CERJET®

NKS1048-1E

Instruction Manual

for

VVEA series Stainless Steel Pneumatic Spray Nozzles

VVEA 60 (VVEA Series Nozzle with Spray Angle Code of 60)

H. Ikeuchi & Co., Ltd.

Preface

Thank you for purchasing this product.
This manual provides detailed instructions for basic handling and maintenance, as well as cautions.
Please be aware that due to continuing efforts to improve our products, some details in this manual may differ from the actual product.
After reading, keep this manual handy for quick reference.

Safety Precautions

Prior to use, read this manual carefully and familiarize yourself with the proper operation of the product for optimal performance.
H. Ikeuchi & Co., Ltd. takes no responsibility for any accidents and/or injuries resulting from improper handling, installation and/or operation.

CAUTION

Wear safety gloves.
Screw threads, edges and corners may be sharp and could cause injury.

CAUTION

Ensure that the nozzle is firmly installed.
Loose screws may cause the nozzle to come off during operation and lead to serious accidents.

1. Cautions

(1) Each nozzle is precision made. The orifice of nozzle tip is a particularly important part and determines the spray characteristics, such as spray capacity, spray angle, and spray pattern distribution. Handle it with care.

(2) Screw threads, edges and corners may be sharp.
Wearing safety gloves is recommended.

(3) Operate the nozzles under the specified pressures.
If the pressure is not specified, refer to the provided flow-rate diagram.

(4) Avoid damaging or scratching the nozzles. When replacing a nozzle tip or disassembling the nozzle for maintenance, always use a spanner/wrench and milling vice.
DO NOT use a pipe vice, pipe wrench or pliers.

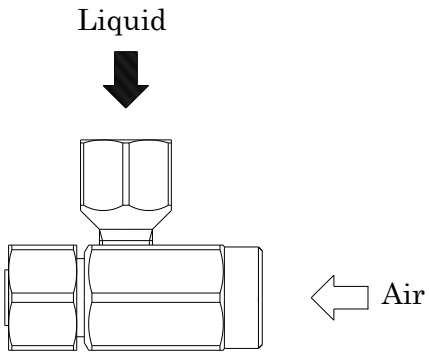
(5) Precautions to prevent liquids from back-flowing:
To start operation: Open the air supply first, then the liquid.
To stop operation: Shut off the liquid first, then the air.

(6) Air and liquid piping
- Use piping and valves large enough to prevent the pressure from dropping.
- Use new stainless steel pipes, as dust and debris in old pipes may clog the nozzles. Never use pipes that can rust.
- Even new pipes may have chips, seal tape or other debris inside. ALWAYS flush pipes thoroughly before installing nozzles to remove any debris that could cause clogging.
- Install pressure gauges just before the nozzle to adjust air and liquid pressures appropriately. Installation of a valve is also recommended.
- Install strainers to prevent clogged nozzles. Clogging will impact nozzle performance.

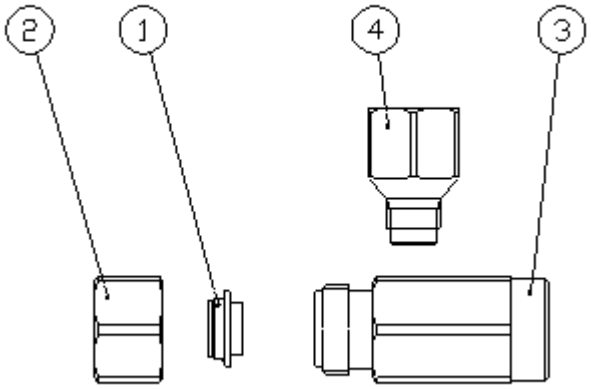
(7) Prior to shipment all parts are firmly tightened. However, due to temperature changes during transport and especially if the nozzles are exposed to repeated heating and cooling during operation, parts such as screws may loosen and should therefore be inspected regularly. Take special care when screwing in and unscrewing to prevent damage.
Always apply an anti-seizing or sealing agent to the threads before assembly.

2. Components of Nozzle

(1) Nozzle Assembly



(2) Components and Materials



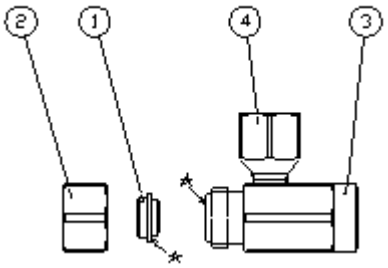
No.	Component	Material	Remark
1	Nozzle Tip	S303	Consumable
2	Cap	S303	
3	Mixing Adaptor	S303	
4	Liquid Socket	S303	

Note:
(1) Consumables
The lifetime of a nozzle varies depending on the operational conditions.
Replace consumable parts when corrosion or pitting corrosion of a nozzle tip or other parts is found and/or nozzle performance significantly deteriorates.
(2) Dimensions and materials may differ depending on product codes.
(3) In the material code, "S" represents "stainless steel".
For example, S303 stands for stainless steel 303.

3. Disassembly

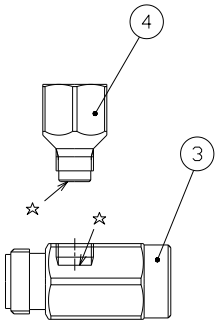
(1) Secure the mixing adaptor (part #3) with a milling vice. Unscrew the cap (#2) with a spanner and remove the nozzle tip (#1).

Necessary tools:
Milling vice, 14 mm spanner/wrench
Tightening torque for re-assembly: 12 N·m



(2) Secure the mixing adaptor (#3) with a milling vice and unscrew the liquid socket (#4) with a spanner.

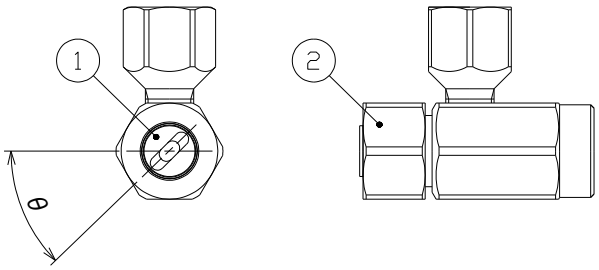
Necessary tools:
Milling vice, 12 mm spanner/wrench
Tightening torque for re-assembly: 8 N·m



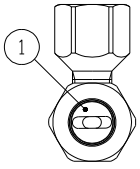
Note:
(1) Make sure not to drop, damage or lose any of the small parts.
(2) The nozzle tip and orifice are the most important and delicate parts. Take extreme care when handling them.

4. Assembly

Assemble in the reverse order of the above *3. Disassembly.*
Note:
(1) Before assembling, ensure that the sealing surfaces, indicated with ☆ above, and the orifice are clean and undamaged.
(2) Remove dust and dirt carefully from the orifice and sealing surfaces (indicated by ☆ above) with a brush not to damage these important surfaces.
(3) When assembling, adjust the orientation of the nozzle tip (#1) so that the **offset angle θ** matches the operating conditions and requirements. If the nozzle tip is not at the specified angle after assembly, loosen the cap (#2), readjust the nozzle tip, and tighten the cap again.



The standard setting is θ = 0° (no offset). To avoid uneven flow distribution, the offset angle should not exceed 45°.



Standard setting: θ = 0°

5. Maintenance

Check	Item	Check points
Daily	Spray	Visually check the spray pattern. If the nozzles are inside the equipment and cannot be seen, confirm that the spray pressure is normal.
	Pressure gauges and flow meters	Confirm that the air and liquid pressures and flow rate are correct during operation.
Periodically	Spray	Remove the nozzle from equipment and visually check the spray pattern.
	Appearance	Ensure that the nozzle tip and orifice are free from dust deposits and corrosion.
	Connection	Confirm that the cap and mixing adaptor are screwed together tightly.

6. Troubleshooting

Problems	Probable causes		Solutions
No spray is being created	Control	・ Controller is not switched on. ・ Valves are not opened.	・ Switch it on. ・ Open the valves.
	Nozzle	・ Nozzle or pipe is clogged. ・ Nozzle or pipe is clogged due to damage. ・ Liquid orifice and/or air orifice is clogged.	・ Clean nozzle or pipe. ・ Replace the damaged part. ・ Clean the clogged part.
Air leaks Liquid leaks	・ Some parts are loose.		・ Tighten the connections.
	・ Nozzle or pipe is cracked. ・ Nozzle or pipe is corroded.		・ Replace the cracked part. ・ Replace the corroded part.
Intermittent spray	・ Seal failure at the adaptor due to dust or surface damage.		・ Clean the sealing surface and replace the part.
Irregular spray pattern	・ Nozzle or pipe is clogged. ・ Nozzle is corroded. ・ Dust or foreign particles on the orifices.		・ Clean the nozzle or pipe. ・ Replace the corroded part. ・ Clean the parts.

7. Disposal

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

8. Inquiries

For spare parts or any trouble, contact your supplier or the following:

H. IKEUCHI & CO., LTD.
Email: overseas@kirinoikeuchi.co.jp
https://www.dry-fog.com/en/