

**Instruction Manual**

Products: Spray Nozzles
<b>VP Series</b>
<b>VEP Series</b>
<b>VNP Series</b>

Thank you for purchasing this product.

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

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

After reading, keep this manual handy for quick reference.

Please be aware that due to continuing efforts to improve our products, some details in this manual may differ from the actual product.

H. Ikeuchi & Co., Ltd.

## 1. Precautions

### (1) Ceramic Parts

The ceramic parts used in spray nozzles feature high chemical and wear resistance, but the following restrictions need to be considered:

- Use of hydrofluoric acid and concentrated alkali will lead to corrosion.
- While the material is hard, it is also brittle which can cause chipping.
- The ceramic will crack if abruptly cooled down from high temperatures (200°C).

### (2) Installation

- Be sure to flush the pipes before installing the nozzle to remove any dirt and foreign matter.
- Apply sealant or sealing tape to the thread of the nozzle before installation.
- Avoid installing the nozzle immediately on or after a bend in the pipe or an elbow. Turbulence may affect the nozzle performance.
- Pay attention to the spray direction when installing the nozzle.
- See Table 1 for recommended torque to install the nozzle.

Table 1. Recommended tightening torque

Nozzle thread size	Recommended tightening torque (N m)
1/8	8
1/4	15
3/8	20
1/2	40
3/4	60
1	100

### (3) Operation

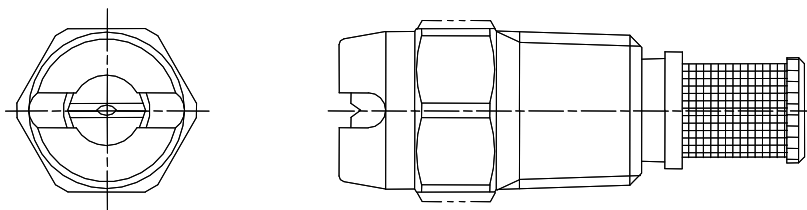
- Start spraying at a water pressure of 0.05–0.1 MPa to avoid water hammer and then gradually increase to operating pressure.
- After spraying chemical solution, spray clean water for a while to clean the nozzle orifice and the inside of the nozzle.
- To prevent the nozzle from clogging, install strainers or use a water treatment system, depending on the water quality.

### (4) Use

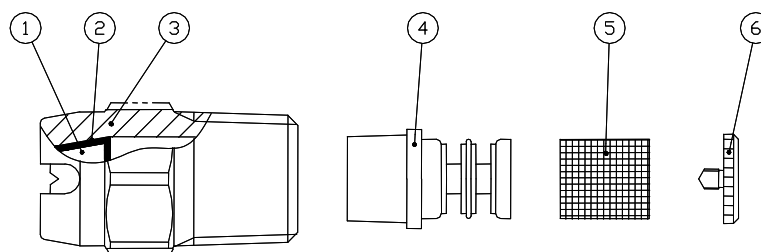
- Do not damage or scratch the nozzle.
- Do not clean the ceramic tip with nails, pins or other hard objects, which may damage the nozzle.
- Do not apply any strong force, shock or vibration to the nozzle.
- Store the nozzle in a clean, dust-free place.

## 2. Component of Nozzle

### (1) Assembly



### (2) Components and Materials



No.	Component	Material	Remarks
1	Orifice	Ceramic	
2	Adhesive	Epoxy resin	Araldite®
3	Nozzle Body	*1	
4 *2	Strainer Holder	*1	
5 *2	Strainer Screen	S316	
6 *2	Strainer Cap	*1	

\*1) Standard material: Brass (C3604) or S303

Special order material: S316 or other

\*2) Strainer parts No. 4 to 6 are optional for the VP and VEP series.

#### Note:

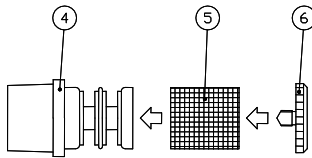
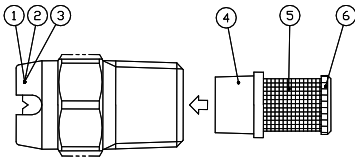
- Appearance and dimensions may slightly vary depending on the nozzle code.
- In our material code, "S" represents "stainless steel".  
For example, S303 stands for stainless steel 303.

### 3. Disassembly

Disassemble in the reverse order of 4. Reassembly below.

Disassemble the nozzle in a clean, dust-free environment. Always clean the nozzle surface before disassembly to prevent any dust and dirt to enter the nozzle. Be careful not to lose the parts.

### 4. Reassembly

No.	Procedure	Diagram	Precaution
1	Insert Strainer Screen (part #5) into Strainer Holder (#4). Screw Strainer Cap (#6) into Strainer Holder (#4).		
2	Insert the strainer (#4 to #6) into the nozzle (#1 to 3).		See Table 1 (page 1) for tightening torque.

Strainer parts No. 4 to 6 are optional for the VP and VEP series.

Note: Appearance and dimensions may slightly vary depending on the nozzle code.

### 5. Troubleshooting

If there is a problem, please check the following items first. If the problem persists, please replace the nozzle.

No.	Problem	Possible reason	Solution
1	Nozzle not spraying, or the spray pattern is irregular.	Liquid pressure is too low.	Check the pressure in the pipe and apply the proper pressure.
		Nozzle and/or strainer are clogged.	Clean both, the nozzle and strainer (ultrasonic cleaning, compressed air, etc.). Replace the nozzle.
2	Water leaks.	Sealant or sealing tape is damaged or worn.	Replace the sealant or sealing tape.
		Nozzles are not screwed in tight enough.	Tighten the nozzles properly with a torque wrench.