

Instruction Manual

on

Integrated Spray Header
with INVVEA-series Pneumatic Nozzles

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Preface

This instruction manual describes the correct usage and maintenance of the CERJET® Spray Nozzle.

Before use, be sure to read this manual thoroughly and follow the instructions to allow the best use of this product.

After reading, keep this manual in a safe, handy place.

For purposes of product improvement, part dimensions or design are subject to change without notice.

Please note that in such cases, the contents of this manual may differ from the product.

Safety Precautions

Prior to use, read this manual to familiarize yourself with the proper operation of the nozzle for best performance.

H. Ikeuchi & Co., Ltd. takes no responsibility for any accidents and/or injuries resulting from improper handling, installation and/or operation.



WARNING Use the nozzle within the operating pressure range shown in Table 1.

Doing so may break or damage the product and the nozzles may be blown off of the pipe, resulting in injuries.

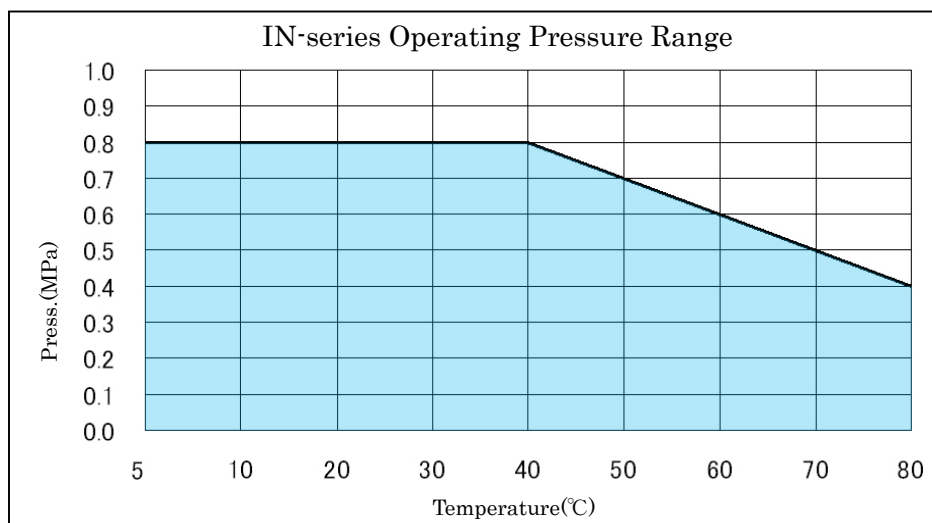


Table 1. Operating Pressure Range



WARNING

Do not use the header beyond the operating temperature range of 5-80°C.

Doing so may break or damage the product and the nozzles may be blown off of the pipe, resulting in injuries.



WARNING

Avoid the use under frozen environment where temperature can be below zero.

Doing so may break or damage the product and the nozzles may be blown off of the pipe, resulting in injuries.



WARNING

Take care to avoid water hammer phenomenon.

Avoid sudden increase of the spray pressure.

Doing so may break or damage the product and the nozzles may be blown off of the pipe, resulting in injuries.



WARNING

Do not stand in front of the nozzles or keep your face away from the nozzles to avoid unexpected accidents or injuries.



CAUTION

Wear safety gloves.

The screw thread or nozzle edges may cause injury.



CAUTION

Ensure that the nozzle is firmly installed.

Untightened or loose screws may cause the nozzle to detach or fall off during operation and lead to serious accidents.

1. Suggestions & Cautions

(1) Nozzles are precision-made products. The orifice of nozzle tip is an especially important part that determines the characteristics (spray capacity, angle, pattern distribution) . Handle it with care.

(2) Integrated spray header may be relatively heavy. When installing, take sufficient safety precautions and be careful in handling.

Example) Piping connection work shall be done after mounting the nozzles on header.

(3) The edges of threads or some parts may be sharp.
Wear safety gloves to protect hands.

(4) Operate nozzle under the specified pressures.
If the pressures are not specified, see the flow-rate diagram we submit.

(5) Operation control (to avoid back-flow of liquid)
To start operation: First spray air, then liquid.
To stop operation: First stop liquid, then air.

(6) For air and liquid pipes:

- Use larger size pipes and valves to prevent pressure drop.
- Use new stainless steel pipes. Dust and foreign particles in old pipes may clog nozzles.
- Chips or seal tape inside a pipe may also clog nozzle. Purge all pipes before installing nozzles.
- Install pressure gauge at the immediate upstream of nozzle to confirm the pressure.
- Installation of valve is also recommended.
- Use clean air free from dust and foreign particles for normal spraying.
- Use of strainers is recommended to prevent nozzles from clogging.

(7) Prior to shipment all parts are firmly screwed. However, under certain circumstances for example if a nozzle is repeatedly cooled down or heated up, each part may be loosened and periodical inspections are necessary.

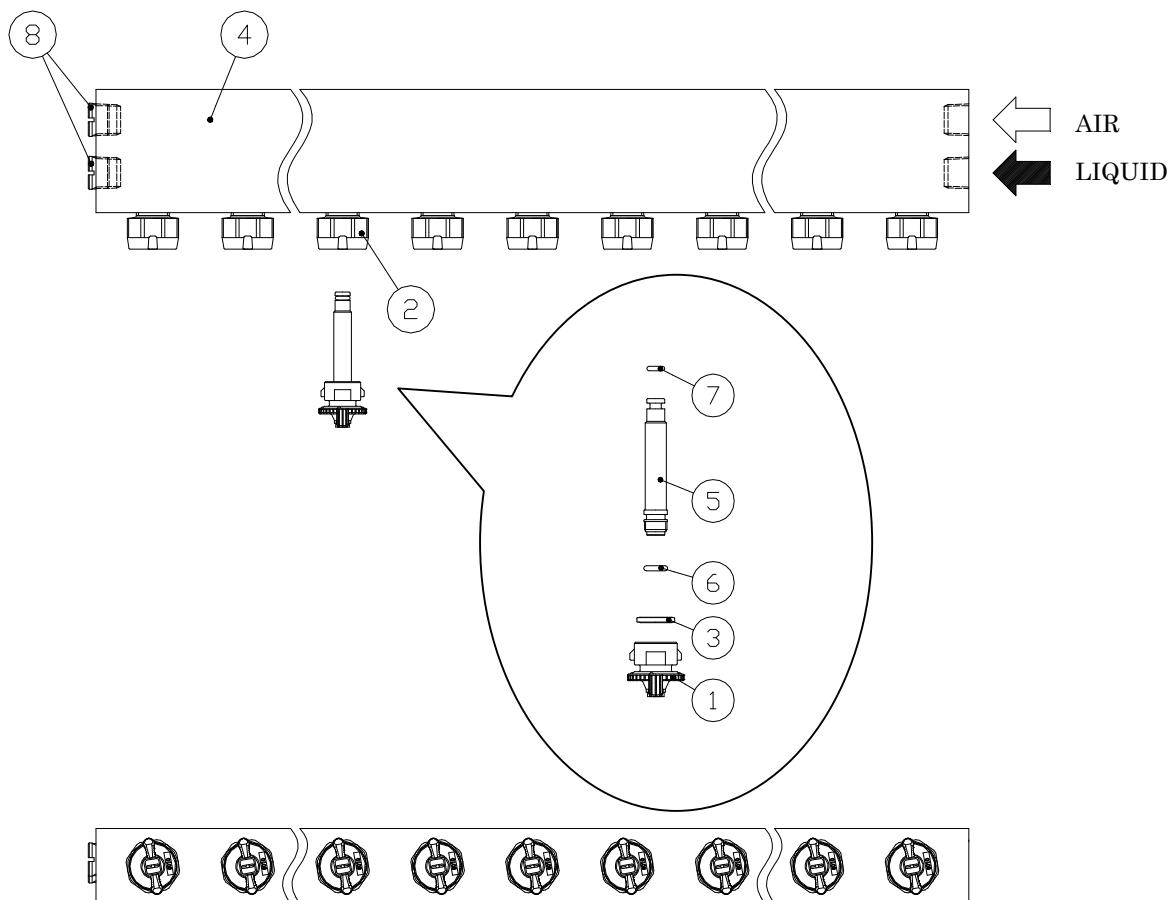
(8) Apply sealing tape on threads of the spray nozzles.

(9) As the nozzle tip is quick-detachable, maintenance is easy.
Before use, fully understand the procedure for how to attach and detach the nozzle tip.

(10) After spraying chemical solution, flush the nozzle orifice and inside of the nozzle with clear water.

2. Components of Nozzle

(1) Component and Materials



No.	Component	Material	Remark	No.	Component	Material	Remark
1	Nozzle Tip	PP		5	Mixing Adaptor	PP	
2	Adaptor	PPS		6	O-Ring(SG8)	Equivalent to FEPM	Consumable
3	Packing	Equivalent to FEPM		7	O-Ring(P5)	Equivalent to FEPM	Consumable
4	Header	HTPVC		8	Plug	HTPVC	

Note: (1) Consumables

Lifetime of a nozzle varies depending on operational conditions.

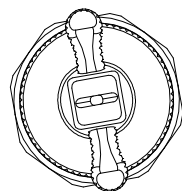
Replace consumable parts when corrosion or pitting corrosion on a spray tip or components are found and nozzle performance deteriorates.

(2) Dimensions and materials may differ depending on part number of the nozzle.

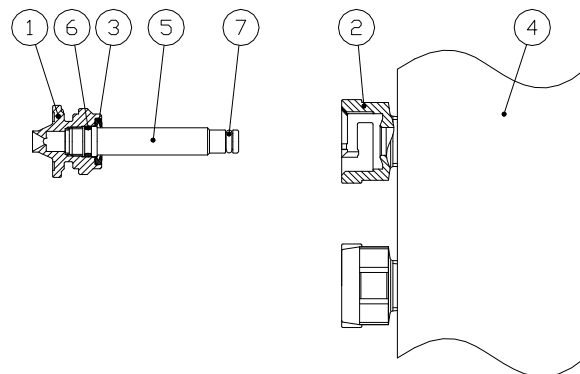
3. Disassembly

- (1) Turn nozzle tip ① counter-clockwise by about 60°, then detach it from adaptor ②.

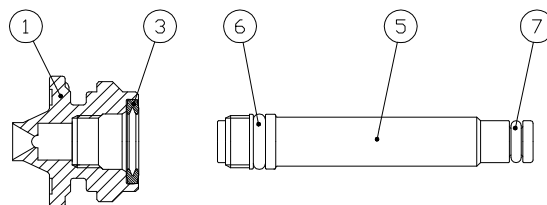
Detach Attach



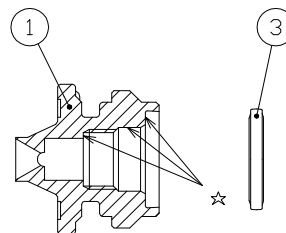
Turning direction



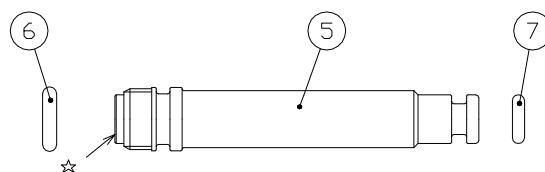
- (2) Loosen mixing adaptor ⑤ counter-clockwise to remove.



- (3) Hold packing ③ with fingers to pull it out.



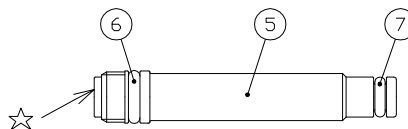
- (4) Remove the O-Ring ⑥ and O-Ring ⑦.



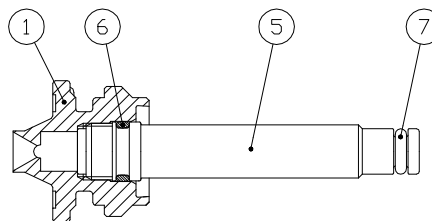
- Note: (1) Be careful not to flaw or lose small parts.
(2) Nozzle orifice is the most important part. Handle it with special care.

4. Assembly

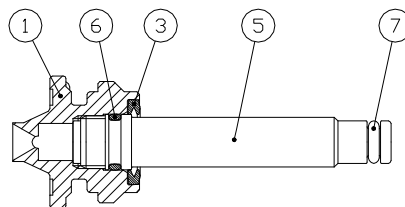
(1) Assemble O-ring ⑥ and O-ring ⑦ to mixing adaptor ⑤



(2) Screw in mixing adaptor ⑤ to nozzle tip ① clockwise to assemble.

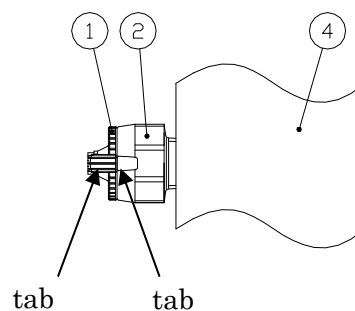


(3) Attach packing ③ to nozzle tip ①.



(4) Align the convex part of the nozzle tip ① with the concave part of the adaptor ② and push it in, then turn nozzle tip ① clockwise by about 60° until there is a click.

If nozzle tip ① is attached in the right direction, the tabs of nozzle tip ① and adaptor ② align.



- Note :
- (1) Before assembly, confirm that the sealing area marked with ☆ and orifice parts are clean and without flaws.
 - (2) Remove dust or foreign particles on the orifice and important portions marked with ☆ as above with a brush. (Never flaw such important portions)
 - (3) Ensure that the attaching direction of nozzle tip ① and adaptor ② is correct.

5. Maintenance

Period	Item	Content
Daily	Spray	Perform visual check of the spray pattern. Confirm that the spraying pressure is normal, when spray pattern cannot be seen because nozzles are in incinerator.
	Pressure gauges and flow meters	Confirm that the pressures and flow rate are correct during operation.
Periodically	Spray	Have visual check of the spray pattern.
	Appearance	Confirm that there is no corrosion and dust sticking to the nozzle orifice.
	Connection	Confirm that none of the screws are loose.

6. Troubleshooting

Trouble		Probable Cause	Solution	Remarks
No spray is being created	Control	<ul style="list-style-type: none"> • Controller is not switched on. • Valves are not opened. 	<ul style="list-style-type: none"> • Switch it on. • Open valves. 	
	Nozzle	<ul style="list-style-type: none"> • Nozzle or Pipe is clogged. • Nozzle or Pipe is clogged due to damage. • Orifices of air or liquid are clogged. 	<ul style="list-style-type: none"> • Clean nozzle or Pipe. • Replace damaged part. • Clean them. 	
Air and/or liquid leak	Connection	<ul style="list-style-type: none"> • Some parts are not firmly screwed. 	<ul style="list-style-type: none"> • Screw each part firmly. 	
	Handling	<ul style="list-style-type: none"> • Nozzle or Pipe is cracked. • Nozzle or Pipe is corroded. 	<ul style="list-style-type: none"> • Replace cracked part. • Replace corroded part. 	
Irregular spray	Intermittent spray	<ul style="list-style-type: none"> • Leakage of air or liquid due to dust or foreign particles on sealing portion or flaw of sealing portion. 	<ul style="list-style-type: none"> • Clean sealing area and replace part. 	
	Not spraying normally	<ul style="list-style-type: none"> • Nozzle or Pipe is clogged. • Nozzle tip is corroded. • Dust or foreign particles. 	<ul style="list-style-type: none"> • Clean nozzle or pipe. • Replace corroded part. • Clean part. 	

7. Disposal

Disposal should be practiced according to the regulations and codes of local authorities, or ask a disposal professional.

8. Inquiries

For parts or troubles, contact our local sales office or the following;



“The Fog Engineers”
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Osaka 550-0011 Japan

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