Applications
- Pressure Regulation for Steam Distribution
- Single Point or Multiple Use Applications
- Pressure Control for Steam Plants
- District Heating Systems
- Single Stage Reduction Stations
- Two Stage Reduction Stations
- Parallel Reduction Stations

Iron Horse ED Series Pressure Regulator
Pressures To 600 PSIG
Temperatures to 750°F

Three Pilot Mounting Options
include standard side mount (shown), integral mount and remote mount

SECO Metal Seats and Discs
resist wear, eliminating the need for one case of SECO Metal being cut by steam in 75 years

Packless Construction
eliminates leakage and greatly reduces friction and stem wear

Two Main Spring Options
for superior regulation over a wide range of applications

Large, Protected Metal Diaphragm
bathed in condensate, sealed away from steam, seldom needs replacement

No Closely Fitted Parts
to stick or bind due to uneven expansion or foreign matter

Few Moving Parts
mean long service life

Springs Outside Steam Path
assure exceptionally long life on both Main Valve and Pilot

Easy Inspection
provided by external diaphragm loading steam passages

Guaranteed Dead End Shutoff
meets FCI 70-3 Class IV in steam service, even on large sizes

Patented SECOWELD Option
allows easy repair of seat ring threads damaged by high pressure applications
HOW TO CHOOSE A REGULATOR

If you already know the product that you want information on, find the product page in the Table of Contents. Pages showing popular combinations of Pilot and Regulators are found in the Combination Regulators Chapter. Detailed product information on materials, ratings, dimensions, weights and applications are found in the Products Chapters. All sizing information is contained in the Regulator Sizing Chapter. If you are not sure of what you need, collect all the following information. You will need it to select the right product for your needs.

- Inlet Pressure
- Flow Rate
- Flow Media (i.e.: Steam, Water, etc.)
- Desired Delivery Pressure
- Noise Restrictions, if any
- Type of Pilot Control (i.e.: Self Contained, Pneumatic, Electronic, etc.)

Application (i.e.: Temperature Regulation, Single Stage Pressure Regulation, etc.)

Application data is listed on each Product Page. If you identify the nature of the installation, it will assist you selecting the proper equipment.

DIRECT ACTING OR PILOT OPERATED REGULATOR?

You may be able to use a Direct Operated Regulator for your application. They are generally less expensive than Pilot Operated Regulators. However, they do not provide the same level of accuracy or rangeability. If a Direct Acting Regulator is an option, consult the Direct Operated Valves Chapter to determine which best fits your specific needs. Then, consult the appropriate pages in the Regulator Sizing Chapter to select the exact size you need.

If a Pilot Operated Regulator is required, go to Page 14 (for Pressure Regulators) or Page 15 (for Temperature Regulators). These selection charts will help you to quickly determine the type of product that you need. The Pilot can be self contained, pneumatically or electronically actuated. Consult the appropriate pages in the Regulator Sizing Chapter to select the exact size Regulator and Pilot you need. Overall dimensions of the most popular combinations are provided in the Combination Regulators Chapter.

ECONOMICAL, ENGINEERED OR ENGINEERED WITH NOISE SUPPRESSION?

The choice of how to size a regulator for an application is up to you. The most economical choice does not necessarily take into consideration the optimum loading of the Regulator, which could affect its service life. Properly engineered Spence Regulators have been in continuous service for as much as 50 years. In high pressure reduction stations, noise can be a serious environmental problem. Spence offers a number of Noise Suppression products to reduce this problem. You will find comprehensive noise reduction sizing and selection information in the Noise Reduction Chapter.
THE OPERATING CYCLE OF A SPENCE PRESSURE REGULATOR

The basic Type ED has been selected to illustrate the operation of a SPENCE Pilot Operated Pressure Regulator. This presentation describes the successive steps in the mechanical cycle of the Regulator.

1 MAIN VALVE is normally closed. On placing Regulator in service, initial pressure fills the passages shown in red.

2 PILOT receives initial pressure through Nipple and Union Connection.

3 CONTROL LINE connects Pilot Diaphragm Chamber to Delivery piping.

4 ADJUSTING SPRING, when compressed, forces Pilot Valve open.

5 CONNECTING TUBING conducts fluid from Pilot to Main Valve Diaphragm and Bleedport. When Pilot opens, fluid flows through Pilot faster than it can escape at Bleedport, creating a loading pressure (orange) which forces Main Valve open.

6 DELIVERY PIPE and Control Line are now being filled with fluid flowing through Main Valve. As delivery pressure (yellow) rises, it overcomes the force exerted by Adjusting Spring and Pilot throttles. This, in turn, allows Main Valve to throttle just enough to maintain the set delivery pressure.

If the demand ceases, Pilot closes, allowing the Main Valve to close – effecting a DEAD-END SHUTOFF.
THE OPERATING CYCLE OF A SPENCE TEMPERATURE REGULATOR

The Type ET134 has been selected to illustrate the operation of a SPENCE Pilot Operated Temperature Regulator. This presentation describes the successive steps in the mechanical cycle of the Regulator.

1 MAIN VALVE is normally closed. On placing Regulator in service, initial pressure fills the passages shown in red.

2 PILOT receives initial pressure through Nipple and Union Connection.

3 CONTROL LINE connects Pilot Diaphragm Chamber to Delivery piping.

4 PRESSURE SPRING forces Pilot Valve open.

5 CONNECTING TUBING conducts steam from Pilot to Main Valve Diaphragm and Bleedport. When Pilot opens, steam flows through Pilot faster than it can escape at Bleedport, creating a loading pressure (orange) which forces Main Valve open.

6 HEATER, Delivery Pipe and Control Line are now being filled with steam flowing through Main Valve. As delivery pressure (yellow) rises, it overcomes the force exerted by Pressure Spring and Pilot throttles. This, in turn allows Main Valve to throttle just enough to maintain the set delivery pressure.

7 THERMOSTAT ELEMENT (vapor tension type) is connected into heater outlet. The rising temperature of the fluid (blue) being heated creates a vapor pressure (green) on the Temperature Diaphragm. When this pressure has reached a point sufficient to overcome the Temperature Adjusting Spring, it applies a force on the Lever so as gradually to decrease the spring loading on the Pressure Diaphragm. This produces a stem-by-step reduction in the delivery pressure as the temperature rises through several degrees. If the desired temperature is exceeded, the vapor pressure on the Pilot Temperature Diaphragm overcomes the forces of the Spring. This allows Pilot and Main Valve to close tight.
QUICK SELECTION CHART
FOR STEAM PRESSURE REGULATORS

Review the application data that you have collected. Consult the chart, starting with the inlet pressure that matches the inlet pressure you have. Next, select your outlet pressure (reduced or delivery pressure). Then select the type of pilot control that you will be using and, finally, the level of accuracy that your system requires. This will lead you to a recommended regulator.

Please bear in mind that these recommendations are general in nature and you should check the Product Pages and Sizing Section to ensure you have selected the correct product. If you need assistance, contact your local Spence Technical Sales Representative.

* Electronic Pilot accuracy is a function of controller accuracy.
QUICK SELECTION CHART FOR TEMPERATURE REGULATORS

Review the application data that you have collected. Consult the chart, starting with the inlet pressure that matches the inlet pressure you have. Next, select your outlet pressure (reduced or delivery pressure). Then select the type of pilot control that you will be using and, finally, the level of accuracy that your system requires. This will lead you to a recommended regulator.

Please bear in mind that these recommendations are general in nature and you should check the Product Pages and Sizing Section to ensure you have selected the correct product. If you need assistance, contact your local Spence Technical Sales Representative.

* See Control Valve Section, Page 142
<table>
<thead>
<tr>
<th>TYPES</th>
<th>SIZES, BODY MATERIAL* AND FACINGS</th>
<th>OTHER MATERIALS*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAST IRON</td>
<td>CAST BRONZE</td>
</tr>
<tr>
<td></td>
<td>Screwed Ends</td>
<td>Flanged ANSI 150</td>
</tr>
<tr>
<td>SIZES--INCHES</td>
<td>%%-2</td>
<td>1-12</td>
</tr>
<tr>
<td>Max. Initial Pressure--psi</td>
<td>250</td>
<td>125</td>
</tr>
<tr>
<td>Max. Initial Temperature--°F</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Min. Differential--psi</td>
<td>10/30/50</td>
<td>10/30/50</td>
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<td>E2</td>
<td>%%-2</td>
<td>1-12</td>
</tr>
<tr>
<td>Max. Initial Pressure--psi</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Max. Initial Temperature--°F</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Min. Differential--psi</td>
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<td>3</td>
</tr>
<tr>
<td>E5</td>
<td>%%-2</td>
<td>1-12</td>
</tr>
<tr>
<td>Max. Initial Pressure--psi</td>
<td>250</td>
<td>125</td>
</tr>
<tr>
<td>Max. Initial Temperature--°F</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Min. Differential--psi</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>E6</td>
<td>%%-2</td>
<td>1-12</td>
</tr>
<tr>
<td>Max. Initial Pressure--psi</td>
<td>250</td>
<td>125</td>
</tr>
<tr>
<td>Max. Initial Temperature--°F</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Min. Differential--psi</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>C34</td>
<td>1-2</td>
<td>2-6</td>
</tr>
<tr>
<td>Max. Initial Pressure--psi</td>
<td>200</td>
<td>165</td>
</tr>
<tr>
<td>Max. Initial Temperature--°F</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Min. Differential--psi</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

*Main Valves for corrosive fluids or costly gases require special materials.

Bronze body and blind flange only.

Minimum Differential is the smallest permissible difference between initial pressure (measured at the inlet) and the delivery pressure (measured at the outlet) of the main valve.

Secoweld seat construction described in Options Section is regularly furnished for service pressures 400 psi and higher.

17-4 PH stems are furnished for service temperatures exceeding 600°F.

Inconel springs are furnished for service pressures exceeding 400 psi and/or temperatures exceeding 600°F.

Standard spring (HP) requires minimum 30 PSI differential. 50 PSI is recommended minimum differential. Use optional Low DP (LP) main spring for 15 psi minimum differential. 10 psi minimum differential is attainable by adding base bypass and %,* bleedport.
Main Valves
TYPE E MAIN VALVE

APPLICATION DATA
- Pressure Regulating for Steam Distribution
- Regulating for Process Control (Temperature or Pressure)
- Maintain Back Pressure or Differential Pressure
- For use with Self-contained, Pneumatic or Electronic Pilots
- Single Point or Multiple Use Applications
- Slow Start-up or Shutdown

VALVE RATINGS

<table>
<thead>
<tr>
<th>Valve Ends</th>
<th>Pressure (PSIG, bar)</th>
<th>Temperature °F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME/ANSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAST IRON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B16.4 Class 250 NPT</td>
<td>250 (17.2)</td>
<td>@ 450 (232)</td>
</tr>
<tr>
<td>B16.1 Class 125 Flanged</td>
<td>125 (8.6)</td>
<td>@ 450 (232)</td>
</tr>
<tr>
<td>CAST STEEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B16.34 Class 300 NPT</td>
<td>300 (21.0)</td>
<td>@ 600 (315)†</td>
</tr>
<tr>
<td>B16.34 Class 150 Flanged</td>
<td>150 (10.3)</td>
<td>@ 500 (260)</td>
</tr>
<tr>
<td>B16.34 Class 300 Flanged</td>
<td>300 (21.0)</td>
<td>@ 600 (315)†</td>
</tr>
<tr>
<td>B16.34 Class 600 Flanged</td>
<td>600 (41.4)</td>
<td>@ 600 (315)†</td>
</tr>
</tbody>
</table>
†750°F (400°C) construction available on request.
Other pressure/temperature ratings available; consult factory.
Maximum downstream pressure is 300 psi.
Canadian Registration # OC 0591,3C

Installation Tip: Add EZ Connections for ease of maintenance
  SEE PAGE 40

SIZING INFO PAGE 106

RATED FLOW COEFFICIENTS (Cv)

<table>
<thead>
<tr>
<th>SEAT FACTOR</th>
<th>1/4</th>
<th>1/2</th>
<th>3/4</th>
<th>1</th>
<th>1/4</th>
<th>1/2</th>
<th>2</th>
<th>2/2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>8</th>
<th>10</th>
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<td>Full</td>
<td>1.5</td>
<td>2.8</td>
<td>5.4</td>
<td>8.8</td>
<td>14.1</td>
<td>19.8</td>
<td>31</td>
<td>44</td>
<td>74</td>
<td>109</td>
<td>169</td>
<td>248</td>
<td>444</td>
<td>706</td>
<td>1113</td>
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<tr>
<td>Full 75 %</td>
<td>—</td>
<td>2.2</td>
<td>4.2</td>
<td>7.2</td>
<td>11.1</td>
<td>15.9</td>
<td>22.9</td>
<td>37</td>
<td>56</td>
<td>88</td>
<td>136</td>
<td>188</td>
<td>353</td>
<td>558</td>
<td>880</td>
</tr>
<tr>
<td>Full 50 %</td>
<td>—</td>
<td>1.7</td>
<td>2.6</td>
<td>6.3</td>
<td>7.4</td>
<td>11.3</td>
<td>17.7</td>
<td>25</td>
<td>42</td>
<td>65</td>
<td>94</td>
<td>139</td>
<td>252</td>
<td>400</td>
<td>631</td>
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<tr>
<td>Normal</td>
<td>.66</td>
<td>1.55</td>
<td>4.8</td>
<td>7.5</td>
<td>10.4</td>
<td>14.6</td>
<td>17.6</td>
<td>24</td>
<td>43</td>
<td>78</td>
<td>115</td>
<td>151</td>
<td>249</td>
<td>377</td>
<td>631</td>
</tr>
<tr>
<td>Normal 75 %</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>18</td>
<td>34</td>
<td>62</td>
<td>89</td>
<td>110</td>
<td>187</td>
<td>294</td>
<td>463</td>
<td></td>
</tr>
<tr>
<td>Normal 50 %</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>14</td>
<td>26</td>
<td>46</td>
<td>65</td>
<td>83</td>
<td>139</td>
<td>230</td>
<td>363</td>
<td></td>
</tr>
</tbody>
</table>

* When installed according to factory specifications.
**TYPE E MAIN VALVE**

**SPECIFICATION**

The valve shall be self-operated, external pilot type, single seated, metal diaphragm actuated, normally closed design. The valve will function quickly and shut tight on dead-end service. Internal parts including seats, discs, stems and diaphragms shall be of stainless steel. There shall be no springs in the stem space and no stuffing box. The valve shall be easy to maintain with all parts accessible without removal from the line.

**MATERIALS OF CONSTRUCTION**

Body, Cast Iron .................. ASTM A126 Cl. B  
Body, Cast Steel .................. ASTM A216 WCB  
Stem ............................ 303 St. Stl. ASTM A582  
Disc 3/4 - 5" .................. 420 St. Stl. ASTM A743 CA-40  
Disc 6 - 12" .................. 304 St. Stl. ASTM A167/A240  
Seat 3/4 - 5" .................. 420 St. Stl. ASTM A743 CA-40  
Seat 6 - 12" .................. 316 St. Stl. ASTM A743-79 CF-5M  
Gasket .................. Non-asbestos  
Diaphragm .................. Stainless Steel MIL-S-5059C  
Spring .................. Steel

---

**DIMENSIONS**

**FACE TO FACE DIMENSIONS**

TYPE E2 MAIN VALVE

APPLICATION DATA
- Pressure Regulating for Steam Distribution
- Regulating for Process Control (Temperature or Pressure)
- Maintain Back Pressure or Differential Pressure
- For use with Self-contained, Pneumatic or Electronic Pilots
- Single Point or Multiple Use Applications
- Slow Start-up or Shutdown

VALVE RATING

<table>
<thead>
<tr>
<th>Valve Ends</th>
<th>Pressure</th>
<th>Temperature</th>
<th>ASME/ANSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAST IRON</td>
<td>PSIG (bar)</td>
<td>°F (°C)</td>
<td></td>
</tr>
<tr>
<td>B16.4 Class 250 NPT</td>
<td>15 (1.03)</td>
<td>250°F (121°C)</td>
<td>B16.1 Class 125 Flanged</td>
</tr>
<tr>
<td></td>
<td>15 (1.03)</td>
<td>250°F (121°C)</td>
<td></td>
</tr>
</tbody>
</table>

Canadian Registration # OC 0591.9C

Installation Tip: Add EZ Connections for ease of maintenance
SEE PAGE 40

SIZING INFO
PAGE 106

RATED FLOW COEFFICIENTS (Cv)

<table>
<thead>
<tr>
<th>SEAT FACTOR</th>
<th>REGULATOR SIZE</th>
<th>1/4</th>
<th>1/4</th>
<th>1/2</th>
<th>2</th>
<th>2 1/2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
<td></td>
<td>7.6</td>
<td>11.7</td>
<td>18.9</td>
<td>27.4</td>
<td>44</td>
<td>68</td>
<td>96</td>
<td>143</td>
<td>202</td>
<td>255</td>
<td>465</td>
<td>748</td>
</tr>
<tr>
<td>70%-75%</td>
<td></td>
<td>8.8</td>
<td>13.2</td>
<td>19.2</td>
<td>30.8</td>
<td>47.6</td>
<td>67.2</td>
<td>100</td>
<td>141</td>
<td>178</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>45%</td>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>12.3</td>
<td>—</td>
<td>30.6</td>
<td>—</td>
<td>64.4</td>
<td>—</td>
<td>115</td>
<td>—</td>
<td>336</td>
</tr>
</tbody>
</table>

* When installed according to factory specifications.

TYPE E2 MAIN VALVE
LOW PRESSURE
LOW DIFFERENTIAL

SIZES 3/4" – 10"
PRESSURES to 15 PSIG at 250°F

- Normally Closed
- Single Seat
- Nitrile Diaphragm
- Protected Main Spring
- Gas & Steam Applications
- Accurate Regulation Unaffected by Service Conditions
- ANSI/FCI 70-2 Class IV Shutoff
- Virtually Frictionless for Long Service Life
- Packless Construction
- Easy In-line Maintenance
- Wide Variety of Pilots for Many Applications

MINIMUM OPERATING ∆P 3 psi (.2 bar)

LIFETIME WARRANTY AGAINST WIREDRAWING OF SEAT & DISC *

OPTIONS
- Composition Disc for liquid, air or gas service
- Insulcap Insulating Jacket
- Integral Mount: Pilot
- EZ Connections

TYPICAL CONFIGURATIONS

PRESSURE REDUCING ............TYPE E2D
AIR ADJUSTED ..................TYPE E2A SERIES
BACK PRESSURE .................TYPE E2Q
LOAD ALLOCATING ...............TYPE E2FD
AIR CONTROLLED ...............TYPE E2AP60
ELECTRONIC SLOW START ......TYPE E2D208D
SOLENOID CONTROLLED ...........TYPE E2MD
SOLENOID ACTUATED .............TYPE E2M
DIFFERENTIAL ....................TYPE E2N
TEMPERATURE CONTROL ........TYPE E2T14
TEMP. & PRESSURE CONTROL ......TYPE E2T134

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**TYPE E2 MAIN VALVE**

**SPECIFICATION**
The valve shall be self-operated, external pilot type, single seated, nitrile diaphragm actuated, normally closed design. The valve will function quickly and shut tight on dead end service. Internal parts including seats, discs and stems shall be of stainless steel. There shall be no springs in the steam flow path and no stuffing box. The valve shall be easy to maintain with all parts accessible without removal from the line.

**MATERIALS OF CONSTRUCTION**
Body, Cast Iron ..................................ASTM A126 Cl. B
Stem .............................................303 St. Std. ASTM A552
Disc 3/4 - 2" .................420 St. Stl ASTM A743 CA-40
Disc 2-1/2 - 10" ......304 St. Stl ASTM A167/A240
Seat .............................................420 St. Stl ASTM A743 CA-40
Gasket ............................................Non-asbestos
Diaphragm ..........................................Nitrile
Spring .............................................Steel

---

**TYPE E2 MAIN VALVE**

**DIMENSIONS** inches (mm), **WEIGHTS** pounds (kg)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CI ANSI NPT</th>
<th>CI ANSI 125</th>
<th>A</th>
<th>B</th>
<th>Std. Mount</th>
<th>Integral Mount</th>
<th>D*</th>
<th>CI ANSI NPT</th>
<th>CI ANSI 125</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>4½ (19)</td>
<td>—</td>
<td>8</td>
<td>(203)</td>
<td>2½ (73)</td>
<td>3½ (92)</td>
<td>7½ (167)</td>
<td>18</td>
<td>—</td>
</tr>
<tr>
<td>1</td>
<td>5½ (25)</td>
<td>5½ (137)</td>
<td>8</td>
<td>(203)</td>
<td>3½ (92)</td>
<td>4½ (111)</td>
<td>8½ (206)</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>1¼</td>
<td>6½ (22)</td>
<td>6½ (165)</td>
<td>9</td>
<td>(229)</td>
<td>4½ (105)</td>
<td>4 (110)</td>
<td>8 (210)</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>1½</td>
<td>7½ (33)</td>
<td>7½ (184)</td>
<td>9½</td>
<td>(248)</td>
<td>4½ (111)</td>
<td>4½ (110)</td>
<td>8 (222)</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>8½ (61)</td>
<td>8½ (191)</td>
<td>10½</td>
<td>(267)</td>
<td>5½ (133)</td>
<td>5 (127)</td>
<td>10 (254)</td>
<td>50</td>
<td>57</td>
</tr>
<tr>
<td>2½</td>
<td>—</td>
<td>9½ (233)</td>
<td>10½</td>
<td>(267)</td>
<td>5½ (148)</td>
<td>5½ (139)</td>
<td>11½ (262)</td>
<td>—</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>—</td>
<td>10 (254)</td>
<td>11½</td>
<td>(293)</td>
<td>6½ (163)</td>
<td>6½ (162)</td>
<td>12½ (264)</td>
<td>—</td>
<td>98</td>
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<tr>
<td>4</td>
<td>—</td>
<td>11½ (333)</td>
<td>13½</td>
<td>(343)</td>
<td>6½ (171)</td>
<td>6½ (160)</td>
<td>13½ (346)</td>
<td>—</td>
<td>135</td>
</tr>
<tr>
<td>5</td>
<td>—</td>
<td>13½ (464)</td>
<td>14½</td>
<td>(362)</td>
<td>7½ (191)</td>
<td>7½ (187)</td>
<td>15 (351)</td>
<td>185</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>—</td>
<td>15½ (554)</td>
<td>16</td>
<td>(406)</td>
<td>7½ (200)</td>
<td>7½ (170)</td>
<td>16½ (422)</td>
<td>250</td>
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</tr>
<tr>
<td>8</td>
<td>—</td>
<td>19 (453)</td>
<td>20</td>
<td>(568)</td>
<td>9½ (241)</td>
<td>9½ (233)</td>
<td>19½ (506)</td>
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<tr>
<td>10</td>
<td>—</td>
<td>23½ (603)</td>
<td>24</td>
<td>(610)</td>
<td>10½ (276)</td>
<td>— (606)</td>
<td>23½ (606)</td>
<td>690</td>
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</tr>
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</table>

*Add 55% to D dimension for stem removal clearance.*

- 29 -
TYPE E5 MAIN VALVE
HIGH PRESSURE-HIGH LIFT
LOW DIFFERENTIAL

SIZES 3/4” – 12”
PRESSURES to 300 PSIG at 600°F

- Normally Closed
- Single Seat
- Balanced Nitrile Diaphragm
- Protected Main Spring
- Long Main Spring Operates on 5 psi
  Minimum Differential
- Internal & External Condensation Chambers
- Fluid, Gas & Vapor Applications
- Accurate Regulation Unaffected by
  Service Conditions
- ANSI/FCI 70-2 Class IV Shutoff
- Virtually Frictionless for Long Service Life
- Packless Construction
- Easy In-line Maintenance
- Wide Variety of Pilots for Many Applications
- Lifetime Warranty against Wiredrawing of
  Seat & Disc *

OPTIONS
- Composition Disc for liquid, air or gas service
- Balanced Construction
  - Secoweld
  - Integral Mount Pilot
  - EZ Connections

TYPICAL CONFIGURATIONS

PRESSURE REDUCING ..................TYPE E5D
AIR ADJUSTED .........................TYPE E5A
BACK PRESSURE .......................TYPE E5Q
PUMP GOVERNOR ......................TYPE E5P
LOAD ALLOCATING ....................TYPE E5FD
AIR CONTROLLED .....................TYPE E5AP60
ELECTRONIC SLOW START ............TYPE E5D208D
SOLENOID CONTROLLED .............TYPE E5MD
SOLENOID ACTUATED .................TYPE E5M
DIFFERENTIAL ........................TYPE E5N
TEMPERATURE CONTROL .............TYPE E5T

APPLICATION DATA
- Pressure Regulating for Steam Distribution
- High Pressure/Low Differential Pressure Regulating
- Fluid Regulation
- For use with Self-contained, Pneumatic or Electronic Pilots
- Slow Start-up or Shutdown

VALVE RATINGs

<p>| Valve Ends | Pressure | Temperature |</p>
<table>
<thead>
<tr>
<th>ASME/ANSI</th>
<th>PSIG (bar)</th>
<th>°F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAST IRON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 250 NPT</td>
<td>250 (17.2)</td>
<td>@ 450 (232)</td>
</tr>
<tr>
<td>B16.1 Class 125 Flanged</td>
<td>125 (8.6)</td>
<td>@ 450 (232)</td>
</tr>
<tr>
<td>B16.1 Class 250 Flanged</td>
<td>250 (17.2)</td>
<td>@ 450 (232)</td>
</tr>
<tr>
<td>CAST STEEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B16.34 Class 300 NPT</td>
<td>300 (21.0)</td>
<td>@ 600 (315)</td>
</tr>
<tr>
<td>B16.34 Class 150 Flanged</td>
<td>150 (10.3)</td>
<td>@ 500 (250)</td>
</tr>
<tr>
<td>B16.34 Class 300 Flanged</td>
<td>300 (21.0)</td>
<td>@ 600 (315)</td>
</tr>
</tbody>
</table>

Other pressure/temperature ratings available; consult factory.
Maximum downstream pressure is 300 psi.
Canadian Registration #: OC 0591.9C

Installation Tip: Add EZ Connections for ease of maintenance
SEE PAGE 40

RATED FLOW COEFFICIENTS (Cv)

<table>
<thead>
<tr>
<th>SEAT FACTOR</th>
<th>3/4</th>
<th>1</th>
<th>1 1/4</th>
<th>1 1/2</th>
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<th>6</th>
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<tr>
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<td>11.7</td>
<td>18.9</td>
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<td>176</td>
<td>228</td>
<td>366</td>
<td>525</td>
<td>952</td>
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</table>

* When installed according to factory specifications.
TYPE E5 MAIN VALVE

SPECIFICATION

The valve shall be self-operated, external pilot type, single seated, diaphragm actuated, normally closed design. The valve will function quickly and shut tight on dead end service. Internal parts including seats, discs and stems shall be of stainless steel. The diaphragm shall be a balanced Nitrile material for high lift. There shall be an external condensation chamber supplied. The main valve spring shall operate on a 5 psi minimum differential. There shall be no springs in the steam flow path and no stuffing box. The valve shall be easy to maintain with all parts accessible without removal from the line.

MATERIALS OF CONSTRUCTION

Body, Cast Iron ..................................ASTM A126 Cl. B
Body, Cast Steel ..................................ASTM A216 WCB
Stem ..................................................303 St. Stl. ASTM A552
Disc 3/4 - 5* .....................................420 St. Stl. ASTM A582 Cond A
Disc 6 - 12* ........................................304 St. Stl. ASTM A167/A240
Seat 3/4 - 5* .......................................420 St. Stl. ASTM A582 Cond A
Seat 6 - 12* .........................................316 St. Stl. ASTM A743 CF-8M
Gasket ..............................................Non-asbestos
Diaphragm ...........................................Nitrile
Spring ...............................................Steel

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A ANSI NPT</th>
<th>A ANSI 125</th>
<th>A ANSI 250</th>
<th>B</th>
<th>Std. Mount</th>
<th>Integral Mount</th>
<th>D*</th>
<th>Iron,Brz.</th>
<th>APPROX WT</th>
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<td>—</td>
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<td>7</td>
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<td>7</td>
<td>8</td>
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<td>18</td>
<td>18 1/4</td>
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</tr>
<tr>
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<td>15 3/4</td>
<td>16 1/4</td>
<td>17 3/4</td>
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<td>—</td>
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<td>11</td>
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</tr>
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<td>10</td>
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<td>25 1/4</td>
<td>27 1/4</td>
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</table>

*Add 150% to D dimension for stem removal clearance.
TYPE E6 MAIN VALVE

HIGH PRESSURE–HIGH LIFT COLD SERVICE

SIZES 3/4" – 12"
PRESSURES to 250 PSIG at 200°F

- Normally Closed
- Single Seat
- Balanced Nitrile Diaphragm
- Protected Main Spring
- Composition Disc for Tight Shutoff
- Air & Gas Applications
- Accurate Regulation Unaffected by Service Conditions
- ANSI/FCI 70-2 Class VI Shutoff
- Virtually Frictionless for Long Service Life
- Packless Construction
- Easy In-line Maintenance
- Wide Variety of Pilots for Many Applications

OPTIONS
- Dashpot for Water Service
- Integral Mount Pilot
- Insulcap Insulating Jacket
- Balanced Construction
- EZ Connections

TYPICAL CONFIGURATIONS

PRESSURE REDUCING .................. Type E6D
AIR ADJUSTED .......................... Type E6A
BACK PRESSURE ...................... Type E6Q
PUMP GOVERNOR .................... Type E6P
LOAD ALLOCATING .................. Type E6FD
AIR CONTROLLED ................... Type E6AP60
ELECTRONIC SLOW START ............ Type E6D208D
SOLENOID CONTROLLED ............ Type E6MD
SOLENOID ACTUATED ................. Type E6M
DIFFERENTIAL ....................... Type E6N
TEMPERATURE CONTROL ............ Type E6T

TYPE E6 MAIN VALVE

APPLICATION DATA
- Pressure Regulating for Compressed Air Distribution
- Pressure Regulating for Gas Service
- Maintain Back Pressure or Differential Pressure
- For use with Self-contained, Pneumatic or Electronic Pilots
- Single Point or Multiple Use Applications
- Slow Start-up or Shutdown

VALVE RATINGS

<table>
<thead>
<tr>
<th>Valve Ends</th>
<th>Pressure</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME/ANSI</td>
<td>PSIG (bar)</td>
<td>°F (°C)</td>
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</tbody>
</table>

CAST IRON

B16.4 Class 250 NPT  250 (17.2) @ 200 (93)
B16.1 Class 125 Flanged  125 (8.6) @ 200 (93)

Other pressure/temperature ratings available; consult factory.

Canadian Registration # OC 0591.9C

Installation Tip: Add EZ Connections for ease of maintenance
SEE PAGE 40

SIZING INFO PAGE 106

RATED FLOW COEFFICIENTS (Cv)

<table>
<thead>
<tr>
<th>SEAT</th>
<th>REULATOR SIZE</th>
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<td>Full</td>
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<tr>
<td>Normal</td>
<td>5.7</td>
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</table>
TYPE E6 MAIN VALVE

SPECIFICATION
The valve shall be self-operated, external pilot type, single seated, composition disc, nitrile diaphragm actuated, normally closed design. The valve will function quickly and shut tight on dead end service. Seats and stems shall be of stainless steel. There shall be no springs in the flow space and no stuffing box. The valve shall be easy to maintain with all parts accessible without removal from the line.

MATERIALS OF CONSTRUCTION
Body, Cast Iron ............................................ASTM A126 Cl. B
Stem .....................................................303 St. Stl. ASTM A552
Disc ..........................................................Nitrile Comp.
Seat 3/4 - 5" ...........................................420 St. Sl. ASTM 473 CA-40
Seat 6 - 8" ..............................................316 St. Stl. ASTM A743 CF-8M
Gasket .....................................................Non-asbestos
Diaphragm ..................................................Nitrile
Spring ........................................................Steel
Disc Holder .............................................ASTM B16 UNS C38000

TYPE E6 MAIN VALVE

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>ANSI</th>
<th>ANSI</th>
<th>ANSI</th>
<th>B</th>
<th>Std.</th>
<th>Integral</th>
<th>D*</th>
<th>APPROX. WT.</th>
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<tbody>
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<td>250</td>
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<td>%</td>
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<td>6</td>
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<td></td>
</tr>
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<td>8</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Add 100% to D dimension for stem removal clearance.
TYPE E8 MAIN VALVE

APPLICATION DATA
- Pressure Regulating for Steam Distribution
- Regulating for Process Control (Temperature or Pressure)
- Maintain Back Pressure or Differential Pressure
- To use Air Load Pressure to Control Delivery Pressure
- Single Point or Multiple Use Applications
- Slow Start-up or Shutdown
- Use where "Dirty Steam" Conditions Exist

VALVE RATINGS

<table>
<thead>
<tr>
<th>Valve Ends</th>
<th>Pressure (PSIG/bar)</th>
<th>Temperature °F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME/ANSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAST IRON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 250 NPT</td>
<td>250 (17.2)</td>
<td>450 (232)</td>
</tr>
<tr>
<td>B16.1 Class 125 Flanged</td>
<td>125 (8.6)</td>
<td>450 (232)</td>
</tr>
<tr>
<td>B16.1 Class 250 Flanged</td>
<td>250 (17.2)</td>
<td>450 (232)</td>
</tr>
</tbody>
</table>

Canadian Registration # OC 0591.9C

Installation Tip: Add EZ Connections for ease of maintenance
SEE PAGE 40

SIZING INFO
PAGE 106

RATED FLOW COEFFICIENTS (Cv)

<table>
<thead>
<tr>
<th>SEAT FACTOR</th>
<th>1/8</th>
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<th>1/2</th>
<th>3/4</th>
<th>1</th>
<th>11/2</th>
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<th>21/2</th>
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<td>444</td>
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<td>Full 75%</td>
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<td>Normal 50%</td>
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<td>83</td>
<td>139</td>
<td>230</td>
<td>363</td>
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</table>
TYPE E8 MAIN VALVE

SPECIFICATION

The valve shall be air operated, single seated, metal diaphragm actuated, normally closed design. The valve will function quickly and shut tight on kick and end service. Internal parts including seats, discs, stems and diaphragms shall be of stainless steel. There shall be no springs in the steam space and no stuffing box. The valve shall be easy to maintain with all parts accessible without removal from the line.

MATERIALS OF CONSTRUCTION

Body, Cast Iron .................. ASTM A126 Cl. B
Stern .................................. 303 St. Sli. ASTM A582
Disc 3/4 - 5* .................. 420 St. Sli. ASTM A743 CA-40
Disc 6 - 12* .................. 304 St. Sli. ASTM A167/A240
Seat 3/4 - 5* .................. 420 St. Sli. ASTM A743 CA-40
Seat 6 - 12* .................. 316 St. Sli. ASTM A743-79 CF-8M
Gasket .................................. Non-asbestos
Diaphragm .................. Stainless Steel MIL-S-6059C
Spring .................................. Steel

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>FACE TO FACE DIMENSIONS</th>
<th>OTHER DIMENSIONS</th>
<th>APPROX. WT</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td>B</td>
<td>C</td>
</tr>
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<td>1%</td>
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<td>5%</td>
<td>(114)</td>
</tr>
<tr>
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<td>(12)</td>
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<td>(150)</td>
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<tr>
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<td>(19)</td>
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<td>(143)</td>
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<td>(29)</td>
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<td>(215)</td>
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<td>(290)</td>
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<td>10%</td>
<td>(254)</td>
<td>25%</td>
<td>(600)</td>
</tr>
<tr>
<td>12%</td>
<td>(305)</td>
<td>28%</td>
<td>(670)</td>
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FITTINGS ON PAGE 44
TYPE C34 MAIN VALVE
BALANCED SINGLE SEAT LIQUID SERVICE

SIZES 1" – 6"
PRESSURES to 250 PSIG at 200°F

- Normally Closed
- Single Seat
- Nitrile Diaphragm
- Balanced Composition Disc
- Protected Main Spring
- Balanced Piston Design without Dashpot
- Fluid Applications
- Accurate Regulation for Non-violent Load Fluctuations
- ANSI/FCI 70-2 Class VI Shutoff
- Virtually Frictionless for Long Service Life
- Packless Construction
- Wide Variety of Pilots for Many Applications

OPTIONS
- EZ Connections

TYPICAL CONFIGURATIONS

PRESSURE REDUCING .......... TYPE C34D
AIR ADJUSTED ................. TYPE C34A
BACK PRESSURE ................ TYPE C34Q
PUMP GOVERNOR .............. TYPE C34P
LOAD ALLOCATING ............ TYPE C34FD
AIR CONTROLLED ............. TYPE C34AP60
ELECTRONIC SLOW START ...... TYPE C34D208D
SOLENOID CONTROLLED ...... TYPE C34MD
SOLENOID ACTUATED .......... TYPE C34M
DIFFERENTIAL ................. TYPE C34N
COOLING CONTROL .......... TYPE C34T

TYPE C34 MAIN VALVE

APPLICATION DATA
- Pressure Regulating for Liquid Distribution
- Regulating for Process Control (Temperature or Pressure)
- Maintain Back Pressure or Differential Pressure
- For use with Self-contained, Pneumatic or Electronic Pilots
- Single Point or Multiple Use Applications
- Slow Start-up or Shutdown

VALVE RATINGS

<table>
<thead>
<tr>
<th>Valve Ends</th>
<th>Pressure PSIG (bar)</th>
<th>Temperature °F (°C)</th>
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<td>CAST IRON</td>
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<tr>
<td>B16.4 Class 250 NPT</td>
<td>250 (13.8) @ 200 (93)</td>
<td></td>
</tr>
<tr>
<td>B16.1 Class 125 Flanged</td>
<td>125 (11.4) @ 200 (93)</td>
<td></td>
</tr>
<tr>
<td>B16.1 Class 250 Flanged</td>
<td>250 (13.8) @ 200 (93)</td>
<td></td>
</tr>
</tbody>
</table>

Canadian Registration # OC 0591.9C

Installation Tip: Add EZ Connections for ease of maintenance
SEE PAGE 40

SIZING INFO PAGE 106

RATED FLOW COEFFICIENTS (Cv)

<table>
<thead>
<tr>
<th>REGULATOR SIZE</th>
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<th>2</th>
<th>2⅝</th>
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<td>5.5</td>
<td>12.5</td>
<td>17.3</td>
<td>24</td>
<td>36</td>
<td>53</td>
<td>86</td>
<td>139</td>
<td>196</td>
</tr>
</tbody>
</table>

- 36 -
TYPE C34 MAIN VALVE

SPECIFICATION
The valve shall be self-operated, external pilot type, single seated, diaphragm actuated, normally closed design. The valve will shut tight on dead end service and shall maintain a discharge pressure which will not vary more than 10% (2 psi minimum) of set point from zero flow to rated flow regardless of inlet pressure variation. Valve shall be suitable for 200°F (93°C) service temperature. Bodies shall be cast iron. Sizes 2-1/2" and larger shall have flanged ends. Trim shall be stainless steel. Valves shall be equipped with a reversible composition disc. Diaphragms and discs shall be nitrile. There shall be no springs in the fluid space and no stuffing box.

MATERIALS OF CONSTRUCTION
Body, Cast Iron ..................ASTM A126 Cl. B
Stem ................................303 St. Stl. ASTM A552
Disc ..................................Nitrile Comp
Seat 1 - 2" ..........................303 St. Stl. ASTM A552
Seat 2½ - 6" ....................304 St. Stl. ASTM A276 Cond A
Gasket ..................................Non-asbestos
Diaphragm ...........................Nitrile
Spring ................................Steel

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>FACE TO FACE</th>
<th>OTHER DIMENSIONS</th>
<th>APPROX. WT.</th>
</tr>
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<tr>
<td></td>
<td>A ANSI</td>
<td>ANSI</td>
<td>ANSI</td>
</tr>
<tr>
<td>1/4</td>
<td>6¼ (165)</td>
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<td>7½</td>
</tr>
<tr>
<td>2</td>
<td>9 (229)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>3/4</td>
<td>10½ (254)</td>
<td>10½</td>
<td>10½</td>
</tr>
<tr>
<td>1</td>
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<td>14½ (318)</td>
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<td>16½ (350)</td>
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<td>16½</td>
</tr>
<tr>
<td>3</td>
<td>18½ (400)</td>
<td>18½</td>
<td>18½</td>
</tr>
</tbody>
</table>

FITTINGS ON PAGE 44
Main Valve Accessories
MAIN VALVE OPTIONS

Balanced Construction

There are installations where it is desirable to not have the inlet pressure forcing down on the Main Valve Disc. In these instances, the E Main Valve should be internally balanced. The balance parts allow the downstream pressure to rest on top of the disc, thus allowing for finer adjustments in the Main Valve travel and a smoother operating regulator. The balance cylinder is suitable for 550°F max temperatures.

Secoweld

The greatest weakness in a High Pressure Valve is the threaded joint between the Seat Ring and the body. A slight leak developing at this point will gradually erode the Body metal, thus accentuating the leak and eventually ruining the body. Various impractical schemes, such as welding the Seat Ring into the Body, have been tried to overcome this weakness. The invention Secoweld solves this problem and, at the same time, provides an easily renewable Seat Ring. In the Secoweld Design, a SECO Metal Bushing is welded to and thus sealed in the Body and, in turn, is threaded to take the Main Seat Ring, which is also of SECO Metal. As SECO Metal resists wire drawing, if slight leakage should occur, no damage can be done to the body or to the threads of either SECO Metal piece.

EZ Connections

Provides the performance of a flanged connection with the simplicity of a union connection. Unlike conventional unions, EZ Connections do not require matched sets or springing pipe to clear cone tolerances and do not leak after just a few disassembly/reassembly cycles. Uniform end to end dimensions simplify rough-in schematics. Available on 1/4" through 2" threaded main valves in NPT, socketweld and threaded by socketweld connections.

Consult Factory for pricing and availability.

Condensation Chamber

A Condensation Chamber is standard on the Type E5 Main Valve. A Condensation Chamber is standard on the Type E Main Valve when steam temperatures exceed 600°F. Any Main Valve discharging steam into a vacuum should include a Condensation Chamber.
MAIN VALVE OPTIONS

LOW DIFFERENTIAL PRESSURE (LP) MAIN SPRING

The E Series Main Valves provide superior regulation in a broad range of applications by utilizing a specialized Main Spring. When differential pressures between 10-50 psi are desired, E Main Valves should be equipped with the optional LP Main Spring. The LP Main Spring alone will achieve differential pressures to 15 psi. In order to attain differential pressures to 10 psi, optional 5B Open Elbow and ½" 4A Bleedport are required.

COMPOSITION DISC

In a Single Seat Main Valve, the Integral (all-metal) Disc is interchangeable with the Composition Disc Assembly. The Composition Disc is recommended for service on air, gas and water where absolutely tight shutoff is required and is available on Full and Normal seats and Parabolic valve plugs. The Composition Disc is suitable for pressures to 200 psi and temperatures to 200°F.

PARABOLIC DISC

In order to meet special flow requirements, any Spence Main Valve can be equipped with a Parabolic or other specially shaped Disc. Due to the fact that the Spence Main Valve is operated by a large, balanced Diaphragm and is nearly frictionless in operation, special Discs are not required on normal installations.

DASHPOT

In order to prevent water hammer, Dashpots are required in all single seat, normally closed Main Valves used on liquid service, except Type C34. Dashpots are neither necessary nor desirable on steam, air or gas service and are not required in double seat valves or in normally open single seat valves. Illustration shows Dashpot and Composition Disc for initial pressures of 200 psig and less. For initial pressures greater than 200 psig, standard metal to metal seat and disc are used.
INSULCAP SERIES
THERMAL & ACOUSTIC BLANKET INSULATION
Temperatures to 450°F (260°C)
Average Sound Reduction of 6 dBa

- **Real Return on Investment** — 93% reduction in thermal losses over bare metal. ROI calculations available!
- **1 1/2” Thick Insulation** — Custom designs available!
- **CAD Designed and CNC Produced** — Ensures exact fit and quality coverage.
- **Thermal or Acoustic Design** — Realize up to $1200 per year in energy savings; optional acoustic barrier provides reduction of harmful radiant noise.
- **Integral Fastener Hardware** — Flexible and easy to install, remove and reinstall.
- **Riveted Nameplate** — Ideal for large projects or sensitive industries, blankets are traceable and certifiable.

APPLICATIONS
- E Main Valves
- J, K and Boss Control Valves
- Safety Relief Valves
- P³ and Condensate Commander Pumps
- Steam Separators and Condensate Receivers
- Steam Traps
- Strainers
- Check Valves

MATERIALS OF CONSTRUCTION
Core Filler……………………………………………………. ASTM C 1086-88
Jacketing Material……………PTFE Coated Fiberglass Composite
Sound Reflector……………………………………………….ASTM E 90-90

SPECIFICATION
Blanket insulation shall be 1 1/2” thick, of 16.5 oz/yd² impregnated fiberglass cloth and mat design, with double sewn lock stitched seams, 7 stitches per inch minimum. Acoustic design shall use a barium sulfate sound reflector material, and shall be rated using ASTM E1222-87. Extended fabric flaps shall be included for overlapping of pipe insulation. Nameplate shall be of permanent design, showing location, description, size, pressure rating and sequential tag number. Fasteners shall be stainless steel, permanently affixed, and properly aligned for multiple removals and installations. Blankets shall have a stainless steel drain grommet or mating seat at lowest installed point for drainage and leak detection. Quilting pins, secured with stainless steel speed washers, shall be incorporated into the blanket at random, no greater than 18” apart.
TYPES A & B PANELS

- Gauges indicate Air Loading, Air Supply and/or Delivery Pressures
- Integral Filter Conditions Dirty Shop Air
- 50 PSI Delivery Pressure
- Accurate Delivery Pressure over Wide Range of Flow

OPTIONS
- HIGH DELIVERY PRESSURE

MODELS

- MODEL A AIR ADJUSTMENT PANEL includes an air adjusting valve incorporating its own bleed and two gages; one for the supply air, the other to indicate the adjusting air. It comes complete and ready to be mounted directly on a control board or box.
- MODEL B AIR ADJUSTMENT PANEL is the same as the Model A with the exception that it has, in addition, a gage indicating the delivery pressure.

TYPICAL CONFIGURATIONS
For use with:
- EA
- E8
- Positioners
- EPC
- Any Controller Requiring Conditioned Pneumatic Signal

APPLICATION DATA
- To display Air Loading, Air Supply and/or Delivery Pressure
- To Remotely Adjust Air Pilots
- To Reduce Plant Air Pressure to Instrument Air Pressure for Signaling Regulators and Control Valves
- To Filter Plant Air to Instrument Air Quality

SPECIFICATION
Air Adjustment Panel shall provide remote control for air actuated regulators and control valves. It shall convert plant air to instrument quality air and provide 0 to 50 psi delivery pressure. The Panel shall have a flow capacity of 22 scfm. Panel shall have gauges indicating air load pressure and air supply pressure with option of process delivery pressure gauge.
**AUXILIARY FITTINGS**

**Bleedports**
For steam, air and gas service, a 3/32" bleedport orifice is used for main valve sizes up to 8". For 10" and 12" main valve sizes, a 1/8" bleedport orifice is used. If the initial pressure or pressure drop is less than 15 psig, the orifice is reduced to 1/16". For liquids: fuel oil utilizes a 3/32" bleedport and all other fluids utilize a 1/16" bleedport regardless of pressure conditions. For main valve sizes up to 8" on long pressure drops, the orifice is sometimes increased to 1/8" to eliminate hunting or to make the valve close faster and open slower.

**Restrictions**
Spare restriction fittings can be supplied blank and drilled for a particular main valve according to the table. If the initial pressure or pressure drop is less than 15 psi, an open fitting is used. All back pressure valves employ an open fitting. For liquid services (except back pressure) the restriction orifice is 1/16" for all sizes of main valves.

**Open Fittings**

<table>
<thead>
<tr>
<th>MAIN VALVE SIZE</th>
<th>ORIFICE DRILL SIZE</th>
<th>DECIMAL EQUIVALENT</th>
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<tbody>
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<td>¾</td>
<td>60</td>
<td>.0400</td>
</tr>
<tr>
<td>½</td>
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<tr>
<td>12</td>
<td>7</td>
<td>.2010</td>
</tr>
</tbody>
</table>

* Steam, Air & Gas.
If the initial pressure or pressure drop is less than 15 psi, a No. 5A elbow with orifice removed is used.