

ES—PTFE series —Rotating Cleaning Nozzles for Tanks/Containers—

## Instruction Manual

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**Introduction:**

Thank you for purchasing this spray nozzle from H. Ikeuchi & Co., Ltd.

This manual gives detailed instructions for the basic handling, maintenance and cautions of the spray nozzle.

H. Ikeuchi & Co., Ltd. reserves the right under its product improvement policy to change parts, when altered, without reference to the illustrations and notes in this manual.

Keep this manual at hand after reading.

**Safety Precautions:**

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

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



Wear safety gloves.

The screw thread or nozzle edges may cause injury.



Ensure that the nozzle is firmly installed.

Untightened or loose screws may cause the nozzle to detach or fall off during operation and lead to serious accidents.

## 1. Suggestions & Cautions

(1) Install nozzles as the final installation step after all piping installation is completed and the entire piping system is cleaned .

- Never install a nozzle during installation work of the plant or equipment.
- Use larger size pipes and valves to prevent pressure drop.
- Use new stainless steel pipes. Dust and foreign particles in old pipes may clog nozzles.
- Chips or seal tape inside a pipe may also clog nozzle. Purge all pipes before installing nozzles. Flush the pipes thoroughly to purge foreign particles before installing nozzles.

Flushing should be at or near the maximum flow rate, such that turbulent flow occurs in the piping to promote cleaning.

- Use of strainers is recommended to prevent nozzles from clogging.

Liquid should be supplied to a nozzle after it runs through a strainer of #100 mesh or finer, regardless of whether cleaning water is in a circulating water system or not.

(2) The edges of threads or some parts may be sharp.

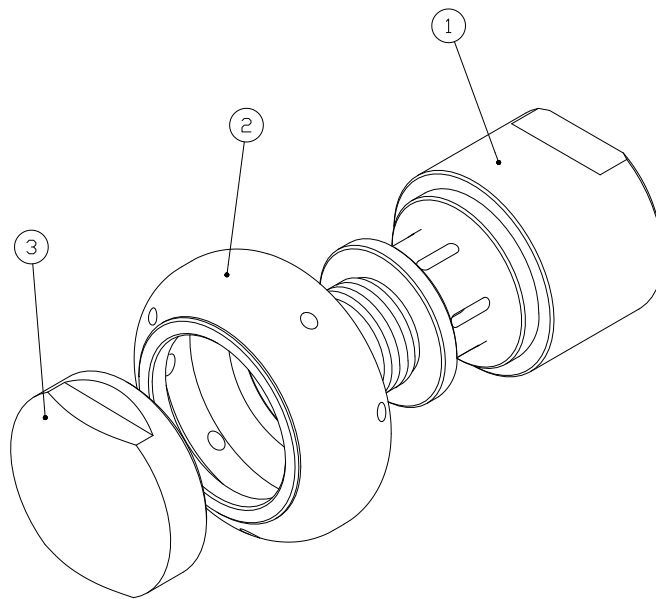
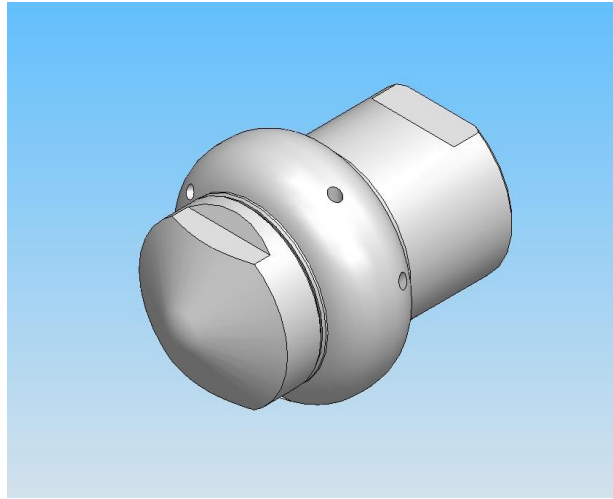
Wear safety gloves to protect hands.

(3) Operate nozzle under the specified pressures.

If the pressures are not specified, refer to our published flow-rate diagram.

(4) Do not damage or scratch nozzles. When disassembling nozzles for maintenance, use a spanner, adjustable wrench and milling vice.

## 2. Components of Nozzle



No.	Component	Material	Remark
1	Connecting adaptor	PTFE	
2	Nozzle body	PTFE	
3	Hub	PTFE	

Note: (1) Lifetime of nozzle components varies depending on operational conditions. Replace consumable parts when corrosion or wear of components is found to significantly affect nozzle performance.  
 (2) Dimensions and materials may be changed depending on part number of the nozzle.

### 3. Disassembly (Please refer to parts list on previous page)

- (1) Loosen the connecting adaptor① with an adjustable wrench or spanner and remove the nozzle from the assembly.
- (2) Fix the connecting adaptor① with a milling vice and loosen the hub③ with a spanner or an adjustable wrench and remove it.
- (3) Disassemble the nozzle body② from the connecting adaptor①.

Note: (1) Be careful not to flaw or lose small parts.

(2) Spray slit and sliding surfaces are of critical importance, take extreme care when handling these parts.

(3) Disassembled parts should be stored free from dust and not subjected to physical shock.

### 4. Assembly

- (1) Place the nozzle body② (with the larger opening side down) onto the connecting adaptor①.  
(Nozzle body② can not be connected in reverse way.)
- (2) In case of disassembling and re-assembling the nozzle, screw Hub③ into Connecting adaptor① by hand, then tighten it additionally for 15-30 degrees with a spanner.

Note: (1) Remove dust or foreign particles on the spray slit and sliding surfaces with a brush.

(Take great care not to scratch or damage these critical parts.)

(2) When installing this nozzle on pipe or socket, screw it by hand first, then hold the milling surface of Connecting adaptor① with a spanner and tighten it additionally for a quarter turn.

(Recommended tightening torque: 3 N·m)

Additional tightening by holding the milling surface of Hub③ may cause damage to the nozzle.

(3) Screw each nozzle into pipe or socket properly and firmly.

## 5. Maintenance

- (1) Visually confirm that the nozzle is not distorted or deformed.
- (2) Rotate the nozzle body by hand 1 or 2 times to check the rotation condition.
- (3) If something is wrong with the rotation in (2), the most common cause is foreign matter on the sliding surfaces. Follow steps (4) and (5) below to remove foreign particles on sliding surfaces.
- (4) According to the procedure of "3. Disassembly" in the previous page, check the sliding surfaces with a magnifying glass and confirm they are free from foreign particles.
- (5) Use a soft brush or tweezers to carefully remove any contaminant on the sliding surfaces.

※Trouble/malfunction of ES nozzles are caused mostly by foreign particles such as grit, dust, scale, chips, and small metal pieces.

## 6. Troubleshooting

Trouble	Probable Cause		Solution	Remarks
No spray	Control	<ul style="list-style-type: none"> <li>• Controller is not switched on.</li> <li>• Valves are not opened.</li> </ul>	<ul style="list-style-type: none"> <li>• Switch it on.</li> <li>• Open valves.</li> </ul>	
	Nozzle	<ul style="list-style-type: none"> <li>• Nozzle or Pipe is clogged.</li> <li>• Nozzle or Pipe is clogged due to damage.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean nozzle or Pipe.</li> <li>• Replace damaged part.</li> <li>• Clean them.</li> </ul>	
Liquid leak	Handling	<ul style="list-style-type: none"> <li>• Nozzle or Pipe is cracked.</li> <li>• Nozzle or Pipe is corroded.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace cracked part.</li> <li>• Replace corroded part.</li> </ul>	
Irregular spray	Improper rotation	<ul style="list-style-type: none"> <li>• Dust/foreign particles, flaws.</li> <li>• Nozzle is clogged.</li> <li>• Flaws on shaft bearings.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean seal area, replace the parts.</li> <li>• Clean nozzle.</li> <li>• Replace shaft bearings.</li> </ul>	
	Not spraying normally	<ul style="list-style-type: none"> <li>• Nozzle or Pipe is clogged.</li> <li>• Nozzle tip is corroded.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean nozzle or pipe.</li> <li>• Replace corroded part.</li> </ul>	

## 7. Disposal

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

## 8. Inquiry

For parts or troubles, contact our local sales office or the following.



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