CERJET®

NKS0921-2E

Instruction Manual

for

Integrated Spray Header with BIM Series Pneumatic Spray Nozzles

H. Ikeuchi & Co., Ltd.

Preface

Thank you for purchasing the Spray Nozzle from H. Ikeuchi & Co., Ltd.
This manual gives detailed instructions for the basic handling, maintenance and cautions of the product.
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. Suggestions & 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) The product may be heavy and need to be handled carefully.
For example, piping connections for air and water supply should be installed after the product has been installed.

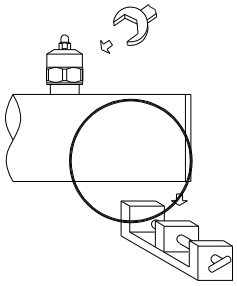
(3) Screw threads, edges and corners may be sharp. Wearing safety gloves is recommended.

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

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

<u>Use these tools</u>

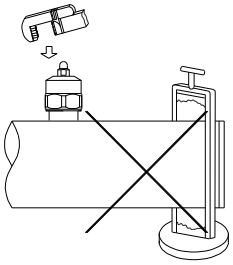
Spanner



Milling vice

<u>DO NOT use</u>

Pipe wrench



Pipe vice

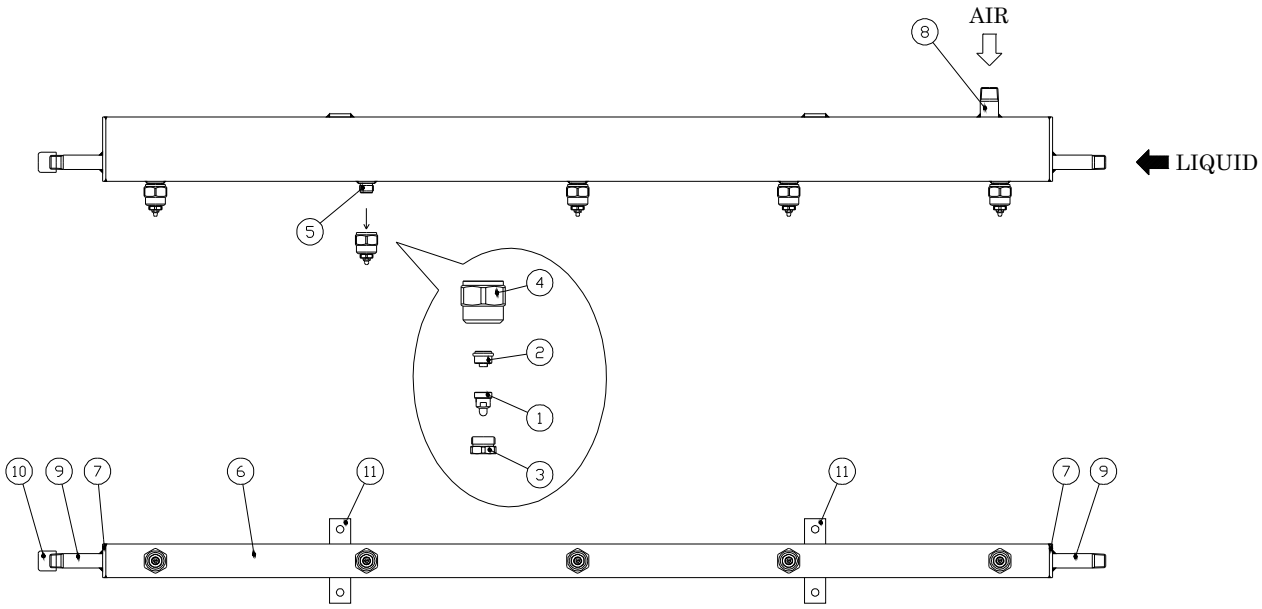
(6) Precautions to prevent liquids from back-flowing:
To start operation: Open the air supply first, then the liquid.
To stop operation: Shut off the liquid first, then the air.

(7) 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 in front of 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.

(8) 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) Component Parts and Materials



Part No.	Component	Material	Remark	Part No.	Component	Material	Remark
1	Nozzle Tip	S303	Consumable	7	Plate	S304	
2	Core	S303	Consumable	8	Air Nipple	S304 equiv.	
3	Cap	S303		9	Liquid Nipple	S304 equiv.	
4	Nozzle Adaptor	S303	Consumable	10	Cap	S304 equiv.	
5	Welding Adaptor	S304		11	Mounting Plate	S304	
6	Rectangular Header	S304					

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

a. Hold the rectangular header (#6) in a milling vice. Unscrew the nozzle adaptor (#4) with a spanner, keeping the nozzle tip (#1), core (#2) and cap (#3) attached to the nozzle adaptor (#4).
   Necessary tools:
   Milling vice
   Spanner 21 mm (for BIM**02, 04, 075)
   Spanner 29 mm (for BIM**15, 22)

b. Hold the nozzle adaptor (#4) in a milling vice and unscrew the cap (#3) with a spanner, then take out the nozzle tip (#1) and core (#2).
   Necessary tools:
   Milling vice
   Spanner 12 mm (for BIM**02, 04, 075)
   Spanner 17 mm (for BIM**15, 22)

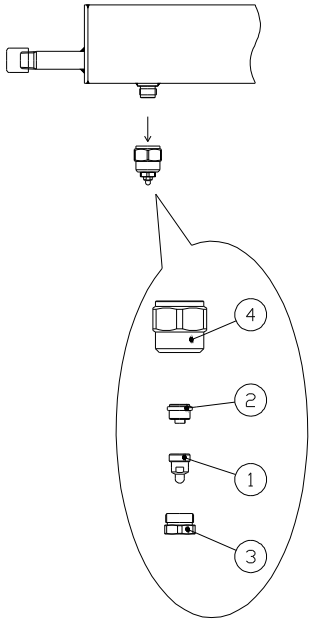


Table 1. Spanner size and tightening torque

Part	Air Consumption Code of BIM Series Nozzles	
	02, 04, 075	15, 22
Nozzle adaptor #4	21 mm (30 N m)	29 mm (40 N m)
Cap #3	12 mm (20 N m)	17 mm (30 N m)

Recommended tightening torques are given in parentheses.

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

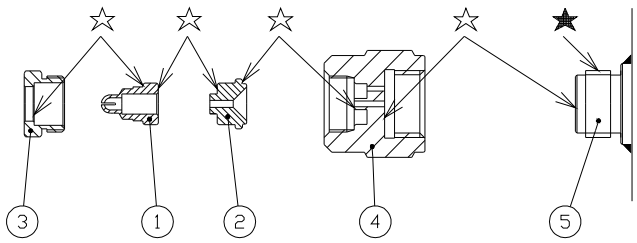
Assemble in the reverse order of the above 3. Disassembly.

Note:

(1) Before assembly, remove dust and debris carefully from the orifice and sealing surfaces (indicated with ☆ below) with a brush not to damage these important surfaces.
If any of them are damaged, they will cause water leakage and the spray performance deteriorates.

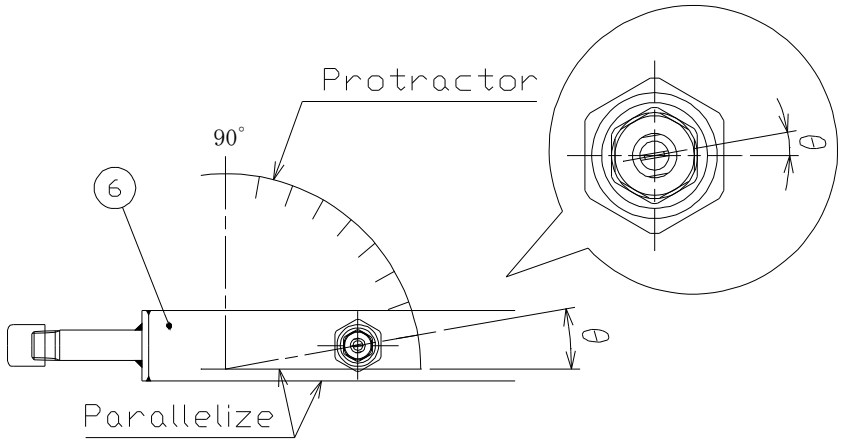
(2) Do not damage the orifice of each part in any way, it will affect the nozzle performance.

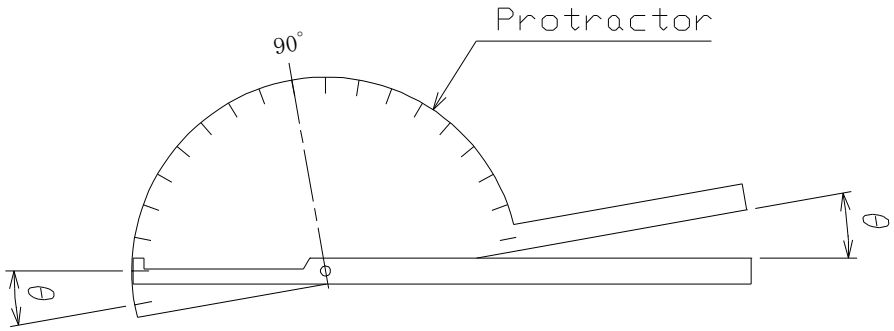
(3) Always apply anti-seizing agent to the threads (indicated with ★ below) before assembly.



Adjustment of Nozzle Tip Offset Angle (Nozzle Tip Angle to Axis of Header)

Adjust the offset angle of the nozzle tip (#1) with a protractor.
Measure the angle after assembly. If the nozzle tip is not at the specified offset angle, loosen the cap (#3), re-adjust the nozzle tip and tighten the cap again.





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	Confirm that there is no corrosion or dust adhesion to the nozzle tip and orifice.
	Connection	Confirm that the cap and nozzle adaptor are screwed together tightly.

6. Troubleshooting

Troubles	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.	・Check and clean the nozzle and pipe. ・Replace the damaged part. ・Clean the clogged part.
Air leaks Liquid leaks	・Some parts are loose or not tightened. ・Seal failure between header and cap (#10).		・Tighten the connections. ・Disassemble, clean the sealing surface and re-assemble.
	・Nozzle or pipe is cracked. ・Nozzle or pipe is corroded.		・Replace the cracked part. ・Replace the corroded part.
Intermittent spray	・Seal failure between nozzle tip, core, cap and adaptor (air or liquid leaks due to dust/foreign particles adhered or damage on the surface indicated with ☆ on page 6). ・Either air pressure is too high or liquid pressure is too low.		・Clean the sealing surface. Replace the part. ・Adjust the pressure.
Irregular spray pattern	・Nozzle or pipe is clogged. ・Nozzle tip is deformed. ・Nozzle is corroded. ・Dust or foreign particles adhered on the orifices.		・Check and clean the nozzle and pipe. ・Replace the deformed part. ・Replace the corroded part. ・Clean the part.

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:

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