PENTAIR
HYGIENIC PROCESS VALVES
(FORMERLY KEYSTONE)

F273J+
HYGIENIC SINGLE SEAT TANK BOTTOM VALVES
REVERSIBLE ACTUATOR TYPE
# PENTAIR HYGIENIC PROCESS VALVES (Formerly Keystone)

## HYGIENIC SINGLE SEAT TANK BOTTOM VALVES

The F273J+ Valve is a single seat valve, tank bottom mounted, used to control process or C.I.P fluids.

### GENERAL APPLICATIONS
- Dairy factories
- Breweries and beverage plants
- Wineries
- Canneries and food processing plants
- Pharmaceutical
- Chemical processing

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working temperature:</td>
<td>-5 to +100°C (-5 to 120°C for static condition)</td>
</tr>
<tr>
<td>Sterilizing temperature:</td>
<td>Up to 140°C for 30min (Steam for static condition)</td>
</tr>
<tr>
<td>Maximum pressure, valve body:</td>
<td>10 bar fluid pressure</td>
</tr>
<tr>
<td>Maximum pressure, valve seat:</td>
<td>See separate plug lifting chart</td>
</tr>
<tr>
<td>Minimum pressure:</td>
<td>Full vacuum</td>
</tr>
<tr>
<td>Operating air pressure:</td>
<td>4 to 8 bar max</td>
</tr>
<tr>
<td>Air connections:</td>
<td>R1/8” [BSP]</td>
</tr>
<tr>
<td>Surface finish:</td>
<td>Internal &lt; 0.8 Ra, External hairline / buffed</td>
</tr>
<tr>
<td>Length tolerance between ends:</td>
<td>±0.5mm ~ ±1.0mm</td>
</tr>
<tr>
<td>Parallelism or squareness of ends</td>
<td>±0.5° or less</td>
</tr>
</tbody>
</table>

### FEATURES
- Product contact parts are manufactured from high quality 316L stainless steel bar.
- Heavy walled body construction.
- Semi bright external surface finish.
- Compact, lightweight design.
- Heavy duty cast body clamps (bolted type).
- Various sealing options available.
- Metal plug stop, protects seat seals from wear or damage.
- A wide choice of port configurations are available.
- Resilient seated for positive isolation.
- Free draining design, eliminates product puddling and air pockets.
- Smooth ball shaped bodies, reduces turbulence and improves flow.
- Smooth internal surfaces for ease of cleaning.
- Maintenance friendly design.
- Reversible actuator.
- Clamped body style offers full 360° orientation of body ports.
- Butt weld end connection.

### OPTIONS
- Mirror polished internals.
- Clamp and thread end connections.
- Manual operating device.
- 3-Position actuator.
- Booster actuator.
- Control head or feed back unit.
- Quick release body clamps.
NOTE: F273J+ Standard (Int./Ext.)

PARTS LIST

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>316L S/S, 304L S/S</td>
<td>ASTM A276</td>
</tr>
<tr>
<td>2</td>
<td>Plug/shaft</td>
<td>316L S/S</td>
<td>ASTM A276</td>
</tr>
<tr>
<td>3</td>
<td>Seat seal</td>
<td>EPDM, NBR, PTFE, FKM</td>
<td>FDA</td>
</tr>
<tr>
<td>4</td>
<td>Intermediate seal ring</td>
<td>316L S/S</td>
<td>ASTM A276</td>
</tr>
<tr>
<td>5</td>
<td>Body seal</td>
<td>EPDM, NBR, FKM</td>
<td>FDA</td>
</tr>
<tr>
<td>6</td>
<td>Stem seal</td>
<td>Santoprene®, EPDM, NBR, FKM</td>
<td>FDA</td>
</tr>
<tr>
<td>7</td>
<td>Shaft bush</td>
<td>PTFE, UHMWPE</td>
<td>Commercial</td>
</tr>
<tr>
<td>8</td>
<td>Body clamp</td>
<td>304 CF8 S/S</td>
<td>ASTM A743 CF8</td>
</tr>
<tr>
<td>9</td>
<td>Actuator assembly</td>
<td>304 S/S</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Sight housing</td>
<td>304 CF8 S/S</td>
<td>ASTM A743 CF8</td>
</tr>
</tbody>
</table>

DIMENSIONS (mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>ØA x t</th>
<th>ØD</th>
<th>D2</th>
<th>T</th>
<th>H</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
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<tbody>
<tr>
<td>1.0&quot;</td>
<td>025</td>
<td>25.4</td>
<td>1.6</td>
<td>29.5</td>
<td>1.6</td>
<td>102</td>
<td>115</td>
<td>8</td>
<td>311</td>
<td>8</td>
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<tr>
<td>1.5&quot;</td>
<td>040</td>
<td>38.1</td>
<td>1.6</td>
<td>41.5</td>
<td>1.6</td>
<td>102</td>
<td>115</td>
<td>8</td>
<td>317</td>
<td>17</td>
</tr>
<tr>
<td>2.0&quot;</td>
<td>050</td>
<td>50.8</td>
<td>1.6</td>
<td>53.5</td>
<td>1.6</td>
<td>102</td>
<td>150</td>
<td>10</td>
<td>357</td>
<td>26</td>
</tr>
<tr>
<td>2.5&quot;</td>
<td>065</td>
<td>63.5</td>
<td>1.6</td>
<td>69.5</td>
<td>1.6</td>
<td>102</td>
<td>150</td>
<td>10</td>
<td>374</td>
<td>26</td>
</tr>
<tr>
<td>3.0&quot;</td>
<td>080</td>
<td>76.2</td>
<td>1.6</td>
<td>84.5</td>
<td>1.6</td>
<td>141</td>
<td>220</td>
<td>12</td>
<td>485</td>
<td>38</td>
</tr>
<tr>
<td>4.0&quot;</td>
<td>100</td>
<td>101.6</td>
<td>1.6</td>
<td>103.5</td>
<td>1.6</td>
<td>168</td>
<td>250</td>
<td>12</td>
<td>589</td>
<td>38</td>
</tr>
<tr>
<td>5.0&quot;</td>
<td>125</td>
<td>129.0</td>
<td>2.0</td>
<td>130.0</td>
<td>2.0</td>
<td>219</td>
<td>300</td>
<td>15</td>
<td>576</td>
<td>50</td>
</tr>
<tr>
<td>6.0&quot;</td>
<td>150</td>
<td>152.4</td>
<td>2.0</td>
<td>155.0</td>
<td>2.0</td>
<td>219</td>
<td>300</td>
<td>15</td>
<td>576</td>
<td>50</td>
</tr>
</tbody>
</table>

NOTE:
Metric bodies are created from standard Inch OD bodies by fitting eccentric reducers.
Santoprene® is the registered trademark of Exxon Mobil.
WORKING PRINCIPLE

The F273J+ valves are operated by compressed air, via a linear pneumatic actuator, that can be supplied with or without spring return.

The at-rest position of the valve when actuator is fitted with a spring, although normally closed, can also be provided in the normally open position, this is determined by both the plug configuration and the actuator mode combination being used and as selected at time of order.

I.E. Spring Extend (SE) actuator with an Int. plug type will result in a Normally Closed (NC) valve, therefore SE + Ext. = NO, Spring Retract (SR) actuator with an Int. plug type will result in a Normally Open (NO) valve, therefore SR + Ext. = NC

The mode can also be easily changed on site by simply inverting the actuator assembly. (See separate Installation, Operation and Maintenance Instructions for details).

When air pressure is applied to the cylinder, the valve plug moves through its entire stroke changing from one state to the other. In the case of the F273J+ from open to closed.

These valves have only a few simple moving parts resulting in a very reliable valve in service.

<table>
<thead>
<tr>
<th>Supply pressure bar/(psi)</th>
<th>025-040 (100S)</th>
<th>050-065 (100)</th>
<th>080-100 (140)</th>
<th>*100 (170)</th>
<th>125-150 (200)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 [60]</td>
<td>0.89</td>
<td>1.23</td>
<td>3.28</td>
<td>4.71</td>
<td>8.94</td>
</tr>
<tr>
<td>6.2 [90]</td>
<td>1.25</td>
<td>1.72</td>
<td>4.60</td>
<td>6.60</td>
<td>12.54</td>
</tr>
<tr>
<td>8.3 [120]</td>
<td>1.61</td>
<td>2.21</td>
<td>5.92</td>
<td>8.50</td>
<td>16.14</td>
</tr>
</tbody>
</table>

* (Option)

100 size valves can also be fitted with the Model 170 actuator as an option. This will boost the pressure holding power if required.
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F273J+ TANK BOTTOM VALVE

MANUAL OPERATOR

The manual operator replaces the air driven actuator, and is used where variable control of flow is required or automation is not possible.
Flow is fully adjustable throughout the entire stroke of the valve.
The manual operator comes equipped with a visual position indicator and a locking device that can be engaged at any position.
The lever crank allows quick and easy operation of the valve.

3-POSITION ACTUATOR

The 3-Position Actuator can be used for an adjusted flow control at any position throughout the valve’s entire stroke.
For example on dosing or filling to give optional full flow or partial flows, for topping up, or varying flow between product or CIP duties.

BOOSTER ACTUATOR

The Booster Actuator can be used where extra force is required to hold seal tightness under extra high line pressures, or for opening valves against high line pressures.

POSITION SENSORS

Standard Ø18mm barrel type proximity sensors can be provided as a kit, complete with mounting bracket and sensor target.

VALVE TYPE

<table>
<thead>
<tr>
<th>Type</th>
<th>Standard configurations</th>
</tr>
</thead>
<tbody>
<tr>
<td>F273J+</td>
<td>L (Ext.) T (Ext.)</td>
</tr>
<tr>
<td></td>
<td>L (Int.) T (Int.)</td>
</tr>
</tbody>
</table>

Ext. plug
Int. plug
## SELECTION GUIDE

**Example:** AA - F273J+ A SSE B L - M 6S V V V X

<table>
<thead>
<tr>
<th>Body size</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inch OD</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1.0” M 025</td>
</tr>
<tr>
<td>B</td>
<td>1.5” Q 040</td>
</tr>
<tr>
<td>C</td>
<td>2.0” P 050</td>
</tr>
<tr>
<td>D</td>
<td>2.5” Q 065</td>
</tr>
<tr>
<td>E</td>
<td>3.0” R 080</td>
</tr>
<tr>
<td>F</td>
<td>4.0” S 100</td>
</tr>
<tr>
<td>G</td>
<td>5.0” T 125</td>
</tr>
<tr>
<td>H</td>
<td>6.0” U 150</td>
</tr>
</tbody>
</table>

**Figure**

F273J+ Stop valve

**Valve style:**
- A: STD (std)
- B: NS/NC (Extra body)
- C: NWS/NWC (Extra body+Reverse plug)
- D: Other

**Actuator type**
- SSE: Spring Extend (std)
- SSR: Spring Retract
- SSA: Double Air/Acting
- MO: Manual Operator

**End connection**
- B: Butt weld (std)
- C: Clamp ISO
- J: Male thread RJT
- I: Male thread IDF
- S: Male thread SMS
- M: Male thread RJT Modified
- D: Male thread DIN 11851
- E: Other

**Port configuration**
- L: T

**Actuator accessory**
- M: Metric 6mm Air fittings (std)
- I: Inch 1/4” Air fittings
- X: None

**Material type/finish, welded parts**
- 6S: 316L Stainless Steel (Semi bright) (std)
- 6P: 316L Stainless Steel (Polished)
- 4S: 304L Stainless Steel (Semi bright)
- 4P: 304L Stainless Steel (Polished)

**Body seal materials**
- E: EPDM (std)
- N: NBR
- V: FKM

**Plug seal materials**
- E: EPDM (std)
- N: NBR
- V: FKM
- P: PTFE

**Stem seal materials**
- E: EPDM type
- F: FKM O-ring type
- D: Diaphram (Only available on some sizes)
- V: FKM Wiper type
- N: NBR

**Actuator optional extras**
- T: 3-Position actuator
- U: Booster actuator
- D: Damper actuator
- X: Consult factory for more options