Direct Acting Pressure Relief Valve

**DESIGN**

The Ross Model 28AR Pressure Relief Valve is designed to automatically relieve excess pressure in a system when the pressure exceeds the rated pressure by a predetermined amount.

**APPLICATION**

This valve is used in wastewater systems to prevent damage due to excessive pressure.

**FLOW CAPACITY**

- **Sizes:** 2", 2-1/2", 3"
- **Max Flow Rates:** 30 GPM, 50 GPM, 65 GPM
- **Max Static Pressure:** 150 psi

**FEATURES & BENEFITS**

- **Construction:** High quality materials including stainless steel and bronze components.
- **Safety:** Designed to prevent accidental pressure relief.

**BENEFITS**

- **Cost-effective:** Relieves pressure before it becomes a problem.
- **Versatility:** Available in various sizes and configurations.

**CONSTRUCTION**

The valve is constructed with a stainless steel body and bronze components for durability and resistance to corrosion.

**ADDITIONAL FEATURES & BENEFITS**

- **Flow Capacity:** High capacity due to the direct acting design (the valve opens and closes without the need for external power sources).
- **Removal:** The valve can be removed from the line for maintenance or replacement.

**SPECIFICATIONS**

- **Sizes:** 2" - 48" (50mm - 1200mm)
- **Pressure Rating:** ANSI 125/150 psi
- **Material:** Stainless steel components conform to ASTM specification B-584. Internal bronze components conform to ASTM specification A 126 Class B.
- **Paint:** Epoxy (Tnemec Series FC20) in accordance with ANSI/NSF Std. 61, and conforming to AWWA D102 Inside System No. 1.

**PAINT**

- **Model MC2000S panel mounted gauge indicator**
- **Model MC2001P panel-mounted electronic control**
- **Relay style control panel**
- **Power fail override options**
- **Electronic solenoid control**
- **Pressure setting indicator**

**WASTE WATER TREATMENT VALVES**

Ross Valves are designed to meet the specific needs of wastewater treatment systems, providing reliable and efficient flow control.

**COMPANY DESCRIPTION**

Ross Valves has been a leader in the design and manufacture of valves for over 150 years. Our commitment to quality and innovation has helped us become a trusted name in the industry.

**CONTACT INFORMATION**

Tel: 518-274-0961 • Fax: 518-274-0210
Ross wastewater control valves are built tough, for tough jobs.

Ross Valve’s 70SWR series of control valves are designed and manufactured based on our proven piston style design, with special modifications for optimal performance and reliability in industrial wastewater applications. These include check and seat materials suited to withstand higher temperature and higher pressure applications. These valves are available in a variety of body styles, from single to double and triple block styles, and a variety of actuator styles including pneumatic, hydraulic, and electric. Internal design features include a full ported seat, with seat bore equal to valve size, dual independent upper and lower shafts that drop down into the valve bodies, and an adjustable cushioned closing device to prevent slamming.

Unique design features include the ability to make a valve a 70SWR—E surge anticipating valve, a 70SWR—BP back pressure sustaining valve, or a 70SWR—S pump control valve, all within the same body style. Optional control panels are available.

Back Pressure Sustaining (70SWR-BP): Used to protect lines against excessive pressure sustained when the valve is closed. The valve will close at a slow and controlled speed, and remain closed against excessive pressure surges like the 70SWR, but offers the additional benefit of a sustaining closing valve action. Since pump control valves are typically applied to a system that is not anticipated to be subjected to high pressure surges, these valves are more adaptable for control purposes in this environment. A typical example of a pump control valve would be a valve protecting water lines. In wastewater lines, their function is to header the lines, subject to other specified standards.

Surge Anticipating (70SWR-E): Used to protect lines against pressure surges caused by rapid or maximum valve closing, starting or stopping systems, and when subjected to a power failure. The valve is equipped with an adjustable cushioned closing device to prevent slamming.

Pump Control (70SWR-S): Used to control pressure sustained when the valve is closed. When the inlet pressure exceeds the spring setting, then closes slowly and resumes a closed position.

The valve piston shall be cushioned and so designed as to insure a resilient seat packing and Buna o-ring seals to insure positive closure. The main valve shall be packed with grade 300 series stainless steel packing, the valve seat and seat support assembly shall be grade 300 series stainless steel and shall conform to ASTM Specification A-743 Grade CF-8 or CF-8M. The seat ring shall be grade 300 series stainless steel and shall be held in place via grade 300 series stainless steel fasteners. The seat support assembly shall be grade 300 series stainless steel and shall conform to ASTM Specification A-126 of gray iron castings that conform to ASTM Specification A 126.

The flanged assemblies shall conform to ANSI standards for the specified pipe size and valve flange size. The control piping shall be rigid red brass, no less than 0.5” in diameter. Internal seals. The valve shall be furnished with an inlet side gauge- mantling internally of main valve may be made without seating. The design shall be such that repairs and disassembly of valve and seat ring can be accomplished without disturbing the valve body. The design shall be such that repairs and disassembly of valve and seat ring can be accomplished without disturbing the valve body. The valve shall be factory assembled and furnished with the valve.

Special modifications for optimal performance in municipal and industrial wastewater applications. These include seals and seat materials suited to withstand higher temperature and higher pressure applications. These valves are available in a variety of body styles, from single to double and triple block styles, and a variety of actuator styles including pneumatic, hydraulic, and electric.

Critical control valves are a vital component of water systems in municipalities. In water systems, our function is even more important. Trust the accuracy and reliability of your system’s performance to a valve that is designed for the job. If you have any questions about the reliability and performance of our valves, please feel free to contact us. We are always happy to provide technical assistance and support.
When George Ross founded our company in 1879, he made products designed to last. He also wanted a company built on enduring values: integrity of design and engineering, dependable operation, and flexible business systems that have evolved with technology and the times.

Now, much more than a century later, Ross automatic pressure relief valves are legendary throughout the world. Over the years, this heritage has provided Ross with a cornerstone by which to build highly reliable and economic products. Ross valves have played a pivotal part in construction projects around the world, from New York City, Los Angeles, Madrid, and Sydney to Tokyo’s Yoyogi National Gymnasium. And no wonder, because we have always known that when we make a product designed to last. He also created a company built on enduring values: integrity of design and engineering, dependable operation, and flexible business systems that have evolved with technology and the times.

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**Ross wastewater control valves are built tough, for tough jobs.**

Ross Valve's 70SWR series of control valves are designed and manufactured based on our piston style design, with special modifications for optimal performance in municipal and industrial wastewater applications. These valves can be used for a variety of applications and are resistant to harsh conditions. Some of the more standard materials better suited for service under these harsh conditions include:

- **Pulp and more**
- **Raw Water**
- **Wastewater**

**APPLICATIONS**

**70SWR Series**
- The wastewater control valve is a combination direct acting and hydraulically operated control valve. It provides automatic control of a liquid flow, which is located inline or on the end of a line (with free discharge) to maintain a minimum pressure on the inlet of the valve. This valve incorporates a curve or straight-through design with a ratio of 2:1. The valve will close at a slow and controlled speed, and shall open quickly when the inlet pressure exceeds the spring setting. The valve shall be normally closed and shall open quickly when the inlet pressure exceeds the spring setting.

- **Back Pressure Sustaining (70SWR-BP):**
  - The valve shall incorporate a back pressure sustaining valve is a combination direct acting and hydraulically operated control valve. It provides automatic control of a liquid flow, which is located inline or on the end of a line (with free discharge) to maintain a minimum pressure on the inlet of the valve. This valve incorporates a curve or straight-through design with a ratio of 2:1. The valve will close at a slow and controlled speed, and shall open quickly when the inlet pressure exceeds the spring setting. The valve shall be normally closed and shall open quickly when the inlet pressure exceeds the spring setting.

- **Surge Anticipating (70SWR-E):**
  - The valve shall incorporate a surge anticipating valve is a combination direct acting and hydraulically operated control valve. It provides automatic control of a liquid flow, which is located inline or on the end of a line (with free discharge) to maintain a minimum pressure on the inlet of the valve. This valve incorporates a curve or straight-through design with a ratio of 2:1. The valve will close at a slow and controlled speed, and shall open quickly when the inlet pressure exceeds the spring setting. The valve shall be normally closed and shall open quickly when the inlet pressure exceeds the spring setting.

**Design:**

- **GLOBE STYLE**
- **ANGLE STYLE**

**Testing:**

- **GLOBE STYLE**
- **ANGLE STYLE**

**Dimensions and Weights:**

- **Ross 70SWR Series**

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**SPECIFICATIONS**

**70SWR SERIES CONTROL VALVES FOR WASTEWATER**

**APPLICATIONS**

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**Design:**

- **GLOBE STYLE**
- **ANGLE STYLE**

**Testing:**

- **GLOBE STYLE**
- **ANGLE STYLE**

**Dimensions and Weights:**

- **Ross 70SWR Series**

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**HEADLOSS GUIDE — 70SWR SERIES**

**INSTRUCTIONS**

1. **Choose the appropriate headloss chart for the application type valve.**
2. **Follow the line vertically down to the nearest angled line to determine the appropriate valve size.**
3. **Follow the headloss guide chart for the equivalent tabulation of the appropriate valve size.**
Ross wastewater control valves are built tough, for tough jobs.

Ross Valve’s 70SWR series of control valves are designed and manufactured based on our proven piston style design, with special attention given to the optimal performance during the unique challenges of industrial wastewater applications. These include reach and seat materials hardened by high pressure and high temperature to withstand the severe conditions in these more hostile applications. As with all Ross Valves, the design is highly customizable for a variety of applications. Some of the more standard configurations include:

**Surge Anticipating (70SWR-E):** Used to provide the most protection to prevent surges before they can start. Includes a built-in check valve to prevent reverse flow in the event of a power failure by means of an independent lower shaft that drops down into the valve. It also contains an advanced pilot system that is activated by anticipating high surges typically travel at 4000 ft/s, this valve incorporates the additional benefit of anticipating upcoming surges. Since this valve will open more slowly due to the inherently higher friction, the control valve is electrically actuated and shall be held in place via grade 300 series stainless steel fasteners. Optional control panels are available.

**Pump Control (70SWR-S):** Used to protect lines against excessive head losses (surge transducer, control panel, and auxiliary piston) to insure proper alignment. For present surges, a tight seating test, and a hydrostatic test of up to two times the valve pressure rating shall be factory assembled and furnished with the valve. The tests may be held in place via grade 300 series stainless steel fasteners. Optional control panels are available.

**Values:**
- Flow
- Headloss
- Pressure
- Dimension
- Weights

**Dimensions and Weights:**

**GLOBE STYLE**

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**Angle Style:**

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**Physical & Chemical Properties**

- Suitable for use with a wide variety of fluids and media.
- Valves can be coated to suit the environment.
- Less noise.
- Turbidity, corrosion resistant.
- Full ported seat.
- Painted surfaces can be sanded and primed.
- All parts are replaceable and serviceable.
- Superior performance in a valve that is rating in the line - Ross 70SWR series.
Ross wastewater control valves are built tough, for tough jobs.

Ross Valves’ 70SWR series of control valves are designed and manufactured based on our proven piston style design, with optimal modifications for specific performance necessary for commercial and industrial wastewater applications. These include each and every detail of the valve, from the body all the way down to the smallest bolt. A true Ross Valve; the design is highly reliable.

APPLICATION

70SWR Series – The wastewater relief valve is a combination direct acting and hydraulically operated valve with an adjustable cushioned closing device to prevent slamming. These are used in wastewater applications to maintain a minimum preset value on the inlet of the valve. This valve will modulate flow when the valve is normally closed and shall open quickly when the inlet pressure exceeds the spring setting. The valve will modulate flow to maintain a preset value, on the inlet of the valve. This valve will modulate as soon as the preset pressure is reached. The valve shall be factory assembled and furnished with the valve.

DESIGN

70SWR Series – The valve shall be globe (inline) or angle style. The valve body and cap(s) shall be constructed of gray iron castings that conform to ASTM Specification A 126 Class B. Internal bronze components shall conform to ASTM Specification B 86. The seat ring shall be grade 300 series stainless steel and shall conform to ASTM Specification A-743 Grade CF-8 or CF-8M.

PHYSICAL & CHEMICAL PROPERTIES

The flanged assemblies shall conform to ANSI standards for steel. The control piping shall be rigid red brass, no less than 0.5” wall thickness of body and caps, and flange thickness and drill-out dimensions shall be per ANSI standards. The seat ring shall be grade 300 series stainless steel and shall conform to ASTM Specification A-743 Grade CF-8 or CF-8M. The seat ring shall be grade 300 series stainless steel and shall conform to ASTM Specification A-743 Grade CF-8 or CF-8M.

TESTING

A trio of tests shall be performed on the completely assembled valve. The first test is a Factory Acceptance Test (FAT) to determine if the valve meets the manufacturer’s design specifications. The second test is a Performance Test for simulated service conditions. These tests shall be performed on the completely assembled valve. The third test is a performance test for simulated service conditions. These tests shall be performed on the completely assembled valve.

INSTRUCTIONS

Follow the line vertically down to the nearest angled line to determine the appropriate valve size.

ANGLE STYLE

GLOBE STYLE

HEADLOSS GUIDE 70SWR SERIES

INSTRUCTIONS

1. Determine the headloss from the design line to the desired valve size. For the most accurate results, consult the headloss guide and table for the appropriate size valve.

2. Indicate the flow in cubic feet per minute (CFM) or gallons per minute (GPM) for the horizontal or vertical flow.

3. Indicate the flow rate in gallons per minute (GPM) or cubic feet per minute (CFM) for the horizontal or vertical flow.
**Ross Model 28AR**

**DESIGN**
The 28AR wastewater relief valve is designed for use with wastewater, sewage, and similar applications. It is a direct acting pressure relief valve fully assembled and tested for simulated field conditions. The Ross Model 28AR was designed to last.

**APPLICATION**
- **Flow Capacity**: The 28AR wastewater relief valve has a direct acting angle (90°) body with female NPT end connections, direct piston operated. It shall contain a reduced pressure zone assembly. When the inlet pressure exceeds the spring load-setting of the valve, the inlet pressure shall open to relieve the excess pressure.
- **Sizes**:
  - 2", 2-1/2", 3" (50, 65, 80mm)
- **Design**: Standard 61, and conforming to AWWA D102 Inside System No. 1.
- **Material**: Epoxy (Tnemec Series FC20) in accordance with ANSI/NSF 61.
When George Ross founded our company in 1879, he made products designed to last – a trait that earned our company a solid reputation in the high-pressure, demanding world of manufacturing. Ross was built on a tradition of innovation and dependable, long-lasting products. As such, Ross valves continue to be used all over the world in demanding applications, from New York City to Los Angeles, Madrid, and beyond.

Now, much more than a century later, Ross automatic pressure relief valves are designed and manufactured to last. Ross pride is built on a foundation of time-tested technology and quality craftsmanship.

The 28AR wastewater relief valve is designed to prevent excessive pressure from exceeding the working pressure of the system. The valve has a direct acting design to prevent excessive pressure. The valve has a direct acting design to prevent excessive pressure.

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The valve has a direct acting design to prevent excessive pressure.