Direct contact and metal-to-metal seating makes the T-pattern globe stop valve ideal for most shut-off applications

**GENERAL APPLICATION**

Designed for use in high temperature steam and water, this multipurpose gate valve can be used in a wide variety of general purpose applications including vents, drains and isolation of compressors, condensers, heaters, pumps, water lines, heat exchangers, bypass lines, flash tanks, control valves, etc.

**TECHNICAL DATA**

Sizes:  
- NPS ½ to 2  
- Class 1690 STD and LTD  
- Class 2680 STD and LTD  
- Class 4350 STD and LTD

**FEATURES**

- Heavy integral stellite hardfacing on both body and disc seating surfaces.  
- Conical seat, line contact seating.  
- Socket weld ends are available as standard.  
- All valves feature “No bonnet joint” design.  
- Standard body materials are carbon steel (ASME SA105), alloy steel (ASME SA 182 Gr. F22).  
- Small bodies (NPS 1 and smaller) are machined from forged bar.  
- Larger sizes manufactured using die forgings.  
- All yokes are made from die forged materials.  
- GRAFOIL® packing with braided graphite non-extrusion rings on top and bottom.  
- All 7000 Series valves are available in ASME standard and limited classes and are in full compliance with Section I of the ASME boiler and pressure vessel code and ASME B16.34.

**OPTIONS**

- Motor operators  
- Handwheel  
- Impact handles and handwheels
**FEATURES**

**Precision handle locknut** – standard on all sizes, can’t vibrate loose. Holds handle tightly to tapered, squared stem, eliminating play.

**Rugged malleable iron T-handle** – standard on smaller valves. Impactor handwheels on larger models.

**ACME stem thread** – for maximum strength, smooth, quick operation.

**Standard hex gland nuts** – easily adjusted with standard tools.

**Forged steel gland flange** – high strength, forged alloy steel gland flanges are standard. Ball joint design eliminates gland misalignment.

**Rugged stainless steel stem** – heat treated and precision ground for long packing life, ease of operation and resistance to galling and corrosion. Stem is suitable for service at over 1000°F.

**“No bonnet joint” design** – body and yoke are fabricated with a full penetration weld. Eliminates gaskets. Fully repairable without cutting weld.

**Forged steel construction** – full compliance with ASME boiler and pressure vessel code, section I design and material requirements.

**Precision machined disc assembly** – Accurately machined disc, disc retainer and disc pad provide accurate guidance.

**Stellite disc pad bearing** – ensures disc rotation, prevents galling and disc seizure. Prolongs seat life.

**Renewable hard faced seats** – Stellite or equal is standard on all 7000 Series valves. Extra heavy overlay allows for repeated refinishing.

**Smooth, high flow port design** – Large port diameters with minimum changes in direction in flow passages allow for high flow rates and minimum pressure drop spaces.

**Silicon brass thread bushing** – made from high strength, anti-galling silicon brass and threaded for easy removal and replacement.

**Integral forged yoke** – spring-action yoke arms compensate for temperature changes, assuring tight shut-off.

**Two-piece packing gland** – for ease of repacking. Silicon brass material prevents stem abrasion damage.

**Graphite packing rings** – built in corrosion inhibitor for leak tight sealing in high and low temperature applications.

**Non-extrusion rings** – prevent packing migration and ensure long service life in high temperature and high pressure applications.

**Stainless steel packing stop ring** – prevents packing extrusion.

**Fixed or loose backseat design** – optional on all 7000 Series stop valves. Heat treated yoke bushing and retainer nut for gall-resistant stem guiding.

**End connections per ASME B16.34** – Valves are available with socket weld ends as standard.

**Tapered seat configuration** – permits automatic seat and disc alignment. Improved flow capacity and smooth throttling control during initial opening.

**Full code compliance**

7000 Series T- Pattern valves are designed, manufactured and tested in compliance with the requirements of ASME B16.34, as well as the ASME boiler and pressure vessel code, section I.
General Description

Direct contact, metal-to-metal seating makes this globe valve ideal for most shut-off applications. The basic design eliminates the inherent wedge gate valve problem of “wedge sticking” caused when high thermal transients or piping load stresses exert such force that the valve won’t open. Positive, direct closure discs allow for accurate control over the initial portion of stem travel, permitting smooth, linear flow, thereby preventing mechanical and/or thermal shock to the valve, downstream piping or expensive machinery. An outstanding feature of a conventional globe valve is its ability to handle flow around the full seat diameter from the instant it starts to open. The high velocities occurring during the initial opening of a conventional globe valve are distributed evenly and simultaneously across the entire seating surface. It is this characteristic that helps protect the seating surfaces from erosion and helps to prevent high velocity fluid and cavitation from damaging the valve’s downstream body walls or related piping. The availability of metal-to-metal seating gives globe valves the ability to withstand high temperatures. Hard faced seats enhance the globe valve’s ability to hold up in abrasive and high velocity environments. A wide variety of body and trim materials permit its use in severe and corrosive service applications. The globe valve’s top entry design makes it easy to service and maintain. T-Pattern designs, by virtue of their tortuous flow path, reduce velocity and are ideal where throttling is required during initial opening.

Selection

T-Pattern globe stop valves can be used in a wide variety of services and applications. They are especially well suited for applications requiring:

• Tight shut-off, high pressures and temperatures
• Slow initial opening times
• Rapid actuation or high speed remote operation
• Valve operation during, or after, high thermal or piping stress transient conditions
• Isolation, draining, venting or filling at high pressures and/or temperatures, while having to maintain tight shut-off at maximum operating conditions
• Pressure or temperature equalizing of systems or large valves

When selecting globe valves, utilization of a top entry design, with a non-welded bonnet closure, will permit easy access to internal components for service and parts replacement, without having to remove the valve from the line. The ability to make quick repairs is especially important at start-up time when valve damage from fabrication debris is most likely to cause expensive down time and project delays.
**YARWAY HANCOCK T-PATTERN GLOBE VALVES**

**SERIES 7000**

---

**PARTS LIST**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Alloy steel</th>
<th>Carbon steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>ASME SA182 Gr. F22</td>
<td>ASME SA105</td>
</tr>
<tr>
<td>2</td>
<td>Yoke</td>
<td>ASME SA182 Gr. F22</td>
<td>ASME SA105</td>
</tr>
<tr>
<td>3</td>
<td>Stem</td>
<td>ASTM A582 Type 416 Condition T</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Disc</td>
<td>Stainless Steel ASTM A276 Type 410 Condition T</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Disc nut</td>
<td>Stainless Steel ASTM A276 Type 420, heat treated</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Disc pad</td>
<td>Alloy Steel - Haynes Alloy 25</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Disc facing [Integral]</td>
<td>Stellite 6 or equal</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Seat facing [Integral]</td>
<td>Stellite 6 or equal</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Packing gland¹</td>
<td>Silicon alloy/ASTM B371 Alloy 694</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Packing gland flange</td>
<td>Carbon steel ASTM A105</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Packing gland stud</td>
<td>Alloy steel ASTM A193 Gr. B7</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Packing gland stud nut</td>
<td>Carbon steel/ASTM A194 Gr. 2H</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Marker plate</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Packing</td>
<td>Compressed graphite</td>
<td></td>
</tr>
<tr>
<td>14A</td>
<td>Non-Extrusion ring</td>
<td>Braided graphite filament</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Packing stop ring</td>
<td>Stainless steel ASTM A276 Type 410 Condition T</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Yoke bushing</td>
<td>Stainless steel ASTM A276 Type 420, heat treated</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Yoke bushing nut</td>
<td>ASTM A582 Type 410 Stainless steel, heat treated</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Thread bushing</td>
<td>ASTM B371 Alloy C64A400 silicon brass</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Handle</td>
<td>Malleable iron ASTM A47 Gr. 32510</td>
<td></td>
</tr>
<tr>
<td>19A</td>
<td>Impactor handle²</td>
<td>Malleable iron ASTM A47 Gr. 32510</td>
<td></td>
</tr>
<tr>
<td>19B</td>
<td>Impactor handwheel²</td>
<td>Malleable iron ASTM A47 Gr. 32510</td>
<td></td>
</tr>
<tr>
<td>19C</td>
<td>Hi-Tork bushing²</td>
<td>Malleable iron ASTM A47 Gr. 32510</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Handle nut</td>
<td>Carbon steel, self locking type</td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

1. Split packing gland is made in two halves.
2. Optional item.
# YarWay Hancock T-Pattern Globe Valves
## Series 7000

### 1690 Class Dimensions, Weights and \( C_v \) Values

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS</td>
<td>lbs</td>
</tr>
<tr>
<td>½</td>
<td>1.62</td>
</tr>
<tr>
<td>¾</td>
<td>1.62</td>
</tr>
<tr>
<td>1</td>
<td>1.96</td>
</tr>
<tr>
<td>1¼</td>
<td>2.91</td>
</tr>
<tr>
<td>2</td>
<td>3.50</td>
</tr>
</tbody>
</table>

### 2680 Class Dimensions, Weights and \( C_v \) Values

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS</td>
<td>lbs</td>
</tr>
<tr>
<td>½</td>
<td>1.62</td>
</tr>
<tr>
<td>¾</td>
<td>1.93</td>
</tr>
<tr>
<td>1</td>
<td>2.25</td>
</tr>
<tr>
<td>1¼</td>
<td>3.15</td>
</tr>
<tr>
<td>2</td>
<td>3.93</td>
</tr>
</tbody>
</table>

### 4350 Class Dimensions, Weights and \( C_v \) Values

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS</td>
<td>lbs</td>
</tr>
<tr>
<td>½</td>
<td>1.05</td>
</tr>
<tr>
<td>¾</td>
<td>1.28</td>
</tr>
<tr>
<td>1</td>
<td>1.56</td>
</tr>
<tr>
<td>1¼</td>
<td>2.17</td>
</tr>
<tr>
<td>2</td>
<td>2.38</td>
</tr>
</tbody>
</table>

* Contact your sales representative.
HIGH-Pressure “NO BONNET JOIN” valves are designed to meet the requirements of the electrical power industry’s high pressure/high temperature steam generating plants, as well as the high pressure requirements of the process industry. This valve’s one piece body design offers simplicity of disassembly and maintenance without removing the valve from the line. There are no bonnet bolts to undo, no welds to break and no gaskets to replace.

The maintenance tools illustrated, and the procedures described in the maintenance manual, are designed to facilitate in-line valve service and repair in a minimum of time, without sacrificing maintenance quality or requiring special training of maintenance personnel.

These valves offer design simplicity for long trouble-free service and easy in-line maintenance. In five simple steps, the valve can be completely disassembled, ready for inspection and easily accessible for in-line repair.

**MAINTENANCE FEATURES**

**Service and repair tools for in-line valve maintenance**

High pressure “no bonnet joint” valves are designed to meet the requirements of the electrical power industry’s high pressure/high temperature steam generating plants, as well as the high pressure requirements of the process industry. This valve’s one piece body design offers simplicity of disassembly and maintenance without removing the valve from the line. There are no bonnet bolts to undo, no welds to break and no gaskets to replace.

The maintenance tools illustrated, and the procedures described in the maintenance manual, are designed to facilitate in-line valve service and repair in a minimum of time, without sacrificing maintenance quality or requiring special training of maintenance personnel.

These valves offer design simplicity for long trouble-free service and easy in-line maintenance. In five simple steps, the valve can be completely disassembled, ready for inspection and easily accessible for in-line repair.

**Step #1:** Upset material holding thread bushing to yoke is removed first, by filing.

**Step #2:** Packing gland nuts are then removed, gland flange is lifted and split glands removed. Thread bushing and handwheel nut are loosened.

**Step #3:** Using stem as a jack screw, it is turned as when opening valve, to lift packing out of stuffing box. When the last thread of the stem makes up on the thread bushing, bushing is backed off and split glands inserted, as shown in photo. This allows more jacking height when removing packing from stuffing box.

**Step #4:** Stem assembly is completely removed. Valve is ready for lapping.

**Step #5:** Valve is completely disassembled, ready for inspection and accessible for repair, if necessary.
## TYPICAL SPECIFYING SEQUENCE

<table>
<thead>
<tr>
<th>Example</th>
<th>1</th>
<th>7150</th>
<th>W</th>
<th>219</th>
<th>LTD</th>
<th>XXX</th>
</tr>
</thead>
</table>

### Size of connection
- ½, ¾, 1, 1½, 2

### Valve type number
- 7130 - 1690 Class, T-Pattern, loose backseat
- 7150 - 1690 Class, T-Pattern, fixed backseat
- 7230 - 2680 Class, T-Pattern, loose backseat
- 7250 - 2680 Class, T-Pattern, fixed backseat
- 7440 - 4350 Class, T-Pattern, loose backseat
- 7650 - 4350 Class, T-Pattern, fixed backseat

### End connection
- W - Socket weld end

### Material combination suffix
- 218 - Carbon steel (SA 105) body and standard trim
- 219 - Alloy steel (ASME SA 182 Gr. F22) body and standard trim

### ASME Class
- None - ASME Standard class
- LTD - ASME limited class

### Operator type
- None - Manual
- Other - Specify

### HOW TO ORDER

When ordering the high pressure 7000 series valves, please specify quantity, figure number and applicable data below:

A. Quantity required
B. Nominal valve size
   - ½, ¾, 1, 1½, 2
C. ASME rating
   - 1690 STD or LTD
   - 2680 STD or LTD
   - 4350 STD or LTD
D. Type of valve
   - T-Pattern globe valve
E. Valve style
   - No bonnet joint, OS&Y, loose backseat
   - No bonnet joint, OS&Y, fixed backseat
F. Body material
   - ASME SA 105 Carbon steel
   - ASME SA 182 Gr. F22 Alloy steel
G. Trim material
   - 13% Cr, Hardfaced seat and disc
H. Type of end connection
   - Socket weld end
I. Operator type
   - Standard (T-Handle)
   - Handwheel
   - Motor
J. Figure number
   - See chart above
K. Operating conditions
   - Working pressure
   - Working temperature
   - Design pressure
   - Design temperature
   - Flow media
   - Flow capacity (if applicable)
L. Operator specifications
   - Electrical requirements
   - Manual override
   - Limit switch(es)

**Operating conditions:**
Fluid = _____ at _____ psig and _____ °F;
Required flow rate = _____ lbs/hr.
Design conditions: Fluid = _____ psig and _____ °F;
Design flow rate = _____ lbs/hr.