

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.



WARNING

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.



WARNING

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.



WARNING

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



WARNING

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.



WARNING

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



WARNING

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)



CAUTION

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



CAUTION

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



CAUTION

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.



CAUTION

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



CAUTION

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



CAUTION

To prevent the nozzles from clogging, apply strainers or use a water treatment system, depending on water quality.



CAUTION

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.



CAUTION

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



CAUTION

Store the nozzle in a clean place free from dust.



CAUTION

When spraying liquid other than water, consider the chemical resistance of the nozzle resin to the liquid (refer to P. 4 "Chemical Resistance of KBN series Nozzles").

3. Warranty

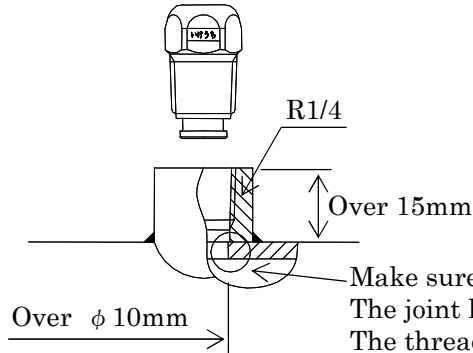
The warranty period is one year after the date of shipment.

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	4.5N·m
Wrench	14mm
Length of joint	Over 15mm
Thread part	Sealing tape
Thread diameter of the joint bottom	Over φ 10mm

(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.

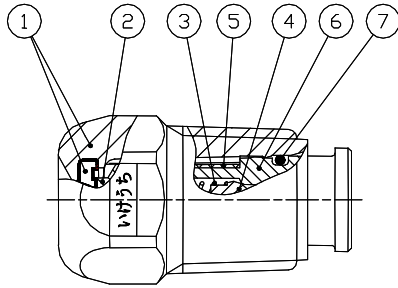
5. Troubleshooting

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.	1. Liquid pressure is too low. 2. Nozzle orifice or strainer is clogged.	1. Check the pressure in the pipe and apply the proper pressure. 2. Disassemble the nozzle and purge the spray orifice and strainer with compressed air. Then, re-assemble the nozzle.
2	·Liquid dripping from the nozzle orifice.	1. Liquid pressure is too low. 2. Foreign particles sticking to the nozzle orifice area.	1. Check the pressure in the pipe and apply the proper pressure. 2. Disassemble the nozzle and purge the spray orifice and strainer with compressed air. Then, re-assemble the nozzle.
3	·No hollow-cone spray pattern available.	1. Liquid pressure is too low. 2. Nozzle orifice is clogged.	1. Check the pressure in the pipe and apply the proper pressure. 2. Disassemble the nozzle and purge the spray orifice and strainer with compressed air. Then, re-assemble the nozzle.
4	·Spray of solid stream.	1. There is no closer in the nozzle.	1. Replace the nozzle.
5	·Liquid leaking.	1. Deterioration of sealing tape. 2. Some parts are not firmly screwed in.	1. Replace or change the sealing tape. 2. Tighten each part properly. (Recommended tightening torque: 4.5N·m)

6. 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.

7. 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			
Color of strainer holder	Strainer without check valve: Black Strainer with check valve: White		

* 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				

8. 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.