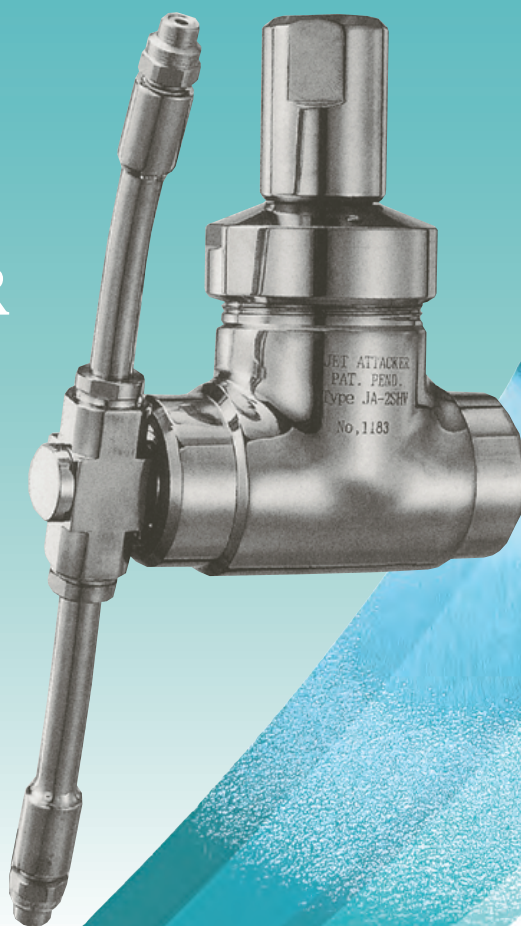


# Rotating Nozzles for 3-Dimensional Cleaning

Tank cleaner with  
spray-driven  
self-rotation:

- JET ATTACKER
- JA3-S type
- JA3-L type





## FEATURES of JA series

### Automatic cleaning

- Just install JA in a tank and supply water, JA starts cleaning the inside of the tank.

### Simple structure, Compact design

- Simple structure, without turbine or reduction gears.
- Stable cleaning performance.
- Compact and lightweight, max. diameter (arm length) is 240mm. Weighs less than 2kg.

### 2 ranges of cleaning pressures

- Available in low-pressure specification (cleaning with spray flow at 0.3-1.2MPa pressures) or medium-pressure specification (1-3MPa).

### No external power needed

- Because rotation is driven solely by the spray reaction force, installation is easy and equipment costs can be cut.

### No "waste" water

- All supplied water is used as driving force and cleaning water. Minimal energy loss.

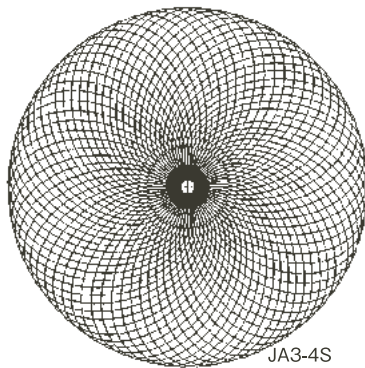
### Easy nozzle replacement

- If they become worn or damaged, nozzles can be replaced easily by screwing them.



## CLEANING PATTERN

### Cleaning pattern image



JA3-4S

3-dimensional precision cleaning is possible as both the body and arm rotate separately.  
 More concentrated cleaning is achieved with the JA3-4S type, which has 4 nozzles.  
 \*The JA3-4S type with 4 nozzles only available as medium-pressure type.



## MAIN APPLICATIONS AND EXAMPLE USES

### 【Food industry】

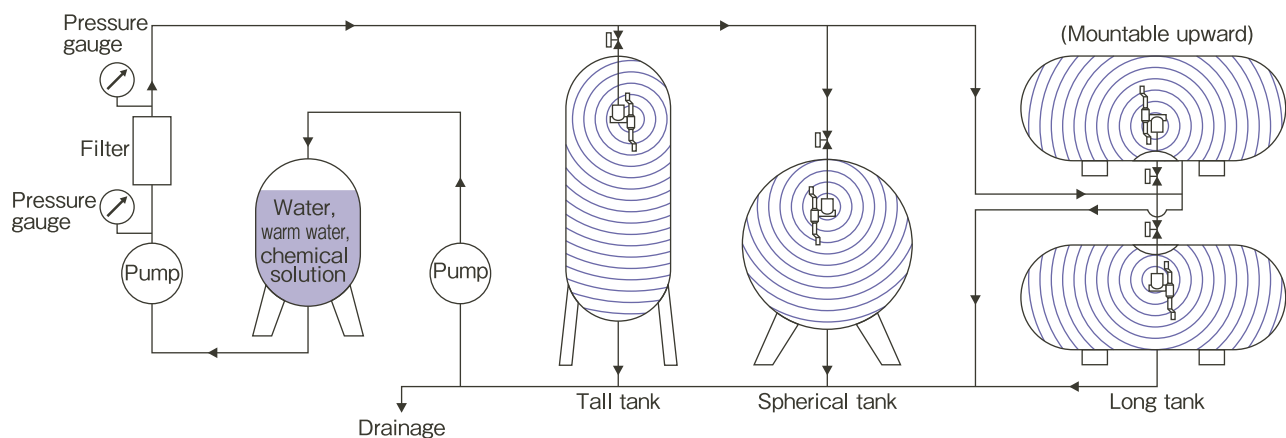
Brew tanks, fermentation tanks, distillation tanks, storage tanks, transport containers, and various other tanks

### 【Chemical/pharmaceutical industry】

Fermentation tanks, storage tanks, reaction tanks, transfer containers, mixing tanks, chemical tanks

### 【Other industries】

Paper making, spinning, oil refinery, ocean vessels, ironmaking, and more





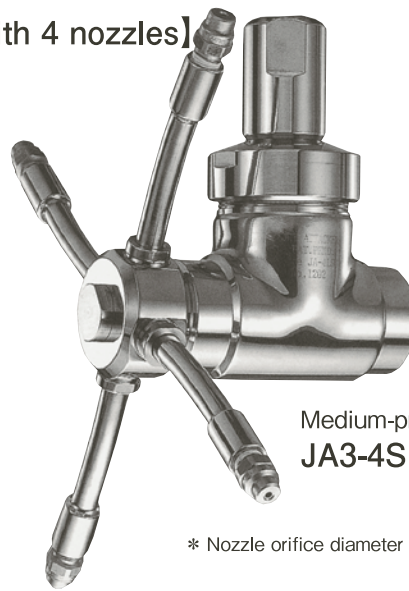
## APPEARANCE



**[JA with 2 nozzles]**

Medium-pressure specification: **JA3-2S (φ★★★)**  
Low-pressure specification: **JA3-2L (φ★★★)**

\* Nozzle orifice diameter is specified in place of ★★★.



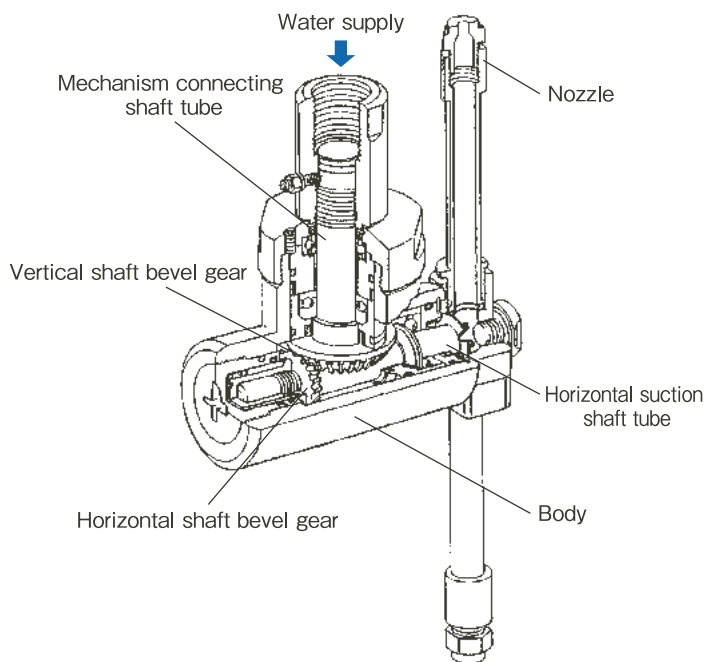
**[JA with 4 nozzles]**

Medium-pressure specification: **JA3-4S (φ★★★)**

\* Nozzle orifice diameter is specified in place of ★★★.



## STRUCTURE AND DRIVE



### [Drive principle]

- ① Supply water
- ↓
- ② Water is sprayed from nozzles
- ↓
- ③ Arm rotates by spraying reaction force
- ↓
- ④ Horizontal suction shaft tube rotates
- ↓
- ⑤ Mechanism connecting shaft tube rotates by bevel gears of vertical and horizontal shafts
- ↓
- ⑥ Body rotates



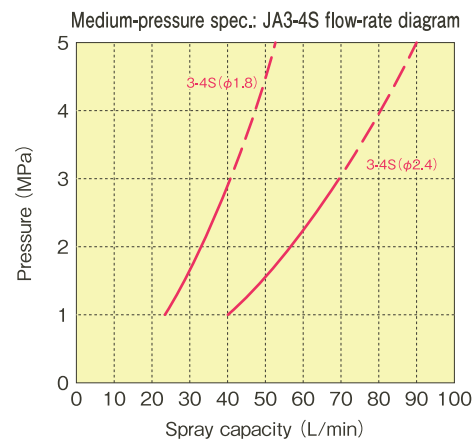
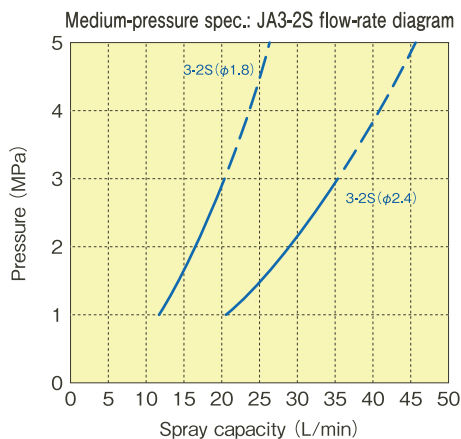
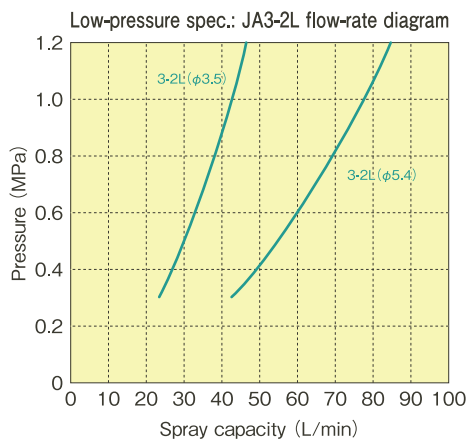
## SPRAY CAPACITY

Spraying pressure and flow rate should be set according to your application and purpose.

Available in [JA with 2 nozzles] type or [JA with 4 nozzles] type, each in 2 kinds of nozzle orifice diameters.

Medium-pressure specification JA is recommended for use at 1 MPa - 3 MPa.

At water pressures higher than this range, rotation speeds become too high and spray gets scattered about.



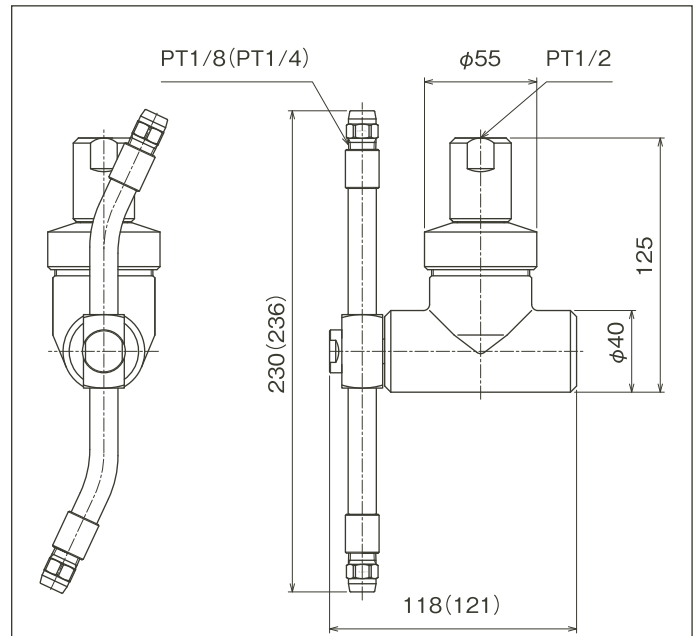


## SPECIFICATIONS

## DIMENSIONS JA3-2S(φ★★)

Pressure specifications	Low pressure type	Medium pressure type	
Series	JA3-2L(φ★★)	JA3-2S(φ★★)	JA3-4S(φ★★)
Nozzle orifice diameter (mm)	φ3.5, φ5.4	φ1.8, φ2.4	
Number of nozzles equipped	2		4
Maximum pressure (MPa)	6	15	
Allowable temperature (°C)	4~60		
Recommended working pressure (MPa)	0.3~1.2	1~3	
Spray capacity (L/min)	24~82	12~36	24~70
Pipe connection size	1/2" female pipe thread [1/2F(PT)]		
Nozzle thread size	1/4M(PT)	1/8" male pipe thread [1/8M(PT)]	
Main materials	SUS304, Special PTFE, NBR, FKM		
Surface finish	300# buffing		
Drive system	Driven by spray reaction force		
Mass of body (kg)	1.7	1.6	1.95

Note: Specifications are subject to change without prior notice for purposes of product improvement.



Unit: mm Figures in ( ) are dimensions of low-pressure specification JA.  
\*JA3-4S is equipped with 4 nozzles. (Low-pressure type has only 2 nozzles)

## HOW TO ORDER

Please inquire or order for a specific nozzle using this coding system, referring to the above SPECIFICATIONS.

(Example) Low-pressure spec.: 1/2F JA 3-2L(φ3.5) S304

Pipe connection size	Series	Number of nozzles equipped	Nozzle orifice diameter	Main material
1/2F	JA 3-	2	L ( φ3.5 )	S304
			■ φ3.5 ■ φ5.4	

(Example) Medium-pressure spec.: 1/2F JA 3-2S(φ1.8) S304

Pipe connection size	Series	Number of nozzles equipped	Nozzle orifice diameter	Main material
1/2F	JA 3-	2	S ( φ1.8 )	S304
		■ 2 ■ 4	■ φ1.8 ■ φ2.4	

\*We will be pleased to recommend the optimal nozzle orifice size if given supply pressure and supplied water amount.

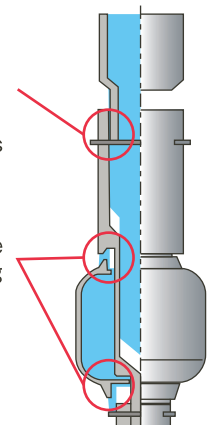
## Low-pressure, compact rotating cleaning nozzles - ES series -

## RELATED PRODUCTS

Also available is low pressure compact 2D rotating cleaning nozzles "ES series"



- ES-[type P] series is highly sanitary, having no threads in the flow passage, thus, no grooves to collect contaminants.
- Spraying liquid flows from the gaps between the connecting adaptor and nozzle body, and keeps the nozzle surface clean. (Common to both ES [type P] and [type N])



For inquiries / information requests / quotations related this product, please contact us



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“Taking the path less traveled”

「人の足跡を踏むな」

