Series CL - Wafer Check Valve
ANSI 125 / 150 / 300
Pro Valve wafer check valves offer cost effective back-flow prevention in mechanical piping systems.

The Series CL wafer check valves are available in ANSI 125 / 150 / 300 pound class designs.

Resilient or metal seated to meet today’s wide range of applications.

Markets Served

- HVAC
- Chemical
- Power and Utilities
- Food and Beverage
- Pulp and Paper Industry
- Steel Processing
Wafer Check Valve - Series CL

Features and Benefits

Light and Compact
Wafer dual plate check valves are substantially more compact and lighter in weight than conventional swing check valves.

Superior Strength
Ribs around the body wall support the flange face and are actually stronger than the equivalent length of pipe for high strength support when joining piping.

Non-Slam Design
Wafer check valves are non-slam design that operate with flow closure, not flow reversal. Back pressure allows the valve to seal more tightly.

Independent Plates
Long spring legs ensure closing tension is applied to the right part of the plate. Plates close/open independently to respond to the flow requirements.

Shock Prevention
Supports on the shaft contain thrust washers for smooth operation. Plates have bumpers cast on the outside of the plate that act as a stop to prevent over travel of plates.

Bubble Tight Close Off
Resilient seats allows for bubble tight close off.

Lapped Body & Disc Seal
The Pro Valve seat and seal interface maintains a tight seal due to maximum flatness of the lapped finish body and disc.

Soft Seat Design
Resilient seats are standard and maintain positive shut-off. Seats are vulcanized to the body for maximum security.

Long Leg Springs
Long leg springs allow higher torque to be exerted on each plate, with independent closure in response to process media.

Meet the Industry Standards

<table>
<thead>
<tr>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI B16.5 Flange Dimension (ANSI B16.47 above 24&quot;)</td>
</tr>
<tr>
<td>API 594 - Materials, Design &amp; Face to Face</td>
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<tr>
<td>API 605 (B16.47) - Flange Dimension</td>
</tr>
<tr>
<td>API 6A - Flange Dimension &amp; Face to Face</td>
</tr>
<tr>
<td>API 6D - Materials</td>
</tr>
<tr>
<td>API 598 - Testing</td>
</tr>
<tr>
<td>ANSI B16.34 Materials, Wall Thickness</td>
</tr>
</tbody>
</table>

Dual Plates
Stainless plates pivot independently on central vertical shaft. Discs open to 85° to ensure positive closing.

Thrust Washers
PTFE top and bottom thrust washers reduce friction and wear of valve plate hinges.
Series CL - Wafer Check Valve

Bill of Materials

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>ANSI 125</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seat/Seal</td>
<td>EPDM</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Plates</td>
<td>304 Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Shaft</td>
<td>316 Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Torsion Spring</td>
<td>316 Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Plug</td>
<td>Carbon Steel</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Thrust Bearing</td>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Body</td>
<td>Cast Iron</td>
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</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>ANSI 150 / 300</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seat/Seal</td>
<td>Viton (EPDM / Buna-N / Metal)</td>
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</tr>
<tr>
<td>2</td>
<td>Plates</td>
<td>316 Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Shaft</td>
<td>316 Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Torsion Spring</td>
<td>Inconel</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Plug</td>
<td>Carbon Steel</td>
<td>316 Stainless Steel</td>
</tr>
<tr>
<td>6</td>
<td>Thrust Bearing</td>
<td>316 Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Body</td>
<td>Carbon Steel</td>
<td>316 Stainless Steel</td>
</tr>
</tbody>
</table>

Resilient Seat Design

Resilient seats are standard for soft seated valves. Seats are vulcanized for maximum security and extended service.

- EPDM Max Temp -20° to 250°
- EPDM Steam Rating 15 psi
- Buna-N Max Temp +10° to 200°F
- Viton Max Temp 0° to 400°F (No Steam)

Metal Seat Design

Metal seats include a full penetrate weld overlay of stainless steel. For superior wear protection.

Plate Design

Twin plates pivot on a central vertical shaft. As flow begins the heel of the plates open first, this prevents scrubbing of the sealing surface. When plates are fully open the discs will open to 85° to ensure positive closing. As velocity of flow decreases the spring action reacts automatically and moves the plates closer to the seats, reducing the distance and time of travel for closure and eliminating the “water hammer” effect.

Spring Design

The long leg spring action allows higher torque to be exerted against each plate with independent closing in response to the process media. Each of the dual plates are equipped with independent springs that undergo less angular deflection which improves valves response time significantly and eliminates the “water hammer” effect.
Series CL - Wafer Check Valve

Performance

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Cv</th>
<th>Pressure Drop psi</th>
<th>Head Loss in Feet</th>
<th>Cracking Pressure</th>
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<tbody>
<tr>
<td>2&quot;</td>
<td>48</td>
<td>4.49</td>
<td>10.32</td>
<td>0.220</td>
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<tr>
<td>2.5&quot;</td>
<td>77</td>
<td>3.50</td>
<td>7.5</td>
<td>0.189</td>
</tr>
<tr>
<td>3&quot;</td>
<td>135</td>
<td>2.97</td>
<td>6.83</td>
<td>0.198</td>
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<tr>
<td>4&quot;</td>
<td>270</td>
<td>2.30</td>
<td>5.29</td>
<td>0.184</td>
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<tr>
<td>6&quot;</td>
<td>720</td>
<td>1.47</td>
<td>3.38</td>
<td>0.218</td>
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<tr>
<td>8&quot;</td>
<td>1400</td>
<td>1.20</td>
<td>2.76</td>
<td>0.162</td>
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<tr>
<td>10&quot;</td>
<td>2600</td>
<td>0.93</td>
<td>2.14</td>
<td>0.230</td>
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<tr>
<td>12&quot;</td>
<td>3850</td>
<td>0.81</td>
<td>1.87</td>
<td>0.241</td>
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<td>5000</td>
<td>0.74</td>
<td>1.70</td>
<td>0.230</td>
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<td>16&quot;</td>
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<tr>
<td>18&quot;</td>
<td>10,000</td>
<td>0.55</td>
<td>1.27</td>
<td>0.138</td>
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<tr>
<td>20&quot;</td>
<td>12,400</td>
<td>0.51</td>
<td>1.18</td>
<td>0.128</td>
</tr>
<tr>
<td>24&quot;</td>
<td>20,400</td>
<td>0.42</td>
<td>0.97</td>
<td>0.098</td>
</tr>
</tbody>
</table>

Pressure Drop Chart

Flow in water (at 60 °F) imperial gallons per minute
Flow data relates to ANSI 150# ambient temperature
Series CL - Wafer Check Valve

**Back View**

Shaft should be vertical for horizontal flow

**Side View**

Valve in Closed Position

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**Pressure Rating**

**ANSI Class 125**

2"-12" 200 PSI / Non-Shock

14"-24" 150 PSI / Non-Shock

**ANSI Class 150**

2"-24" 285 PSI / Non-Shock

**ANSI Class 300**

2"-24" 740 PSI / Non-Shock

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**Connections**

Check valves are compatible with ANSI B16.1 Class 125 (Iron) or B16.5 Class 150 and Class 300 (steel) flanges.
## Series CL - Wafer Check Valve

### Part Number

<table>
<thead>
<tr>
<th>Series</th>
<th>Type</th>
<th>Size</th>
<th>Class</th>
<th>Body</th>
<th>Disc</th>
<th>Seat</th>
<th>Spring</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV</td>
<td>CL</td>
<td>04</td>
<td>125</td>
<td>C</td>
<td>S</td>
<td>E</td>
<td>S</td>
<td>F</td>
</tr>
</tbody>
</table>

1. **Series**
   - PV = Pro Valve

2. **Type**
   - CL = Wafer Check Valve

3. **Size**
   - 02 = 2.0"
   - 2.5 = 2.5"
   - 03 = 3.0"
   - to 24 = 24"

4. **ANSI Class**
   - 125 = ANSI Class 125#
   - 150 = ANSI Class 150#
   - 300 = ANSI Class 300#

5. **Body Material**
   - C = Cast Iron (125#)
   - W = Carbon
   - T = Stainless

6. **Disc Material**
   - S = 304 Stainless (CF8)
   - T = 316 Stainless (CF8M)

7. **Seat**
   - E = EPDM
   - B = Buna-N
   - V = Viton / Hi-Temp
   - M = Metal

8. **Spring Material**
   - S = 316 Stainless
   - I = Inconel

9. **Connections**
   - F = Flat Faced Serrated (125#)
   - R = Raised Face Serrated (150# / 300#)

### ANSI Stud Bolting

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>ANSI Class 125</th>
<th>ANSI Class 150</th>
<th>ANSI Class 300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stud Diameter</td>
<td>Stud Length Flat Faced</td>
<td>Stud Diameter</td>
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<tr>
<td>2&quot;</td>
<td>4</td>
<td>5/8</td>
<td>5-1/4</td>
</tr>
<tr>
<td>3&quot;</td>
<td>4</td>
<td>5/8</td>
<td>5-3/4</td>
</tr>
<tr>
<td>4&quot;</td>
<td>8</td>
<td>5/8</td>
<td>6-1/4</td>
</tr>
<tr>
<td>8&quot;</td>
<td>8</td>
<td>3/4</td>
<td>8</td>
</tr>
<tr>
<td>10&quot;</td>
<td>12</td>
<td>7/8</td>
<td>9</td>
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<td>12</td>
<td>7/8</td>
<td>10-1/2</td>
</tr>
<tr>
<td>14&quot;</td>
<td>12</td>
<td>1</td>
<td>12</td>
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<tr>
<td>16&quot;</td>
<td>16</td>
<td>1</td>
<td>13-1/4</td>
</tr>
<tr>
<td>18&quot;</td>
<td>16</td>
<td>1-1/8</td>
<td>14</td>
</tr>
<tr>
<td>20&quot;</td>
<td>20</td>
<td>1-1/4</td>
<td>16-1/2</td>
</tr>
</tbody>
</table>

### Recommended Flow Rate Ranges:

**Liquid:** 3 to 11 Feet/Second  
**Gas:** 20 to 250 Feet/Second

### Additional Piping Notes:

1. Good piping practice recommends the placement of a check valve a distance equal to (5) pipe diameters from any turbulence producing device such as elbows, pumps, etc.
2. The wafer check valve is designed so that it is centralized between the flanges when the stud bolts are in position. The outside diameter of the body is equal to the bolt circle piping center diameter minus the diameter of one bolt. The valve is suitable for use in a variety of orientations. In horizontal line the valve is installed with the pins vertical (i.e. With the pin retainers at the top). Valve sizes 6” and above come standard with lifting eye bolt.
3. Arrows are cast into the valve body to indicate flow direction.
4. Before installation it is advisable to open the plates by hand to ensure valve plates move freely.
5. When installing the valve install the bottom half of the studs first as they will serve as a platform to support the valve while the gasket and other studs are put in. When removing the valve from the line the top half of the studs should be removed then the bottom half of the studs.
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