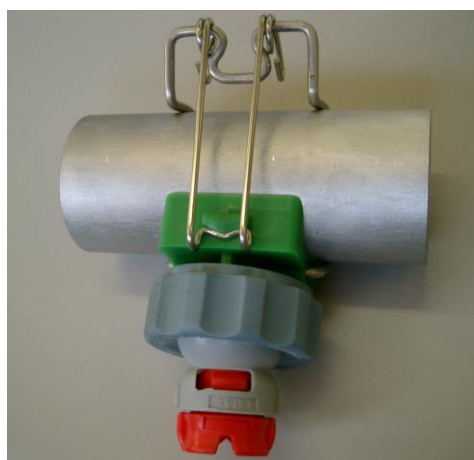


INSTRUCTION MANUAL

QB Series Nozzles



Note: Shape and color differ depending on the product code.

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

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.



WARNING

Do not use nozzles beyond the maximum liquid pressure of 0.4 MPa.



WARNING

Do not use nozzles outside of the temperature range of 5–80°C.



WARNING

Do not use nozzles in freezing cold environments.



WARNING

Do not connect nozzles to pipes that do not meet the specifications detailed in Table 3 on Page 4.



WARNING

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



WARNING

Firmly attach the spring clip type mounting bracket to the pipe.
See Page 4.



WARNING

DO NOT apply water pressure to the nozzles while the cap is loose.



WARNING

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)



CAUTION

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



CAUTION

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



CAUTION

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



CAUTION

Do not scratch the nozzle. Do not use nails, pins or other hard objects to touch or clean the nozzle orifices, which may damage the nozzle.



CAUTION

Do not apply any strong force, shock or vibration to the nozzles. Unlike metal nozzles, resin nozzles are breakable and must be handled with care.



CAUTION

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



CAUTION

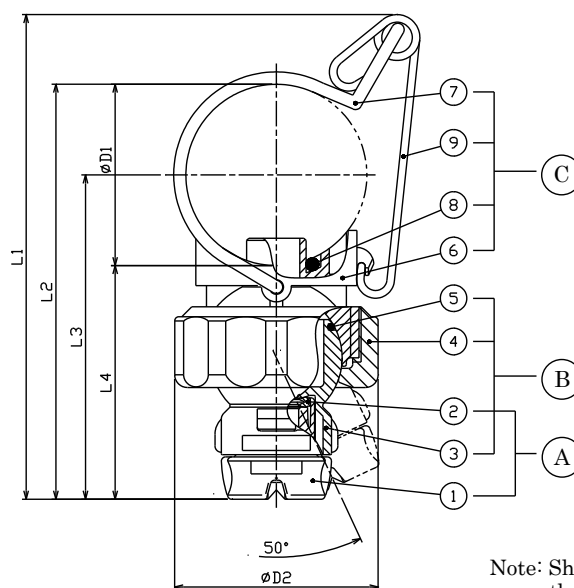
When spraying liquid other than water, consider the chemicals in the liquid and the resistance of the nozzle and pipe to these chemicals. See Table 1 on Page 3 for nozzle materials.



CAUTION

As the nozzle tip is quick-detachable, maintenance is easy. Be sure to fully understand the procedure of detaching and attaching the nozzle tip before use.

3. Structure, Dimension, and Weight



Note: Shape and color differ depending on the product code.

Table 1. Components and material

		No.	Components	Material*1	Remarks
A	Nozzle tip	①	Nozzle tip	FRPP	
		②	Packing	FEPM	
B	Ball section	③	Ball adaptor	FRPP	
		④	Cap	FRPP	
		⑤	O-ring	NBR	
C	Adaptor	⑥	Adaptor	FRPP	
		⑦	Spring clip	S304	
		⑧	O-ring	NBR	
		⑨	Spring lock	S304	Optional

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

Table 2. Dimensions and weight

QB for metal pipes

Pipe size (inch)*2	Outer dimensions (mm)						Weight (g)
	L1	L2	L3	L4	ØD1	ØD2	
1	105	89	72	55	34	48	61
1 1/4	114	98	76	55	42.7	48	
1 1/2	120	104	79	55	48.6	48	
2	132	116	85	55	60.5	48	

*2) Pipes should be stainless steel pipes and compliant with JIS G 3459.

QB for PVC pipes

Pipe size (ND)*3	Outer dimensions (mm)						Weight (g)
	L1	L2	L3	L4	ØD1	ØD2	
25A	103	87	71	55	32	48	61
30A	109	93	74	55	38	48	
40A	120	104	79	55	48.6	48	
50A	132	116	85	55	60.5	48	

*3) Pipes should be PVC pipes and compliant with JIS K 6742.

40A, 50A adaptors for PVC pipes are the same as 1 1/2", 2" adaptors for metal pipes.

4. Operation

4-1. Piping compatible with QB series nozzles

Use stainless steel pipes compliant with JIS G 3459 or PVC pipes compliant with JIS K 6742.

Table 3. Standard piping diameters

Pipe material	Stainless steel		PVC	
Standard	JIS G 3459		JIS K 6742	
Type	SUS-HTP, TP SGP (JIS G 3452)		VP and HIVP pipes	
Size (mm)	1	34.0±0.5	25A	32.0±0.2
	1 1/4	42.7±0.5	30A	38.0±0.3
	1 1/2	48.6±0.5	40A	48.0±0.3
	2	60.5±0.5	50A	60.0±0.4

4-2. Installation

4-2-1. Drill a hole into the pipe with a size of $\phi 14.3$ – 14.8 mm. If the hole is smaller, the nozzles will not be installed correctly. If it is larger, it may cause leakage.

4-2-2. Deburr the hole properly to prevent clogging and liquid leakage.

4-2-3. Avoid making chamfers or scratches around the hole. Any damage in the sealing area may cause leakage, because the O-ring (placed there) will not be able to maintain a firm seal.

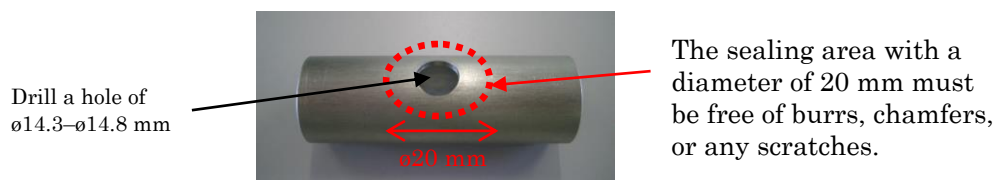


Fig. 1

4-2-4. Be sure to flush the pipes before installing the nozzle to remove any dirt and foreign matter.

4-2-5. Attach the spring clip securely to the piping. (Fig. 3)



Fig. 2

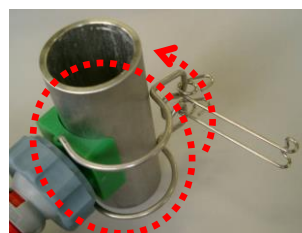


Fig. 3

4-2-6. Engage the spring lock (optional) firmly until it clicks.

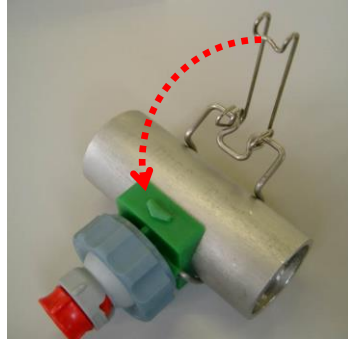


Fig. 4

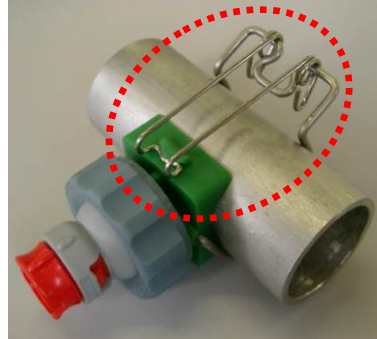


Fig. 5

4-2-7. To avoid water hammer, start spraying at a water pressure of 0.05–0.1 MPa, and then gradually increase to operating pressure.

4-3. Disassembly and Assembly

4-3-1. Disassembly

- (1) Looking at the nozzle from the orifice side, turn the nozzle tip about 90° to the left (Fig. 6), and pull it off the ball adaptor.
- (2) Hook the packing with fingers to pull it out as shown in Fig. 7.

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

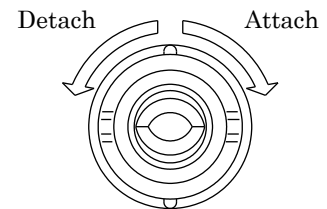


Fig. 6. Turning direction

4-3-2. Assembly

- (1) Start inserting the packing from one side of the edge as shown in Fig. 7 and press it down around the edge until it sits tightly on the nozzle tip (Fig. 8).
- (2) Align the guide of the nozzle tip with the groove in the ball adaptor, push it in, and turn the nozzle tip to the right (Fig. 6) about 90° until it clicks.

Note:

- Do not use nails, pins or other hard objects when attaching the nozzle tip and packing.
- Be sure the packing is positioned correctly. Incorrect placement of the packing can cause leakage.
- If the nozzle tip is not twisted on fully, it may fall off. The tabs of the nozzle tip and the ball adaptor will align when the tip is attached correctly as shown in Fig 9.

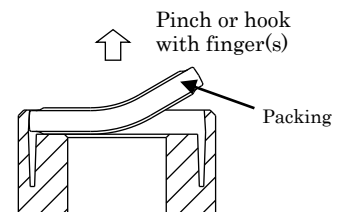


Fig. 7. Remove packing

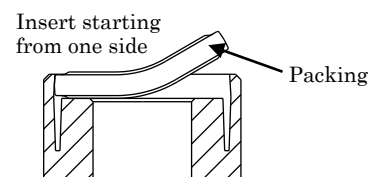


Fig. 8. Insert packing

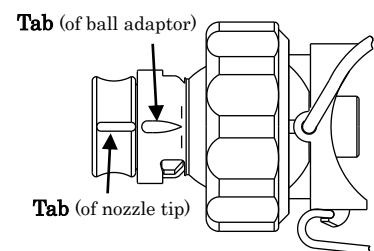


Fig. 9. Correctly assembled

4-4. Adjusting the spray direction

- 4-4-1. Be sure to stop the pump before positioning the nozzle. Do not apply water pressure to the cap when it is loose.
- 4-4-2. Slightly loosen the cap.
- 4-4-3. Adjust the direction of the ball adaptor with the nozzle tip attached.
- 4-4-4. When the direction is set, tighten the cap firmly by hand. DO NOT use any tool such as a spanner/wrench.
- 4-4-5. Always make sure that the cap is firmly tightened before starting to spray.

5. Troubleshooting

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

Table 4. Troubleshooting

No.	Problem	Probable cause	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 tip #1 and/or strainer are/is clogged.	Clean both, the nozzle and strainer (ultrasonic cleaning, air blowing, etc.).
2	Water leakage between piping and nozzle	O-ring #8 for adaptor #6 is missing, or damaged.	Set or replace the O-ring.
		Spring clip is not correctly attached.	Attach it firmly on the pipe.
		Problem with the mounting hole	Deburr the hole (see Page 4). If necessary replace the pipe.
3	Water leakage from cap	O-ring #5 for ball adaptor #3 is missing, or damaged.	Set or replace the O-ring.
		Cap #4 is loose.	Tighten the cap.
4	Water leakage from nozzle tip	Packing #2 is missing, or damaged.	Set or replace the packing.

6. Warranty

There is a one 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.