

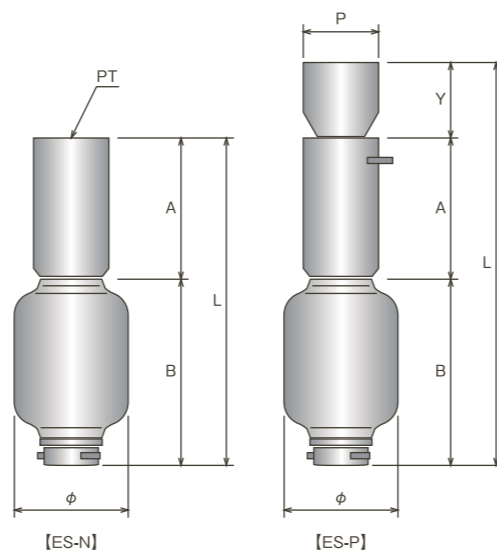
Series	ES																	
Spray capacity code	01		02		03		05		1		2		3		4		5	
Connection type code	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P
Connection type	Thread	Pinning	Thread	Pinning	Thread	Pinning	Thread	Pinning	Thread	Pinning	Thread	Pinning	Thread	Pinning	Thread	Pinning	Thread	Pinning
Pipe connection size	1/8F (PT)	φ10.5	1/8F (PT)	φ13.8	1/4F (PT)	φ17.3	3/8F (PT)	φ21.7	3/8F (PT)	φ21.7	1/2F (PT)	φ25.4	3/4F (PT)	φ38.1	1F (PT)	φ38.1	1 1/2F (PT)	φ50.8
Pipe connection size code	1/8F	φ10	1/8F	φ13	1/4F	φ17	3/8F	φ21	3/8F	φ21	1/2F	φ25	3/4F	φ38	1F	φ38	1 1/2F	φ50
Mass (g)	20	25	35	50	75	90	155	210	185	235	260	315	605	660	925	1060	1640	1820
Spray capacity (L/min) at 0.3MPa	7		13		20		31		42		70		150		210		440	
Pressure range (MPa)	0.05~1.0						0.1~1.0											
Spray pattern	360° spray, 180° upward spray, 180° downward spray																	
Rotation speed (rpm)	120 (at 0.3MPa)																	
Material	SUS316L (Shaft bearing: PTFE)																	

Note: Specifications are subject to change without prior notice for purposes of product improvement.
 Note: The above spray capacities and rotation speed are for reference only.

DIMENSIONS

Spray capacity code	Connection type code	L	φ	A	B	Y	P	PT
01	N	38	16	16	22	—	—	1/8"
	P	48						
02	N	53	20	24.5	28.5	—	—	1/8"
	P	73						
03	N	65	25	30	35	—	—	1/4"
	P	90						
05	N	97	30	45	52	—	—	3/8"
	P	127						
1	N	115	31.5	55	60	—	—	3/8"
	P	145						
2	N	123	41.5	55	68	—	—	1/2"
	P	153						
3	N	139	60	60	79	—	—	3/4"
	P	174						
4	N	163	75	70	93	—	—	1"
	P	198						
5	N	180	88	75	105	—	—	1 1/2"
	P	225						

[Unit: mm] (Dimensions L to P)



ES series

Simple, compact design for CIP cleaning

Rotating Cleaning Nozzles

for Tanks/Containers



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

(Example) 1/8F ES 01N S316L (360)

Pipe connection size	Series	Spray capacity code	Connection type code	Material	Spray pattern
1/8F	ES	01	N	S316L	(360)
<ul style="list-style-type: none"> ■ 1/8~1 1/2F ■ φ10~50 		<ul style="list-style-type: none"> ■ 01 ■ 1 ■ 02 ■ 2 ■ 03 ■ 3 ■ 05 ■ 4 ■ 5 	<ul style="list-style-type: none"> ■ N ■ P 	<ul style="list-style-type: none"> ■ S316L 	<ul style="list-style-type: none"> ■ 360 ■ 180 upward ■ 180 downward

Please feel free to send any inquiry, request for information or quote on this product to the contacts below.



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https://www.kirinoikeuchi.co.jp/eng/company/location/



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FEATURES

Simple structure

- No external power needed as rotation is driven solely by the flow of the cleaning fluid.
- Simple design ensures reliable rotating cleaning, while also being compact (min. outer diameter $\phi 16\text{mm}$).
- Easy maintenance due to low number of parts. Lengthening the period of use is possible by replacing the upper and lower shaft bearings.

Sanitary

- Internal design greatly reduces dripping from the nozzle tip. The unit is self-cleaning and hygienic.

Mountable in any direction

- ES nozzles can be mounted sideways, upwards, or in any direction.

Wide range of spray capacity

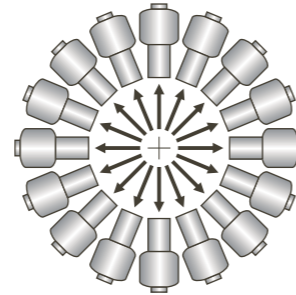
- Available in 9 types ranging from 7 to 440L/min (at 0.3MPa), suitable for a great range of tank sizes.

2 types of connection

- Select from Thread connection [type N] or Pin connection [type P] for a more sanitary option.



Compact!



Mountable in any direction

PHOTO OF SPRAY



Rotating flat spray pattern achieves a complete, uniform cleaning. (This photo is 360° spray type.)

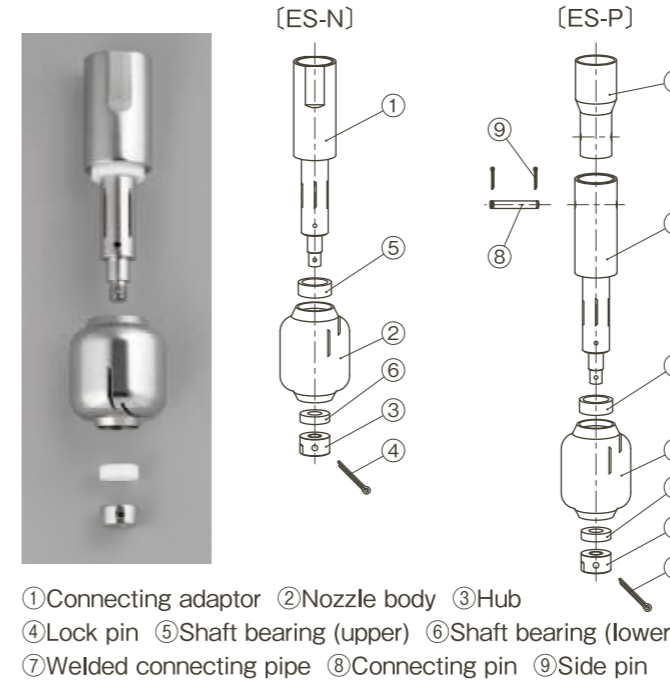
PHOTO OF SLIT



Ingenuous slit design eliminates blind spots and performs self-cleaning.

COMPONENTS

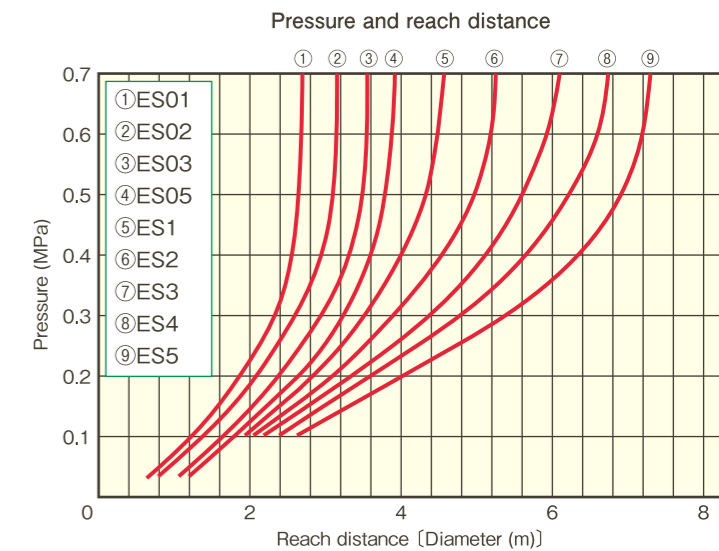
Simple structure with rotation driven solely by water pressure. Easy to disassemble and clean the components.



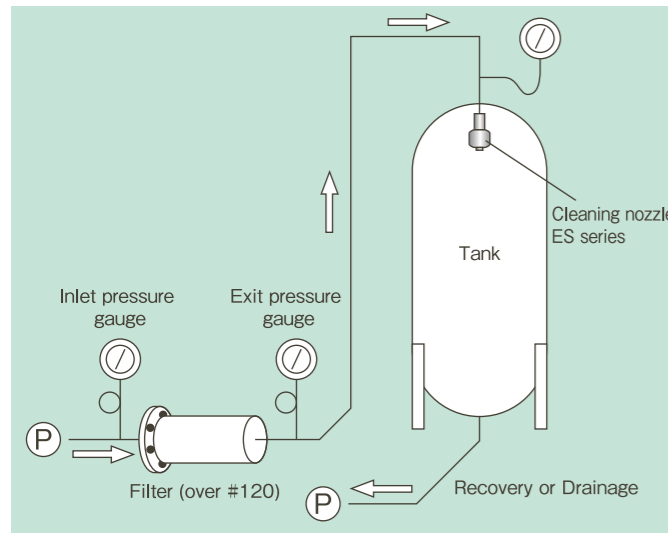
- ① Connecting adaptor ② Nozzle body ③ Hub
- ④ Lock pin ⑤ Shaft bearing (upper) ⑥ Shaft bearing (lower)
- ⑦ Welded connecting pipe ⑧ Connecting pin ⑨ Side pin

REACH DISTANCE

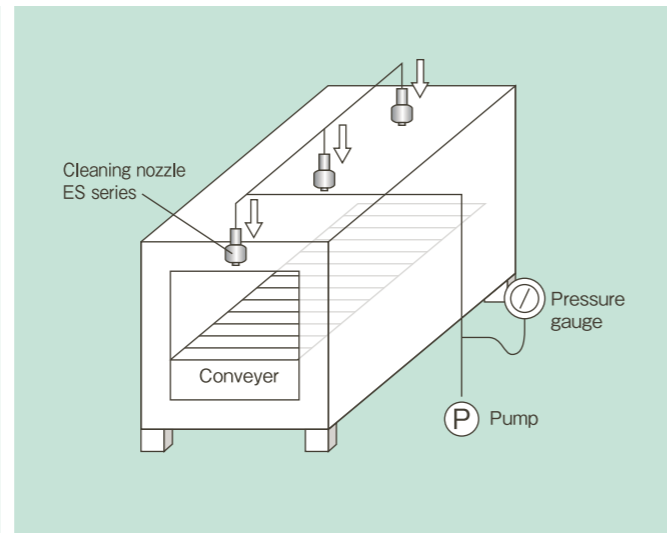
Please check whether the required reach distance is obtained at the chosen conditions (setting pressure and spray capacity code) in the chart below. If not, please choose a different pressure and/or spray capacity code.



EXAMPLE USES



Tank Cleaning

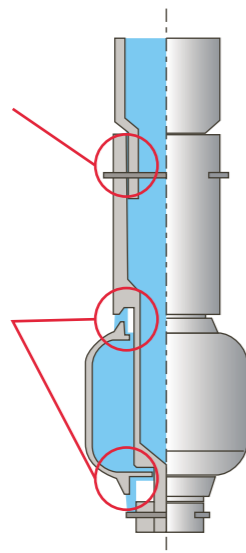


Cleaning inside Storage Areas

SANITARY DESIGN

- ES-[type P] series is highly sanitary, having no threads in the flow passage, thus no grooves to collect contaminants.

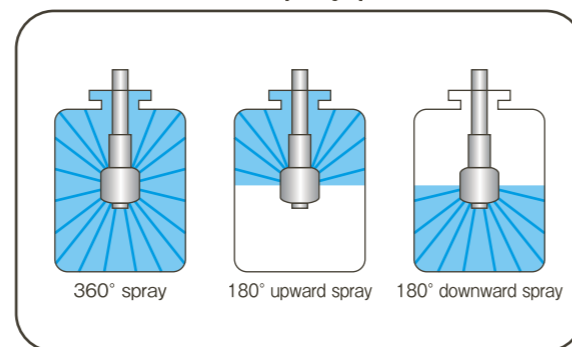
- Spraying liquid flows from the gaps between the connecting adaptor and nozzle body and keeps the nozzle surface clean. (Common to both ES [type N] and [type P])



SPRAY PATTERN

There are 3 standard spray patterns. Please select the pattern for your application and purpose.

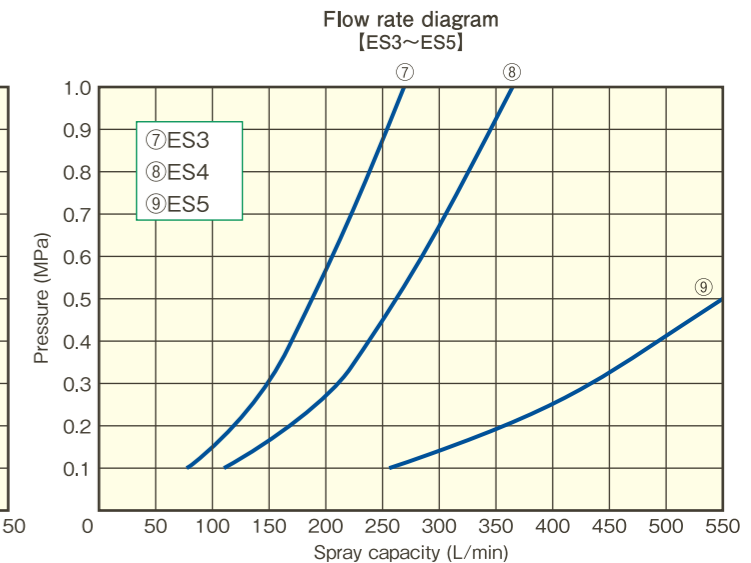
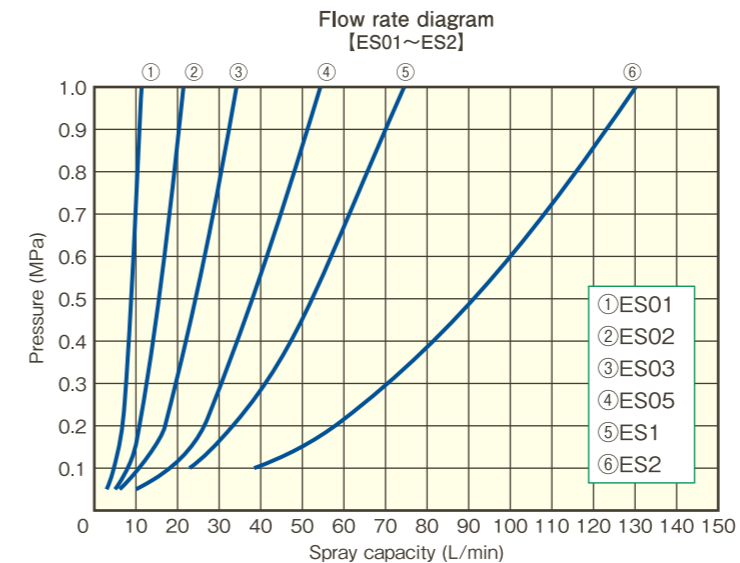
Standard spray patterns



Diagrams are approximate images.

SPRAY CAPACITY

9 types are available, ranging from 7 to 440L/min (at 0.3MPa) for both ES-[type N] and ES-[type P]. Select a suitable spray capacity code according to the setting pressure and required flow rate.



Reaction Force Method

Made of PTFE

ROTATING CLEANING NOZZLES

for tanks/containers

ES-PTFE series



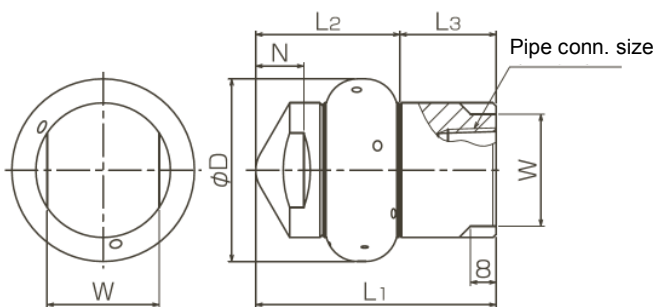
FEATURES

- **Made of PTFE !!**
Excellent chemical resistance and safety
- No external power needed as rotation is driven solely by the flow of the cleaning fluid.
- Easy maintenance due to low number of parts
- Clean design with little dripping from the nozzle tip even when installed upward

APPLICATIONS

- Chemical tank
 - Container
 - Filling machine
 - All sorts of machine to clean by acid or alkali
- Ideal for food-processing machinery!**

DIMENSIONS

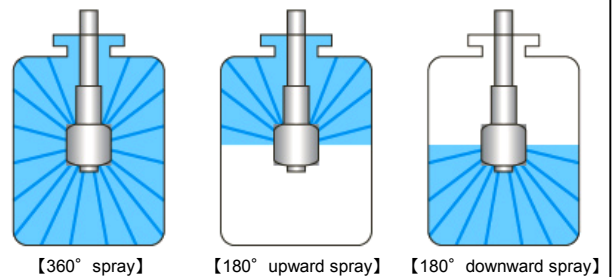


■ Material: PTFE

Pipe Conn. Size	Dimensions (mm)						Mass (g)
	L1	L2	L3	W	φD	N	
1/2F(PT) [Rc1/2"]	65	41	24	30	50	14	130
3/4F(PT) [Rc3/4"]	75	45	30	35	57	15	180

"F" in the pipe connection size denotes female thread.

SPRAY PATTERN

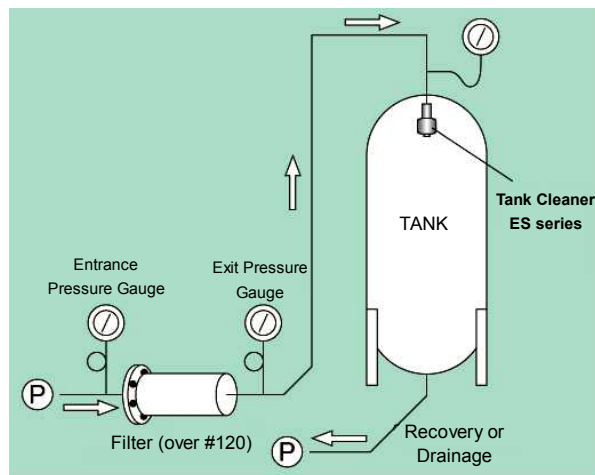


*Diagrams are approximate images.

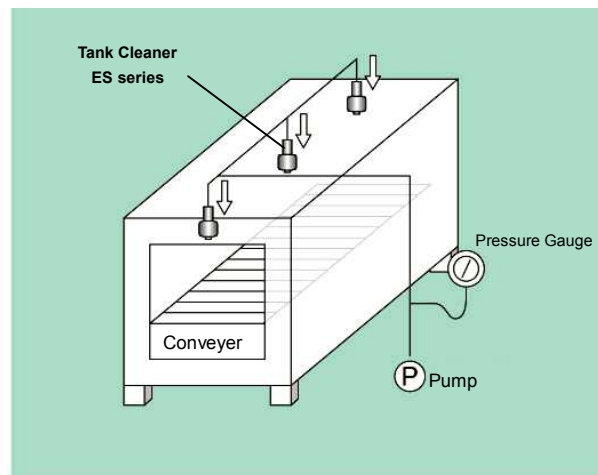
SPECIFICATIONS

Spray Capacity Code	Pipe Conn. Size (PT)	Spray Capacity (L/min)						Spray Pattern (Spray Direction)	Max. Liquid Temperature
		0.05MPa	0.1MPa	0.2MPa	0.3MPa	0.4MPa	0.5MPa		
30	1/2F (Rc 1/2")	12.2	17.3	24.5	30	34.6	38.7	360° 180° upward 180° downward	93 deg. C (199 deg. F)
40		16.3	23.1	32.7	40	46.2	51.6		
70	3/4F (Rc 3/4")	28.6	40.4	57.2	70	80.8	90.4		
150		61.2	86.6	123.0	150	173.0	194.0		

EXAMPLES of USE



Tank Cleaning



Cleaning Inside Storage Areas

HOW TO ORDER

Please inquire or order for a specific nozzle using this coding system.

[Example] 1/2F ES 30 N PTFE (360)

1/2F	ES	30	N	PTFE	(360)
Pipe Conn. Size		Spray Capacity Code			Spray Pattern
■ 1/2F		■ 30			■ 360
■ 3/4F		■ 40			■ 180 upward
		■ 70			■ 180 downward
		■ 150			

Please feel free to contact us or our local sales office for any questions/inquiries.

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Reaction Force Method

Entire Surface Spray

Made of PTFE

**Flat
Spray**

ROTATING CLEANING NOZZLES

for tanks/containers

ESV-PTFE series



FEATURES

- **Made of PTFE**
Excellent chemical resistance and safety
- **Flat fan-shaped spray toward the entire surface in a tank**
- No external power needed as rotation is driven solely by the flow of the cleaning fluid
- Easy maintenance due to low number of parts
- Clean design with little dripping from the nozzle tip even when installed upward

SPRAY PATTERN

【360° spray】

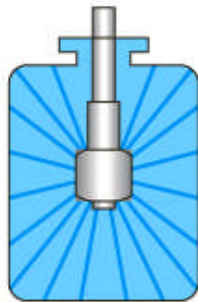
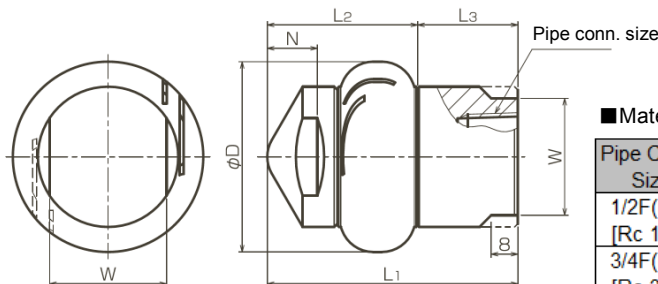


Image of spray pattern

APPLICATIONS

- Food tank, Chemical tank
- Container
- Filling machine
- Conveyer washing by an acid or alkaline detergent for various machines

DIMENSIONS



■ Material: PTFE

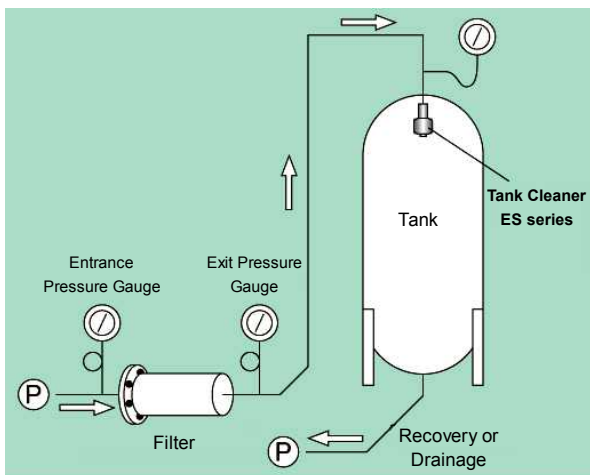
Pipe Conn. Size	Dimensions (mm)						Mass (g)
	L1	L2	L3	W	ϕD	N	
1/2F(PT) [Rc 1/2"]	65	41	24	30	50	12	130
3/4F(PT) [Rc 3/4"]	75	45	30	35	57	15	180

"F" in the pipe connection size denotes female thread.

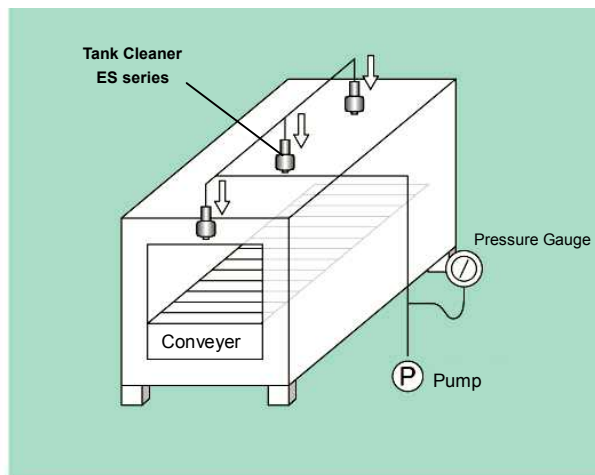
SPECIFICATIONS

Spray Capacity Code	Pipe Conn. Size (PT)	Spray Capacity (L/min)						Spray Pattern & Direction	Max. Liquid Temperature
		0.05MPa	0.1MPa	0.2MPa	0.3MPa	0.4MPa	0.5MPa		
30	1/2F (Rc 1/2")	12.2	17.3	24.5	30	34.6	38.7	Flat spray 360°	93 deg. C (199 deg. F)
40		16.3	23.1	32.7	40	46.2	51.6		
70	3/4F (Rc 3/4")	28.6	40.4	57.2	70	80.8	90.4		
110		44.9	63.5	89.8	110	127	142		
150		61.2	86.6	123	150	173	194		

EXAMPLES of USE



Tank Cleaning



Cleaning Inside Storage Areas

HOW TO ORDER

Please inquire or order for a specific nozzle using this coding system.

[Example] 1/2F ESV 30N PTFE (360)

1/2F	ES V	30	N PTFE (360)
Pipe Conn. Size		Spray Capacity Code	
■ 1/2F		■ 30	
■ 3/4F		■ 40	
		■ 70	
		■ 110	
		■ 150	

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Easy to
insert into
tank

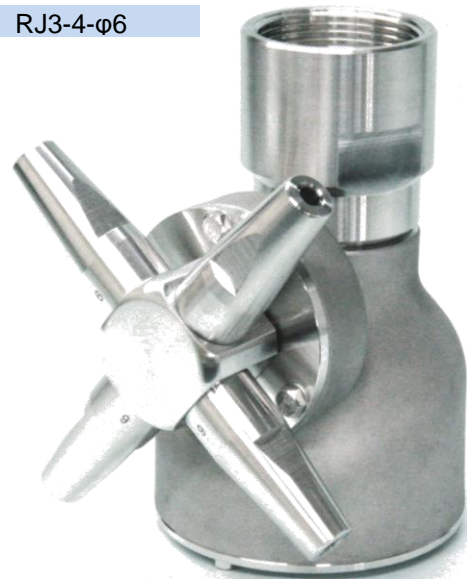
Low-pressure Rotating Cleaning Nozzles

ROTARY JETTER **RJ** series

RJ3-2-φ7
RJ3-2-φ8



RJ3-4-φ6



Features

- Low-pressure type rotating nozzle.
- Solid stream jet provides high cleaning performance.
- Highly heat and wear resistant. Lighter weight.
- Compact design and rotatable nozzle parts allow for easy insertion into and ejection from a tank with small inlet.
- RJ3-2 type has two nozzles and RJ3-4 type has four nozzles mounted.

Applications

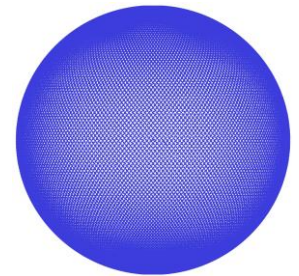
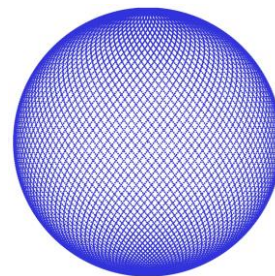
- Cleaning for food and beverage tanks
- Cleaning inside the chests (material tanks of papermaking), etc.

Cleaning trajectory

The whole cleaning surface can be cleaned uniformly without gaps.

RJ3-2 (with 2 nozzles)

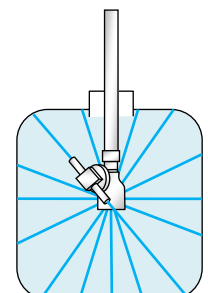
RJ3-4 (with 4 nozzles)



Specifications

Nozzle code	RJ3-2-φ7	RJ3-2-φ8	RJ3-4-φ6
Use pressure	0.3–0.8 MPa		
Spray capacity	103–169 L/min (at 0.3–0.8 MPa)	127–207 L/min (at 0.3–0.8 MPa)	146–239 L/min (at 0.3–0.8 MPa)
Reach distance	Approx. 10 m in radius		Approx. 9 m in radius
Heat resistance	80°C (176°F)		
Mass	2.7		2.8
Material	Stainless steel 304		

Spray pattern



Buff finishing is possible as an extra-cost option. Please contact us.



いけうち

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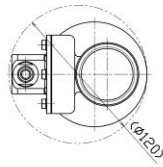
Dimensions

① Nozzle ② Body

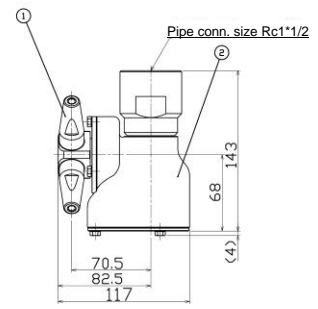
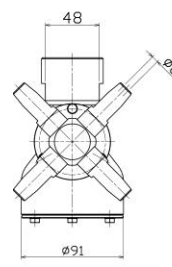
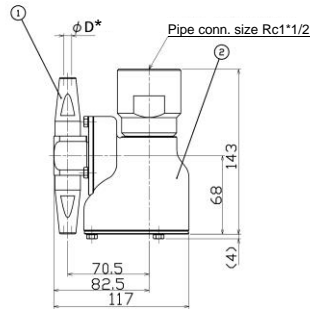
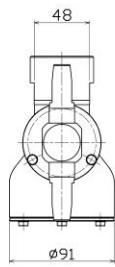
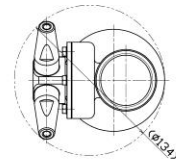
*Spray orifice diameter is shown in ϕD (either $\phi 7$ or $\phi 8$).

RJ3-2- $\phi 7$

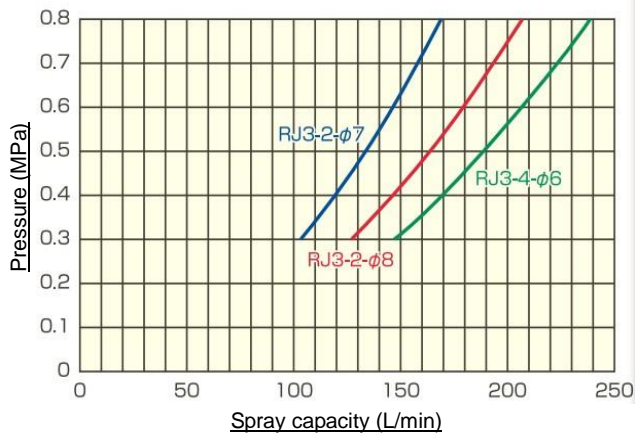
RJ3-2- $\phi 8$



RJ3-4- $\phi 6$

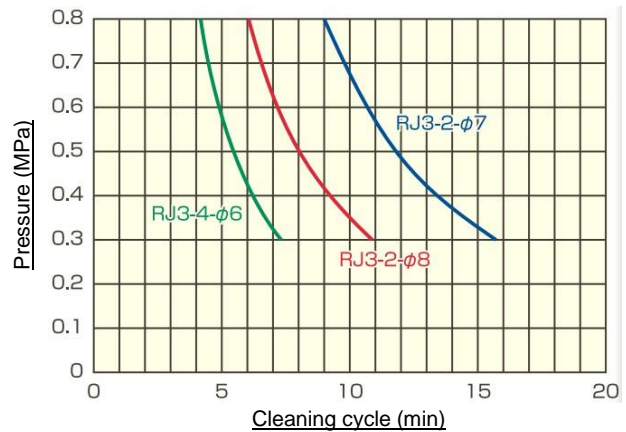


Flow-rate diagram



Relation between pressure & cleaning cycle

Cleaning cycle changes depending on the pressures as below.



The above cleaning cycles are for reference only.

How to order

Please inquire or order for a specific nozzle using this coding system.

RJ with 2 nozzles

RJ3 - 2 - $\phi 7$

Spray orifice diameter

■ $\phi 7$

■ $\phi 8$

RJ with 4 nozzles

RJ3 - 4 - $\phi 6$

Specifications of the products and contents of this leaflet are subject to change without prior notice for purpose of product improvement.

Please feel free to send any inquiry, request for information or quote on this product to the contacts below.

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We have our branches and affiliate companies around the world—in China, USA, The Netherlands, Turkey, Thailand, Indonesia, UAE, and more. Please see our website for the nearest contact.

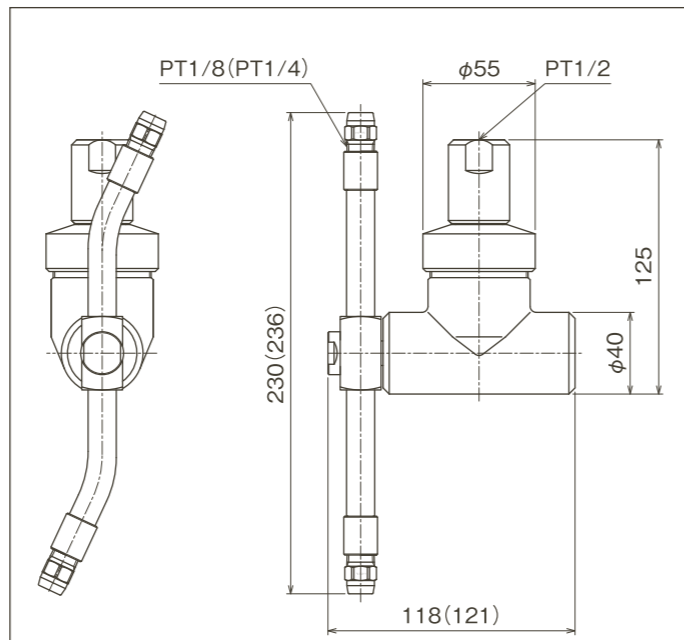
<https://www.kirinoikeuchi.co.jp/eng/company/location/>

SPECIFICATIONS

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.

DIMENSIONS JA3-2S (φ★★)



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
			■ φ1.8 ■ φ2.4	

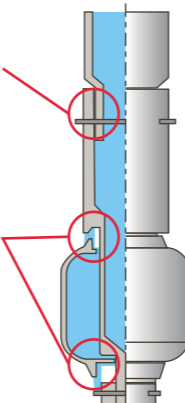
*We will be pleased to recommend the optimal nozzle orifice size if given supply pressure and supplied water amount.

Related Products Low-pressure, compact rotating cleaning nozzles - ES series -

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



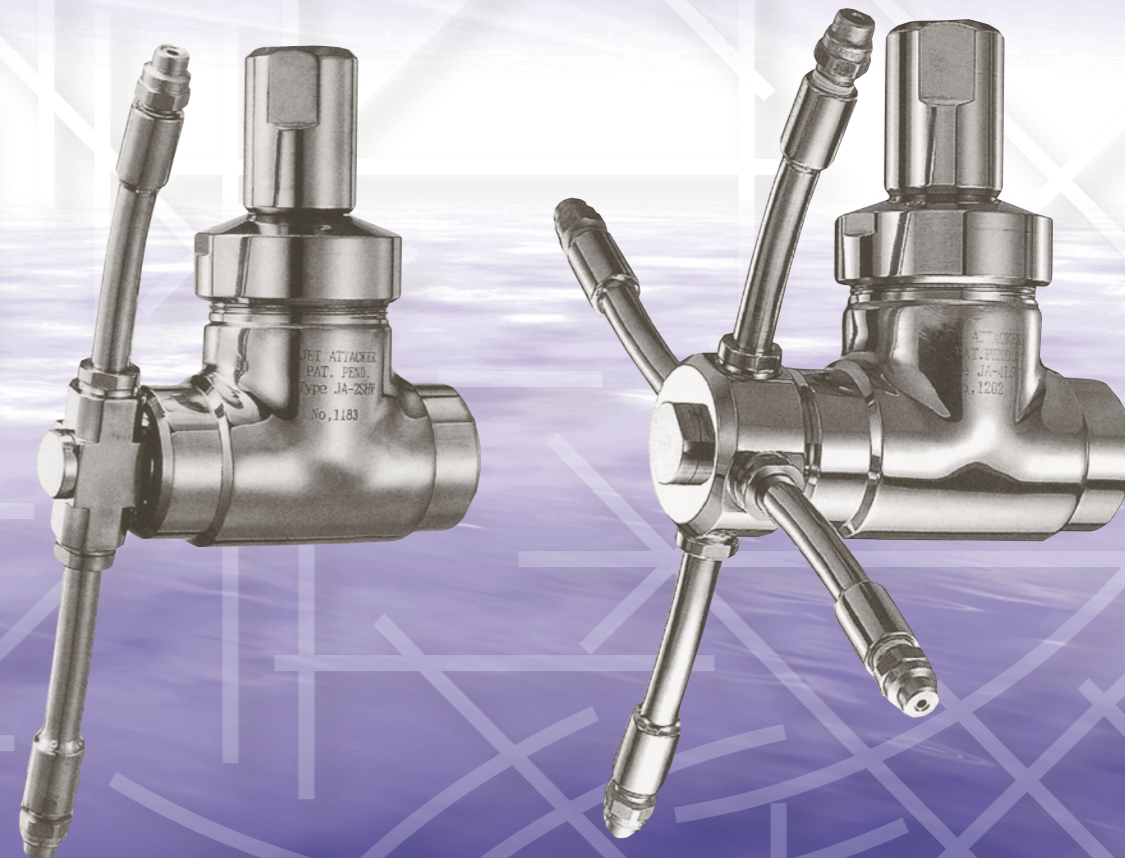
- ES-[type P] series is highly sanitary, having no threads in the flow passage, thus no grooves to collect contaminants.
- Spraying liquid flows from the gaps between the connecting adaptor and nozzle body and keeps the nozzle surface clean. (Common to both ES [type P] and [type N])



Tank cleaner with spray-driven self-rotation

Rotating Nozzles for 3-Dimensional Cleaning

JET ATTACKER
JA3-S type
JA3-L type



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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

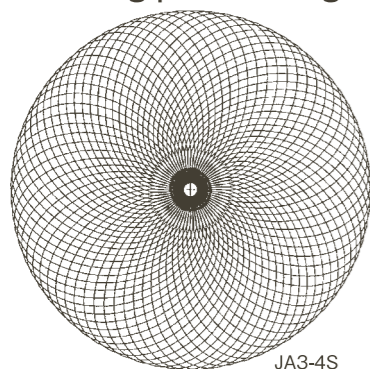
- All supplied water is used as driving force and cleaning water. Minimal energy loss.

Easy nozzle replacement

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

CLEANING PATTERN

Cleaning pattern image



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】

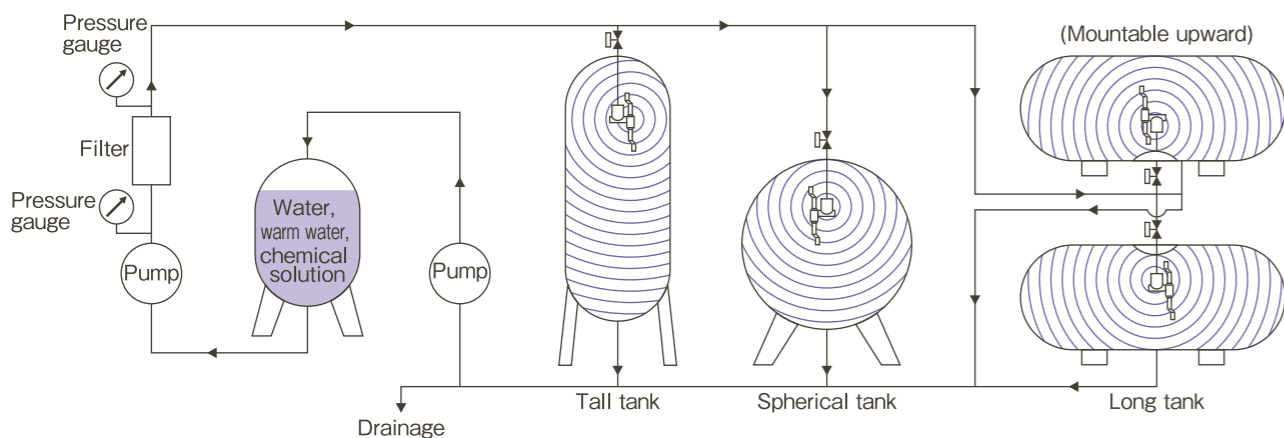
Brew tanks, fermentation tanks, distillation tanks, storage tanks, transport containers, and various other tanks

【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

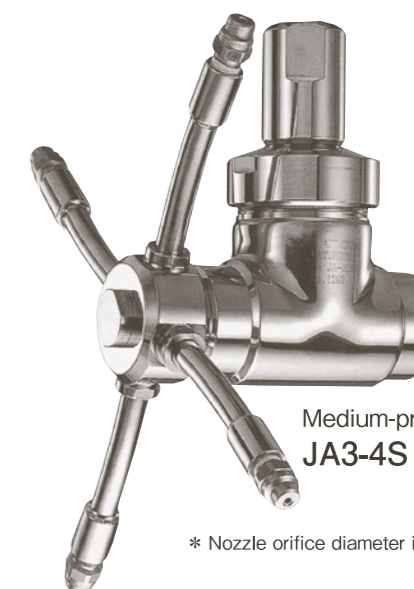
【JA with 2 nozzles】



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

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

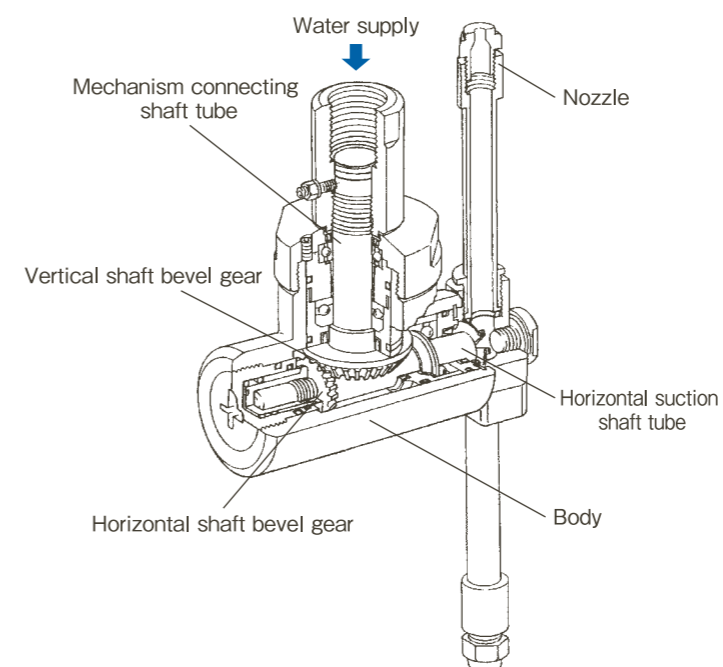
【JA with 4 nozzles】



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

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

STRUCTURE AND DRIVE

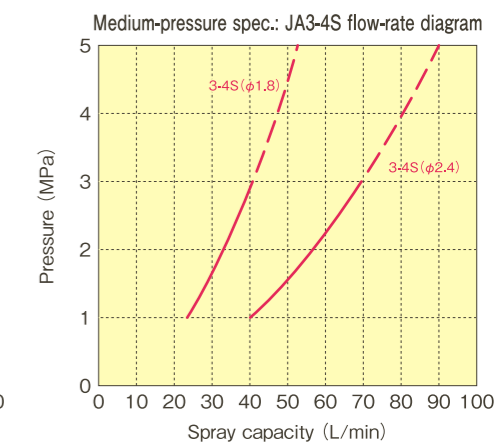
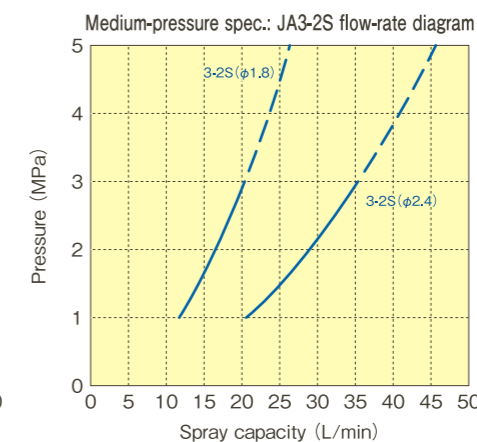
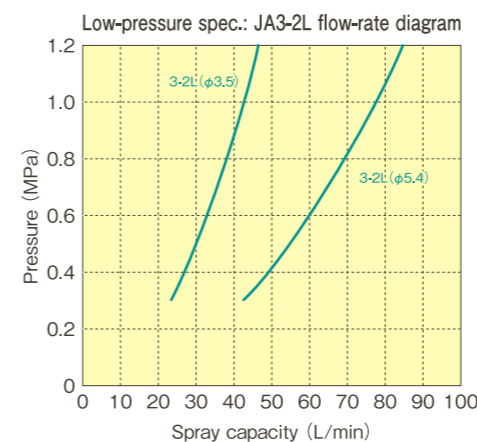


【Drive principle】

- 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

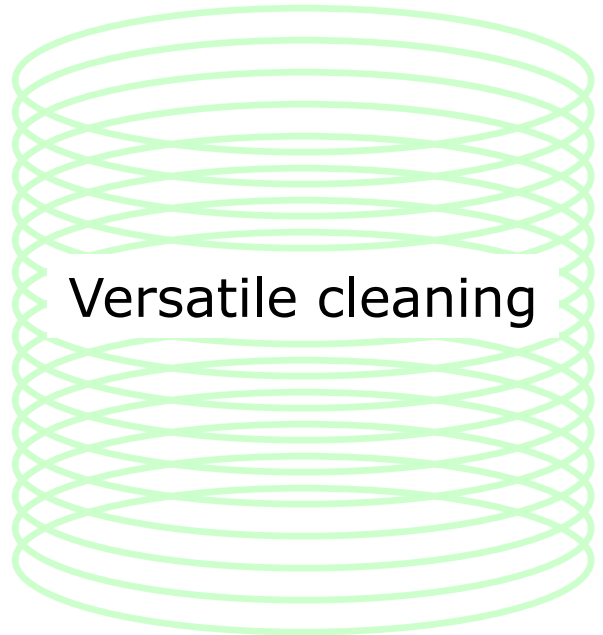
Spraying pressure and flow rate should be set according to your application and purpose. Available in [JA with 2 nozzles] type or [JA with 4 nozzles] type, each in 2 kinds of nozzle orifice diameters. Medium-pressure specification JA is recommended for use at 1MPa - 3MPa. At water pressures higher than this range, rotation speeds become too high and spray gets scattered about.



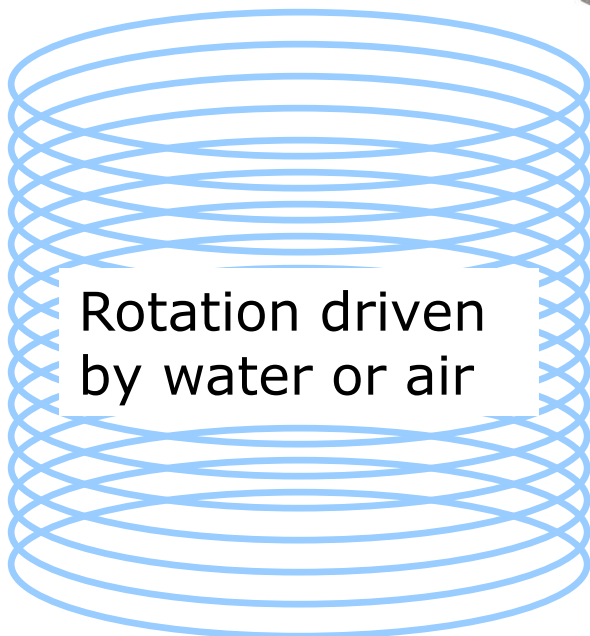
Tank cleaner with spray-driven self-rotation

Rotating Nozzles for 2-Dimensional Cleaning

JET ATTACKER
JA-2 type



Versatile cleaning



Rotation driven
by water or air



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“The Fog Engineers”

H. IKEUCHI & CO., LTD.

JA-2 type FEATURES

No external power needed

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

Simple structure

- Simple structure, without turbine or reduction gears.
- Stable cleaning performance.

Nozzle selectable

- You can select suitable nozzles depending on your purpose and application; solid stream jets for powerful cleaning, flat spray nozzles with wide spray coverage, and more. Nozzle mounts are available in two arms, or four arms for more concentrated cleaning. If nozzles become worn or damaged, they can be replaced easily.

Appropriate arm length

- Standard length is 200 mm or 300 mm, and other length according with target area is available on request.

No "waste" water

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

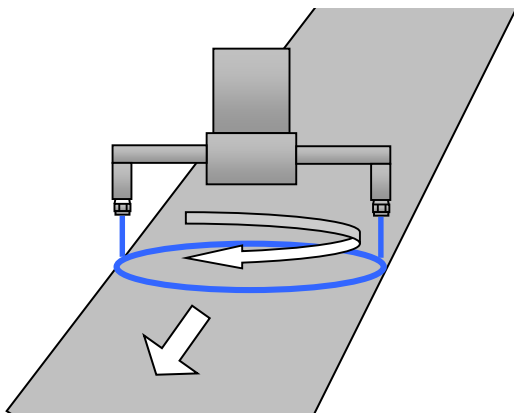
Various applications

- By creating a new arm configuration, many cleaning objectives such as spot cleaning or 3D cleaning can be achieved.

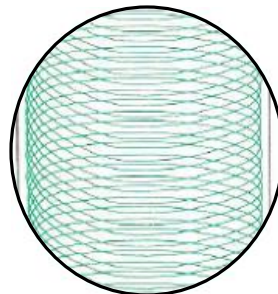
Air-driven use also possible

- Rotation is driven not only water, but also air. Ideal for blow-off drying, air blowing especially for complex applications.

CLEANING PATTERN EXAMPLE



Cleaning pattern of JA2-4 type with powerful solid stream jet nozzles
(Patterns differ by line speeds)



By rotating solid stream jet nozzles with high cleaning force, powerful cleaning over a large area is achieved to remove tough dirt.

JA-2 type APPEARANCE & SPRAY PATTERNS

Arm selection

■ 4-arm type



Four arms make more precise cleaning possible.

■ 2-arm type



Available spray nozzles

■ Solid Stream Jet

Most powerful spray impact to remove tough stains (dirt).



【Spray pattern】



【Spray distribution】

■ Flat spray pattern

JA-2 type + flat spray nozzle provides circular cleaning.
Spray angle range: 15°-115°.
Mountain-shaped distribution or even spray distribution is available.

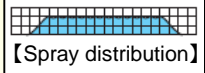


【Spray pattern】



【Spray distribution】

【Spray pattern】



【Spray distribution】

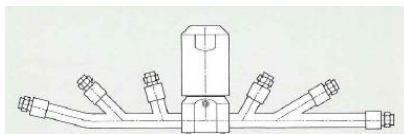
■ Cone spray pattern

Full cone or hollow cone spray, suitable for dispersal spraying.

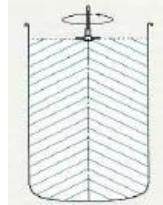
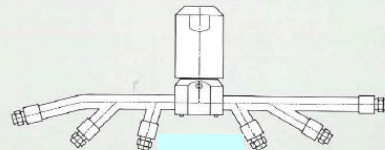


JA-2 type VERSATILE TANK CLEANING

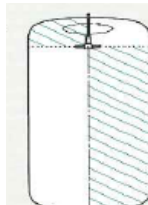
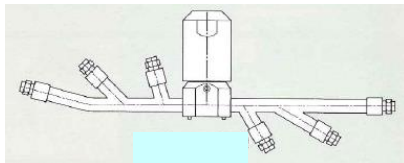
■ Cleans only upper part of tank



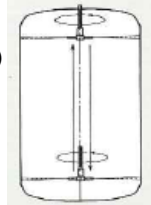
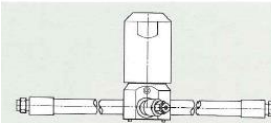
■ Cleans only lower part of tank



■ Cleans whole area of tank

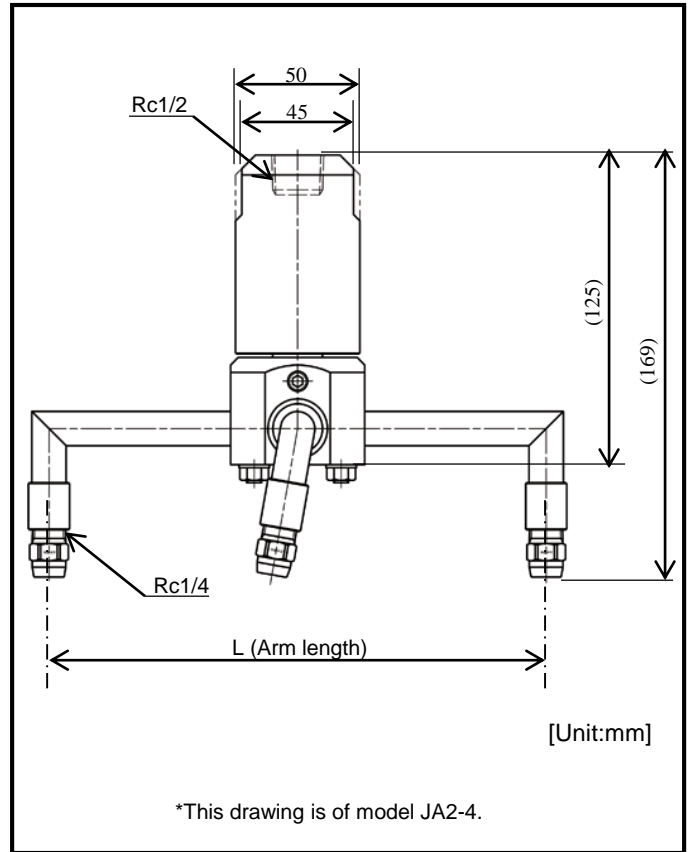


■ Cleans whole area of tank (used with lifting and lowering device)



JA-2 type SPECIFICATIONS & DIMENSIONS

Models	JA2-2 (φ★★)	JA2-4 (φ★★)
Nozzle orifice diameter (*1)	φ2.5, φ3.5, or φ5.4 mm	
Number of nozzles equipped	2	4
Max. pressure	10.0 MPa	
Allowable temperature	4–60°C	
Recommended working pressure	0.3–2.0 MPa	
Spray capacity (*2)	14–53 L/min	28–98 L/min
Pipe connection size	Rc1/2 [1/2F(PT)]	
Nozzle thread size	Rc1/4 [1/4F(PT)]	
Main materials	Stainless steel 304 (O-ring, seal, etc.: PTFE, NBR, FKM)	
Arm length (*3)	200 mm or 300mm	
Drive system	Driven by spray reaction force	
Mass	1.9 kg	2.0 kg



Nozzle orifice diameter is specified in place of ★★.

*1) When equipped with solid stream jet nozzles. *2) When equipped with solid stream jet nozzles and sprayed at pressures of 0.3 MPa.

*3) Arm length is available from 200 mm to 1,500 mm. Contact us for a longer length.

Please contact us if you need special surface finishing such as buffing or electrochemical polishing.

(Reference)

■ Spray capacity of JA-2 equipped with solid stream jet nozzles

	Product code	Spray capacity (L/min)		
		0.3MPa	0.7MPa	1.0MPa
2-arm	JA2-2 (φ 2.5)	14	22	26
	JA2-2 (φ 3.5)	27	41	49
	JA2-2 (φ 5.4)	53	81	97
4-arm	JA2-4 (φ 2.5)	28	43	51
	JA2-4 (φ 3.5)	52	79	95
	JA2-4 (φ 5.4)	98	150	180

HOW TO ORDER

Ex.) 1/2FJA2-2(φ 2.5)S304(L=200) JA with solid stream jet nozzles and arms of standard length

1/2F JA2- 2 (φ 2.5) S304 (L=200)

Number of arms

■ 2
■ 4

Nozzle orifice diameter

■ 2.5
■ 3.5
■ 5.4

Arm length

■ 200
■ 300
■ At request (up to 1500 mm)

An inquiry drawing form is available for your consideration. Please feel free to contact us.



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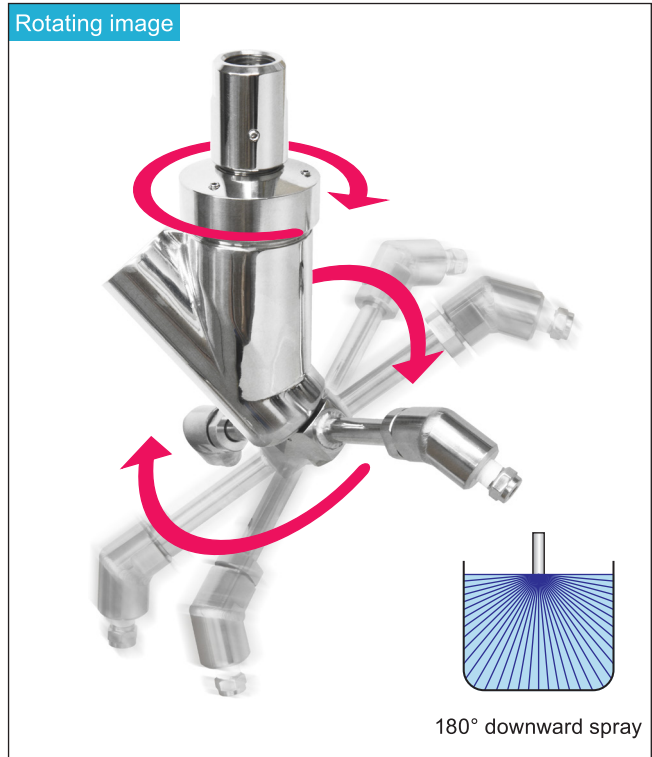
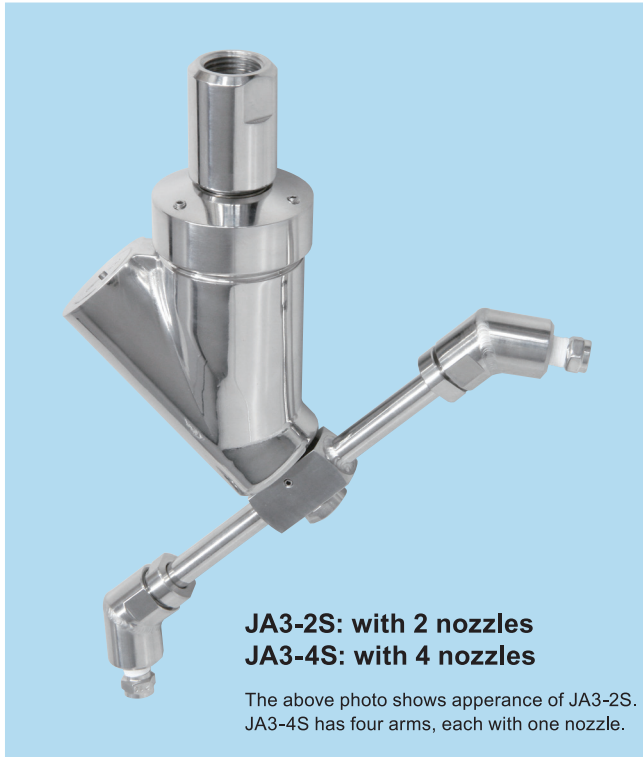
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**Powerful cleaning
ideal for
open-topped tanks**

180° Downward 3D Rotating Nozzles

JET ATTACKER JA-3D/D180 series

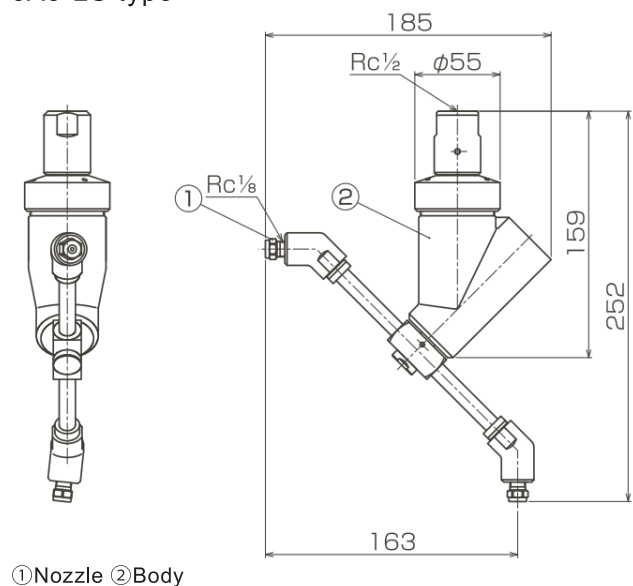


Features

- ▶ Spraying 180° downward is ideal for cleaning inside of open-topped tanks/containers.
- ▶ Applicable tank size is up to nine meters in diameter.
- ▶ 3-dimensional rotation of solid stream jets powerfully cleans entire inside of a tank.
- ▶ As rotation is driven solely by the spray reaction force, installation is easy and equipment costs can be cut.
- ▶ All supplied water is used as driving force and cleaning water. Minimal energy loss; no waste water.

Dimensions

JA3-2S type



Specifications

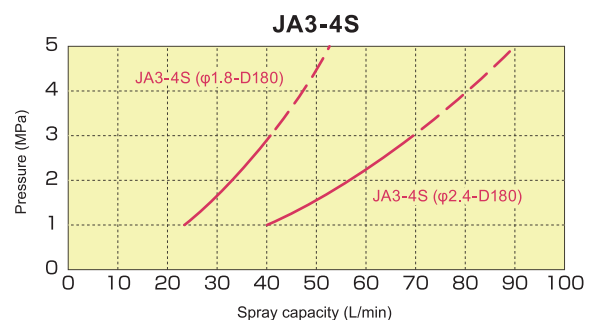
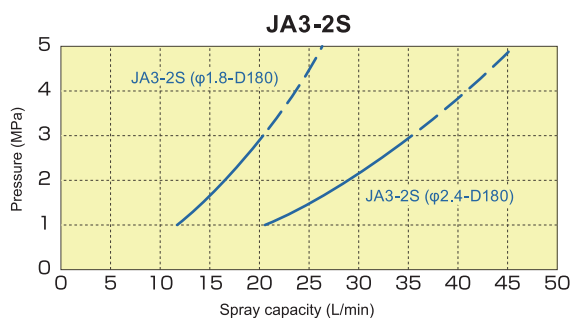
Model No.	JA3-2S (φXX-D180)*1	JA3-4S (φXX-D180)*1
Nozzle orifice diameter	φ1.8 or φ2.4 mm	
Number of nozzles equipped	2	4
Max. pressure	15.0 MPa	
Allowable temperature	4–60°C	
Recommended working pressure*2	1.0–3.0 MPa	
Spray capacity	12–36 L/min	24–70 L/min
Reach distance (diameter)	6–9 m	
Pipe connection size	Rc1/2	
Material	Main material: Stainless steel 304 (O-ring, seal, etc.: PTFE, NBR, and FKM)	
Surface finish	300# Buffing	
Drive system	Driven by spray reaction force	
Mass	1.9 kg	2.3 kg

*1) Nozzle orifice diameter is specified in place of XX (either 1.8 or 2.4).

*2) Inform us of operating pressure you apply, and we will preset its rotation speed to 30–60 rpm so that the products work at the applied pressure.

Flow-rate diagrams

- Spraying pressure and flow rate should be set according to your application and purpose.
- Two standard sizes of nozzle orifice diameters (1.8 or 2.4) are available both with 2-nozzle and 4-nozzle type.
- Recommended operating pressure is 3 MPa or lower (but not less than 1 MPa); operation at a higher pressure will increase the rotation speed too much and cause scattered spray.



How to order Please inquire or order for a specific nozzle using this coding system.

Example) 1/2F JA3 - 2 S (φ1.8 - D180) S304

2	φ1.8
Number of nozzle equipped	Nozzle orifice diameter
■ 2	■ φ1.8
■ 4	■ φ2.4

Specifications of the products and contents of this leaflet are subject to change without prior notice for purpose of product improvement.

Please feel free to send any inquiry, request for information or quote on this product to the contacts below.

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Low-Speed Rotating Cleaning Nozzles for Tanks/Containers

SR series

FEATURES

Low-Speed Rotation

- Low-speed rotation of 5–10 rpm*¹ at 0.3 MPa.
- Maximized contact time between cleaning object and spray liquid achieves higher cleaning effect.

*1) Reference value

Heat-Resistant

Made of stainless steel 316L with high heat resistance.

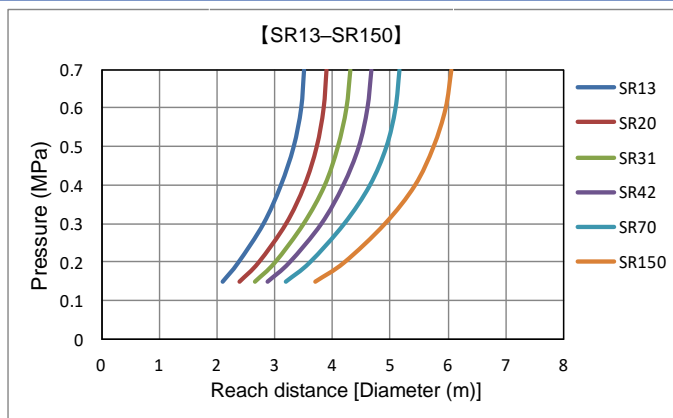
APPLICATIONS

Cleaning for tanks, containers, filling machines, conveyers and various other tanks.

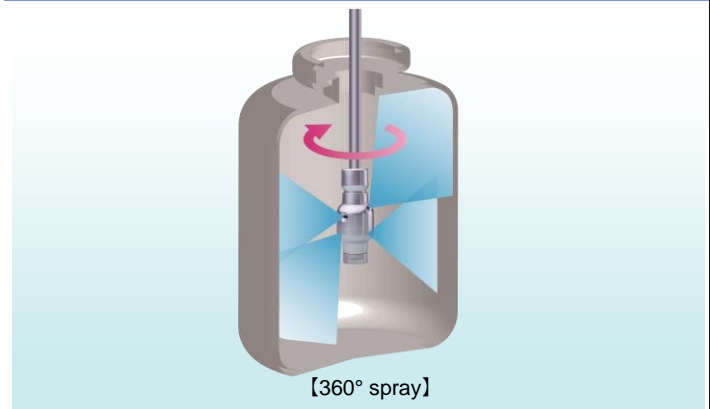


Unique, improved nozzle orifice configuration enables uniform cleaning and minimizes clogging.

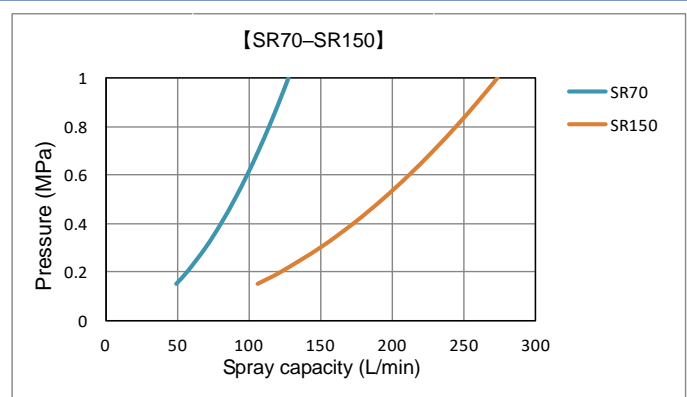
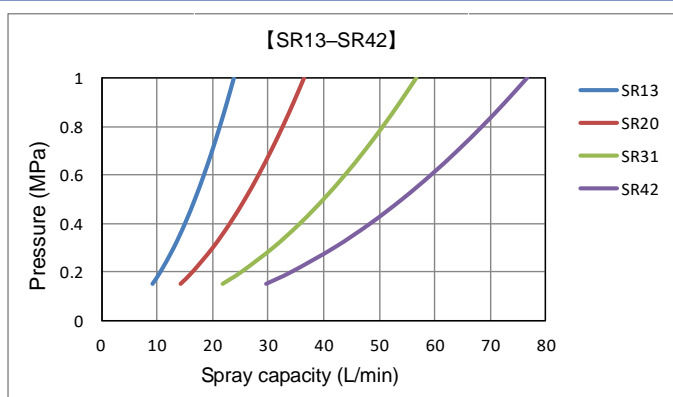
REACH DISTANCE



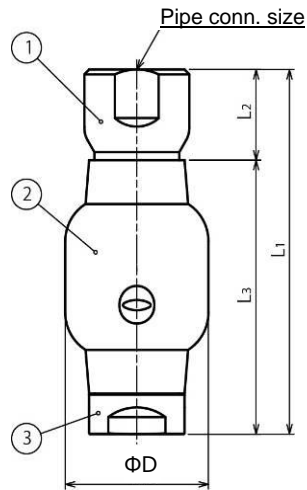
SPRAY PATTERN



SPRAY CAPACITY



■ SPECIFICATIONS



Pipe conn. size	Dimensions (mm)				Mass (g)
	L ₁	L ₂	L ₃	ΦD	
Rc1/8	50	13	37	20	55
Rc1/4	62.5	15.5	47	25	110
Rc3/8	75	19	56	30	170
Rc1/2	100	25	75	40	410
Rc3/4	150	37	113	60	1,410

①Connecting adaptor ②Nozzle body ③Shaft bearing

Material: S316L (stainless steel 316L)

Spray capacity code	Pipe conn. size	Spray capacity (L/min)					Spray pattern	Rotation speed*1 (rpm) at 0.3 MPa [for reference only]	Heat resistance
		0.15 MPa	0.3 MPa	0.5 MPa	0.7 MPa	1.0 MPa			
13	Rc1/8	9.19	13.0	16.8	19.9	23.7	Flat spray 360°	5-10	150°C (300°F)
20	Rc1/4	14.1	20.0	26.0	30.6	36.5			
31	Rc3/8	21.9	31.0	40.0	47.4	56.6			
42	Rc3/8	29.7	42.0	54.2	64.2	76.7			
70	Rc1/2	49.5	70.0	90.4	107	128			
150	Rc3/4	106	150	194	229	274			

Note:

- 1) Use of strainer with mesh size 200 is recommended.
- 2) Install the nozzle downward for stable rotation.
- 3) If upward nozzle installation is needed, please use ES series nozzles instead.

■ HOW TO ORDER

Please inquire or order for a specific nozzle using this coding system.

(Example) 1/8F SR 13N S316L (360)

1/8F **SR** **13** **N S316L (360)**

Pipe conn. size*2

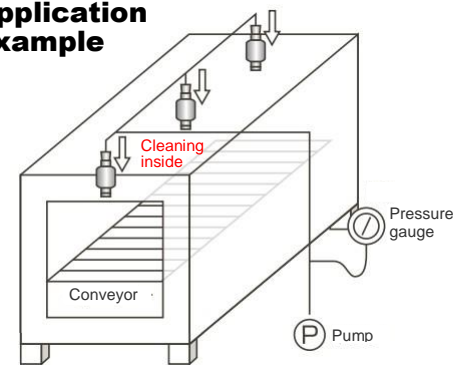
- 1/8F ■ 1/2F
- 1/4F ■ 3/4F
- 3/8F

Spray capacity code

- 13 ■ 42
- 20 ■ 70
- 31 ■ 150

*2) "F" in our pipe connection size indicates female thread ("Rc" of the ISO standard).
e.g. 1/8F = Rc1/8

■ Application example



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IKEUCHI TAIWAN CO., LTD.

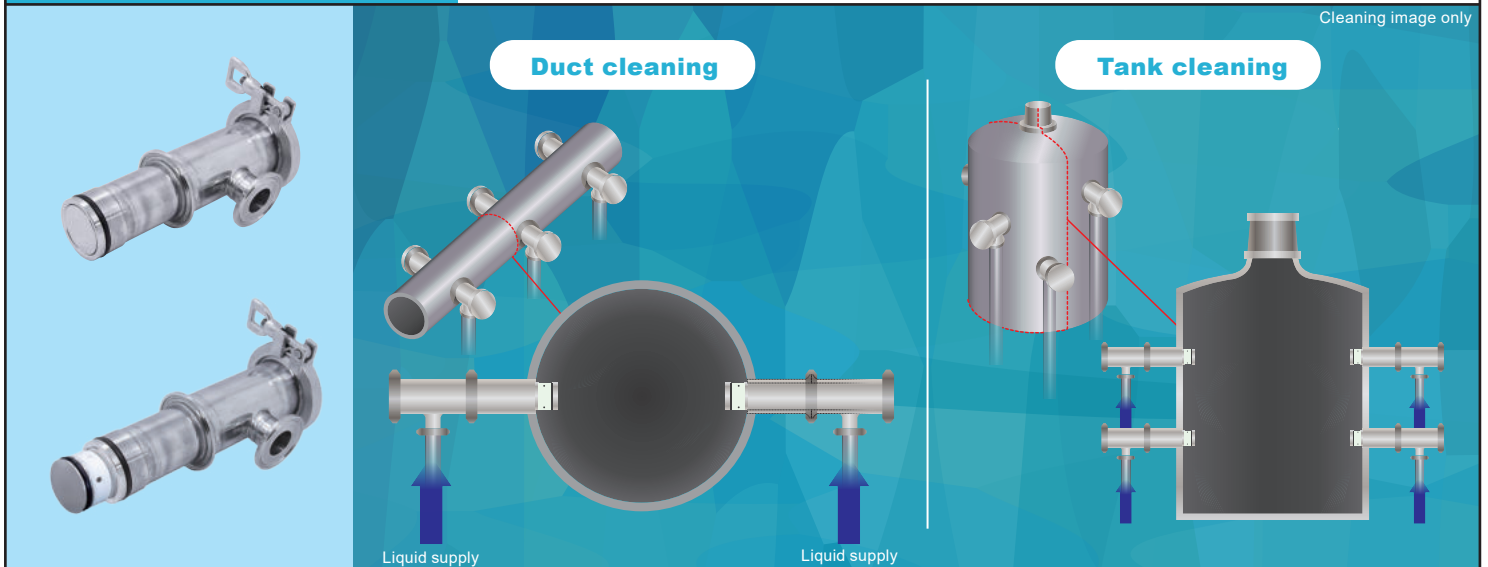
Tel: 886-2-2511-6289 Fax: 886-2-2541-6392 sales@ikeuchi.com.tw <http://www.ikeuchi.com.tw/>

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Rotary tank/duct cleaning

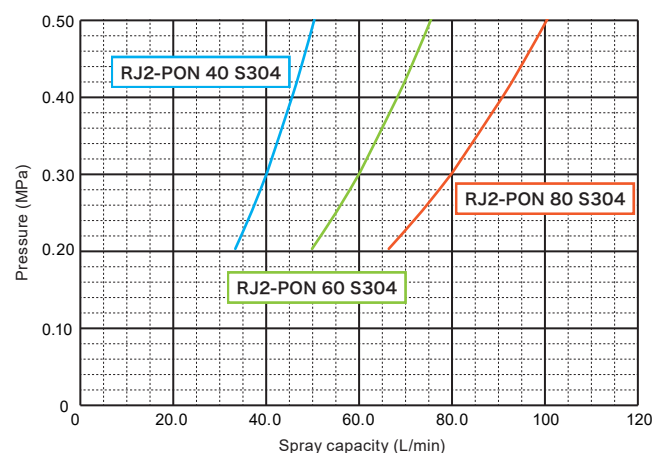
Pressure-open nozzle with self-retracting nozzle tip for interior wall cleaning



Features

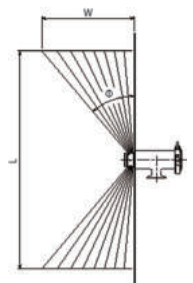
- Unique mechanism with nozzle tip protruding by pressurized liquid.
- Low-speed rotary nozzle powerfully cleans the inside of ducts and tanks.
- Flat interior surface of the nozzle, when not in use for cleaning, enables fixed installation to a duct or tank.
- Easy to install and remove with ferrule.

Flow-rate Diagram

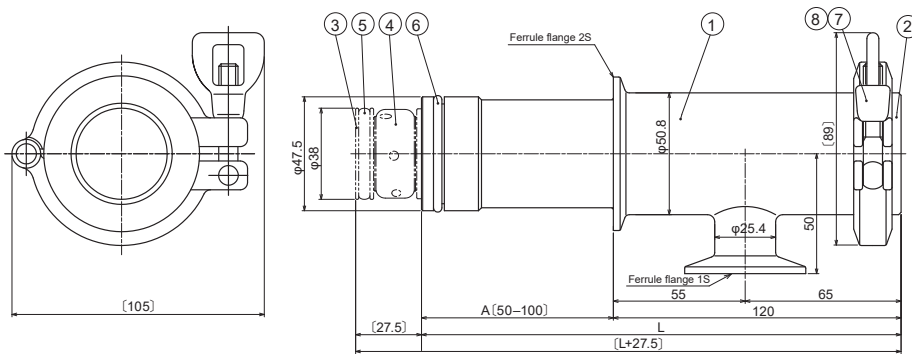


Specifications

Operating pressure range	0.2–0.5 MPa		
Spray capacity	40, 60, or 80 L/min (at 0.3 MPa)		
Rotation speed	Approx. 170 rpm		
Spreading length (L)	4,000–5,000 mm	Maximum operating temperature	80°C
Spreading width (W)	1,600–2,100 mm	Chemical resistance	Weak acid/alkaline 3% or less
Spreading angle (θ)	40°	Mass	1.3 kg



Drawing, Dimensions, Materials



	Components	Material
①	Nozzle body	S304
②	Ferrule cap (2S)	S304
③	Shaft	S304
④	Nozzle tip (rotating part)	PTFE
⑤	O-ring (P-32)	FKM
⑥	O-ring (P-41)	FKM
⑦	Ferrule gasket (2S)	Silicone rubber
⑧	Clamp (CP2K 2S)	S304

In our material code, "S" represents "stainless steel".

Note: A short pipe, ferrule flange and clamp required for installation to a tank should be supplied by a customer.

Comparison of Spray Impact with the Nozzle from Another Supplier

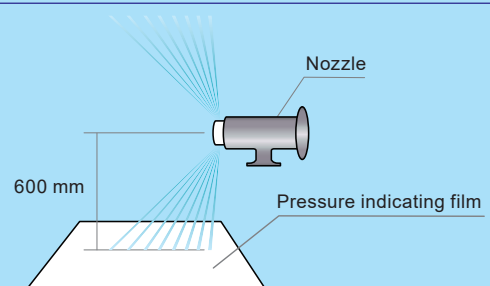
Here is a difference of impact forces between by IKEUCHI nozzle and by the other.

What is a Pressure Indicating Film?

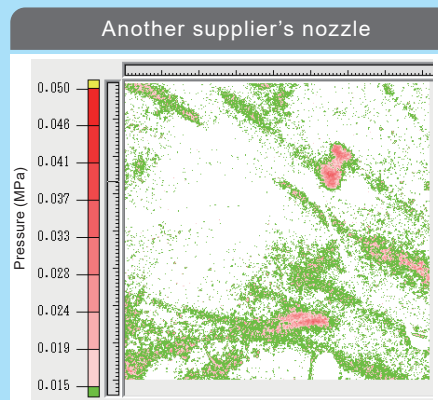
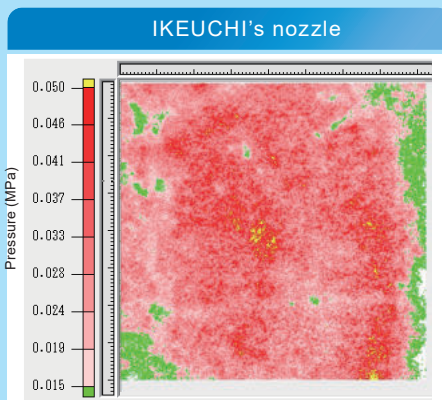
A pressure-sensitive sensor film that quickly reveals surface contact distribution and magnitude of pressure on its entire surface. Red patches appear on the film and the color density indicated varies according to the differing contact pressure levels.

Measurement Conditions

Distance from spray orifice to film	600 mm
Type of pressure indicating film	5LW (Ultra extreme low-pressure type)
Spray pressure	0.3 MPa



Measurement Results



Compared with a nozzle from another supplier, IKEUCHI's nozzle rotating at low speed **produced stronger impact force** by providing higher pressure over the entire surface.

How to order

Please inquire or order for a specific nozzle using this coding system.

RJ2-PON	80	-	1S	×	80	S304
Nozzle series	Spray capacity code		Liquid inlet conn. size		Insert length*	Material
	■ 40 ■ 60 ■ 80				■ 50-100	

*See the dimension A in the drawing.

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<https://www.kirinoikeuchi.co.jp/eng/company/location/>

**Simple
structure**
**Stable
performance**

Tank cleaning nozzle

Shower Ball SWB series



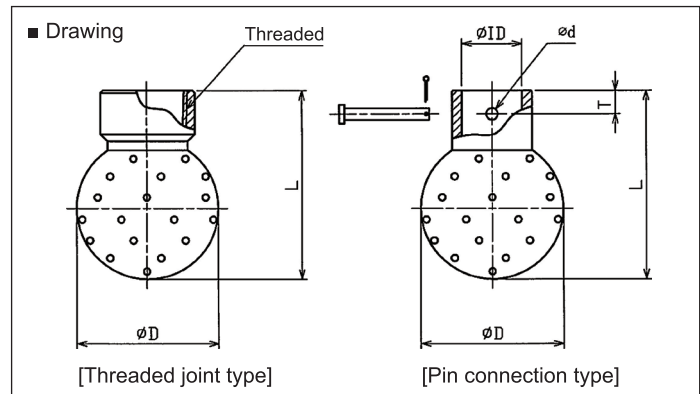
Material: Stainless steel 316L

Applications

- Cleaning inside of a tank/vessel

Features

- Simple structure
- Selectable from threaded joint or pin connection



Note: See the chart shown below for each dimension.

Specifications

Nozzle code	Connection size		Number of orifice holes*	Orifice diameter (mm)	Suitable tank size (diameter) (mm)	Spray capacity (L/min)					Dimensions (mm)				
	Threaded type	Pin type				Spray pressure (MPa)					L	φD	φd	φID	T
						0.1	0.2	0.3	0.4	0.5					
SWBD4050L	Rc3/4	φ21	44	1.2	450–900	35.4	50.0	61.2	70.7	79.1	56	40	5	22.1	10
SWBD60100L	Rc1	φ25	50	1.6	900–1,800	70.7	100	122	141	158	80	60	5	25.8	10
SWBD80150L	Rc1*1/2	φ38	60	1.8	1,350–2,250	106	150	184	212	237	102	80	5	38.5	15
SWBD100200L	Rc2	φ50	60	2.1	1,800–3,000	141	200	245	283	316	125	100	8	51.2	15
SWBD100250L	Rc2	φ50	60	2.3	2,250–3,750	177	250	306	354	395	125	100	8	51.2	15

*Drain hole is not included.

How to order

Please inquire or order for a specific nozzle using this coding system.

Threaded joint type

Example) 3/4F SWB D4050L S316L

3/4F	SWBD4050L	S316L
Pipe connection (thread) size**	Nozzle code	
■ 3/4F	■ SWBD4050L	
■ 1F	■ SWBD60100L	
■ 1*1/2F	■ SWBD80150L	
■ 2F	■ SWBD100200L	
	■ SWBD100250L	

Pin connection type

Example) φ21 SWB D4050L S316L

φ21	SWBD4050L	S316L
Pipe connection (pipe) size	Nozzle code	
■ dia.21	■ SWBD4050L	
■ dia.25	■ SWBD60100L	
■ dia.38	■ SWBD80150L	
■ dia.50	■ SWBD100200L	
	■ SWBD100250L	

**"F" in the pipe threaded joint type indicates female taper pipe thread ("Rc" of the ISO standard). [Example] 3/4F = Rc3/4 (3/4" female taper pipe thread)

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