SAN-EI TECH

SV91CD

Coating Dot valve

User's Guide

2016. 4

Contents

Operation

Introduction

Coating Dot Valve SV91CD is designed for either non-contact dot dispensing, spraying onto a small surface or non-contact line dispensing on a narrow space..
San−Ei Tech has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation.

Contents of the box

You will find the following items in the box. Please ensure that all ordered components are present and let us know immediately if you notice some of the items are missing or broken.

・SV91CD
・ hex wrench（SV5121）
・ extrusion rod for needle packings（Part Number: SV5123）
・ air hose set (black and white)（Part Number: SV9108）
・User's Guide（this document）

※Fluid fitting is not included (option)
※Solenoid valve (SVEM720）is not included (option)

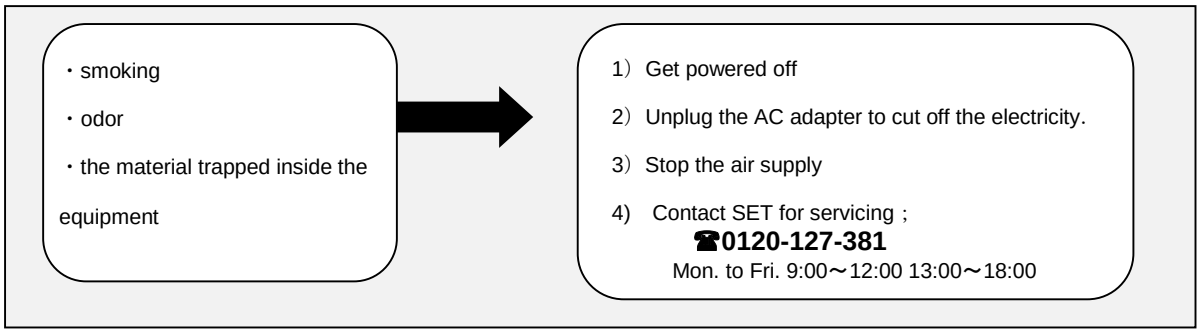
Precautions

●Please use the auxiliary equipment or accessories in ways described in the documentation supplied with the equipment and use the syringes or dispensing tips that are suited for the specific application.
●Do not use the unit, the relevant equipment or accessories in a location subject to direct sunlight and be sure to store them in a well ventilated place without dirt and dust.
●Pull off the power code unless it is ready to be used soon.
●Discard the consumable goods such as syringe or tips that were used one−time. Wash and properly store the reusable parts such as the syringe adapter.
●Transfer the remaining fluids in the syringe to another container that can be sealed or a syringe with the cap on and store it in a designated place.

Safety information

Following precautions are significant in order to avoid causing severe injury to the user or those who are around or damage to property. Please read the content carefully before operating the equipment.

If it should happen ;



Follow the precaution below, or may cause severe injury or damage to property.

■Do not use the machine in a location subject to direct sunlight, high temperature, rapid temperature change, high humidity or dusty conditions.
It may cause a malfunction.

■Do not share the power supply in line with an air conditioner or other machinery.
It may cause a malfunction.

■Do not bump the unit against objects.
Be careful not to give an impact on the unit while moving it.

■Do not put weight on the unit.
It may deform the unit or cause a malfunction.

Follow the warnings, or may cause severe injury or death due to fire or electric shock.

■Do not disassemble the unit unless it is designated.
It may cause fire, electric shock or injury.

■Do not place the unit close to an open flame.
It may cause fire or electric shock.

■ Install the unit on place where the weight can fully be sustained.
An Inappropriate placement may cause injury, breakdown or rapid temperature hike due to falling down the unit.

■ Handle the power code with care.
It may cause fire or injury.

- Make sure not to pinch the code between the unit and a wall or a board.
- Do not place weight on the code or pull it off compulsively.
- Do not plug or unplug the cord with wet hands.
- Move or clean the unit after disconnecting the power code.
- Make sure to hold the plug not the wire when unplugging the AC adapter.

■The unit has to operate with the range of AC100V to 240V.
Nonconforming power code may cause fire or electric shock.

■Make sure that the AC adapter surely plugging in the outlet.
Failure to the complete connection may cause fire due to the heat generated on the plug. Also, make sure there is no dirt around the plug.

■Be sure not to get the unit wet or soaked by oil.
It may cause fire, electric shock or breakdown.

■Do not plug or unplug the cables before getting the power off.
It may cause fire, electric shock or breakdown.

Specification

Size	φ26.9mm (Fluid body） x 136.3mm length
Weight	312g ※without fluid fitting
Fluid body	SUS303
Nozzle	SUS303
Air cylinder body	SUS303
Air cap	SUS303
Piston needle	SUS303
Needle packing/ Guide	Teflon®, SUS303
Fluid inlet thread	1/8NPT female
Valve operating air inlet thread	M5×0.8 female
Nozzle air fluid inlet thread	M5×0.8 female
Mounting	M6 x 1.0 tap hole
Valve operating air pressure	0.4～0.62MPa
Maximum nozzle air pressure	0.2MPa
Maximum fluid pressure	0.7MPa

※All stainless steel parts are passivated.

Overview

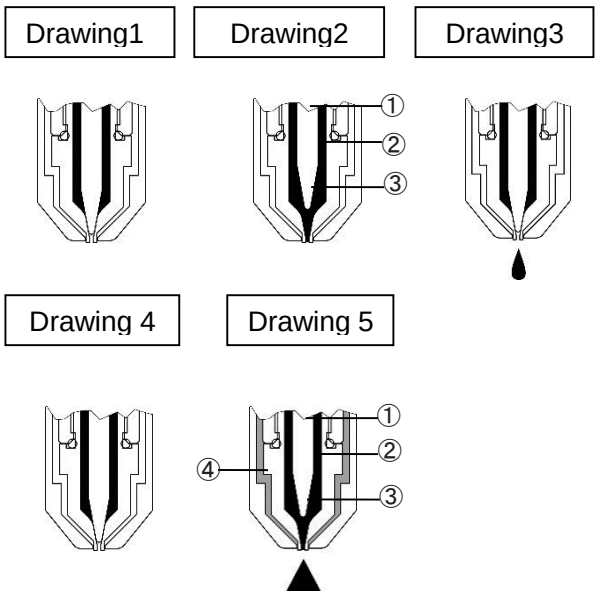
SV91CD is used for either non-contact dot dispensing for mounting board, spraying onto a small surface or non-contact line dispensing on a narrow space and consist of Needle/Seat part that initiates ON/OFF for dispensing and Air piston part that activates the needle with pressurized air along with Stroke adjustment.
The dispensing condition can be made by fluid pressure and nozzle pressure, and the angle or the time of the stroke opening can change the dispensing volume and the spraying pattern.
Solenoid valve (option) increases the response speed which ensures faster tact time and stable dispensing.

How the Valve Operates

＜non-contact dispensing＞
Input air pressure retracts the needle ① from its nozzle seat ③, ② allowing fluid to flow into the nozzle (drawing 1-2). When input air is out, piston spring expels the needle back to the original position and the fluid comes out of the nozzle at the same time the needle is shut off (drawing 2-3).

＜Spraying＞
Input air pressure retracts the needle ① from its nozzle seat ③, ② allowing fluid to be expelled from the nozzle (drawing 4-5). At the same time, nozzle air ④ flows into Air cap (drawing 5) and this air ④ makes the fluid atomized into fine droplets.

The amount sprayed is controlled by the valve open time, reservoir pressure and needle stroke. Area of coverage is determined by the nozzle size and the distance between the nozzle and work surface.



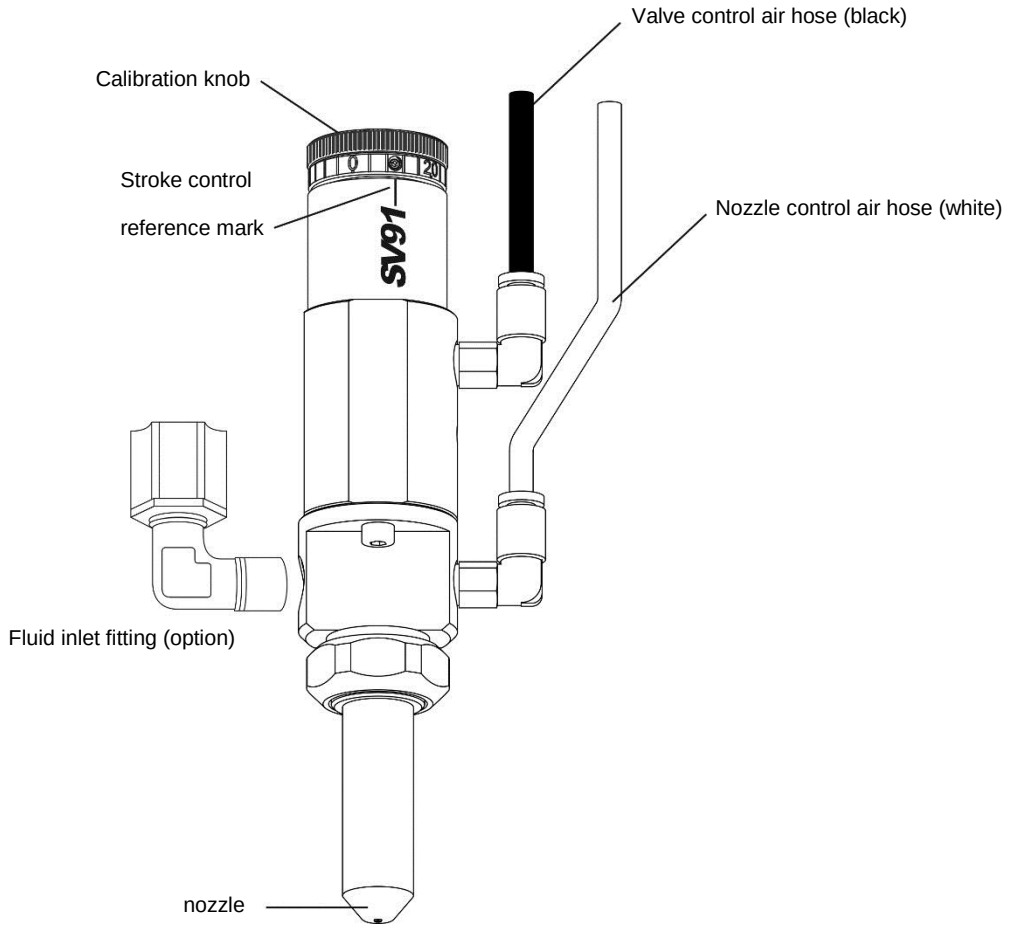
Getting started

Prior to operating SV91CD, please prepare the fluid inlet fitting suited for your application.

【Stoke adjustment】

Stroke adjustment knob allows you to adjust the fluid flow rate. The maximum stroke is obtained by turning the stroke adjusting knob clockwise until it stops, which indicates zero position.
※Please do it manually without tool.

Stoke adjustment can be calibrated by unthreading the small screw on the mark with the hex wrench (SV5121) supplied in the box.



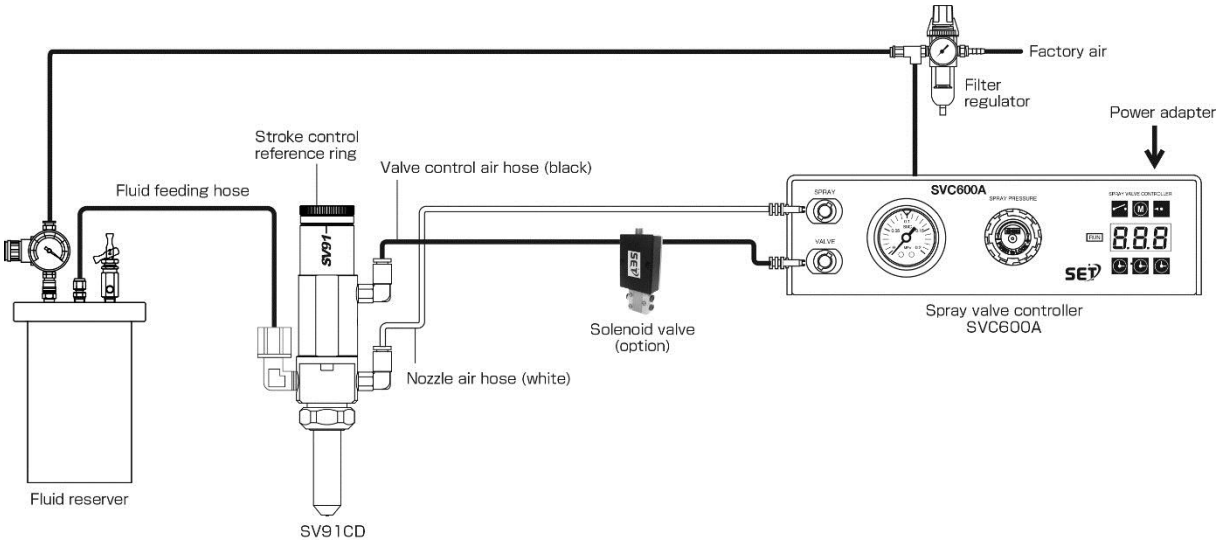
Installation

⚠注意
CAUTION

Prior to installing this valve, please read the associated SVC600A valve controller user's guide to become familiar with the operation of the system.

1. Connect to the SVC600A controller and other equipment after getting the switch off.
2. Connect the valve control air hose (black) and the nozzle air hose (white) to SVC600A.
3. Connect the fluid feeding hose to the fluid-inlet fitting and close the lid of the fluid reservoir after filling fluid directly into the fluid reservoir.
4. Assure that the air pressure regulator indicates 0MPa and connect the air hose to the fluid reservoir.
5. Set desired flow rate by adjusting fluid reservoir pressure, valve stroke setting, nozzle air pressure or valve opening time when getting the power on.

installation



SVC600A

SVC600A directly controls Solenoid valve (SVEM720) adjacent to SC91CD, which ensures high-speed and intermittent dispensing operations by switching faster ON/OFF.
With a switch for nozzle air I/O control located on the back, dot, line or spray dispensing patterns can simply be selected.

Valve Disassembly and Reassembly Procedures

【Preparation】

1. Turn the switches of the SVC600A controller off so as other associated equipment.
2. Assure that the fluid reservoir pressure regulator indicates 0MPa and then take the air hose off the fluid reservoir.
3. Assure that no pressure has remained in both the fluid reservoir and the air hose, and then take the air hose off the fluid inlet fitting of the SV91CD valve.
   ※If the pressure still remains, it may cause spattering, injury to the people around or damage to the property.
4. Remove the valve control air hose (black) and the nozzle air hose (white) from the SV91CD valve.
5. Take out the SV91CD valve if it is mounted on the machine.

Disassemble the valve ※Please refer the exploded view of the valve（P10）

【Disassembly of the fluid body】

1. Make a note of a current stroke setting number when it is used after the second time.
2. Remove the fluid inlet fitting, nozzle air inlet fitting and the valve control air fitting.
3. Turn the air cap retainer clockwise to separate the air cap.
4. Turn the stroke adjustment knob counterclockwise to take out the stroke adjustment assembly from the air cylinder body along with the O-rings.
   ※The stroke adjustment assembly is no more removable.
5. Take out the piston return spring and washers.
6. With small pliers on the spring pilot, pull the piston and needle assembly toward the snap ring.
   ※Please be sure not to put a stress on both the piston needle and the tip adapter and needle sheet assembly as it may crack the piston needle causing leakage.
7. Take out the nozzle and the O-ring.
8. Remove Extension and the O-ring.
9. Take out the guide of Extension.
   ※Use the extrusion rod (SV5123) for taking out the needle packings.
10. Unthread the screws on the fluid body to remove the fluid body and the O-rings.
11. Remove the remaining packings left in the fluid body.
    ※Use the extrusion rod (SV5123) for taking out the needle packings.
12. Remove the remaining packing spring, washers or the O-rings.
13. Clean and inspect all the removed parts. Please use solvent suited to the used fluid for cleaning the fluid body.
    ※Solvent for cleaning may degrade the O-rings.
    ※Move to **【Disassembly of the air cylinder】** when disassembling the whole valve.

【Disassembly of the air cylinder】※Follow the procedure after **【Disassembly of the fluid body】**

1. Remove the snap ring from the air cylinder body.
2. Remove any remaining packings left in the air cylinder.
3. Pull off the piston needle and take off the O-rings.
   ※ The piston needle assembly cannot be separated as they are coupled as one unit.
4. Clean and inspect all the removed parts. Solvent for cleaning may degrade the O-rings.

Reassemble the valve

【Reassembly of the air cylinder】

1. Lubricate with Nye Lubricant #865 gel onto the screws in the air cylinder body and the O-rings for the piston needle then attach the O-ring to the piston needle and to the air cylinder body.
   ※ Nye Lubricant #865 gel is included in the General Maintenance Kit.
2. Lubricate with Nye Lubricant #865 gel onto the piston return spring and the thrust washer after attaching the snap ring to the air cylinder body assembly.
3. Move to **【Reassemble of the fluid body】**.

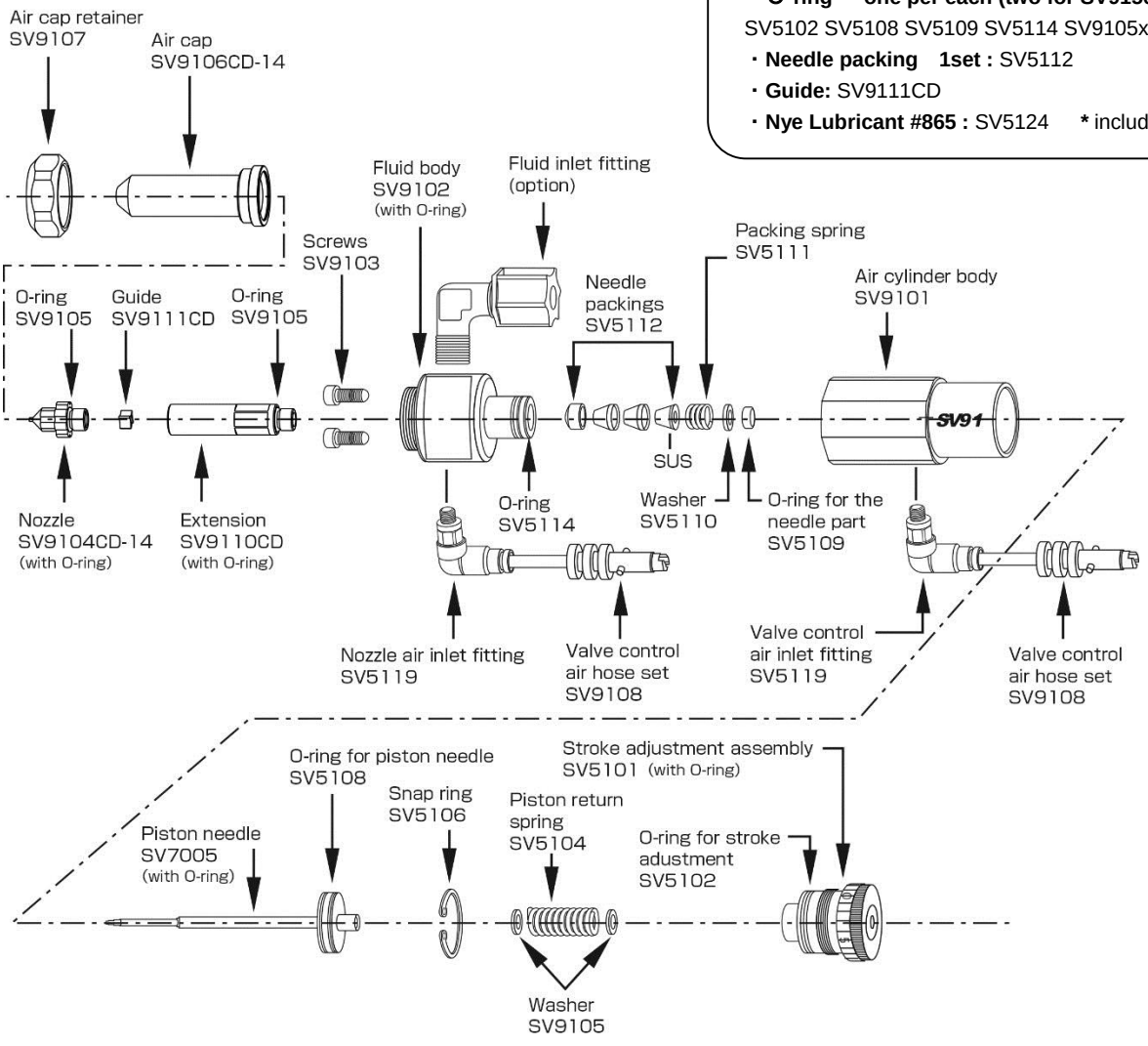
【Reassembly of the fluid body】

1. Lubricate with Nye Lubricant #865 gel onto the needle packings, the packing spring, the washers and the O-rings for the needle and reassemble the piston needle assembly.
   ※ Be sure to follow the correct order and direction.
2. Wipe off the excess lubrication applied on the piston needle assembly.
3. Lubricate with Nye Lubricant #865 gel onto the O-rings and reassemble the fluid body.
4. Attach the fluid body to the air cylinder body assembly with the fluid body fixing screw.
   ※ The fluid body can be installed from any angles.
5. Attach the O-ring lubricated with Nye Lubricant #865 gel to Extension and the fluid body.
6. Attach the guide to piston needle and insert it to Extension with φ4hose.
7. Attach the O-ring lubricated with Nye Lubricant #865 gel to the nozzle and reassemble Extension.
8. Install the air cap and fix the air cap retainer by turning clockwise.
9. Lubricate with Nye Lubricant #865 gel onto the O-rings and reassemble the stroke adjustment assembly with the air cylinder body by turning clockwise.

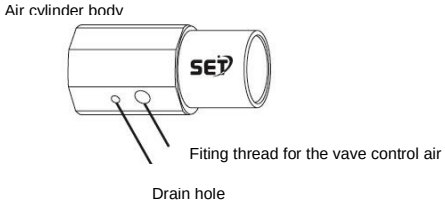
Exploded view of the valve

Repair kit :SV91CD-RK

- **O-ring one per each (two for SV91505) :**
  SV5102 SV5108 SV5109 SV5114 SV9105x2
- **Needle packing 1set :** SV5112
- **Guide:** SV9111CD
- **Nye Lubricant #865 :** SV5124 ***** included



Troubleshooting Guide

No fluid flow	If valve control air pressure is too low, the valve will not open. Increase air pressure to the acceptable range. **(Refer to "Specification" on P6 and "Installation" on P6**）
	The reservoir air pressure may not be high enough. Increase pressure. **(Refer to "Installation" on P8**）
	The stroke adjustment may be closed. Open stroke adjustment. **(Refer to P7)**
	Disassemble the fluid body and inspect and clean the relevant parts.**(Refer to【Disassembly of the fluid body】of "Valve Disassembly and Reassembly Procedures" on P9)**
	Activation by external output may malfunction. Please check and fix the output of external device.
	Connection may be failed. Please check and fix the connection between solenoid valve and external output.
	Solenoid valve may be failed. Investigate the outlet of the valve and replace SOL if necessary.
	Air hose may be failed. Investigate the connection between the solenoid and valve and replace the hose if necessary.
Steady drip	Remove the fluid body according to【Disassembly of the fluid body】and clean and inspect the relevant parts **(Refer to【Disassembly of the fluid body】of "Valve Disassembly and Reassembly Procedures" on P9)**
	Inspect the tip of the piston needle to see if there any abnormality such as deformation or abrasion. **(Refer to【Disassembly of the fluid body】of "Valve Disassembly and Reassembly Procedures" on P9)**
It takes a long time to stop dispensing after the valve is closed.	It may occur when it just started dispensing or air was trapped in fluid channel especially at around the fluid outlet. Please run out the fluid until the air goes out. Take out the nozzle if the orifice is too small.
	Degas the fluid if bubbles apparently exist in the fluid.
Spray width suddenly got narrow or is getting narrower on the way.	It may be the connection failure between output terminal and solenoid valve. please check to fix the connection.
	Solenoid valve may malfunction or the pressure is not stable. Check the operational air and reset the value if necessary.
	Air hose may be failed. Investigate the connection between the solenoid and valve and replace the hose if necessary.
	Sealing may not be done properly. Check the air leakage around Stroke adjusting assembly and replace the O-ring.
Valve cannot be closed	Check to see if the needle got hooked on the way and replace Piston needle, Tip adapter or Repair kit if the failure was defined.
Fluid leaks out the drain hole	Fluid leaking out the drain hole on the side of the valve indicates the needle packings or the piston needle is worn. Replace needle packings or piston needle. **(Refer to【Disassembly of the fluid body】of "Valve Disassembly and Reassembly Procedures" on P9)** 
Fluid drools on the nozzle tip	Needle may not be positioned vertically to the seat part. Disassemble and readjust the position.
	Some debris may be caught in the needle or the seat part. Repeat ON and Off and clean the parts after disassembled if the failure still persists. If there is no change yet, replace Piston needle or Nozzle.
Inconsistent deposits	Check to be sure the fluid pressure is stable. **(Refer to "Installation" on P8)**
	Check to be sure the valve operating pressure is kept within the acceptable range. **(Refer to "Specification" on P6 and "Installation" on P8**）
Fluid flows from the tip but will not spray	Nozzle air pressure may be too low. Increase air pressure.**(Refer to "Installation" on P8)**
	The air channel between the tip and air cap may be obstructed. Reinstall the air cap after cleaning it. **(Refer to【Disassembly of the fluid body】of "Valve Disassembly and Reassembly Procedures" on P9)**
	If the fluid viscosity is too high, it will not atomize. Reduce viscosity.

Warranty

■San-Ei Tech warrants the original purchase for a period of one (1) full year, calculated from the date of purchase.

■This warranty may not form the basis for any claims for damages, in particular not for compensation of consequential damages.

■In the case of damage caused by the following cases, the warranty ceases to be valid:

・Inadequate handling or usage attributable to user's responsibility.
・In the case of natural disaster, calamity or breakdown due to abnormal voltage.
・The damages during transportation or breakdown by falling off bearing relation to the user's responsibility
・In the case of intervention, modifications and repairs not carried out by San-Ei Tech

■Repair service during the warranty period

If there is any abnormality, please let us know the serial number and product name, which are indicated on the rear panel of the unit. According to the contents of the warranty sheet, the product will be repaired by San-Ei Tech.

■Repair servicing after the warranty period.

Charged repair servicing shall be carried out.

For more information

Contact us;

http://www.san-ei-tech.co.jp/use-index/01.html

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