The OCV Series 120 Rate of Flow control valve is designed to control or limit flow to a predetermined rate, regardless of fluctuations in downstream or upstream pressure.

Global performance. Personal touch.

TOLL FREE 1.888.628.8258
/ circle 6
Phone: (918) 627.1942
Fax: (918) 622.8916
7400 East 42nd Place, Tulsa, OK 74145
Email: sales@controlvalves.com
Website: www.controlvalves.com

Rate of Flow Valve Series 120

**DIMENSIONS**

For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Otherwise, performance can be affected. Use the following guidelines:

- For maximum efficiency, the valve bonnet should be mounted in the top position. Otherwise, performance can be affected.
- Use the following guidelines:
- For maximum efficiency, the valve bonnet should be mounted in the top position. Otherwise, performance can be affected.

**SERIES FEATURES**

- Easily maintained without removal from the line.
- Replaceable seat ring.
- Alignment pins assure proper realignment after maintenance.
- Valves are factory tested.
- Valves are serial numbered and registered to facilitate replacement parts and factory support.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Valve Body &amp; Bonnet</th>
<th>Material Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel</td>
<td>SS13</td>
</tr>
<tr>
<td>Brass</td>
<td>BRASS</td>
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</table>

**END CONNECTIONS**

<table>
<thead>
<tr>
<th>Flange Standard</th>
<th>Maximum Working Pressure</th>
<th>Screwed End Working Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI 150</td>
<td>625 psi</td>
<td>300 psi</td>
</tr>
<tr>
<td>ANSI 300</td>
<td>625 psi</td>
<td>300 psi</td>
</tr>
<tr>
<td>ANSI 600</td>
<td>625 psi</td>
<td>300 psi</td>
</tr>
</tbody>
</table>

**INNARDS**

- Diaphragm assembly guided top and bottom.
- Throttling seat retainer for flow and pressure stability.
- E easily maintained without removal from the line.
- Replaceable seat ring.
- Alignment pins assure proper realignment after maintenance.
- Valves are factory tested.
- Valves are serial numbered and registered to facilitate replacement parts and factory support.

**VALVE FEATURES**

- Self-contained, including the differential-sensing orifice plate and pilot.
- Flow rate is field adjustable (within orifice borerange).
- Extra-sensitive differential pilots specifically designed for Rate-of-Flow application.
- Works equally well on all types of clean, non-abrasive liquids.

**WATER DISTRIBUTION SYSTEM**

Where two water districts are connected, the valve limits flow rate between the two.

**FILTER BACKWASH CONTROL**

Install the backwash line, the valve limits flow rate during the backwash cycle to prevent filter media from e.
**Valve Operation**

The OCV Model 120 is a rate-of-flow control valve designed to control flow to a constant, predetermined rate regardless of fluctuations in upstream or downstream pressures. It consists of the following components:

1. **Model Basic Valve**, a hydraulically-operated, diaphragm-actuated, globe or angle valve with an upstream expansion joint and butterfly valve.
2. **Orifice Plate**, installed integral to the valve nozzle inside flange. The orifice plates are the flow regulating device in the rate-of-flow pilot. Orifice plates are selected to control application flow range.
3. **Model 200 Rate-of-Flow Control Pilot**, a two-way, normally-open pilot valve that senses the differential pressure created across the orifice plate and takes action against an opposing spring. This differential is proportional to the flow rate through the valve. As the flow increases or decreases, the valve will open or close.
4. **Model 2450 Spring-Loaded Pilot Valve**, a single port valve with a fixed orifice in its upstream port. It provides the proven pressure for the diaphragm chamber of the rate valve regardless of the position of the rate-of-flow pilot.
5. **Model 141-2 Needle Valve**, installed integral to the main valve’s inlet flange. It is recommended that at least five times the pipe diameter be in the inlet flange. Control piping provides for sensing differential pressure across the valve inlet orifice plate. The upstream (high pressure) side of the valve is connected to the orifice plate diaphragm, and the downstream (low pressure) side over the diaphragm.

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**Pre-Valve Piping**

Piping should be in the inlet flange. It is recommended that at least five times the pipe diameter be in the inlet flange. Control piping provides for sensing differential pressure across the valve inlet orifice plate. The upstream (high pressure) side of the valve is connected to the orifice plate diaphragm, and the downstream (low pressure) side over the diaphragm. The upstream pressure sensed across the diaphragm works to close the valve while a drop in downstream pressure works to open the valve. This creates a mirror-modulation in the main valve. Increased differential pressure sensed across the diaphragm causes the valve to close the valve while a drop in pressure across the diaphragm allows the valve to open. This differential pressure is the signal to the pilot valve for modulating the main valve. PILOT VALVE OPERATION

- Multispec pilot valve
- Single-stage, double-acting spring-loaded, diaphragm-actuated, globe or angle valve
- Sensed pressure across the orifice plate diaphragm
- Increased pressure sensed across the diaphragm (high pressure side) from the orifice plate
- Pressure released across the diaphragm
- Flow valve can be changed by adjusting the spring. The pilot is an adjustable spring-loaded diaphragm-actuated valve
- Spring-loaded pressure differential across the diaphragm
- Standard needle valve
- Adjustable spike screw

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**Excess Flow Shut-Off Valve**

The OCV Model 120 excess flow shut-off valve closely resembles the standard rated model 120 Rate-of-Flow control valves. However, in place of the orifice plate, a simple “tee” fitting with a fixed orifice in its upstream port. It provides the proven pressure for the diaphragm chamber of the excess valve regardless of the position of the pilot valve.

**Model 141-2 Needle Valve**, installed integral to the main valve’s inlet flange. It is recommended that at least five times the pipe diameter be in the inlet flange. Control piping provides for sensing differential pressure across the valve inlet orifice plate. The upstream (high pressure) side of the valve is connected to the orifice plate diaphragm, and the downstream (low pressure) side over the diaphragm. The upstream pressure sensed across the diaphragm works to close the valve while a drop in downstream pressure works to open the valve. This creates a mirror-modulation in the main valve. Increased differential pressure sensed across the diaphragm causes the valve to close the valve while a drop in pressure across the diaphragm allows the valve to open. This differential pressure is the signal to the pilot valve for modulating the main valve.

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**Combination Valves**

Combination valves can often reduce or eliminate other equipment. Example: If the system requires a Pressure-Reducing function, the features can be added as a package of the Rate-of-Flow Valve, Model 120-2.

**Valve Selection Guide**

By combining various control pilots, multiple valve functions can be performed on a single Series 120 Rate-of-Flow Control Valve. To find the combination valve function, select the desired features and then the model number.

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**Special Order Valves**

Special order valves require a minimum order quantity and are subject to additional charges. Please contact your nearest distributor for more information.
**Rate of Flow Valve Series 120**

### VALVE OPERATION

The **OC V Model 120** rate-of-flow control valve is designed to control or limit flow to a constant, predetermined range of fluctuation in upstream or downstream pressures. It consists of the following components:

1. **Flow Pilot**: A hydraulic-operated, diaphragm-actuated, globe or angle valve with an adjustable spring-loaded, locked-open pilot that is non-modulating.
2. **Adjusting Screw**: A simple "tee" fitting with a fixed orifice in its upstream port. It produces the proper pressure for the diaphragm chamber of the valve by operating against the position of the pilot seat.
3. **PILOT VALVE OPERATION**: The pilot is designed for rate of flow control. It can be used in the inlet flange. It is recommended that at least five diameters of straight pipe be allowed upstream of the valve. 

### EXCESS FLOW SHUT-OFF VALVE

The **OC V Model 128** excess flow shut-off valve closely resembles the standard model 120 Rate-of-Flow control valve. However, in place of the pressure pilot and main valve, a hydraulically-operated, diaphragm-actuated, globe or angle valve is used that controls the opening and closing speed of the main valve. It senses the differential pressure created across the orifice plate and balances it against the adjusting spring. This differential is proportional to the flow rate of the process flow through the valve. An increase in differential pressure leads to the pilot valve closing.

### FEATURING OUR ***OC V MODEL 128*** EXCESS FLOW SHUT-OFF VALVE

The OCV Model 128 is therefore valuable in protecting against a break in the downstream pipe.

**FLOW CHARACTERISTICS**

Based upon standard orifice plate sizes with water as the flowing media. Consult factory for other liquids and flow rates.

**SIZE 1 ¼"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>30</td>
</tr>
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</table>

**SIZE 1 ½"**

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</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>50</td>
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</tbody>
</table>

**SIZE 2 ½"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
<th>Min. Flow, gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>280</td>
<td>70</td>
</tr>
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</table>

**SIZE 3"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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</thead>
<tbody>
<tr>
<td>460</td>
<td>115</td>
</tr>
</tbody>
</table>

**SIZE 4"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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</thead>
<tbody>
<tr>
<td>800</td>
<td>200</td>
</tr>
</tbody>
</table>

**SIZE 6"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
<th>Min. Flow, gpm</th>
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</thead>
<tbody>
<tr>
<td>1800</td>
<td>450</td>
</tr>
</tbody>
</table>

**SIZE 8"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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</thead>
<tbody>
<tr>
<td>3000</td>
<td>750</td>
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</table>

**SIZE 10"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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<tbody>
<tr>
<td>4200</td>
<td>1050</td>
</tr>
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</table>

**SIZE 12"**

<table>
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<th>Max. Flow, gpm</th>
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<tbody>
<tr>
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**SIZE 14"**

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<thead>
<tr>
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<tbody>
<tr>
<td>7200</td>
<td>1800</td>
</tr>
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</table>

**SIZE 16"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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</tr>
</thead>
<tbody>
<tr>
<td>9600</td>
<td>2400</td>
</tr>
</tbody>
</table>

**SIZE 24"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
<th>Min. Flow, gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>28000</td>
<td>7000</td>
</tr>
</tbody>
</table>

### SIZING CONSIDERATIONS

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<tr>
<td>7200</td>
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**SIZE 16"**

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<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>9600</td>
<td>2400</td>
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**SIZE 24"**

<table>
<thead>
<tr>
<th>Max. Flow, gpm</th>
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</tr>
</thead>
<tbody>
<tr>
<td>28000</td>
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</table>

### ABOUT YOUR VALVE

OCV Control Valves was founded more than 60 years ago with a single mission, to provide quality to our customers. From modest origins, the company has grown to be a global leader and a worldwide supplier, but more importantly the opportunity to afford the personal touch necessary to be each of our customers’ best partner. Our team of professionals is not only providing the service required to be a worldwide supplier, but more importantly the opportunity to afford the personal touch necessary to be each of our customers’ best partner. Contact us today and schedule your engineering, expert support, exacting control and the know-how to create valves known for their long life.

**PILOT VALVE**

- Pilot is field adjustable (within orifice range)
- 2400: Rate of Flow Pilot
- Specifically designed for rate of flow control

**PILOT COMPONENTS**

- Pilot Outlet
- Check Valve
- Adjusting Screw
- Adjustable Screw
- Spring-loaded, locked-open pilot that is non-modulating.
The OCV Model 120 excess flow shut-off valve closely resembles the standard model 120 Excess Flow control valve. However, in place of the previously described rate of flow pilot model 2450, the 120 is equipped with an adjustable, spring-loaded, locked-open pilot that is non-modulating (standard on water service valves, optional on fuel service valves), useful for isolating the pilot system for maintenance or troubleshooting.

Variations in pressure differential across the orifice plate size used.

Based upon standard orifice plate bore size with water as the flowing media. Consult factory for other liquids and flow rates.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>1 ¼&quot;</th>
<th>1 ½&quot;</th>
<th>2&quot;</th>
<th>2 ½&quot;</th>
<th>3&quot;</th>
<th>4&quot;</th>
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</tbody>
</table>

EXCESS FLOW SHUT-OFF VALVE

The OCV Model 120 excess flow shut-off valve is designed to control or limit flow to a constant, predetermined flow rate regardless of upstream or downstream pressure. It consists of the following components:

1. Model 105 Basic Valve, a hydraulically-operated, diaphragm-actuated, globe or angle valve with an adjustable spring-loaded locking-on feature.
2. Orifice Plate. Installed integral to the main valve trim flange. The orifice plate is the sensing element to the rate-of-flow pilot. Orifice sizes are available in the following range.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>1 ¼&quot;</th>
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<th>2&quot;</th>
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PILOT VALVE OPERATION

The pilot valve consists of a normally-open, double-acting, spring-loaded, locked-open pilot valve (see illustration). Pressure differentials across the orifice plate (flow rate) cause the pilot to open or close. The orifice plate senses the differential pressure created across the orifice plate and balances it against an adjustable spring load. This differential is proportional to the flow rate through the valve.

Modifying the orifice size changes the differential pressure created across the orifice plate.

PILOT ADJUSTMENTS:

1. Adjusting Screw
2. Diaphragm
3. Office Plate Low Pressure Sensing Port
4. Office Plate High Pressure Sensing Port
5. Fill Orifice
6. Pilot Relief

APPLICATION

The pilot is field adjustable (within orifice range) and contains an adjustable spring load. A 4x1 ratio, depending on the orifice size used. Variations in pressure differential across the orifice plate size used.

Based upon standard orifice plate bore size with water as the flowing media. Consult factory for other liquids and flow rates.

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The OCV Model 120 excess flow shut-off valve closely resembles the standard model 120 Excess Flow control valve. However, in place of the previously described rate of flow pilot model 2450, the 120 is equipped with an adjustable, spring-loaded, locked-open pilot that is non-modulating (standard on water service valves, optional on fuel service valves), useful for isolating the pilot system for maintenance or troubleshooting.

Variations in pressure differential across the orifice plate size used.

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Modifying the orifice size changes the differential pressure created across the orifice plate.

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1. Adjusting Screw
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5. Fill Orifice
6. Pilot Relief

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<td>7000</td>
</tr>
</tbody>
</table>
The OCV Series 120 Rate of Flow control valve is designed to control or limit flow to a predetermined rate, regardless of fluctuations in downstream or upstream pressure.

**OEM#** 06118-05508

**Application:** Automatic control of fluid delivery at specified flow rates.

**Technical Specifications:**
- Material: Stainless Steel
- Temperature: -20°F to 400°F
- Pressure: 150 psi

**Series Features:**
- Ideal for fluid applications requiring precise flow control.
- Easy to install and maintain.
- Meets all relevant industry standards.

**Ordering Information:**
- Provide Series Number
- Valve Size
- Globe or Angle
- Pressure Class
- Screwed, Flanged, Grooved
- Trim Material
- Adjustment Range
- Pilot Options
- Special needs or installation requirements

**Installation Instructions:**
- Ensure proper flow rate and pressure control.
- Regular maintenance is recommended.

**Contact Information:**
- Sales: 1.888.628.8258
- Email: sales@controlvalves.com
- Website: www.controlvalves.com

**DIAGRAM:**
- Graphical representation of the valve's components and flow paths.

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**SPECIFICATIONS**

**Valve Body & Bonnet**
- Material Specification: Stainless Steel
- End Connections: Flange

**Inlets & Outlets**
- Flow Rate: 100 gpm
- Pressure: 150 psi

**Valve Materials**
- Stainless Steel

**Valve Dimensions**
- Height: 12" (305 mm)
- Width: 8" (203 mm)
- Depth: 6" (152 mm)

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**Valve Body & Bonnet**
- Material Specification: Stainless Steel
- End Connections: Flange

**Inlets & Outlets**
- Flow Rate: 200 gpm
- Pressure: 200 psi

**Valve Materials**
- Stainless Steel

**Valve Dimensions**
- Height: 12" (305 mm)
- Width: 12" (304 mm)
- Depth: 12" (304 mm)

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**FILTER BACKWASH CONTROL**

When reverse flow is detected, the valve limits the flow rate to prevent filter media blow out.

**WATER DISTRIBUTION SYSTEM**

In water distribution systems, the valve limits the flow rate between districts to prevent backflow conditions.

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**Valve Features**

- Heavy-duty, nylon-reinforced diaphragm
- Extra-sensitive-differential pilot specifically designed for Rate of Flow application
- Works equally well on all types of clean, non-abrasive liquids

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**Dimensions**

- Model 120 shown

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**Global performance. Personal touch.**
The OCV Series 120 Rate of Flow control valves are designed to control or limit flow to a predetermined rate, regardless of fluctuations in downstream or upstream pressure.

**Series Features**

- Self-contained, including the differential-sensing orifice plate and pilot.
- Inlets are fast adaptable (within orifice plate bore range).
- Extra-sensitive differential pilots specifically designed for Rate-of-Flow application.
- Works equally well on all types of clean, non-abrasive liquids.

**Valve Features**

- Operates automatically off line connections.
- Heavy-duty, nylon-reinforced diaphragm.
- Rectangular-shaped, soft-seat seal provides drip-tight Class VI closure.
- Diaphragm assembly guided top and bottom.
- Throttling seat retainer for flow and pressure stability.
- Easily maintained without removal from the line.
- Replaceable seat ring.
- Alignment pins assure proper reassembly after maintenance.
- Valves are factory tested.
- Valves are serialized and registered to facilitate replacement parts and factory support.

**DIMENSIONS**

[Dimensions table is not visible in the image.]

**Specifications**

**Valve Body & Bonnet**
- **MATERIAL**: Stainless steel
- **Class**: ANSI 150, 300, 600

**End Connections**
- **Flange Standard**: ANSI B16.5
- **Flange Size**: 1.25 in., 2 in., 3 in., 4 in.
- **Flange Face**: Raised

**Internal Parts**
- **Seal**: Stainless steel
- **Spring**: Stainless steel
- **Seat Disc Retainer**: Stainless steel
- **Diaphragm Plate**: Stainless steel
- **Diaphragm Ring**: Stainless steel

**Electrical, Sondeils**
- **Coatings**: AOF / EPOXY

**Flow of Fluid**

For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. This position is acceptable for most installations. Valves should be installed with the pilot on the same side of the valve as the downstream flange. Pilot pressure is optional and should be supplied by an external source. Pilot pressure should be at least 50 psi. In some cases, the pilot may be located in the forward or reverse position. In these cases, the pilot pressure should be supplied by an external source. For more information, consult our factory for assistance on proper installation.

**Control Options**

- **Flow of Fluid**: AOF / EPOXY

**Rate of Flow Control Valve Series 120**

**Global performance. Personal touch.**

**TOLL FREE 1.888.628.8258**

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