

Instruction Manual**KBN series Nozzles**

Thank you for purchasing our CERJET® Spray Nozzles.
In order to use CERJET® Spray Nozzles safely and efficiently, you are requested to read this Instruction Manual and keep it readily available.
H. IKEUCHI & CO., LTD. takes no responsibility for any accidents and/or injuries resulting from improper handling, installation and/or operation.
Dimensions and design may be changed without notice for product improvement.



“The Fog Engineers”
H. IKEUCHI & CO., LTD.

1. Safety Precautions

Prior to use, please read these “Safety Precautions” and use the nozzles properly.



Do not use nozzles beyond the maximum liquid pressure of 7MPa. Otherwise nozzles may break and/or be blown off of the pipe, resulting in injuries.



Do not use nozzles beyond the operating temperature range of 5~60°C. Otherwise nozzles may break and/or be blown off of the pipe, resulting in injuries.



Do not use nozzles in temperatures below freezing. Otherwise nozzles may break and/or be blown off of the pipe, resulting in injuries.



Connect the nozzles only with the taper pipe thread (R1/4). Otherwise nozzles may break and/or be blown off of the pipe, resulting in injuries.



To avoid water hammer, do not increase pressure rapidly. Otherwise nozzles may break and/or be blown off of the pipe, resulting in injuries.



To provide against contingencies, do not stand in front of the nozzles or keep your face away from the nozzles.

2. Before Use (Instructions & Cautions)



Flush the pipes to purge foreign particles before installing the nozzle.



Apply sealing tape on the thread of the nozzle before installation.



Screw the nozzle by hand first (making sure it's screwed in properly), then tighten with a torque wrench (size 14mm).
(Recommended tightening torque: 4.5N·m)
Tightening it too much may break the nozzle.



When connecting, make sure the nozzle end doesn't intervene in the pipe (refer to P. 3 "4. How to Use").



Do not place the nozzle at the immediate rear of a bent pipe or elbow. Turbulence may affect the nozzle performance.



To prevent the nozzles from clogging, apply strainers or use a water treatment system, depending on water quality. If the nozzle orifice is clogged, the strainer holder may come off (refer to P. 3 "5. Cautions").



Do not scratch or score the nozzle. Do not apply hard materials such as nails or needles to the ceramic part of the nozzle tip.



The plastic may yield to mechanical shock and must be handled gently.



Store the nozzle in a clean place free from dust.



When spraying liquid other than water, consider the chemical resistance of the nozzle resin to the liquid (refer to P. 5 "Chemical Resistance of KBN series Nozzles").

3. Warranty

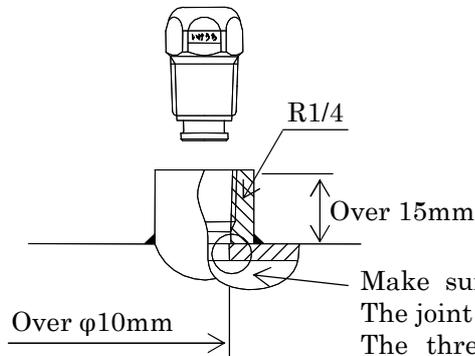
The warranty period is one year after the date of shipment.

The seller shall be responsible for repair at our designated place and/or replacement of the damaged parts if the damages are due to the seller's fault.

This warranty does not cover such cases as misuse, improper repair, modification, natural disasters, clogging of strainer or nozzle and exhaustion of consumable parts.

4. How to Use

(1) Installation



Recommended tightening torque	4.5 N m
Wrench	14 mm
Length of joint	Over 15 mm
Thread part	Sealing tape
Thread diameter of the joint bottom	Over $\phi 10$ mm

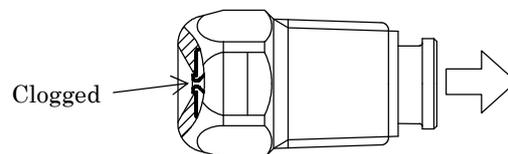
Make sure the nozzle end does not intervene in the pipe.
The joint length should be over 15mm.
The thread diameter of the joint bottom should be over $\phi 10$ mm, in case joint length is less than 15mm.

(2) How to screw in the nozzle

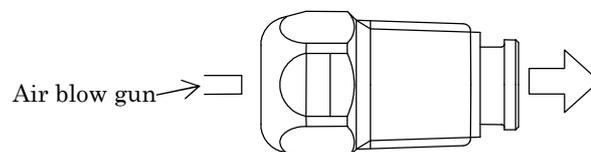
- Flush the pipes to purge foreign particles before installing the nozzle.
- Apply sealing tape on the thread of the nozzle before installation.
- Screw the nozzle by hand first (making sure it's screwed in properly), then tighten with a torque wrench (size 14mm).
(Recommended tightening torque: 4.5N·m)
- Increase the liquid pressure gradually from low to high to avoid water-hammer.

5. Cautions

- The nozzle can not be disassembled.
- If the pressure is increased rapidly with the nozzle orifice clogged and air trapped inside the nozzle, the force works in a way that the strainer holder comes off and may lead to dropping off of the strainer holder inside the pipe.



- If the nozzle orifice is air blown with air blow gun from close distance (within 5 mm), the strainer holder may come off.



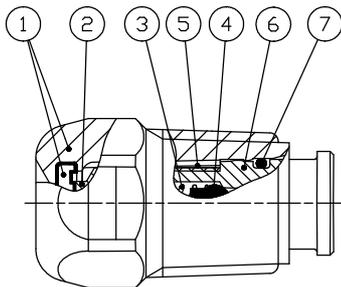
6. Troubleshooting

Check the following points in case of trouble.

If the following solutions do not work, please replace the nozzle with a new one.

No.	Trouble	Probable Causes	Solution
1	No spray.	Liquid pressure is too low.	Check the pressure in the pipe and apply the proper pressure.
		Nozzle orifice or strainer is clogged.	Replace the nozzle.
2	Liquid dripping from the nozzle orifice.	Liquid pressure is too low.	Check the pressure in the pipe and apply the proper pressure.
		Foreign particles sticking to the nozzle orifice area.	Replace the nozzle.
3	No hollow-cone spray pattern available.	Liquid pressure is too low.	Check the pressure in the pipe and apply the proper pressure.
		Nozzle orifice is clogged.	Replace the nozzle.
4	Liquid leaking.	Deterioration of sealing tape.	Replace or change the sealing tape.
		Nozzles are not firmly screwed in.	Tighten the nozzles properly with a torque wrench. (Recommended tightening torque: 4.5 N m)

7. Structure and Components



No.	Description	Material
①	Body + Ceramic orifice	Polyamide + Alumina ceramic
②	Closer	Polyester elastomer
③	Spring	S304**
④*	Poppet	NBR
⑤	Strainer screen	S316**
⑥	Strainer holder	PP
⑦	O-ring	NBR

* Poppet is included only in KBN-TPACVW (KBN with check valve).

** In our material code, "S" represents "stainless steel".

(Example) S304 represents stainless steel 304.

8. Specifications

Code	80063	80125	8022
Spray angle (° , Spray pressure 1MPa) *	80	80	80
Spray capacity (ℓ/hr, Spray pressure 1MPa) *	2.00	4.10	7.25
Length (mm)	27		
External diameter (mm)	Hex. 14		
Thread size	R1/4		
Mass (g)	4		
Maximum operating pressure (MPa)	7		
Operating temperature range (°C)	5 – 60		
Color of nozzle body	Strainer without check valve: Black Strainer with check valve: White		
Color of strainer holder			

* The above spray angle and spray capacity are the figures for KBN-TPACVW (KBN with check valve at operating pressure of 0.3MPa).

Chemical Resistance of KBN series Nozzles

	Name of chemicals	Temperature (°C)				Name of chemicals	Temperature (°C)		
		20	40	60			20	40	60
Acidic	Hydrochloric acid (35%)	×	×	×	Organic	Trichloroethylene	△		
	Hydrochloric acid (100%)	×	×	×		Acetone	△		
	Sulfuric acid (60%)	×	×	×		Methyl alcohol	△	△	×
	Sulfuric acid (70%)	×	×	×		Ethyl alcohol	△	△	×
	Sulfuric acid (90%)	×	×	×		Alcohol	△		
	Sulfuric acid (98%)	×	×	×		Ethyl ether	○		
	Fluorinated acid (10%)	×	×	×		Benzene	○		
	Formic acid (50%)	×	×	×		Toluene	○		
	Oxalic acid (100%)	△	×	×		Chloroform	△		
	Phosphoric acid (60%)	×	×	×		Formalin	△		
	Acetic acid(80%)	△	△	×		Phenol	×	×	×
							Gasoline	○	
Alkali	Sodium hydroxide	×	×	×	Glycerol	○			
	Ammonia	×	×	×	Lacquer thinner	○			
	Sodium hypochlorite (bleach)	○	○	△	Mild detergent	○	○	○	
Remarks					Symbols ○: Not corrosive △: Corrosive ×: Unusable				

9. Storing

- In cold season, before storing remove the nozzles from pipes to prevent damage from freezing.
- If the header and nozzles are impossible to remove, discharge water completely from the header and nozzles with compressed air.
- Store the nozzle in a clean place free from dust.