FIGURE 790
CRYOTREE™ ASSEMBLY

SIZES 3/4" to 11/2"
PRESSURES to 400 psig at 400°F

- Dual safety relief systems engineered for maximum safety and reliability
- Easy system installation
- Includes high capacity safety relief valves, full flow diverting valve, rupture discs, bleed valves, and related piping assembled
- Standardized components
- Low maintenance
- Eliminates the need to shut down and evacuate the tank for service
- Minimizes pressure drop in system
- Cleaned and packaged for use in O2 service in compliance with the CGA specification G-4.1
- Sealed in 6 mil poly bags to eliminate contamination prior to installation
- Handle indicates flow direction

MODELS
- 790 - Bronze CryoTree™

APPLICATIONS DATA

- On stationary cryogenic storage tanks to isolate safety relief valves and rupture discs in the event they need to be serviced

APPLICABLE CODES

- CGA S-1.2 and S-1.3.
- ASME Sec.VIII
- API 527
- ANSI B16.18
- ANSI B31.1

Our CryoTree™ assemblies are manufactured for use on stationary cryogenic storage tanks to isolate safety relief valves and rupture discs in the event they need to be serviced. Utilizing this system eliminates the need to shut down and evacuate the tank for service. This modular assembly provides for just a single connection to the internal tank piping.

CODE SELECTION CHART

<table>
<thead>
<tr>
<th>Model - Position 1, 2 &amp; 3</th>
<th>790 = CryoTree™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve Size - Position 4</td>
<td>D = ¾ E = 1 G = 1½</td>
</tr>
<tr>
<td>Top Port - Position 5</td>
<td>F = Full</td>
</tr>
<tr>
<td>Bottom Port - Position 6</td>
<td>D = ¾ E = 1 F = 1¼ G = 1½</td>
</tr>
<tr>
<td>Side Port - Position 8</td>
<td>A = ½</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material - Position 9</th>
<th>SRV Orifice - Position 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>B = Bronze w/316 Stem</td>
<td>A = ½ B = C = D = E = 1 F = 1¼ G = 1¼ H = 2</td>
</tr>
<tr>
<td>SRV Outlet - Position 10</td>
<td>Set Pressure - Position 12, 13 &amp; 14</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>D = ¾ E = 1 F = 1¼ G = 1¼ H = 2</td>
<td></td>
</tr>
</tbody>
</table>

__ __ __ = Actual Setting
**FIGURE 790**

**CRYOTREE™ ASSEMBLY**

**SPECIFICATION**

The valve shall be utilized for applications that require full flow manifolds. The valve shall have 180 degrees of operation. The valve shall contain two safety relief valves, two rupture discs and two bleed valves. The handle shall indicate the direction of flow. The stem shall be blow out proof and contain V-ring packing material. The valve shall be cleaned to CGA G-4.1.

**MATERIALS**

- **Body** .................. Bronze B62
- **End Plate** .................. Bronze B62
- **Ball** .................. Bronze
- **Stem** .................. 316SS
- **Inlet Pipe** .................. 304SS ASTM 312 Schedule
- **Bleed Port Valve** ........ Brass
- **Rupture Disk** ........ Brass/Monel
- **Bolts** .................. 304SS A193

**Dimensions**

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>A</th>
<th>B*</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>¾F</td>
<td>7.3</td>
<td>22.5</td>
<td>14.8</td>
<td>7.75</td>
</tr>
<tr>
<td>(20)</td>
<td>(185.4)</td>
<td>(571.5)</td>
<td>(375.9)</td>
<td>(196.9)</td>
</tr>
<tr>
<td>1F</td>
<td>8.7</td>
<td>25.7</td>
<td>16.5</td>
<td>12.00</td>
</tr>
<tr>
<td>(25)</td>
<td>(221.0)</td>
<td>(652.8)</td>
<td>(419.1)</td>
<td>(304.8)</td>
</tr>
<tr>
<td>1½F</td>
<td>10.2</td>
<td>27.3</td>
<td>18.3</td>
<td>12.00</td>
</tr>
<tr>
<td>(40)</td>
<td>(259.1)</td>
<td>(693.4)</td>
<td>(464.8)</td>
<td>(304.8)</td>
</tr>
</tbody>
</table>

Flows may vary slightly due to outlet connection sizes.

**High Flow Diverter Valve C\textsubscript{V} Values**

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>Safety Relief Valve Outlet</th>
<th>Rupture Disc Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(C_{v}) mid position (90°)</td>
<td>(C_{v}) full open (180°)</td>
</tr>
<tr>
<td>¾F</td>
<td>9.2</td>
<td>10.7</td>
</tr>
<tr>
<td>1F</td>
<td>25.3</td>
<td>16.4</td>
</tr>
<tr>
<td>1½F</td>
<td>40.0</td>
<td>23.8</td>
</tr>
</tbody>
</table>

**High Flow Diverter Valve C\textsubscript{V} Graph**

**CryOTree Configuration Chart**

- **790DFxxxB-xx**
  - 3/4” CryoTree
  - Largest Configuration Possible = 790DFDCDB-GC
  - Top = 3/4” NPT Max
  - Bottom = 1/2” NPT Max
  - Side = 3/4” NPT Max (1/4” recommended)
  - SRV Outlet = 1” Max
  - SRV Orifice = C Max

- **790EFxxxB-xx**
  - 1” CryoTree
  - Largest Configuration Possible = 790EFFEB-HD
  - Top = 1” NPT Max
  - Bottom = 1” NPT Max
  - Side = 1” NPT Max (1/4” recommended)
  - SRV Outlet = 2” Max
  - SRV Orifice = D Max

- **790GFxxxB-xx**
  - 1½” CryoTree
  - Largest Configuration Possible = 790GFGB-B-J E
  - Top = 1½” NPT Max
  - Bottom = 1½” NPT Max
  - Side = 1½” NPT Max (1/4” recommended)
  - SRV Outlet = 2½” Max
  - SRV Orifice = E Max

Refer to valve information for maximum set pressure.