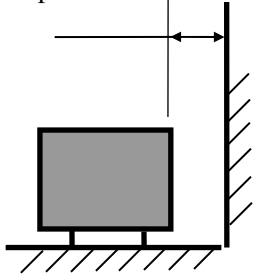
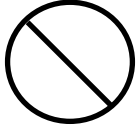
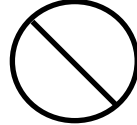
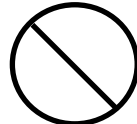


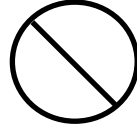
	<p>⊘ symbol means prohibited. In the case of the left figure, it represents "Prohibited from decomposition."</p>
	<p>△ symbol means a caution (including an alert). Specific information is provided in the text in △. In the case of the left figure, it represents "Caution of electric shock".</p>
	<p>△ symbol means a caution (including an alert). In the case of the figure on the left, "General caution" is indicated.</p>
	<p>Indicates "Protective Earth Terminal". Be sure to connect to ground (earth) before use.</p>
	<p>Indicates "functional ground terminal". Do not use as "protective earth terminal".</p>
<p>  "Power ON" is indicated.</p>	
<p>○ Indicates "Power OFF".</p>	

# **SAFETY PRECAUTIONS**

## Safety Instructions

 <b>Warning</b>	
<p>Do not use them if you notice any abnormalities such as smoke, strange odors or noises. Otherwise an electric shock or fire could occur.            Immediately turn off the power switch and disconnect the power plug from the outlet. Contact the office or us listed at the end of this document.</p> <ul style="list-style-type: none"> <li>• Never repair the product by the customer because it is dangerous.</li> </ul>	 <b>Electri</b>
<p>Do not touch the terminals while the power is on.            It may cause an electric shock.</p>	 <b>Electri</b>
<p>Do not disassemble the unit or touch the inside while the power is on. It may cause an electric shock.</p>	 <b>Electri</b>
<p>Do not disassemble or modify (except as instructed in the instruction manual).            Failure to do so may cause an injury, electric shock or fire.</p>	 <b>Electri</b>
<p>Do not use other than the specified power supply voltage.            Use of an unspecified power source may result in electric shock or fire.            Use the product so that the rated voltage can be supplied in a location with poor power supply conditions.</p>	 <b>Electric</b>
<p>This equipment is grounded through a 3-conductor power cord with a ground line.            Be sure to connect the power plug to an outlet with a protective grounding terminal.            Be sure to ground the protective grounding terminal of this device when attaching the 2-conductor conversion adapter and supplying line power from a 2-conductor power outlet. Failure to do so may result in electric shock or fire due to electric leakage.</p>	 <b>Electri</b>

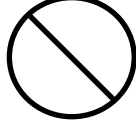
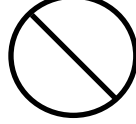
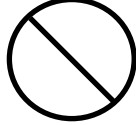




# **SAFETY PRECAUTIONS**

 <b>Warning</b>	
<p>Do not block the ventilation slots on the device. Blocking the ventilation holes may cause heat inside, which may cause a fire.</p> <p>Do not place any objects on or near the ventilation slots. (special attention should be paid to flammable materials such as paper and plastics.)</p> <p>Do not place the product in a narrow room, in a box, or in any other place that is poorly ventilated.</p> <p>Do not place the product on a carpet.</p> <p>Do not place the device on the cheek, on the side, or upside down.</p> <p>Also, when installing the product near a wall, provide sufficient ventilation space.</p>	<p>Space</p> 
<p>Do not insert or drop metals or inflammable objects into the product through openings such as ventilation slots. Failure to do so may cause an electric shock or fire. In the unlikely event that foreign matter enters, immediately turn off the power switch of the main unit, unplug the power plug from the outlet, and contact the sales office listed at the end of this manual or us.</p>	 <b>Electri</b>
<p>If water or chemicals get inside the product, an electric shock or fire may be caused. In the unlikely event that water or the like enters inside, immediately turn off the power switch, unplug the power plug from the outlet, and contact your sales office listed at the end of this manual or us.</p>	 <b>Electri</b>
<p>Do not use damaged power cords. Failure to do so may cause an electric shock or fire. Observe the following precautions when handling the power cord.</p> <ul style="list-style-type: none"> <li>• The power cord is not processed.</li> <li>• Do not place heavy objects on the power cord.</li> <li>• Do not forcibly bend, twist, or pull.</li> </ul> <p>If the power cord is broken, contact the office or us listed at the end of this document.</p>	 <b>Electri</b>
<p>Do not connect the power cord to the foot. Heating may cause fire.</p>	 <b>Ignitio</b>
<p>Be careful when handling the power plug. Improper handling may cause a fire. Observe the following precautions when handling the power plug.</p> <ul style="list-style-type: none"> <li>• Do not insert the power plug with dust or other foreign matter attached.</li> <li>• Insert the power plug firmly to the base of the blade.</li> </ul>	 <b>Ignitio</b>
<p>Use a fuse compatible with this device. When replacing the fuse, be sure to turn off the power and unplug the power plug from the outlet. Using an incompatible fuse or replacing the fuse with the power turned on may cause an electric shock or fire.</p>	 <b>Electri</b>

# **SAFETY PRECAUTIONS**



**NOTE**

<p>Do not place the product in an unstable place (e.g., on an unstable kitchen or on a slanted place). Doing so may cause the product to fall or fall, resulting in injury.</p>	 <b>Bruisi</b>
<p>Do not place heavy objects on the device or ride on it. Doing so may cause the product to collapse or fall out of balance, causing injury.</p>	 <b>Bruisi</b>
<p>Do not use the product in a damp or dusty place. Otherwise, water or dust may accumulate, resulting in electric shock or fire.</p>	 <b>Bruisi</b>
<p>Use only the dedicated power cord and connecting cable, and do not substitute other cables. Substituting other items creates the risk of short-circuiting and discharging, which can result in electric shock, fire, or equipment damage.</p>	 <b>Electri</b>
<p>Do not touch the power plug with wet hands. Doing so could cause electric shock.</p>	 <b>Electri</b>
<p>Pulling on the power cord may damage it and cause a fire or electric shock. When unplugging the power plug, do not pull on the power cord, but always hold the power plug.</p>	 <b>Electri</b>
<p>Before relocating this product, turn off the power, unplug the power plug from the outlet, and make sure that all wires have been removed. Moving the product while it is connected may damage the power cord or connecting cable, resulting in fire or electric shock.</p>	 <b>Electri</b>

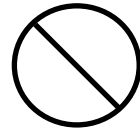


# **SAFETY PRECAUTIONS**



**NOTE**

Do not place the product in a place subject to vibration, such as a place where vibration from another machine is transmitted.  
Failure to do so may result in an injury due to the product moving or dropping.



**Bruisi**

To prevent fire, locate the power outlet to which the power plug is connected near the equipment.



**Ignitio**

When attaching options, do not mistake front and back and front and back.  
Incorrect mounting may cause malfunction. Install the product correctly according to the instructions in the instruction manual.



**Electri**

# [1] Instructions for HSP-101 before use

## [ 1 ] 章 Before use

This chapter explains what you should be aware of when using the device. Be sure to read this manual before use, and use the product safely and properly.

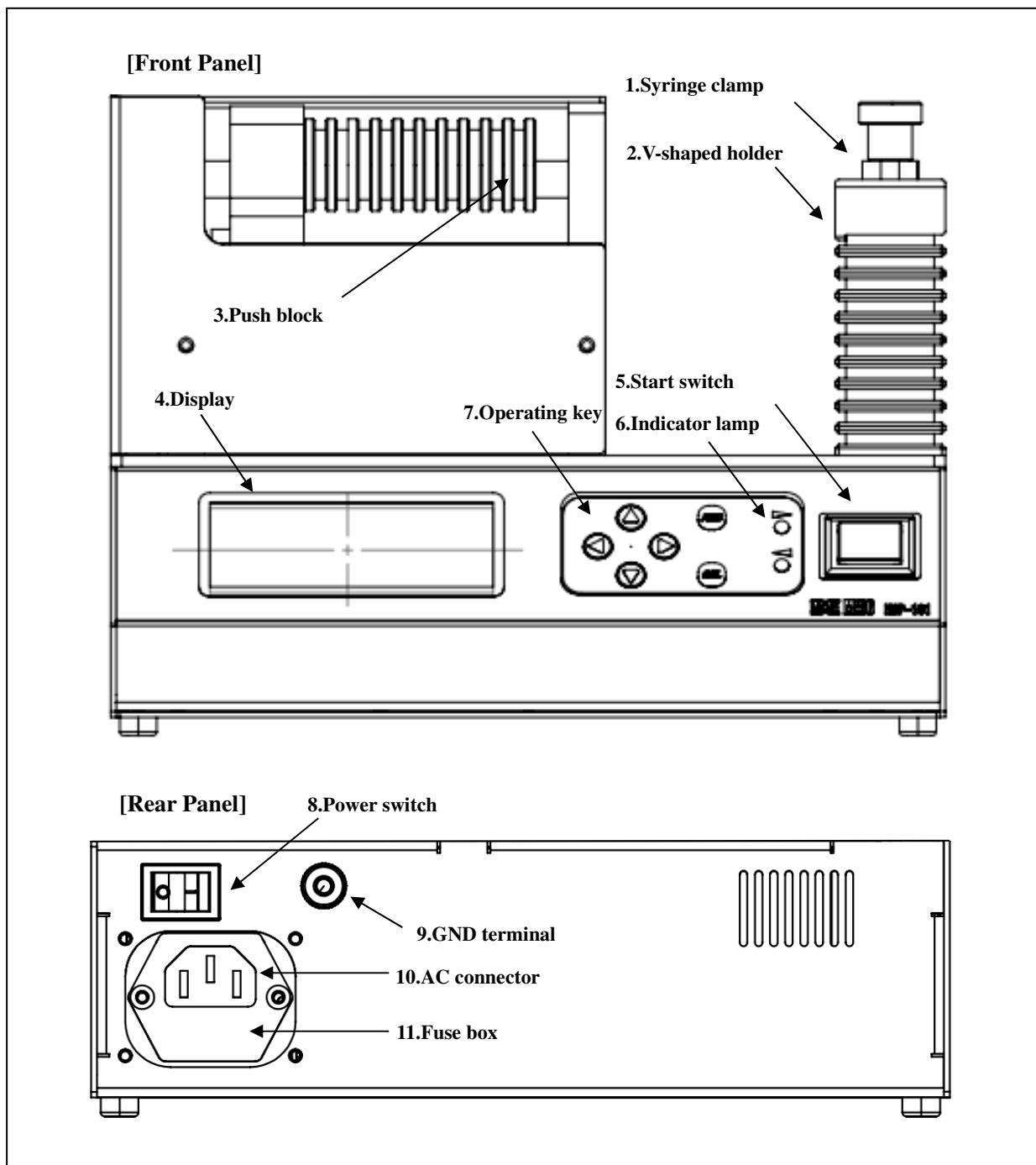
### 1 - 1. Check the main unit and attached items.

Check the main unit and accessories first. Make sure that there is no damage.

Please refer to the attachment list on the attached sheet for attachments.

### 1 - 2. Description and Function of Each Part

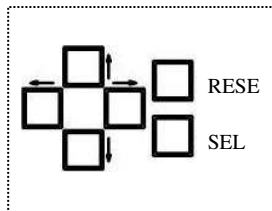
The numbering shown in the figure below is described in the following sections.



# [1] Instructions for HSP-101 before use

Description of each part of the main unit

- 1.Syringe clamp                      Fix the outer cylinder of the syringe.
- 2.V-shaped holder                  Holder for holding the syringe.
- 3.Push block                         Push the pusher (plunger) of the syringe to deliver the solution.
- 4.Display                              Indicates the amount of solution delivered, the integrated amount, and the inner diameter of the syringe.
- 5.Start switch                        This switch starts/stops the delivery of the solution filled in the syringe.
- 6.Indicator lamp                    Lights up and displays the status during operation.
- 7.Operating key                     Set parameters and start and stop operation.  
Refer to the table below for key descriptions.



Key	Description
↑↓ (top and bottom). ←→ (left and right).	Use the [↑↓←→] buttons to change the parameters.
RESET	Press the key switch for 1 second or longer to restore the cumulative amount of solution delivered.
SEL	When the key switch is pressed for 1 second or longer, You can change the parameters in the order of FeedRate → Diameter → Volume (Sets).

- 8.Power switch                      This switch is used to turn on/off the main power of the Switch.  
Make sure that the AC cable is inserted into an outlet that matches the rated voltage and turn it ON (| mark).  
Set to OFF (O mark) when you want to completely disconnect the power supply, such as when the device will not be used for a long time.
- 9. GND terminal                     Protective grounding terminal.  
Be sure to connect to the GND terminal of the high-voltage power supply to prevent damage to the server due to discharge.
- 10.AC connector                    This is the power input connector.  
Use a 3-pin AC-cable to enter AC 85 ~264V.
- 11.Fuse  
Box                                      A fuse for circuit protection is stored.  
When replacing the fuse, unplug the AC cable, insert a flat-blade screwdriver, etc., into the groove, and pull it out.  
If the product is to be replaced by the customer itself, use the product of the following standard.

Slow-blow (time-lag) fuse OOBx 20mm  
Recommended product: Nippon Line FSL/FJL 250V 3.15A

[1] Instructions for HSP-101 before use

# [2] HSP-101 Operation Manual

## [ 2 ] 章 How to operate



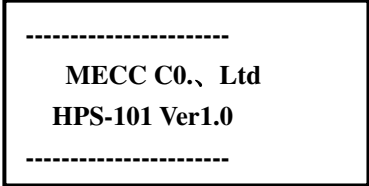
**NOTE**

This equipment is grounded through a 3-conductor power cord with a ground line. Be sure to connect the power plug to an outlet with a protective grounding terminal.

In addition, connect the protective earth terminal to the GND terminal of the

### 2 - 1. How to start up the power supply

1. On the display when the power switch is set to ON  
And the Launch screen opens.



2. After about 1 second from the start screen, the normal screen appears.

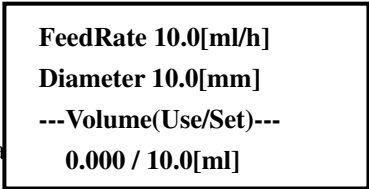
The contents of the labeling are as follows.

Delivery volume of FeedRate → solutions

Piston diameter of Diameter → syringe

Volume of Volume Use → delivered solutions (integral)

Volume of solutions to be delivered Volume Set →



The values of the various parameters currently displayed are those set previously.

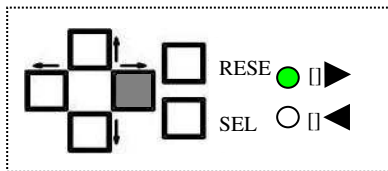
### 2 - 2. How to attach the syringe

1. Place the syringe over the V-shaped holder.

2. Secure the syringe body with the syringe clamp by pressing the finger flange portion of the syringe against the V-shaped holder.

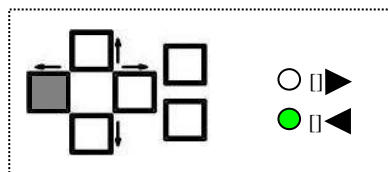
3. Use the left and right [←→] key to move the push block until the push block is the pusher (plunger) of the syringe.

At this time, be careful not to pinch fingers, etc.



The push block moves at a constant rate while the right [→] key is pressed.

The [ ] lamp will light up.



The push block moves at a constant rate while the left [←] key is pressed.

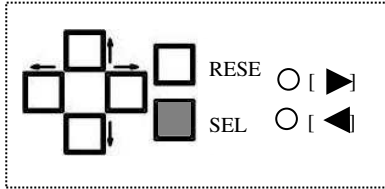
The [ ] lamp will light up.

# [2] HSP-101 Operation Manual

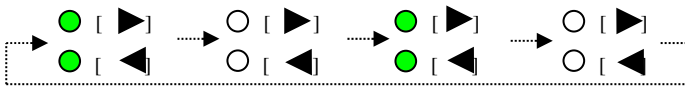
## 2 – 3. How to Set Various Parameters

1. Parameter changes are as follows:

Press and hold the "SEL" key for approximately 1 second.



When the unit enters the parameter setting screen, the [ ] and [ ] lamps blink at the same time.

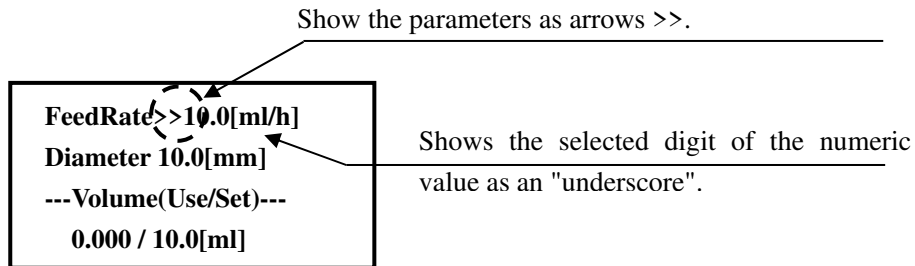


Simultaneous flashing of the [ ] and [ ] lamps indicates that parameters can be changed.

Press and hold the SEL key to change the parameters in the following order:

- FeedRate (dispensing volume of solutions)
- ↓ Long push
- Diameter (piston diameter of syringe)
- ↓ Long push
- Volume Set (volume of solutions to be delivered)
- ↓ Long push
- Normal screen ( [ ] and [ ] lamps stop blinking)

[An example of the parameter setting screen]



The upper panels show that FeedRate of solutions can be changed.

# [2] HSP-101 Operation Manual

## 2. Volume of solution delivered (FeedRate) change window

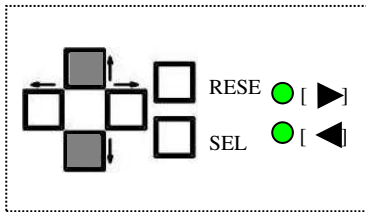
```

FeedRate>>10.0[ml/h]
Diameter 10.0[mm]
---Volume(Use/Set)---
0.000 / 10.0[ml]
    
```

The arrow indicates the >>> → FeedRate (the amount of solution delivered).  
 The [ ] and [ ] lamps are blinking.

Use the up and down [↑↓] key to set the dispensing volume of the solutions.

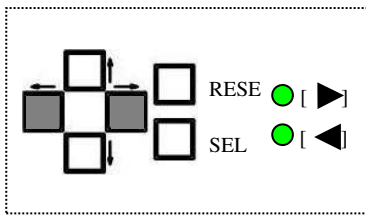
Pressing and holding the up and down [↑↓] key allows fast forward of the value.



```

FeedRate>>10.1[ml/h]
    ↑
FeedRate>>10.0[ml/h]
    ↓
FeedRate>> 9.9[ml/h]
    
```

Use the [←→] buttons to move between the selected digits.



```

FeedRate>>10.0[ml/h]
    ↓
FeedRate>>10.0[ml/h]
    ↓
FeedRate>>10.0[ml/h]
    
```



When the setting is completed, press and hold "SEL" again for about 1 second to move to the display for changing the piston diameter (Diameter) of the syringe.

## 3. Screen for changing the piston diameter (Diameter) of the syringe

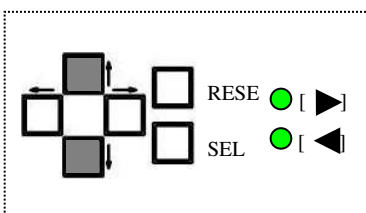
```

FeedRate 10.0[ml/h]
Diameter>>10.0[mm]
---Volume(Use/Set)---
0.000 / 10.0[ml]
    
```

The arrow >>> → Diameter (the piston diameter of the syringe) is indicated.  
 The [ ] and [ ] lamps are blinking.

Use the up and down [↑↓] key to set the piston diameter of the syringe to be used.

Pressing and holding the up and down [↑↓] key allows fast forward of the value.

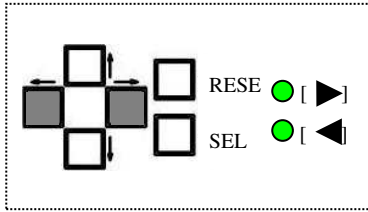


```

Diameter>>10.1[ml/h]
    ↑
Diameter>>10.0[ml/h]
    ↓
Diameter>> 9.9[ml/h]
    
```

## [2] HSP-101 Operation Manual

Use the [←→] buttons to move between the selected digits.



**Diameter>>10.0[ml/h]**

↓

**Diameter>>10.0[ml/h]**

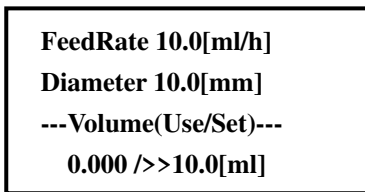
↓

**Diameter>>10.0[ml/h]**



When the setting is completed, press and hold SEL again for about 1 second to change the volume of solution (Volume Set) to be delivered.

### 4. Volume of solutions to be delivered (Volume Set) change window

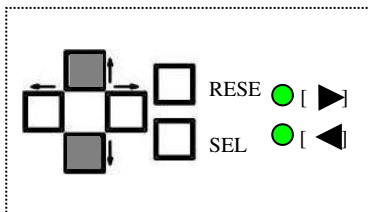


The arrow >> → indicates Volume Set (volume of solutions to be delivered).

The [←] and [→] lamps are blinking.

Top and bottom [↑↓] key to set the volume of solutions to be delivered.

Pressing and holding the up and down [↑↓] key allows fast forward of the value.



**---Volume(Use/Set)---**

**0.000 >>10.1[ml/h]**

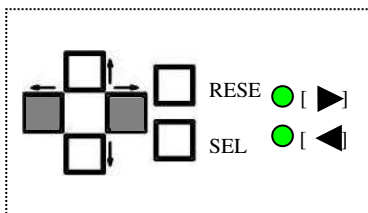
↑

**0.000 >>10.0[ml/h]**

↓

**0.000 >> 9.9[ml/h]**

Use the [←→] buttons to move between the selected digits.



**---Volume(Use/Set)---**

**0.000 >>10.0[ml/h]**

↓

**0.000 >>10.0[ml/h]**

↓

**0.000 >>10.0[ml/h]**



When the setting is completed, press and hold the "SEL" key again for about 1 second to move to the normal screen.

At the same time, the currently displayed parameter value is saved to the internal memory.



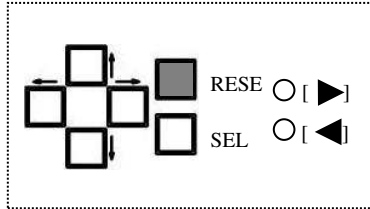
## [2] HSP-101 Operation Manual

### 2 - 4. How to start and stop

#### 1. About Starting

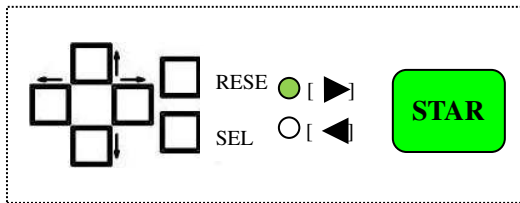
The cumulative amount of the delivered solution (Volume Use) is restored to zero by pressing RESET key for at least 1 second.

Use this when you want to start the accumulated value from zero, such as when a new solution or syringe is replaced.



---Volume(Use/Set)---  
**1.200 10.0[ml/h]**  
 ↓ ←----- [RESET] Press key.  
**0.000 10.0[ml/h]**  
 ↑  
 Accumulated value

When the start switch is pressed, the push block starts pushing the pusher of the syringe.



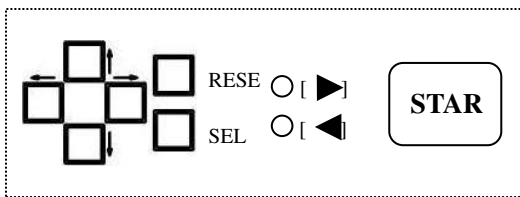
The start switch lights green.

After pressing the start switch, the push block pushes the pusher of the syringe to transfer the solution in the syringe from the cylinder tip to the outside. The accumulated quantity of the delivered solutions is displayed on the display (Volume Use).

#### 2. About Stopping

There are two ways to stop.

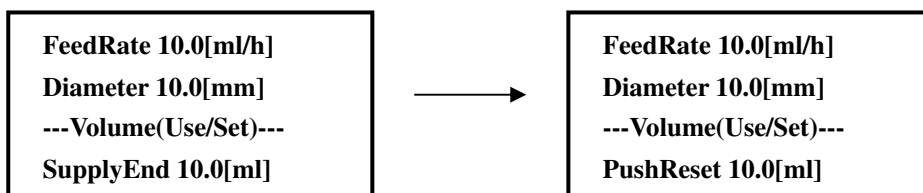
- ① If the start switch is pressed while the start switch is lit in green (during operation), it stops.



The start switch turns off.

- ② When the integrated value of the delivered solution amount reaches the expected solution amount to be delivered, it is automatically stopped.

"SupplyEnd" → "PushReset" is displayed on the display.



Press RESET key. The cumulative amount of delivered solution (Volume Use) is restored to zero.

## [3] How to Maintenance HSP-101 Instructions

### [ 3 ] 章 HOW TO MAINTENANCE

Care should be taken regularly so that the device can always be used in good condition.

#### 3 - 1 . Cleaning

##### ( 1 ) External

- ① Turn off the power and brush off the dust with a soft brush.
- ② If the unit is extremely dirty, prepare a cleaning solution containing a small amount of neutral detergent, soak it in a soft cloth, squeeze it thoroughly, and then wipe off the dirt. Finally wipe off moisture with a soft, dry cloth.



**NOTE**

Do not allow water to enter the equipment. If the inside gets wet, electric circuit  
Doing so may cause a short circuit, malfunction, fire, or electric shock.



**NOTE**

As the use of a hard brush or solvent may damage the paint and cause the printed area to  
peel off  
The result is:

##### ( 2 ) Inside

- ③ Turn off the power and remove dust with an air gun or a soft brush.
- ④ Clean the interior once a year. Periodic cleaning prevents fires and malfunctions. It is especially effective to do it before the rainy season.



**NOTE**

Use of detergent or solvent to clean the interior damages the parts.  
Failure to do so may cause a malfunction, fire or electric shock.

##### ( 3 ) Oil injection

- ⑤ All mechanical parts such as switches and relays inside do not require lubrication.
- ⑥ Replace malfunctioning parts without lubricating the contacts or using contact restoring agents.

## **[4] Chapter Trouble?If you think, HSP-101 Instructions for Use**

### **[ 4 ] 章** Don't you think it is a failure?

In the event of an abnormal operation, first read this chapter and take appropriate action.

If any of the above measures do not improve, or if an event occurs without a statement, record the following and contact our business or service.

#### 1) Occurrence of events and equipment.

Please inform us of the details of the events and any noticed points in the device, such as the light color of the indicator lamp at that time and the operation of the spinning unit.

#### 2) Operating procedure and frequency of events occurring

Describe the procedure as specifically as possible in the following order.

Be sure to let you know the frequency of occurrences by specific numbers as much as possible, such as once every five or once an hour.

#### 3) Other information on events as detailed as possible.

## **[4] Chapter Trouble?If you think, HSP-101 Instructions for Use**

### **4 – 1. Unusual events and addressing**

Symptoms	Possible causes	Corrective action
Turning on the "POWER" switch on the rear panel does not turn the power on.	Is the power plug not inserted or in an incomplete condition?	Insert the power plug.
	Is the fuse broken or not implemented?	Insert a fuse of the rating.
The push block does not move even when the left and right [←→] key is pressed.	Does the parameter change screen appear? (The FWD and REV lamps blink on the parameter change screen.)	Return to the normal screen. For details, 2-3. See "How to Set Parameters."
From the syringe pump No solution is ejected.	The syringe pump is not in contact with the pusher (plunger).	Move the push block of the syringe pump to the pusher (plunger) of the syringe. For details, 2-2. See "How to attach the syringe."

# Product warranty regulations and services

## **Provisions for product warranties**

The warranty period for this product is one year from the time it is shipped from the factory.

Products that fail during this period are at our factories or at the business sites where this product was sought.

Repair will be performed free of charge at the facility of the distributor.

- This warranty is intended to promise free repairs of purchased products.
  - We are responsible for any damages or incidents caused by the failure or use of this product.  
None.
  - It does not limit your legal rights.
  
- The price of this product and the product warranty do not include the following services and costs.
  - ①Expenses for technician deployment and trip in case of failure
  - ②Parts shipping charges in case of failure
  - ③Installation and installation costs
  - ④Instruction cost for installation and installation
  - ⑤Operational monitoring costs after installation
  - ⑥Maintenance, adjustment, and calibration expenses
  - ⑦Technical guidance and consulting expenses
  - ⑧Cost of sample preparation
  
- Matters Not Covered by Warranty  
The following items are not covered by the warranty (charged repairs).
  - ①Failure or damage due to operation other than that described in the instruction manual
  - ②Damage or loss during transportation or transfer by the customer (responsible)
  - ③Failure or damage caused by repairs or modifications by the customer
  - ④Failure or damage caused by natural disasters such as an accident, wind or water damage, lightning, salt damage, voltage fluctuation, use of power sources other than specified, etc.
  - ⑤Failure or physical damage due to impact, dropping, collision, etc.
  - ⑥Failure or damage caused by connection with an external device other than specified
  - ⑦Consumable parts (batteries, filters, etc.)
  
- Ownership of defective parts replaced by repairs shall be assigned to us.
  
- We are not responsible for any damage or loss of the integrated software, memory data, or firmware during repairs. (Please make a back-up beforehand.)
  
- Repair may take longer or repair may be discontinued due to the delivery date, missing or discontinued production of repair parts. Please check beforehand.

## Product warranty regulations and services

### ■ Service request

If you are requested for service, contact us for the following information.

- Your name and contact information (phone number, e-mail address, etc.)
- Product name
- Model name
- Production Number
- Symptoms of failure (as detailed as possible)
- Usage in case of failure (as detailed as possible)

[Note]

The user of this product handles this product, accessories, chemicals used for spinning, consumables, etc. Only those with expert knowledge and able to perform safety management are included.

We are not responsible for any accidents or damage caused by access or use by the general public.

A spiral.

## MEC CORPORATION

### Head Office

〒838-0137

196-1 Fukudo, Ogori-shi, Fukuoka

Tel:0942-72-7266 Fax:0942-73-3545

[Homepage URL] <http://www.mecc.co.jp>