

## ES SERIES / Metal / Self-cleaning, Easy Maintenance

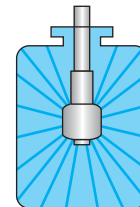


Cleaning easy  
to remove dirt

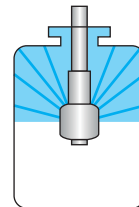


### Spray Coverage

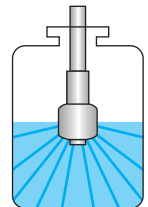
Select from three patterns.



360° spray



180° upward  
spray



180° downward  
spray

Note: ES with 180° upward spray has two holes in the bottom of the nozzle body (rotating part) for drainage.

### Features

- No external power is needed as rotation is driven solely by the flow of the cleaning liquid.
- Maintenance is easy due to the low parts count.
- Internal design greatly reduces dripping from the nozzle tip. Maintains high level of cleanliness because it is self-cleaning.
- ES series can be installed in any direction, vertically, horizontally or diagonally.
- Available in two types of connections: thread connection (ES-N) and pin connection (ES-P).

### Applications

- Cleaning of a variety of tanks, such as mixing, blending, and storage tanks
- CIP cleaning
- Cleaning the inside of conveyor tunnels and ovens

### Basic Specifications

|                                                                |                                                                           |
|----------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Operating Pressure Range</b><br>0.1–1.0 MPa (15–145 psi)    | <b>Material<sup>1</sup></b><br>Metal parts: S316L<br>Shaft bearings: PTFE |
| <b>Spray Capacity<sup>2</sup></b><br>4.0–803.3 L/min           | <b>Weight<sup>3</sup></b><br>20–1,820 g                                   |
| <b>Reach Distance of Spray (Diameter)</b><br>Approx. 0.5–7.3 m | <b>Rotation Speed (at 0.3 MPa)<sup>4</sup></b><br>60–120 rpm              |
| <b>Max. Temperature</b><br>60°C (140°F)                        | <b>Outer Surface Finish</b><br>#320 buffing                               |

<sup>1</sup>In the material code, "S" represents "stainless steel".

<sup>2</sup>Spray flow rate in the above operating pressure range. See the flow-rate diagrams and chart for details.

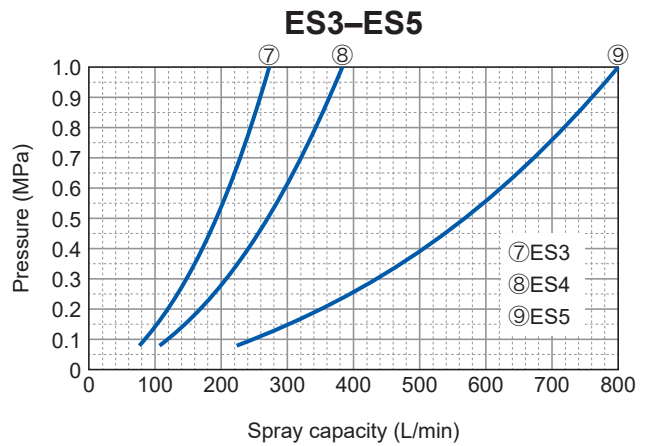
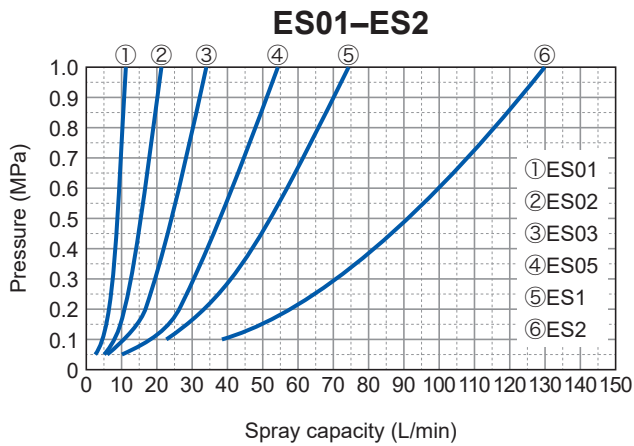
<sup>3</sup>See the table in the drawing section.

<sup>4</sup>For reference only. Rotation speed varies depending on the pressure applied.

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### Flow-rate Diagram

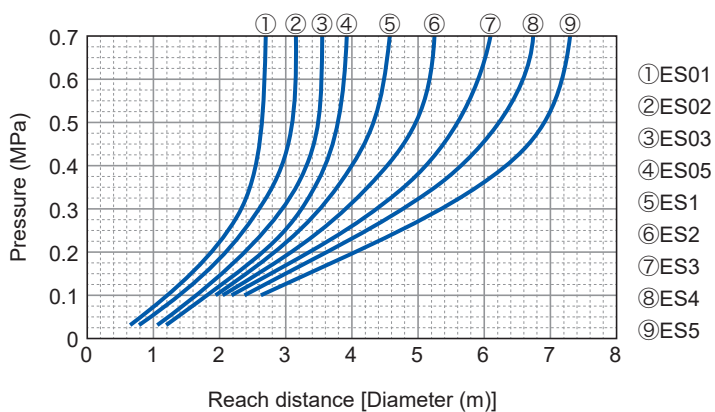


### Flow-rate Chart

| Spray capacity code | Pipe connection size*5   |                       | Spray capacity (L/min) |         |         |         |         |
|---------------------|--------------------------|-----------------------|------------------------|---------|---------|---------|---------|
|                     | [ES-N] Thread connection | [ES-P] Pin connection | 0.1 MPa                | 0.3 MPa | 0.5 MPa | 0.7 MPa | 1.0 MPa |
| 01                  | Rc1/8                    | ø10                   | 4.0                    | 7       | 9.0     | 10.7    | 12.8    |
| 02                  | Rc1/8                    | ø13                   | 7.5                    | 13      | 16.8    | 19.9    | 23.7    |
| 03                  | Rc1/4                    | ø17                   | 11.5                   | 20      | 25.8    | 30.6    | 36.5    |
| 05                  | Rc3/8                    | ø21                   | 17.9                   | 31      | 40.0    | 47.4    | 56.6    |
| 1                   | Rc3/8                    | ø21                   | 24.2                   | 42      | 54.2    | 64.2    | 76.7    |
| 2                   | Rc1/2                    | ø25                   | 40.4                   | 70      | 90.4    | 106.9   | 127.8   |
| 3                   | Rc3/4                    | ø38                   | 86.6                   | 150     | 193.6   | 229.1   | 273.9   |
| 4                   | Rc1                      | ø38                   | 121.2                  | 210     | 271.1   | 320.8   | 383.4   |
| 5                   | Rc1½                     | ø50                   | 254.0                  | 440     | 568.0   | 672.1   | 803.3   |

\*5 As for the ES-P, it only indicates the connection code, not an exact pin size or pipe diameter. For details see the drawing and dimension table on page 14.

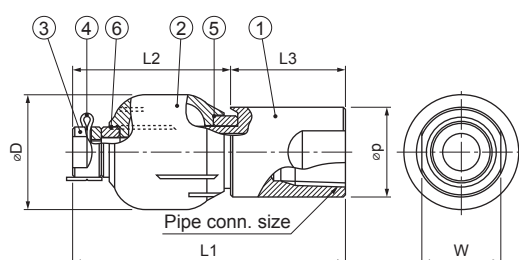
### Reach Distance of Spray



## Drawing

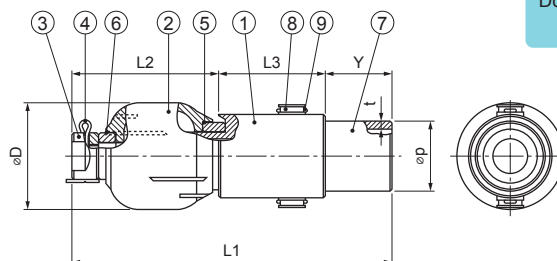
### ES-N

(Thread connection)



### ES-P

(Pin connection)



Download 3D/2D  
CAD file

- ①Connecting adaptor ②Nozzle body (rotating part) ③Hub ④Lock pin ⑤Upper shaft bearing (PTFE)  
⑥Lower shaft bearing (PTFE) ⑦Welded connecting pipe ⑧Connecting pin ⑨Side pin

### ■Dimensions and weight

| Spray capacity<br>code | Pipe connection<br>code and size |              | Outer dimensions (mm) |      |      |      |      |    |      |     | Weight<br>(g) |
|------------------------|----------------------------------|--------------|-----------------------|------|------|------|------|----|------|-----|---------------|
|                        |                                  |              | L1                    | L2   | L3   | W    | øD   | Y  | øp   | t   |               |
| 01                     | N (thread)                       | Rc1/8        | 38                    | 22   | 16   | 11   | 16   | —  | 12.5 | —   | 20            |
|                        | P (pin)                          | 6A (ø10.5)   | 48                    |      |      | —    |      | 10 | 10.5 | 1.2 | 25            |
| 02                     | N (thread)                       | Rc1/8        | 53                    | 28.5 | 24.5 | 12   | 20   | —  | 13   | —   | 35            |
|                        | P (pin)                          | 8A (ø13.8)   | 73                    |      |      | —    |      | 20 | 13.8 | 1.2 | 50            |
| 03                     | N (thread)                       | Rc1/4        | 65                    | 35   | 30   | 16.5 | 25   | —  | 18   | —   | 75            |
|                        | P (pin)                          | 10A (ø17.3)  | 90                    |      |      | —    |      | 25 | 17.3 | 1.5 | 90            |
| 05                     | N (thread)                       | Rc3/8        | 97                    | 52   | 45   | 20   | 30   | —  | 22   | —   | 155           |
|                        | P (pin)                          | 15A (ø21.7)  | 127                   |      |      | —    |      | 30 | 21.7 | 1.5 | 210           |
| 1                      | N (thread)                       | Rc3/8        | 115                   | 60   | 55   | 20   | 31.5 | —  | 22   | —   | 185           |
|                        | P (pin)                          | 15A (ø21.7)  | 145                   |      |      | —    |      | 30 | 21.7 | 1.5 | 235           |
| 2                      | N (thread)                       | Rc1/2        | 123                   | 68   | 55   | 23   | 41.5 | —  | 25   | —   | 260           |
|                        | P (pin)                          | 1S (ø25.4)   | 153                   |      |      | —    |      | 30 | 25.4 | 1.5 | 315           |
| 3                      | N (thread)                       | Rc3/4        | 139                   | 79   | 60   | 23   | 60   | —  | 35   | —   | 605           |
|                        | P (pin)                          | 1.5S (ø38.1) | 174                   |      |      | —    |      | 35 | 38.1 | 1.5 | 660           |
| 4                      | N (thread)                       | Rc1          | 163                   | 93   | 70   | 37.6 | 75   | —  | 40   | —   | 925           |
|                        | P (pin)                          | 1.5S (ø38.1) | 198                   |      |      | —    |      | 35 | 38.1 | 1.5 | 1,060         |
| 5                      | N (thread)                       | Rc1½         | 180                   | 105  | 75   | 52   | 88   | —  | 55   | —   | 1,640         |
|                        | P (pin)                          | 2S (ø50.8)   | 225                   |      |      | —    |      | 45 | 50.8 | 1.5 | 1,820         |

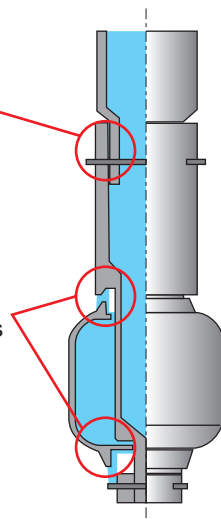
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### Internal Design

The ES-P, pin connection model, is very clean since there are no threads in the flow passage where contaminants could collect.

In both models, the ES-N and ES-P, the cleaning liquid flows from openings between the connecting adaptor and nozzle body (rotating part), keeping the nozzle surface clean.



### HOW TO ORDER

To inquire about or order a specific product please refer to this coding system.

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

| 1/8F                                 | ES     | 01                     | N                      | S316L | (360)                     |
|--------------------------------------|--------|------------------------|------------------------|-------|---------------------------|
| Pipe Conn.<br>Size <sup>*5, *6</sup> |        | Spray Capacity<br>Code | Connection<br>Code     |       | Spray Coverage<br>Pattern |
| [ES-N]                               | [ES-P] | ■01 ■02                | ■N (thread connection) |       | ■360                      |
| ■1/8F                                | ■ø10   | ■03 ■05                | ■P (pin connection)    |       | ■180 upward               |
| ■1/4F                                | ■ø13   | ■1 ■2                  |                        |       | ■180 downward             |
| ■3/8F                                | ■ø17   | ■3 ■4                  |                        |       |                           |
| ■1/2F                                | ■ø21   | ■5                     |                        |       |                           |
| ■3/4F                                | ■ø25   |                        |                        |       |                           |
| ■1F                                  | ■ø38   |                        |                        |       |                           |
| ■1*1/2F                              | ■ø50   |                        |                        |       |                           |

<sup>\*5</sup> "F" indicates female tapered pipe thread ("Rc" of the ISO standard), e.g. 1/4F = Rc1/4.