Industrial Excess Flow Valves
Stop uncontrolled release of system media if downstream line ruptures

XS Series
- Pressures up to 6000 psig (413 bar)
- Temperatures up to 400°F (204°C)
- 1/8 to 1/2 in. and 6 to 12 mm end connections
- Stainless steel construction

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Features

Open Position

Flow

Choice of tube, pipe, or face seal end connections
- eases installation
- increases system versatility
- lowers overall cost.

Spring-loaded actuation
- eases operation
- allows valve to work in any orientation, enhancing system safety.

Tripped Position

Slotted poppet
- improves performance and reliability
- provides high-flow capacity
- eliminates nuisance tripping.

Bleed vent
- eliminates complex bypass mechanisms
- allows spring to reset poppet automatically.

All metal seat
- improves durability
- requires no maintenance.

Operation

The spring-loaded poppet remains in the open position during normal system operation. Should an excess flow condition occur downstream, the poppet rapidly moves to the tripped position, stopping uncontrolled release of system media. When the system pressure equalizes through the bleed vent, the spring automatically resets the poppet to the open position. The flow through the bleed vent of a standard\(^1\) XS series valve is less than 1% of the flow rate in the trip range.

\(^1\) Medium- and low-flow springs are available as an option. For valves with either of these spring options, the flow through the bleed vent may be greater than 1% of the flow rate in the trip range. See the Swagelok XS Series Excess Flow Valve technical report, MS-06-11, for more details.

Pressure-Temperature Ratings


Pressure ratings may be limited by the end connection. See Ordering Information and Dimensions, page 4.

<table>
<thead>
<tr>
<th>ASME Class</th>
<th>Material Group</th>
<th>Material Name</th>
<th>Temperature, °F (°C)</th>
<th>Working Pressure, psig (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2500</td>
<td>2.2</td>
<td>316 SS</td>
<td>~10 (~23) to 100 (37)</td>
<td>6000 (413)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200 (93)</td>
<td>5160 (355)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>250 (121)</td>
<td>4910 (338)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>300 (148)</td>
<td>4660 (321)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>400 (204)</td>
<td>4280 (294)</td>
</tr>
</tbody>
</table>

For more information about valves with tube fitting end connections, see Swagelok® Tubing Data (MS-01-107).
Materials of Construction

<table>
<thead>
<tr>
<th>Component</th>
<th>Material Grade/ASTM Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inlet body</td>
<td>316 SS/A479</td>
</tr>
<tr>
<td>2 Identification ring</td>
<td>Polyetherimide</td>
</tr>
<tr>
<td>3 Poppet</td>
<td>316 SS/A479</td>
</tr>
<tr>
<td>4 Spring</td>
<td>302 SS/A313</td>
</tr>
<tr>
<td>5 O-ring</td>
<td>Fluorocarbon FKM</td>
</tr>
<tr>
<td>6 Backup ring</td>
<td>PTFE©/D1710</td>
</tr>
<tr>
<td>7 Outlet body</td>
<td>316 SS/A479</td>
</tr>
</tbody>
</table>

Wetted components listed in *italics.*

PTFE also available; see *Ordering Information,* page 4.

Testing

Every XS series valve is factory tested for proper operation.

Cleaning and Packaging

Swagelok XS series valves with VCR or VCO end connections are processed in accordance with Swagelok Special Cleaning and Packaging (SC-11) (MS-06-63), to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C.

Swagelok XS series valves with other end connections are processed in accordance with Swagelok Standard Cleaning and Packaging (SC-10) (MS-06-62); special cleaning and packaging are available as an option.

Flow Data at 70°F (20°C)

Springs with lower trip ranges are available. See the Swagelok XS Series Excess Flow Valve technical report, MS-06-11.

<table>
<thead>
<tr>
<th>Inlet Pressure, psig</th>
<th>Trip Range</th>
<th>Air Flow, std ft³/min</th>
<th>Inlet Pressure, bar</th>
<th>Trip Range</th>
<th>Air Flow, std L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS4 Series Air</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XS6 Series Air</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XS8 Series Air</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XS4, XS6, XS8 Series Water</td>
<td>Series</td>
<td>Cv</td>
<td>Trip Range U.S. gal/min (L/min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XS4</td>
<td>0.5</td>
<td>3.9 to 5.8 (14.7 to 21.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XS6</td>
<td>1.1</td>
<td>8.2 to 10.0 (31.0 to 37.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XS8</td>
<td>1.1</td>
<td>11.2 to 14.9 (42.3 to 56.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.
Select an ordering number.

### Optional O-Ring Materials

Fluorocarbon FKM O-rings are standard.
For an optional O-ring material, add a designator to the ordering number.

<table>
<thead>
<tr>
<th>O-ring Material</th>
<th>Designator</th>
<th>Temperature Rating °F (°C)</th>
<th>Temperature Rating °F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buna N</td>
<td>-BU</td>
<td>–40 to 250 (–40 to 121)</td>
<td></td>
</tr>
<tr>
<td>Ethylene propylene</td>
<td>-EP</td>
<td>–50 to 300 (–45 to 148)</td>
<td></td>
</tr>
<tr>
<td>Kalrez®</td>
<td>-KZ</td>
<td>–10 to 400 (–23 to 204)</td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td>-NE</td>
<td>–40 to 250 (–40 to 121)</td>
<td></td>
</tr>
</tbody>
</table>

Example: SS-XSS4-BU

**PEEK Backup Ring**

For a PEEK backup ring, add -PK to the ordering number.
Example: SS-XSS4-PK

### Special Cleaning and Packaging

Swagelok XS series valves with VCR or VCO end connections are processed in accordance with Swagelok *Special Cleaning and Packaging (SC-11)* (MS-06-63), to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C.

To order special cleaning and packaging for XS series valves with other end connections, add -SC11 to the valve ordering number.
Example: SS-XSS4-SC11

### Oxygen Service Hazards

For more information about hazards and risks of oxygen-enriched systems, see the Swagelok *Oxygen System Safety* technical report (MS-06-13).

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**Example:** SS-XSS4-SC11

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**Caution:** Do not mix or interchange parts with those of other manufacturers.
About this document

Thank you for downloading this electronic catalog, which is part of General Product catalog Swagelok published in print. This type of electronic catalog is updated as new information arises or revisions, which may be more current than the printed version.

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Safe Product Selection
When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Warranty Information
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