

Jet Attacker JA3 Series
Rotating Nozzles for 3-Dimensional Cleaning

Instruction Manual

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Preface

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

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

Please take note that due to our continuous efforts to improve our products, some details in this manual may differ from the actual product.

After reading, keep this manual handy for quick reference.

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.



CAUTION

Wear safety gloves.

Screw threads, edges and corners may be sharp and could cause injury.



CAUTION

Ensure that the nozzle/product is firmly installed.

Loose screws may cause the nozzle to come off during operation and lead to serious accidents.



CAUTION

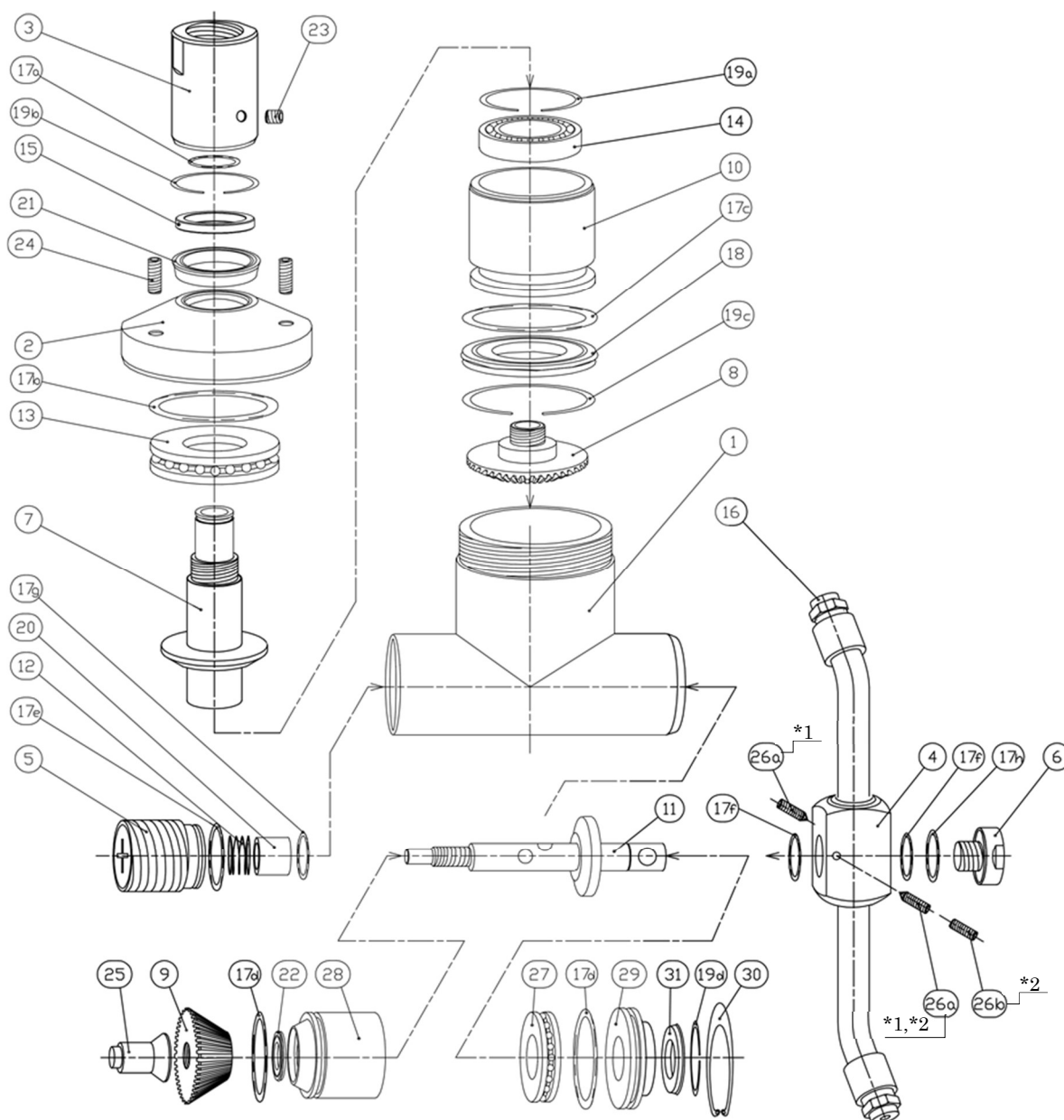
Be aware of the nozzle/product temperature and do not perform maintenance until it has cooled down enough to avoid burns.

1. Suggestions & Cautions

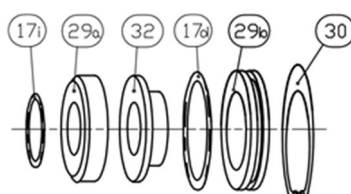
- (1) Installing the JA3 Series should be done after the piping system is completely installed and flushed.
 - Never install a JA3 Series during installation work of the plant or equipment.
 - Use piping and valves large enough to prevent the pressure from dropping.
 - Use new stainless steel pipes, as dust and debris in old pipes may clog the JA3 Series. Never use pipes that can rust.
 - Even new pipes may have chips, seal tape or other debris inside. ALWAYS flush the pipe system thoroughly before installing JA3 Series to remove any debris that has collected during the construction and assembly to avoid clogging. This flushing should be done at or near the maximum flow rate to thoroughly clean the system.
 - If a JA3 Series is clogged, its performance is impacted. Installing strainers help prevent JA3 Series clogging.
Regardless of the type of cleaning liquid, whether it is one-time use or recirculated, it should always run through a #50 or finer mesh strainer.
- (2) JA3 Series may be heavy and need to be handled carefully.
- (3) Screw threads, edges and corners may be sharp. Wearing safety gloves is recommended.
- (4) Operate the JA3 Series under the specified pressures. If the pressure is not specified, refer to the provided flow-rate diagram.
- (5) Avoid damaging or scratching the JA3 Series and pipes. When disassembling a JA3 Series for maintenance, always use a spanner, adjustable wrench, and milling vice.
- (6) Do not run the JA3 Series in reverse. The JA3 Series normally rotates counterclockwise on the horizontal shaft. Reversing the direction can lead to loosening of the gear and affect the rotation.
- (7) Avoid sudden and/or drastic changes in liquid pressure to prevent the water hammer.

2. Components of JA3 Series

(1) Parts Breakdown



Medium-pressure spec.: JA-3S Series



Low-pressure spec.: JA-3L Series

Note:

The above diagram is of JA3-2S or JA3-2L (JA3 with 2 nozzles).

JA3-4S is equipped with 4 nozzles.

*1 JA3-2S contains two pointed screws (part #26a) installed diagonally and no flat tip screw (#26b).

*2 JA3-4S contains one pointed screw (#26a) and one flat tip screw (#26b) as shown in the above drawing.

(2) Components and Materials

JA3-S Series for medium-pressure use

Part No.	Components	Material	Code No.	Quantity		Remark
				JA3-2S	JA3-4S	
1	Body casing	S304	#211882	1		
2	Adjusting cap	S304	#211891	1		
3	PT connector	S304	#211892	1		
4	Arm	S304	#212919 for JA3-2S #212920 for JA3-4S (Quantity: 1)			
5	Horizontal shaft screw (rear)	S304	#211894	1		
6	Plug (front)	S304	#235994	1		
7	Vertical shaft tube	S304	#213181	1		
8	Vertical shaft gear	S304	#249034	1		Consumable
9	Horizontal shaft gear	S304	#249032	1		Consumable
10	Vertical shaft mechanism box	S304	#209734	1		
11	Horizontal shaft tube	S304	#235990	1		
12	Spring	S304	#212717	1		
13	Vertical shaft thrust bearing (51104)	S440C	#218703	1		
14	Vertical shaft radial bearing (6804)	S440C	#218704	1		
15	Sleeve	S304	#280046	1		
16	Nozzle (1/8)	S303	—	2	4	Consumable
17a	O-ring (S14)	FKM	#200902	1		Consumable
17b	O-ring (S32)	FKM	#210313	1		Consumable
17c	O-ring (G35)	FKM	#108719	1		Consumable
17d	O-ring (S25)	FKM	#210314	2		Consumable
17e	O-ring (P22)	FKM	#183818	1		Consumable
17f	O-ring (S12)	FKM	#192625	2		Consumable
17g	O-ring (S18)	FKM	#210804	1		Consumable
17h	O-ring (S14)	FKM	#200902	1		Consumable

Part No.	Components	Material	Code No.	Quantity		Remark
				JA3-2S	JA3-4S	
18	High-pressure seal	Special PTFE, FKM	#244896	1		
19a	C-shaped ring (φ26)	S304	#254636	1		
19b	C-shaped ring (φ20)	S304	#254637	1		
19c	C-shaped ring (φ15)	S304	#254638	1		
19d	C-shaped ring (φ13)	S304	#254639	1		
20	Cylindrical bearing	Special PTFE	#209732	1		Consumable
21	Top seal	Special PTFE, S304	#210048	1		Consumable
22	Horizontal shaft high-pressure seal	Special PTFE, FKM	#248843	1		Consumable
23	Screw (M4x4)	S304	#192900	2		
24	Screw (M4x10)	S304	#210412	3		
25	Shaft bracket	S304	#209733	1		
26a	Pointed screw (M3x4)	S304	#255562	2	1	
26b	Flat tip screw (M3x4)	S304	#210413	—	1	
27	Horizontal shaft thrust bearing (51101)	S440C	#218705	1		
28	Horizontal shaft mechanism box	S304	#209743	1		
29	Seal for horizontal shaft load	S304	#209742	1		
30	Retaining ring (28)	S304	#210803	1		
31	Horizontal shaft front seal	Special PTFE, S304	#210049	1		Consumable

Note:

(1) Consumables

The lifetime of each components varies, depending on the operational conditions.

If there is a significant change in the nozzle performance, consumable parts should be replaced.

(2) In the material code, "S" represents "stainless steel".

For example, S303 stands for stainless steel 303.

JA3-L Series for low-pressure use

Part No.	Components	Material	Code No.	Quantity	Remark
				JA3-2L	
1	Body casing	S304	#211882	1	
2	Adjusting cap	S304	#211891	1	
3	PT connector	S304	#211892	1	
4	Arm	S304	#217218	1	
5	Horizontal shaft screw (rear)	S304	#211894	1	
6	Plug (front, low-pressure spec.)	S304	#217217	1	
7	Vertical shaft tube (low-pressure spec.)	S304	#218055	1	
8	Vertical shaft gear	S304	#249034	1	Consumable
9	Horizontal shaft gear	S304	#249032	1	Consumable
10	Vertical shaft mechanism box	S304	#209734	1	
11	Horizontal shaft tube (low-pressure spec.)	S304	#303912	1	
12	Spring	S304	#212717	1	
13	Vertical shaft thrust bearing (51104)	S440C	#218703	1	
14	Vertical shaft radial bearing (6804)	S440C	#218704	1	
15	Sleeve	S304	#280046	1	
16	Nozzle (R1/4)	S303	—	2	Consumable
17a	O-ring (S14)	FKM	#200902	1	Consumable
17b	O-ring (S32)	FKM	#210313	1	Consumable
17c	O-ring (G35)	FKM	#108719	1	Consumable
17d	O-ring (S25)	FKM	#210314	2	Consumable
17e	O-ring (P22)	FKM	#183818	1	Consumable
17f	O-ring (S16)	FKM	#200903	2	Consumable
17g	O-ring (S18)	FKM	#210804	1	Consumable
17h	O-ring (S16)	FKM	#200903	1	Consumable
17i	O-ring (S16)	FKM	#200903	1	Consumable

Part No.	Components	Material	Code No.	Quantity	Remark
18	High-pressure seal	Special PTFE, FKM	#244896	1	Consumable
19a	C-shaped ring (φ26)	S304	#254636	1	
19b	C-shaped ring (φ20)	S304	#254637	1	
19c	C-shaped ring (φ15)	S304	#254638	1	
19d	C-shaped ring (φ13)	S304	#254639	1	
20	Cylindrical bearing	Special PTFE	#209732	1	Consumable
21	Top seal	Special PTFE, S304	#210048	1	Consumable
22	Horizontal shaft high-pressure seal (low-pressure spec.)	Special PTFE, FKM	#244897	1	Consumable
23	Screw (M4x4)	S304	#192900	2	
24	Screw (M4x10)	S304	#210412	3	
25	Shaft bracket	S304	#209733	1	
26a	Pointed screw (M3x4)	S304	#255562	1	
26b	—	—	—	—	
27	—	—	—	—	
28	Horizontal shaft mechanism box (low-pressure spec.)	S304	#215127	1	
29a	Seal A for horizontal shaft load (low-pressure spec.)	S304	#215125	1	
29b	Seal B for horizontal shaft load (low-pressure spec.)	S304	#215126	1	
30	Retaining ring (28)	S304	#210803	1	
31	—	—	—	—	
32	Horizontal shaft bearing (low-pressure spec.)	Special PTFE	#215129	1	Consumable

Note:

(1) Consumables

The lifetime of each components varies, depending on the operational conditions.

If there is a significant change in the nozzle performance, consumable parts should be replaced.

(2) Only the part numbers in color coded fields are different from JA3-S Series parts for medium pressure use.

(3) In the material code, "S" represents "stainless steel".

For example, S303 stands for stainless steel 303.

It is recommended to contact IKEUCHI (the manufacturer), to disassemble and reassemble this JA3 Series as it is a difficult task.

3. Disassembly (Please refer to the parts list on previous pages)

- (1) First, disassemble the vertical shaft line. Loosen the screws (part #24) with an Allen wrench (hex wrench), turn the adjusting cap (#2) counterclockwise and remove it from the body casing (#1).
- (2) Loosen the screws (#23) with an Allen wrench and turn the PT connector (#3) counterclockwise with a 27 mm spanner to remove it.
- (3) Hold the vertical shaft tube (#7), turn the vertical shaft gear (#8) counterclockwise and remove it.
- (4) Pull out the vertical shaft tube (#7) from the vertical shaft mechanism box (#10).
- (5) Remove the C-shaped rings (#19a & #19c) from the mechanism box (#10) by bending them inward, then take out the vertical shaft radial bearing (#14) and the high-pressure seal (#18). From the shaft tube (#7) remove the C-shaped ring (#19b) by bending it inward, then take out the sleeve (#15) and the top seal (#21).
- (6) To disassemble the horizontal shaft line, remove the plug (with left-handed thread, #6) by turning clockwise, then loosen the screws (#26a, #26b) to pull off the arm (#4).
- (7) Unscrew the horizontal shaft screw (#5) counterclockwise and remove it with a flat-blade screwdriver.
- (8) Remove the retaining ring (#30) with pliers and pull out the horizontal shaft tube (#11).
- (9) [This step for the JA3-S Series only] Bend C-shaped ring (#19d) inward to remove, and then remove the horizontal shaft front seal (#31).
- (10) Remove the shaft bracket (with left-handed thread, #25) and the horizontal shaft gear (with left-handed thread, #9) by turning clockwise.

Note:

- (1) Be careful not to lose or damage these small parts.
- (2) Avoid damaging or scratching the sealing and sliding surfaces.
- (3) Disassembled parts should be kept free from dust and dirt. Do not expose them to physical shocks and/or vibration.

4. Reassembly

- (1) After cleaning each parts completely, dry them with compressed air and make sure to visually check the condition of each part to confirm they are not damaged in any way before reassembling them.
- (2) Assemble in the reverse order of the above 3. Disassembly.
- (3) Finally, when screwing the adjusting cap (#2) on the body casing (#1), keep turning the adjusting cap (#2) until the vertical shaft gear (#8) in the cap makes full contact with the horizontal shaft gear (#9). For the best contact pattern screw back by a half turn.

Note:

- (1) Remove dust and debris carefully from the sliding surfaces with a brush.
- (2) Avoid damaging or scratching the sealing and sliding surfaces.
- (3) Screw in the JA3 Series by hand at first, then tighten with a spanner.

5. Maintenance

- (1) Visually inspect the JA3 Series for deformation and distortion.
- (2) Manually rotate the arm (#4) counterclockwise lightly to check the rotation.
- (3) If the rotation is not smooth and/or it does not rotate after spraying is initiated, maintenance is required. Contact IKEUCHI or perform maintenance according to 3. Disassembly on page 8.

6. Troubleshooting

Problems	Probable Causes		Solutions
No spray is being created	Control	<ul style="list-style-type: none"> • Controller is not switched on. • Valves are not opened. 	<ul style="list-style-type: none"> • Switch it on. • Open the valves.
	Nozzle	<ul style="list-style-type: none"> • JA3 Series or pipe is clogged. • JA3 Series or pipe is clogged due to damage. 	<ul style="list-style-type: none"> • Check and clean the JA3 Series or pipe. • Replace the damaged part.
Liquid leaks	• Some parts are loose or not tightened.		• Tighten the connections.
	<ul style="list-style-type: none"> • JA3 Series or pipe is cracked. • JA3 Series or pipe is corroded. 		<ul style="list-style-type: none"> • Replace the cracked part. • Replace the corroded part.
	• O-ring/seal is worn.		• Replace the worn O-ring/seal.
Rotation failure	<ul style="list-style-type: none"> • Seal failure due to dust/foreign particles adhered on the sealing surfaces or damaged parts. • JA3 Series is clogged. • Seal/bearing is worn. 		<ul style="list-style-type: none"> • Clean the sealing surface and replace the part. • Clean the JA3 Series. • Replace the worn seal/bearing.
Irregular spray pattern	<ul style="list-style-type: none"> • Nozzle or pipe is clogged. • Nozzle is corroded. 		<ul style="list-style-type: none"> • Clean the nozzle and pipe. • Replace the corroded part.

7. Disposal

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

8. Inquiries

For spare parts or any trouble, contact your supplier or the following:

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Osaka 550-0011 JAPAN

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