KKS191773-1E

Instruction Manual

INVV-SS Series Nozzles INV Series Nozzles INVE Series Nozzles INJJX-SS Series Nozzles



Note: Configurations differ depending on nozzle codes.

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.



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1. Safety Precautions

Prior to use, please read these "Safety Precautions" and use the nozzles properly. Improper use may result in injury and damage to the nozzle.



Do not use the nozzles beyond the maximum pressure of 2.0 MPa.



Do not use nozzles outside of their temperature range of 5-150 for the INVV-SS and INJJX-SS series and 5-60 for the INV and INVE series. (See Table 2 on Page 3.)



Do not use the nozzles in freezing temperatures.



For connection, only use screws conforming to the thread specifications of our nozzle.



To prevent a water hammer, avoid a sudden increase in liquid pressure.



In order to avoid any unexpected accidents or injuries, do not stand near or in front of the nozzle and keep your face away.

2. Before Use (Instructions & Cautions)



Be sure to flush the pipes before installing the nozzle to remove any dirt and foreign matter.



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



When installing the nozzle, screw in the nozzle by hand, making sure it is screwed in correctly. Then use a 21 mm torque wrench to tighten the nozzle with 15 N m torque.



Avoid installing the nozzle immediately on or after a bend in the pipe or an elbow. Turbulence may affect the nozzle performance.



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



Do not damage or scratch the nozzle. Do not clean the orifice of nozzle tip with nails, pins or other hard objects, which may damage the nozzle.



Do not apply any strong force, shock or vibration to the nozzles.



Store the nozzle in a clean, dust-free place.



When spraying liquid other than water, consider the chemical resistance of the nozzle material to the liquid. See Table 1 on Page 3 for the nozzle materials.



The quick-detach nozzle tip section, made up of nozzle tip (with whirler for INJJX-SS), cap and packing, makes maintenance easy. Be sure to fully understand the procedure of detaching and attaching the nozzle tip section before use.



Consider the following restrictions for the ceramic parts used in the INV and INVE series nozzles.

- Use of hydrofluoric acid and concentrated alkali will lead to corrosion.
- \cdot 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).

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3. Structure, Dimension, Weight, and Heat Resistance

Table 1. Components and materials

INVV-SS Series

INV and INVE Series

Nozzle

tip

Сар

Packing

Adaptor

Component

Orifice

Adhesive

Tip retainer

No.

No.	Component	Material*1	Remarks
	Nozzle tip	S303	
	Сар	S316L equivalent	
	Packing	FEPM	
	Adaptor	S316L equivalent	

Material*1

S316L equivalent

S316L equivalent

Ceramic

Araldite

S303

FEPM

(epoxy resin)





INJJX-SS Series

No.	Component	Material*1	Remarks
	Nozzle tip	S303	
	Whirler	S316L equivalent	
	Сар	S316L equivalent	
	Packing	FEPM	
	Adaptor	S316L equivalent	





*1) In our material code, "S" represents "stainless steel". For example, S303 stands for stainless steel 303.

Note: Configurations differ depending on nozzle codes.

		Dine	Outer dimensions (mm)					Weight (g)		Heat	
Se	ries	Pipe conn. size	L1	L2	L3	W 1	W2	N	Complete assembly	Nozzle tip	resistant temperature ()
INV	V-SS	R1/4	43	22.5	20.5	26	21	10.5	57	13	150
INV,	INVE	R1/4	41	20.5	20.5	26	21	10.5	51	6.5	60
INJJX-SS	010-030*2	R1/4	48.5	28	20.5	26	21	10.5	62	2 18 150	150
	040-060*2	R1/4	54.5	34	20.5	26	21	10.5			150

Table 2. Dimensions, weight, and heat resistance

Remarks

*2) These numbers indicate the spray capacity code.

Pipe conn.

4. Disassembly and Assembly

(1) Disassembly

Looking straight at the nozzle tip and orifice, turn the cap about 90° to the left (Fig. 1) and pull it off the adaptor.

With a finger push the nozzle tip up into the cap as far as possible (Fig. 2). Gently remove the packing and the nozzle tip from the cap. The packing can easily be removed by inserting a finger, hooking it and pulling it out (Fig. 3).

Note:

Do not use nails, needles or other hard objects to remove the nozzle tip and packing.

(2) Assembly

Insert the nozzle tip into the cap. When attaching the nozzle tip for the INVV-SS, INV, and INVE series, make sure it is inserted straight into the cap, so the nozzle tip aligns with the flat edges of the cap (Fig. 4). Start inserting the packing from one side of the edge as shown in Fig. 5 and press it down around the edge until it sits tightly on the nozzle tip (Fig. 6).

Align the notches of the adaptor with the indentations of the cap and push the cap up. Turn the cap about 90° to the right (Fig. 1) until it clicks.

Note:

- Do not use nails, pins or other hard objects when inserting the nozzle tip and packing into the cap.
- Be sure the nozzle tip and the packing is positioned correctly (Fig 6). Incorrect placement of the packing can cause leakage.
- If the cap is not completely screwed on, it might come off.

When assembled correctly, the notch on the adaptor will be all the way to the left side of the bulge in the slot of the cap and the tabs on the cap align with the chamfers of the adaptor (Fig. 7).



Note: Configurations differ depending on nozzle codes.

С	Е	R	J	Ε	т	R

5. Troubleshooting

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

Table 3. Troubleshooting

No.	Problem	Possible reason	Solution		
1	Nozzle not spraying, or the spray pattern is	Liquid pressure is too low.	Check the pressure in the pipe and apply the proper pressure.		
	irregular.	Nozzle tip and/or strainer	Clean both, the nozzle and strainer		
		are clogged.	(ultrasonic cleaning, compressed air, etc.).		
2	Water leaks.	Deterioration of sealing tape.	Replace or change the sealing tape.		
		Nozzles are not screwed in tight enough.	Tighten the nozzles properly with a torque wrench (recommended tightening torque: 15 N m).		
		No packing.	Set the packing.		
		Incorrectly assembled.	4. Disassembly and Assembly on the previous page and reassemble everything correctly.		

6. Warranty

There is a 1-year warranty from the date of shipment.

Seller shall be responsible for any damage due to design or production and will replace the item free of charge.

Neither this warrant nor any implied warranty applies to damage or harm caused by any or all of the following: 1. Damage due to misapplication and/or misuse; 2. Improper repair and/or modification; 3. Natural disasters; 4. Normal wear-and-tear of consumable parts including clogged nozzle tips.