Pressure Reducing Valve

- Sensitive and Accurate Pressure Control
- Easy Adjustment and Maintenance
- Optional Check Feature
- Fully Supported Frictionless Diaphragm
- Meets National Lead Reduction Mandate

The Cla-Val Model 690-01 Pressure Reducing Valve automatically reduces a higher inlet pressure to a steady lower downstream pressure, regardless of changing flow rate and/or varying inlet pressure. This valve is an accurate, pilot-operated regulator capable of holding downstream pressure to a pre-determined limit. When downstream pressure exceeds the pressure setting of the control pilot, the main valve and pilot valve close drip-tight.

If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted into the main valve cover chamber, closing the valve to prevent return flow.

For space savings, see Cla-Val Model 690-48 or 690-99 with integral Low Flow Bypass Pressure Regulator.

Schematic Diagram

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>100-20 Hytrol Main Valve</td>
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<tr>
<td>2</td>
<td>X58 Restriction Fitting</td>
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<tr>
<td>3</td>
<td>CRD Pressure Reducing Control</td>
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Optional Features

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<td>B</td>
<td>CK2 Isolation Valve</td>
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<td>C</td>
<td>CV Flow Control (Closing)*</td>
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<tr>
<td>D</td>
<td>Check Valves with Isolation Valve</td>
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<tr>
<td>M</td>
<td>X144 e-FlowMeter</td>
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<td>P</td>
<td>X141 Pressure Gauge</td>
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<td>S</td>
<td>CV Flow Control (Opening)</td>
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<td>V</td>
<td>X101 Valve Position Indicator</td>
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<td>Y</td>
<td>X43 &quot;Y&quot; Strainer</td>
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*The closing speed control (optional) on this valve should always be open at least three (3) turns off its seat.

Typical Applications

Typical applications include pressure reducing valve station using Model 690-01 and Model 690-01 in parallel to handle wide range of flow rates. Larger Model 690-01 valve meets requirements of peak loads and smaller Model 690-01S handles low flows.

Cla-Val Model 690-01KO Pressure Reducing Valve with Anti-Cavitation Trim provides for optimum downstream pressure control while reducing noise and eliminating damage associated with cavitation. See Cavitation Guide to determine if the valve is a candidate for the KO Anti-Cavitation Trim.
Model 690-01 (Uses 100-20 Hytrol Main Valve)

Pressure Ratings (Recommended Maximum Pressure - psi)

<table>
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<tr>
<th>Valve Body &amp; Cover</th>
<th>Pressure Class</th>
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<tr>
<td></td>
<td>ANSI Standards*</td>
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<td>UNS 87850 Bronze</td>
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Note: ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
Valves for higher pressure are available; consult factory for details.

Materials

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<th>Component</th>
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<td>Body &amp; Cover</td>
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<tr>
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<tr>
<td>Trim: Disc Guide, Seat &amp; Cover Bearing</td>
<td>Bronze is Standard Stainless Steel is Optional</td>
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<tr>
<td>Disc</td>
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<td>Stem, Nut &amp; Spring</td>
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For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.

Model 690-01 Dimensions (In Inches)

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<th>14</th>
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</table>

*Consult Factory


**Model 690-01 Metric Dimensions** (Uses 100-20 Hytrol Main Valve)

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*Consult Factory*
### Notes:
- For sizes 18 through 48-inches / 450mm through 1200mm, consult Factory.
- Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates.
- For sizing questions or cavitation analysis, consult Cla-Val with system details.

### Pilot System Specifications

**Adjustment Ranges**
- 2 to 30 psi
- 15 to 75 psi
- 20 to 105 psi
- 30 to 300 psi
- 150 to 600 psi (CRD-18)

*Supplied unless otherwise specified

**Temperature Range**
- Water: to 180°F

### Materials

**Standard Pilot System Materials**
- Pilot Control: Low Lead Bronze
- Trim: Stainless Steel Type 303
- Rubber: Buna-N® Synthetic Rubber

**Optional Pilot System Materials**
- Pilot Systems are available with optional Stainless Steel or Monel materials.

Note: Available with remote sensing control.

### When Ordering, Specify:
1. Catalog No. 690-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded, Flanged or Grooved
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed

### Valve Options

- **X141 Pressure Gauge**
- **X101AR Valve Position Indicator with Air Release**
- **X101 Valve Position Indicator**
- **X144 e-FlowMeter**
- **X43H Strainer**
- **Stainless Steel Pilot**

### Main Valve Options

**EPDM Rubber Parts**
Optional diaphragm, disc and o-ring fabricated with EPDM synthetic rubber

**Viton® Rubber Parts - suffix KB**
Optional diaphragm, disc and o-ring fabricated with Viton® synthetic rubber

**Epoxy Coating - suffix KC**
NSF/ANSI 61 Fusion Bonded Epoxy

**Dura-Kleen® Stem - suffix KD**
Fluted design prevents dissolved minerals build-up on the stem

**LFS Trim**
Designed to regulate precisely and smoothly at typical flow rates as well as lower than the industry standard of 1 fps, without decreasing the valve's capacity.

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### Pilot System Selection

<table>
<thead>
<tr>
<th>690-01 Valve Selection</th>
<th>100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inches</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>mm</strong></td>
<td>80</td>
</tr>
<tr>
<td><strong>Suggested Flow (gpm)</strong></td>
<td>Maximum: 260, 580, 1025, 2300, 4100, 6400, 9230, 9230, 16500, 16500, 28000, 42000, 57000, 57000</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Suggested Flow (Liters/Sec)</strong></td>
<td>Maximum: 16, 37, 65, 145, 258, 403, 581, 581, 1040, 1040, 1764, 2115, 2115, 2115</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>.06</td>
</tr>
</tbody>
</table>

100-20 Series is the reduced internal port size version of the 100-01 Series. For Lower Flows Consult Factory.