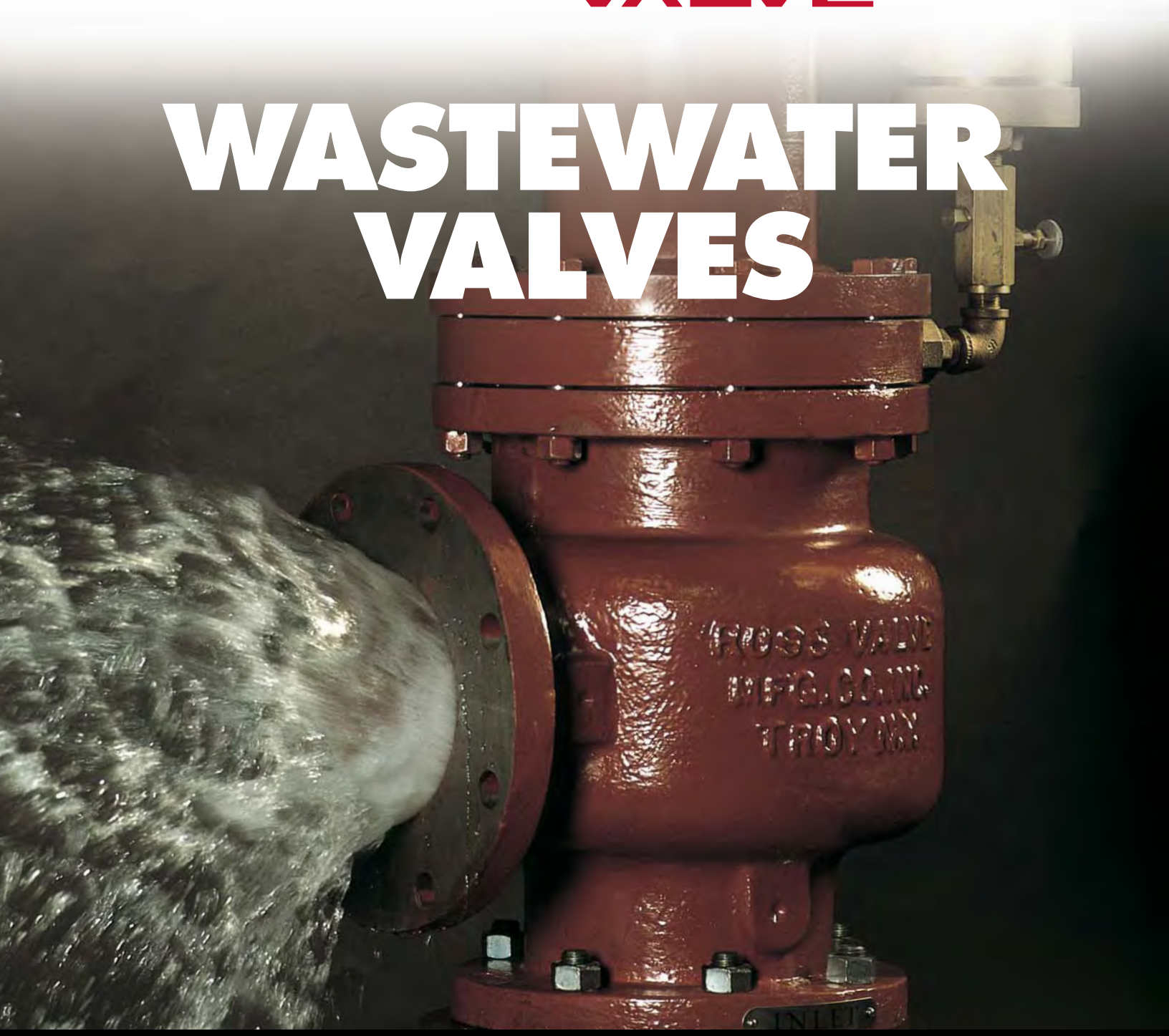
ROSS 1879 VALVE

WASTEWATER VALVES



PUMP CONTROL
PRESSURE RELIEF
SURGE CONTROL
BACK PRESSURE SUSTAINING

ROSS 1879 VALVE P.O.BOX 595 TROY NY 12180 518.274.0961 WWW.ROSSVALVE.COM

Ross wastewater relief and control valves are made to do the job.

For wastewater applications, you need a valve that's reliable, predictable, and doesn't let you down. Ross wastewater relief and control valves are designed and manufactured to get the job done under the most difficult circumstances.

Our wastewater relief valve (70SWR) protects your system from excessive pressures caused by erroneous valve or pump operations.

The Ross wastewater surge anticipator control valve (70SWR-E) also protects systems against excessive pressure surges and offers the additional benefit of anticipating upcoming surges. For surges that typically travel at 4000 ft/s, this valve provides additional system protection by incorporating an advanced pilot system.

For a more pro-active approach to surge control, our wastewater pump control valve (70SWR-S) works to anticipate and prevent surges before they can start. Available in throttling and non-throttling models, these pump control valves minimize pump starting and stopping surges while preventing reverse flow upon pump shutdown.

Ross wastewater relief and control valves are ideal for all municipal and industrial wastewater applications. Reliability and quality are cast into every part. If a repair must be made, every internal part on a Ross Valve is replaceable through the top of the valve (without removing it from the line). All seals and packings are also replaceable and contribute to the valve's longevity.

Efficient wastewater removal may be a dirty job, but someone has to do it. With a Ross Valve, you are in control.

For more information on these or other Ross valves, please contact us at 518-274-0961 or visit our website at www.rossvalve.com.

Features and Benefits of Ross Wastewater Relief, Surge Control, and Pump Control Valves.

- Rugged Ross piston design.
- Designed for a variety of wastewater systems and operating conditions.
- Designed for both municipal and industrial applications.
- Designed for new applications or retrofit of existing applications. Retrofits can typically be installed in the same amount of space or possibly less than the existing valve.
- Customized features are readily available to suit your application.
- Dampening devices with adjustable speed controls assure smooth and responsive system operation.
- Rugged valve construction provides dependable operation and peace of mind.
- Fully enclosed spring chamber ensures safe operation.
- More compact design compared to other wastewater valves currently on the market.
- Mechanical scraper assembly protects a dual O-ring stem seal.
- Features a single, easy-to-operate adjustment screw.
- Valve-mounted gauge cock for operational and testing purposes.
- Internal and external NSF-approved epoxy paint.
- Economically built, with replaceable parts available if repair is necessary.
- Made by Ross, founded in 1879, known for its high quality, with engineering, manufacturing and testing all under one roof.

CONSTRUCTION

ROSS 70SWR SERIES

DESIGN

Based off our proven piston design, and modified for use with untreated water, the Ross line of wastewater valves is designed for accuracy, performance, and long life.

KEY FEATURES

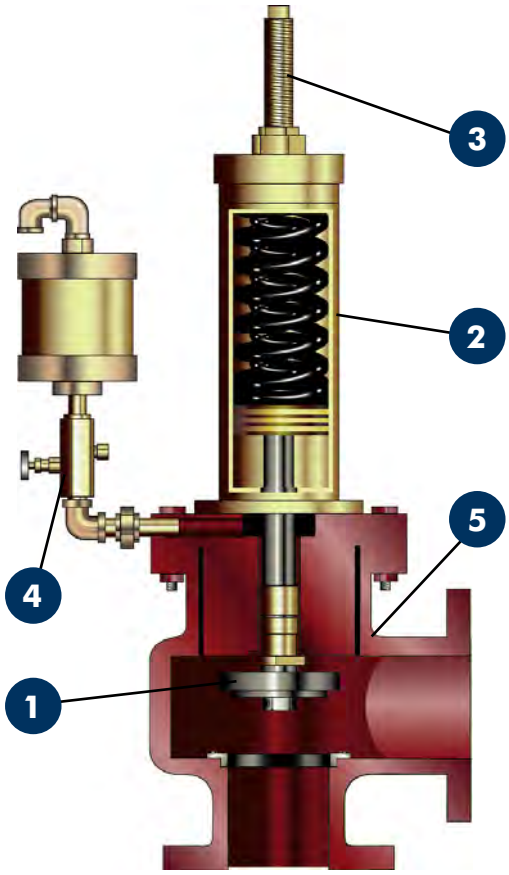
1 Stainless Steel Seat Assembly resists wear

2 Fully Enclosed Springs for safety

3 Single Adjusting Screw for accurate alignment and precise operation

4 Cushioned Closing Device prevents slamming

5 Angle (90°) and Inline Styles Available



Model 70SWR
Wastewater Relief Valve
(Angle Body Shown)

SIZES

4" – 48" (100mm – 1200mm).

Note: For size 3" and smaller, please inquire about our Model 28AR.

MATERIALS

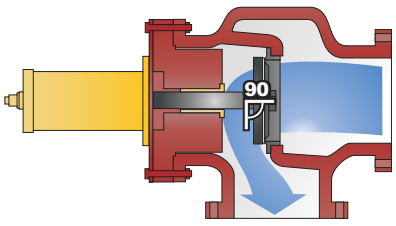
Like our valves for treated water, Ross manufactures in-house using the finest materials available. For wastewater, we use materials that can withstand these difficult environments and provide optimal performance. Key components include:

- Shell & Cap(s) – Epoxy-Coated Cast Iron
- Stem – Stainless Steel
- Seat Ring – Stainless Steel
- Seals – Buna-N, Poly

VALVE CONFIGURATIONS

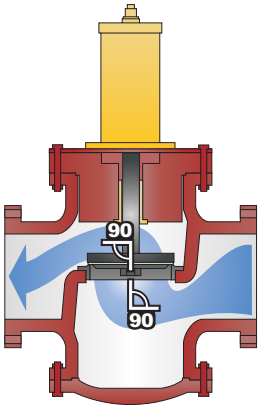
Inline and 90° valve orientations are available, as determined by the installation. For new installations, the headloss through the valve should be considered. Note: An angle body design (where the fluid only changes direction once) offers the least amount of headloss compared to inline designs.

ANGLE BODY



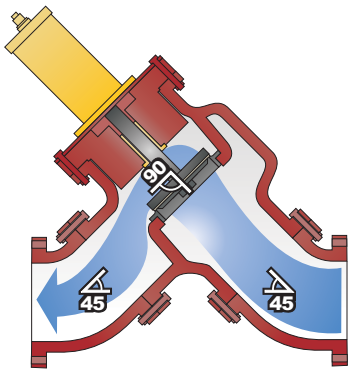
90°

GLOBE BODY



90° + 90° = 180°

WYE BODY



45° +90° + 45° = 180°

Headloss

As fluid flows through a valve, its path changes direction. This takes energy, so at each turn in the flow pattern, some pressure (headloss) is lost. Even when a valve is full open, there is some headloss that has to be taken into account.

Note: Renderings shown are for reference only and are subject to change at any time. Engineering drawings are provided during the submittal process.

APPLICATIONS

MODEL	PURPOSE	DESCRIPTION
70SWR **RELIEF**	To control pressure in wastewater lines, protecting lines against excessive pressure caused by too rapid or an erroneous valve closing, starting or stopping a pump, and even against a power failure.	The Ross wastewater relief valve is a cast iron body with bronze and stainless steel trim. Control devices include a quick opening valve with an oil dashpot and closing speed control valve.
70SWR-BP **BACK PRESSURE SUSTAINING**	To control pressure in wastewater lines, to maintain a minimum preset value on the inlet of the valve. This valve can be installed on the pump discharge to keep a pump on a curve, or on the end of a line (with free discharge) to maintain a certain pressure in the line. Operation: The valve will be normally closed and only opens to the degree it needs to maintain the set pressure value on the valve inlet.	The Ross wastewater back pressure sustaining valve is a cast iron body with bronze and stainless steel trim. Control devices include a quick opening valve with an oil dashpot and closing speed control valve.
70SWR-E **SURGE ANTICIPATING**	The Ross wastewater surge anticipator control valve (70SWR-E) protects systems against excessive pressure surges like the 70SWR but offers the additional benefit of anticipating upcoming surges. This valve provides additional system protection by incorporating an advanced pilot system activated by anticipating high pressure surges from low pressure waves.	The Ross surge control valve is a cast iron body with bronze and stainless steel trim. Control devices include the following: Pneumatic or hydraulic controls powered via a separate power source such as water or compressed nitrogen. Low and high pressure activated pilots.
70SWR-S **PUMP CONTROL**	Minimizes pump start and stop surges by coordinating valve and pump operation. Also prevents reverse flow by means of a 2-piece stem.	The Ross surge control valve is a cast iron body with bronze and stainless steel trim. Control devices include the following: Pneumatic or hydraulic or custom controls powered via a separate power source such as water, compressed gas, electric actuator, or other media.

SPECIFICATIONS

CUSTOM OPTIONS

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- Limit Switch – valve mounted to provide an electrical contact indicating valve opening.
- Pressure Setting Indicator – illustrates initial setting as well as a calibrated pressure scale.

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- Limit Switch – valve mounted to provide an electrical contact indicating valve opening.
- Pressure Setting Indicator – illustrates initial setting as well as a calibrated pressure scale.

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- Limit Switch – valve mounted to provide an electrical contact indicating valve opening.
- Pressure Setting Indicator – illustrates initial setting as well as a calibrated pressure scale.
- MC2000S-000-000 PLC based electronic control panel with message center display.
- Electronic solenoid control.

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- MC2001P-000-000 PLC based pump control panel with message center display.
- Conventional relay pump control panel.

BASE MODEL SPECIFICATIONS [70SWR]

OPERATION

The wastewater control valve is a combination direct acting and hydraulically operated control valve using a hydraulic self-contained oil cylinder as a dampening device. This valve is normally closed. In the closed position, the valve shall provide drop tight closure. When the incoming line pressure exceeds the spring setting, the valve will open. The valve will modulate from 0 to 100% open in order to assure the valve's inlet pressure remains below the valve's set point. Valve operation shall be purely hydraulic, requiring no electrical power. The valve shall close at a slow speed which is adjustable via the self contained hydraulic oil cushioned cylinder provided with the valve. The oil chamber shall permit rapid valve opening while assuring a slow and controlled valve closing rate. The closing speed shall be by means of an adjustable speed control valve.

DESIGN

The Control Valve shall have flanged connections, a globe or angle body configuration, and have a single seat with seat bore equal to size of valve. The minimum travel of the piston shall be equal to 25% of the diameter of the seat. For true alignment (to correct lateral thrust and stem binding) the piston shall be guided above the seat a distance equal to no less than 75% of the diameter of the seat. Piston shall be cushioned and so designed as to insure positive closure. The springs shall be enclosed in a protective chamber. A mechanical scraper ring shall be utilized to protect the internal seals. The valve shall be furnished with an inlet side gauge-cock for receiving gauges and testing purposes. The External Controls and all associated rigid brass piping and fittings necessary for proper operation (except the oil for the hydraulic chamber) shall be factory assembled and furnished with the valve. The design shall be such that repairs and dismantling of the valve may be made without its removal from the line.

PHYSICAL AND CHEMICAL PROPERTIES

Valve shall be constructed of gray iron castings that conform to ASTM Specification A 126Class B. Bronze parts shall conform to ASTM Specification B-62, and stainless parts shall conform to ASTM Specification A743 Grade CF-8 or CF-8M. The main valve shall be packed with a resilient seat packing and buna o-ring seals to insure tight closure and prevent metal to metal friction and seating. 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. The flanged assemblies shall conform to ANSI standards for wall thickness of body and caps, and flange thickness and drilling, subject to other specified standards.

TESTING

The test before shipment may be witnessed by a representative of the engineers for simulated field conditions and a cold hydrostatic test of at least 100% above the maximum pressure for which the valve is to operate.

PAINT

Ferrous surfaces of the valve shall be coated with NSF Certified Epoxy (Tnemec Series N140F) in accordance with ANSI/NSF Std.61, and conform to AWWA D102 Inside System No.1.

The valve will be equal in all respects to the Model 70SWR, as manufactured by the Ross Valve Mfg. Co., Inc.

NOTE: Ross Valve Mfg. Co., Inc. reserves the right to modify valve construction which will result in equal or superior performance to existing designs. These modifications may be made at any time and at the sole discretion of the manufacturer.

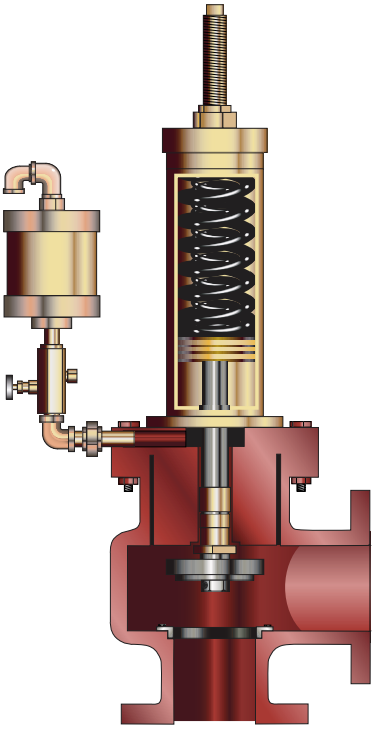
HEADLOSS GUIDE

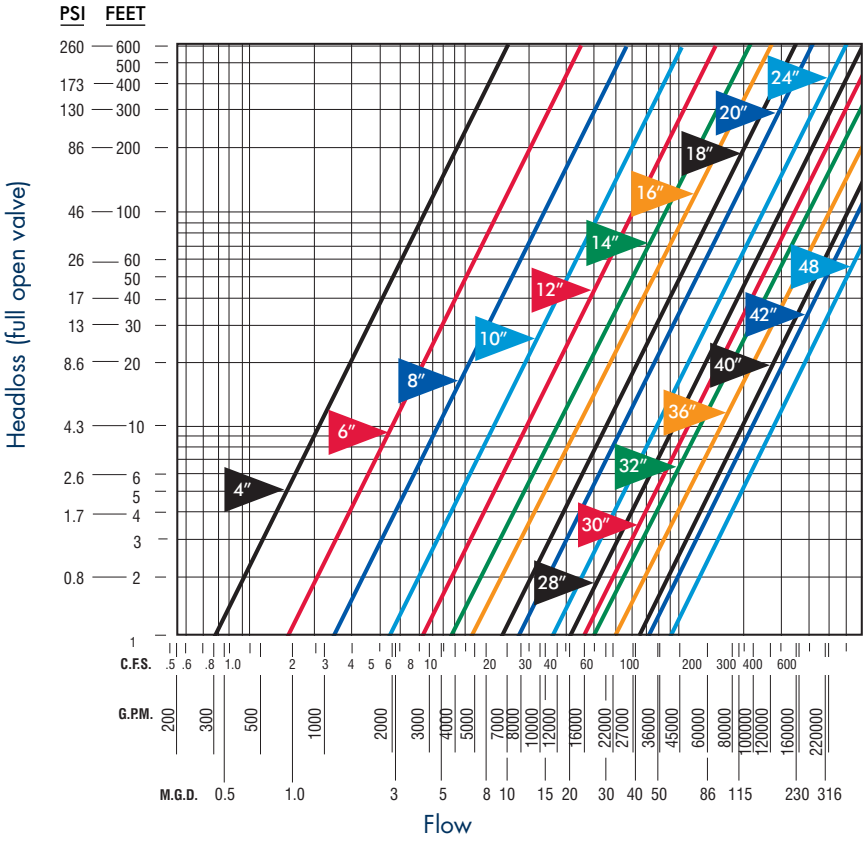
ROSS 70SWR SERIES

INSTRUCTIONS

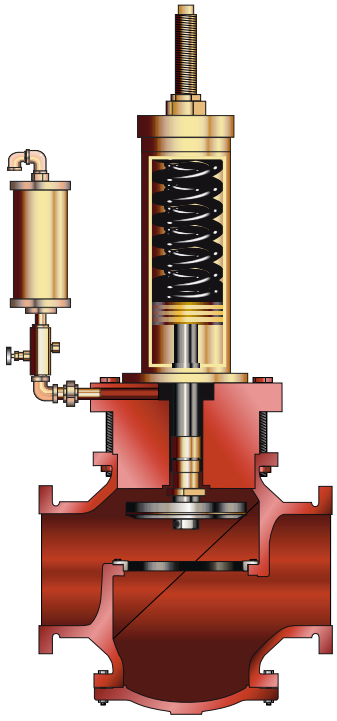
1. For the appropriate type valve (angle or inline), locate the desired headloss along the vertical axis.
2. Follow the line horizontally until the desired flow is reached (according to the horizontal axis).
3. Follow the line vertically down to the nearest angled line to determine the appropriate valve size.

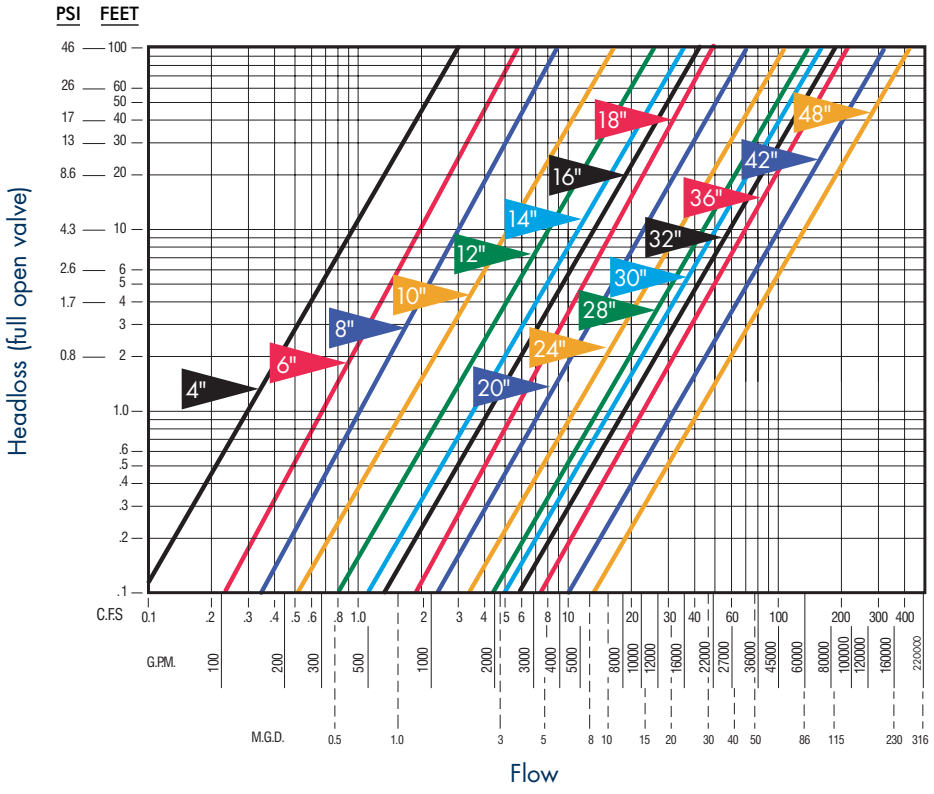
ANGLE STYLE VALVES





INLINE STYLE VALVES



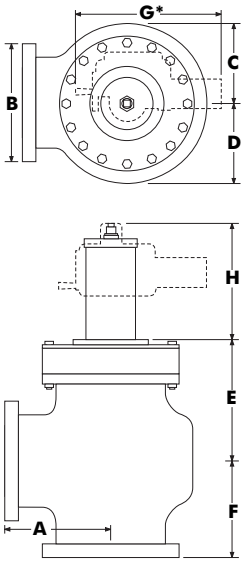


DIMENSIONS AND WEIGHTS

ROSS 70SWR SERIES

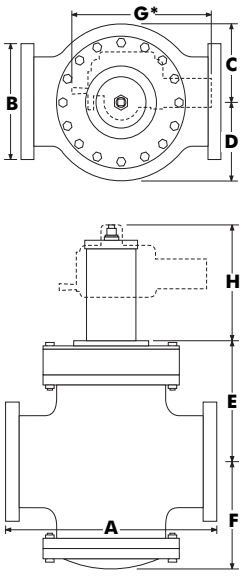
ANGLE STYLE (all dimensions in inches)

Valve Size	A		B		C&D	E		F		G*	H	Ship Weight (lbs)	
	125 ANSI	250 ANSI	125 ANSI	250 ANSI		125 ANSI	250 ANSI	125 ANSI	250 ANSI			125 ANSI	250 ANSI
4"	7.5	7.8125	9	10	4.75	8	8.125	6.25	6.5625	30-35	16	245	275
6"	8.625	9.0625	11	12.5	6.625	9.5625	10.125	8	8.4375	30-35	18	360	420
8"	10.5	11	13.5	15	8.75	12.875	13	10	10.5	30-35	20	650	700
10"	12.5	13.125	16	17.5	10	14	14	11.5	12.125	30-35	20	800	895
12"	15	15.5	19	20.5	12	17.25	17.25	12.625	13.125	30-35	24	1,260	1,370
14"	17	17.75	21	23	14	19.25	19.25	14.875	15.625	30-35	24	1,700	1,830
16"	19	19.75	23.5	25.5	15	21	21	16.5	17.25	30-35	24	2,180	2,420
18"	21.25	22.125	25	28	18	23.5	23.5	16.75	17.5625	30-35	36	3,050	3,350
20"	21.25	22.125	27.5	30.5	18	23.5	23.5	18.875	19.6875	30-35	36	3,330	3,630
24"	24.25	25.125	32	36	24	25.75	25.75	20.25	21.125	30-35	36	4,700	5,200
30"	31.875	32.875	38.75	43	26.25	37	37	27	28	30-35	40	9,800	10,800
36"	31.875	32.875	46	50	26.25	37	37	27	28	30-35	40	11,800	12,800



GLOBE STYLE (all dimensions in inches)

Valve Size	A		B		C&D	E		F		G*	H	Ship Weight (lbs)	
	125 ANSI	250 ANSI	125 ANSI	250 ANSI		125 ANSI	250 ANSI	125 ANSI	250 ANSI			125 ANSI	250 ANSI
4"	14	14.375	9	10	4.75	7	7	7	7	30-35	16	235	275
6"	17.75	17.75	11	12.5	6.625	9	9	9	9	30-35	18	375	430
8"	24	24.8125	13.5	15	8.75	12.5	12.5	12.5	12.5	30-35	20	690	750
10"	24.875	24.25	16	17.5	10	14.25	14.25	14.25	14.25	30-35	20	920	1,000
12"	30	31.5	19	20.5	12	15.5	15.5	15.5	15.5	30-35	24	1,375	1,475
14"	34.125	35.75	21	23	14	18	18	18	18	30-35	24	1,770	1,850
16"	37.875	39.25	23.5	25.5	15	21.5	21.5	21.5	21.5	30-35	24	2,400	2,600
18"	41.875	41.875	25	28	18.375	24	24	24	24	30-35	36	3,300	3,500
20"	42.375	42.375	27.5	30.5	18.375	24	24	24	24	30-35	36	3,550	3,800
24"	47	47	32	36	20	25	25	25	25	30-35	36	5,200	5,500
30"	63.75	65.5	38.75	43	26.25	34	34	34	34	30-35	40	9,800	10,800
36"	65	65	46	50	26.25	34	34	34	34	30-35	40	11,800	12,800
42″	82	82	53	53	35	38.25	38.25	40	40	30-35	40	16,300	17,400
48″	88	88	59.5	65	39.125	44	44	43.25	43.25	30-35	40	21,000	22,500



* Various actuator styles and sizes available. Consult factory for details.

There's nothing like a Ross Valve.

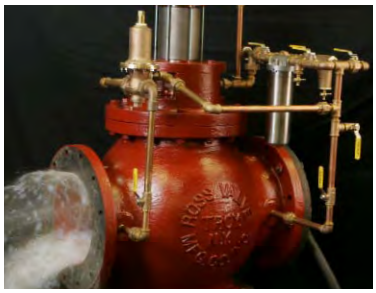
When George Ross founded our company in 1879, he made a product designed to last. He also created a company built on enduring values: integrity of design and engineering, quality of materials, craftsmanship in manufacturing, a high level of customer service, and flexible business systems that have evolved with technology and the times.

Now, much more than a century later, Ross automatic control valves are legendary throughout the world. Over the years, they have played a pivotal part in construction projects both large and small, serving systems as diverse in size and operating conditions as New York City, Los Angeles, Quito, and Madrid.

Ross offers a complete line of standard valves including electric, pump control, pressure reducing, flow control, altitude, back pressure sustaining, relief, surge control, electronic control valves, and float valves, as well as a complete line of strainers and diaphragm-style valves. Complementing these product lines are high energy dissipation anti-cavitation valves – our "WaterTamer." Rounding out our product line is a full line of valves for wastewater. Of course, we also have a variety of customized valves and valve features that can be engineered to suit any application, as well as pre-packaged valve vaults for turn-key installation.

Accurate. Ruggedly constructed. Versatile. Reliable. And backed by dedicated technical support and uncompromised field service. No wonder customers around the world always seem to say:

There's nothing like a Ross Valve.



Ross Valves are known for their exceptional quality. And no wonder, because we control the process in-house from start to finish. After designing the components, molds are made. We then start with the finest raw materials. All metals are poured in our own New York based foundries. All parts are machined to specs. Then each valve is meticulously assembled, pilot valves and controls are set, and the valve is "wet" tested under the designed operating conditions. When you receive your new Ross Valve, you can count on its ability to perform from start to finish.

Partial List of Installations

Ross wastewater relief, surge control, and pump control valves are used by municipalities and industries nationwide.

Village of Constantine, MI
Constantine, MI

Gwinnett County
Alcovy River Pump Station
Ezzard Road Pump Station
Lawrenceville, GA

Northern Kentucky Sanitation District #1
Northern KY

Trinity River Authority of Texas
Denton Creek WWTP
Denton, TX

Vista Ridge Metropolitan District
Coal Creek Raw Water Pump Station
Pagosa Springs, CO

ROSS 1879 VALVE

Ross Valve Mfg. Co., Inc.
P.O. Box 595, Troy, NY 12180-0595, USA
Tel: 518-274-0961 • Fax: 518-274-0210
Email: sales@rossvalve.com • www.rossvalve.com

REGISTERED ISO 9001:2000 QUALITY SYSTEM

All Ross Valves meet or exceed all current AWWA standards for construction and pressure ratings.

WWV 6-07 5M

PROUDLY MADE IN USA