SILENT CHECK VALVE  WAFER TYPE  CENTER GUIDED

ASME CLASS 150/300 (125/250)  DUCTILE IRON BODY

MODEL: CV 90-DI

Body: Ductile Iron
Trims: Stainless Steel or Bronze
Seats: Buna and Viton

FEATURES

- **DESIGNED FOR LONG SERVICE LIFE**
  NEWLY DESIGNED CV90’S HAVE STRAIGHTENING VANES THAT REDUCE TURBULENCE IN INCOMING FLOW, THUS MINIMIZING NOISE, VIBRATIONS, EROSION, CAVITATIONS, AND OTHER FACTORS THAT COULD RESULT IN PREMATURE VALVE FAILURE.

- **MINIMAL HEAD LOSS**
  HEAD LOSS IS MINIMIZED BY PROVIDING A LARGE CROSS-SECTIONAL AREA WHICH EXCEEDS THAT OF THE ADJACENT PIPELINE. ADDITIONALLY, THE SPRING-LOADED, CENTER GUIDED DISC IS DESIGNED WITH VERY LOW CRACKING PRESSURE WHICH REDUCES THE AMOUNT OF ENERGY REQUIRED TO OPEN THE VALVE.

- **QUICK CLOSURE TO REDUCE WATER HAMMER**
  SILENT SHUT-OFF IS ACHIEVED VIA THE FULLY AUTOMATIC, SPRING ASSISTED DISC THAT CLOSES NEAR ZERO FLOW VELOCITY. THE LIGHTWEIGHT, CENTER GUIDED DISC DESIGN CREATES A POSITIVE SHUTOFF PRIOR TO FLOW REVERSAL AND HELPS TO KEEP SLAMMING AND SURGES TO A MINIMUM.

- **RESILIENT SOFT SEATS**
  SOFT SEATS (BUNA & VITON) COMBINED WITH PRECISION MACHINED SEALING SURFACES ALLOW THE CV 90-DI TO MAINTAIN A BUBBLE SEAL THAT MEETS API 598 LEAKAGE REQUIREMENTS. METAL SEATS CAN ALSO BE FURNISHED.

- **VERSATILE DESIGN**
  SIZES 2” THROUGH 6” UTILIZE A UNIQUE SCALLOP DESIGN THAT PERMITS DUAL PRESSURE SERVICE (ASME CLASS 150 AND 300). SIZES 8” THROUGH 12” ARE ONLY RATED FOR ASME CLASS 150.

MARKETS: OIL AND GAS PRODUCTION, GENERAL INDUSTRY, CHEMICAL, PETROCHEMICAL, POWER, FOOD AND BEVERAGE

SERVICE: PUMP DISCHARGE SERVICE IN MUNICIPAL WATER, IRRIGATION, AND INDUSTRIAL CLASS HVAC SYSTEMS. IT IS RECOMMENDED THAT A TITAN PCI STRAINER BE INSTALLED AHEAD OF THE PUMP TO ENSURE PROTECTION OF THE CHECK VALVE AND THE PUMP.

PRECAUTIONS: THIS VALVE IS INTENDED FOR LIQUID SERVICE THAT DOES NOT EXCEED 10 FT/SEC. IT IS DESIGNED FOR STEADY FLOW CONDITIONS AND IS NOT RECOMMENDED FOR USE IN RECIPROCATING PUMP, COMPRESSOR OR OTHER TYPE OF PHYSICAL/TEMPERATURE SHOCK-LOAD APPLICATIONS. THIS VALVE IS NOT RECOMMENDED FOR STEAM SERVICE OR FLOW MEDIA THAT CONTAINS SOLIDS. IT SHOULD BE INSTALLED AT LEAST FIVE PIPE DIAMETERS DOWNSTREAM FROM ANY TURBULENCE PRODUCING COMPONENTS. FLOW STRAIGHTENERS MAY BE REQUIRED IN CERTAIN APPLICATIONS.

The above data represents common market and service applications. No representation or guarantee, expressed or implied, is given due to the numerous variations of concentrations, temperatures and flow conditions that may occur during actual service.

TITAN FLOW CONTROL, INC.

YOUR PIPELINE TO THE FUTURE!

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290 Corporate Drive  PO Box 7408  Lumberton, NC 28358

TECHNICAL

PRESSURE/Temperature RATING (1)
DUCTILE IRON - ASTM A536 - CLASS 150
WOG (Non-shock): 250 PSI @ 100 °F (2” ~ 12”)

PRESSURE/Temperature RATING (1)
DUCTILE IRON - ASTM A536 - CLASS 300
WOG (Non-shock): 640 PSI @ 100 °F (2” ~ 6”)

SEAT MATERIAL (O-RING) (1)
TEMPERATURE RANGE
BUNA-N: -20 ~ 250 °F
VITON: -40 ~ 400 °F

SPRING MATERIAL (1)
MAXIMUM TEMPERATURE
STAINLESS STEEL: 450 °F

1. The above listed temperatures are theoretical and may vary during actual operating conditions.
**BILL OF MATERIALS**

<table>
<thead>
<tr>
<th>No.</th>
<th>PART</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body (2)</td>
<td>Ductile Iron ASTM A536</td>
</tr>
<tr>
<td>2</td>
<td>Seat (3) (6)</td>
<td>Aluminum Bronze with Buna-N O-ring</td>
</tr>
<tr>
<td>3</td>
<td>Disc</td>
<td>ASTM B148 Aluminum Bronze</td>
</tr>
<tr>
<td>4</td>
<td>Spring</td>
<td>Series 300 Stainless Steel</td>
</tr>
<tr>
<td>5</td>
<td>Bushing</td>
<td>Bronze ASTM B584 Aluminum Bronze</td>
</tr>
<tr>
<td>6</td>
<td>Screws (4)</td>
<td>ASTM A276 Type 304 Stainless Steel</td>
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**BILL OF MATERIALS** for CV 90-DI-B-1

1. **BOM** represents standard materials. Equivalent or better materials may be substituted at the manufacturer's discretion.
2. Bodies are epoxy painted.
3. Metal seats also available.
4. Denotes recommended spare parts.

**ADDITIONAL DESIGN & TECHNICAL NOTES**:

- Sizes 2" through 6" utilize a unique scallop design that permits dual pressure service (150/300 lb).
- Sizes 8", 10" and 12" are not scalloped, but tapping for cap screws is provided. Contact factory for diameter dimension if needed.
- Dimensions, weights, and flow coefficients are provided for reference only. When required, always request certified drawings.
- Cracking pressure is for horizontal installations only. For vertical installations, please consult factory.

**DIMENSIONS AND PERFORMANCE DATA**

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<tr>
<th>SIZE</th>
<th>in</th>
<th>2</th>
<th>2 1/2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>8 (3)</th>
<th>10 (3)</th>
<th>12 (3)</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>50</td>
<td>65</td>
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<td>100</td>
<td>125</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
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**DIMENSION FACE TO FACE**

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<th>SIZE</th>
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<th>2 1/2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>8 (3)</th>
<th>10 (3)</th>
<th>12 (3)</th>
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<tbody>
<tr>
<td></td>
<td>mm</td>
<td>67</td>
<td>73</td>
<td>92</td>
<td>102</td>
<td>117</td>
<td>143</td>
<td>165</td>
<td>210</td>
<td>286</td>
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**DIMENSION OUTSIDE DIAMETER 150 lb (2" THROUGH 12")**

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<th>SIZE</th>
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<tbody>
<tr>
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<td>mm</td>
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<td>127</td>
<td>146</td>
<td>187</td>
<td>171</td>
<td>194</td>
<td>219</td>
<td>276</td>
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**ASSEMBLED WEIGHT**

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<th>SIZE</th>
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<th>6</th>
<th>8 (3)</th>
<th>10 (3)</th>
<th>12 (3)</th>
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<tbody>
<tr>
<td></td>
<td>kg</td>
<td>2.0</td>
<td>3.2</td>
<td>4.3</td>
<td>7.9</td>
<td>11.6</td>
<td>17.2</td>
<td>39.9</td>
<td>73.4</td>
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**Flow Coefficient**

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<th>SIZE</th>
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<th>60</th>
<th>95</th>
<th>150</th>
<th>230</th>
<th>310</th>
<th>450</th>
<th>750</th>
<th>1250</th>
<th>1800</th>
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<tbody>
<tr>
<td></td>
<td>psi</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
<td>≤ .5</td>
</tr>
</tbody>
</table>

**PRESSURE-TEMPERATURE RATINGS**

- **Ductile Iron ASME Class 150 Diameter 2" - 6" Only**
- **Stainless Steel**

**PRESSURE/TEMPERATURE RATING**

<table>
<thead>
<tr>
<th>ASME Class</th>
<th>pressure/temperature rating</th>
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<tbody>
<tr>
<td>150 lb Service</td>
<td>2&quot; - 12&quot;</td>
</tr>
<tr>
<td>300 lb Service</td>
<td>2&quot; - 6&quot; only</td>
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</table>

**SEAT AND SPRING TEMPERATURE RATINGS**

<table>
<thead>
<tr>
<th>SEAT (O-Ring)</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buna-N</td>
<td>-20 °F @ 250 °F</td>
</tr>
<tr>
<td>Viton</td>
<td>-40 °F @ 400 °F</td>
</tr>
</tbody>
</table>

**REFERENCES**

- **CODE DESCRIPTION**
  - ASME B16.42: Ductile Iron Pipe Flanges and Flanged Fittings
  - ASME B16.5: Pipe Flanges and Flanged Fittings
  - MSS SP-6: Standards Finishes for Connecting-end Flanges
  - MSS SP-25: Standard Marking System for Valves
  - MSS SP-125: D.I., In-Line, Spring Loaded, Center-Guided Valves
  - FM APPROVALS CLASS 1230: Anti-Water Hammer Check-Valves (2" - 12")

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**BILL OF MATERIALS**

- **No. PART CV 90-DI-B-1**
- **No. PART CV 90-DI-S-3**

**SILENT CHECK VALVE • WAFFER TYPE**

**CENTER GUIDED DESIGN • DUCTILE IRON**

**MODEL: CV 90-DI - Ductile Iron Body**

**REFERENCES & STANDARDS**

- **CODE DESCRIPTION**
- **REFERENCED STANDARDS & CODES**
  - **ASME Class**
    - 150/300
    - 125/250

**PRESSURE/TEMPERATURE RATING**

- **WOG (Non-shock)**
  - 250 PSI @ 100 °F
  - 640 PSI @ 100 °F

**SEAT AND SPRING TEMPERATURE RATINGS**

- **Buna-N**
  - -20 °F @ 250 °F
- **Viton**
  - -40 °F @ 400 °F
- **SPRING**
  - Maximum Temperature
  - Stainless Steel
  - 450 °F

**THEORY & PRACTICE**

- **1.** Dimensions, weights, and flow coefficients are provided for reference only. When required, always request certified drawings.
- **2.** Sizes 8", 10" and 12" are not scalloped, but tapping for cap screws is provided. Contact factory for diameter dimension if needed.
- **3.** Cracking pressure is for horizontal installations only. For vertical installations, please consult factory.

**ASSEMBLY & INSTALLATION**

- **1.** This chart displays the pressure-temperature ratings for the valve's body per ASME B16.42-1998. Maximum temperature limits have been added for seat and spring materials.

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  - Maximum Temperature
  - Stainless Steel
  - 450 °F

**THEORY & PRACTICE**

- **1.** The listed pressure and temperature ratings for the valve’s body, seat, and spring are theoretical and may vary during actual operating conditions.

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