# Specifications

<table>
<thead>
<tr>
<th>Pressure specifications</th>
<th>Low pressure type</th>
<th>Medium pressure type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>JA3-S (E3)</td>
<td>JA3-25 (E3)</td>
</tr>
<tr>
<td>JA3-45 (E3)</td>
<td></td>
<td>JA3-L (E3)</td>
</tr>
</tbody>
</table>

- **Nipple orifice diameter (mm)**: 1.8, 2.4
- **Maximum pressure (MPa)**: 6, 15
- **Number of nozzles equipped**: 2, 4
- **Available temperature (℃)**: 4 to 60
- **Spray capacity (L/min)**: 24 to 82, 12 to 36, 24 to 70
- **Pipe connection size**: 1/2″ female pipe thread (1/2″PT) or 1/4″ male pipe thread (1/4″PT)
- **Nipple thread size**: 1/4″PT (1/4″male pipe thread or 1/8″male pipe thread)
- **Main materials**: SUS304, Special PTPE, NBR, FKM
- **Surface finish**: 300# buffing
- **Drive system**: Driven by spray reaction force
- **Mass of body (kg)**: 1.7, 1.95

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

# Dimensions

<table>
<thead>
<tr>
<th>Dimensions JA3-25 (E3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT1/8 (PT1/4)</td>
</tr>
<tr>
<td>ø55</td>
</tr>
<tr>
<td>PT1/2</td>
</tr>
<tr>
<td>125</td>
</tr>
</tbody>
</table>

# 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 ø3.5 S304

<table>
<thead>
<tr>
<th>Pipe connection size</th>
<th>Series</th>
<th>Number of nozzles equipped</th>
<th>Nozzle orifice diameter</th>
<th>Main material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2F</td>
<td>JA 3-</td>
<td>2</td>
<td>ø3.5</td>
<td>S304</td>
</tr>
</tbody>
</table>

## (Example) Medium-pressure spec.: 1/2F JA 3-2S ø1.8 S304

<table>
<thead>
<tr>
<th>Pipe connection size</th>
<th>Series</th>
<th>Number of nozzles equipped</th>
<th>Nozzle orifice diameter</th>
<th>Main material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2F</td>
<td>JA 3-S</td>
<td>2</td>
<td>ø1.8</td>
<td>S304</td>
</tr>
</tbody>
</table>

*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”.

- **E3 (type P) series**: 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))*
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

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 (★★★)
- Low-pressure specification: JA3-2L (★★★)
- Nozzle orifice diameter is specified in place of ★★

[JA with 4 nozzles]
- Medium-pressure specification: JA3-4S (★★★)
- 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.

Low-pressure spec.: JA3-2L flowrate diagram
- Pressure (MPa) vs. Spray capacity (L/min)

Medium-pressure spec.: JA3-2S flowrate diagram
- Pressure (MPa) vs. Spray capacity (L/min)

Medium-pressure spec.: JA3-4S flowrate diagram
- Pressure (MPa) vs. Spray capacity (L/min)
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
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.
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).

■ 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.

■ 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
  (used with lifting and lowering device)
### JA-2 type SPECIFICATIONS & DIMENSIONS

<table>
<thead>
<tr>
<th>Models</th>
<th>JA2-2 (φ 2.5)</th>
<th>JA2-4 (φ 4.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nozzle orifice diameter (1)</td>
<td>φ2.5, φ3.5, or φ5.4 mm</td>
<td></td>
</tr>
<tr>
<td>Number of nozzles equipped</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Max. pressure</td>
<td>10.0 MPa</td>
<td></td>
</tr>
<tr>
<td>Allowable temperature</td>
<td>4–50℃</td>
<td></td>
</tr>
<tr>
<td>Recommended working pressure</td>
<td>0.3–2.0 MPa</td>
<td></td>
</tr>
<tr>
<td>Spray capacity (2)</td>
<td>14–53 L/min</td>
<td>28–98 L/min</td>
</tr>
<tr>
<td>Pipe connection size</td>
<td>Rc1/2 [1/2F(PT)]</td>
<td>Rc1/4 [1/4F(PT)]</td>
</tr>
<tr>
<td>Nozzle thread size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main materials</td>
<td>Stainless steel 304 (O-ring, seal, etc.: PTFE, NBR, FKM)</td>
<td></td>
</tr>
<tr>
<td>Arm length (3)</td>
<td>200 mm or 300mm</td>
<td></td>
</tr>
<tr>
<td>Drive system</td>
<td>Driven by spray reaction force</td>
<td></td>
</tr>
<tr>
<td>Mass</td>
<td>1.9 kg</td>
<td>2.0 kg</td>
</tr>
</tbody>
</table>

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.

### 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)
```

#### (Reference)
- Spray capacity of JA-2 equipped with solid stream jet nozzles

<table>
<thead>
<tr>
<th>Product code</th>
<th>Spray capacity (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.3MPa</td>
</tr>
<tr>
<td>2-arm</td>
<td></td>
</tr>
<tr>
<td>JA2-2 (φ 2.5)</td>
<td>14</td>
</tr>
<tr>
<td>JA2-2 (φ 3.5)</td>
<td>27</td>
</tr>
<tr>
<td>JA2-2 (φ 5.4)</td>
<td>53</td>
</tr>
<tr>
<td>4-arm</td>
<td></td>
</tr>
<tr>
<td>JA2-4 (φ 2.5)</td>
<td>28</td>
</tr>
<tr>
<td>JA2-4 (φ 3.5)</td>
<td>52</td>
</tr>
<tr>
<td>JA2-4 (φ 5.4)</td>
<td>98</td>
</tr>
</tbody>
</table>

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