ENERGY DISSIPATING VALVES

MODEL MOV
SAFELY REDUCES PRESSURE IN EXTREME CONDITIONS
Keep your head under control with MOV.

In high velocity and high pressure drop applications, you want a valve that works. The Ross model MOV (Multiple Orifice Valve) is your answer. Elegant in design, the MOV effectively controls flow and pressure in demanding valve applications. If you encounter high pressure drops, high velocities, pressure surging, cavitation, or other demanding conditions, insist on the best valve for the application - Ross MOV.

The effectiveness of the MOV’s operation is derived from its simple dual-plate design. A large number of strategically placed engineered orifices evenly distribute the flow stream over the entire face of the upstream valve plate. Based upon the desired flow rate, the flow media is divided into multiple jets, creating the desired throttling effect. Orifices align for higher flow rates. Flow area restricts for lower flow rates. Control of the valve and its flow is determined by the linear plate and its relative position to the fixed plate. As the valve works, the uniform jet configuration suppresses vibration, pressure fluctuations, cavitation, and noise.

Manual, hydraulic, and electronic actuators are available to operate the MOV. Combinations of these actuator types are also available for specific applications.

The design of the Ross MOV also provides other advantages. Its cavitation inception figures are more desirable than conventional valves. Tapered holes, counter bored holes, and exotic material of construction are utilized to assure that cavitation does not create a hazard within the valve. For severe cavitation applications, special plates and additional enhancement features are available to optimize the valve’s performance.

Space saving features typical of a butterfly valve, versatility of control actuators typical of a ball valve, and operating features of a conventional control valve make the MOV the valve of choice.

So get control. Ask about the Ross model MOV. It’s the answer to controlling your high-pressure applications.

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**Highlights of Ross Model MOV**

- Peace of mind for the operator of high-velocity and high-pressure drop situations.
- Available as manual, hydraulic and electrically operated control valves.
- High-velocity dissipation design with one fixed and one linear moving perforated plate.
- Flexible mounting design compatible with horizontal or vertical pipe installations.
- Unique bearing design of the linear plate allows bi-directional operation and eliminates any possibility of misalignment.
- Field-replaceable seals for easy maintenance and operational efficiency.
- Configured to open, close, or hold position during a power failure.
- Dielectric links protecting all parts and assuring easy maintenance.
- Ross industry-first taper ring adjustment device to regulate desired low flow rate. (Note: the MOV is not recommended for bubble tight shut off applications).
- Same rugged construction as all Ross valves, with design to testing done in-house.
- Capable of high capacity flow applications with total orifice area in excess of 30% of the pipeline flow area.

**Potential Installations**

The Ross Model MOV can be controlled by a combination of manual, hydraulic or electrical actuation packages. It is suitable for a range of applications, including:

- Industrial flow
- Cooling and mixing systems
- Water supply and distribution systems
- Headworks of water treatment plants
- Flow relief for pump and turbine units
- Water intake or discharge of dams
- Laboratory test rigs
- Replacing damaged throttling butterfly valves
- Replacing damaged throttled ball valves
CONSTRUCTION

ROSS MODEL MOV ENERGY DISSIPATING VALVE
Designed for severe-control situations, with a uniquely simple design that effectively controls your flow.

SIZES
4” – 90” (100mm – 2250mm).

DESIGN
Rough operating conditions demand a rugged valve. With essentially one moving part and heavy duty construction throughout, the Ross MOV is designed for accuracy, performance, and long life.

KEY FEATURES
1. Two hardened stainless steel plates with custom designed orifices direct water to center of downstream pipe, safely dissipating energy.
2. Rugged construction throughout with heavy-duty shafts, bearing guides and seals.
3. Available automated or manual controls.
4. Narrow profile “space saving” design.

ADDITIONAL FEATURES & BENEFITS
- Multiple heavy duty bearing guides along the axis of movement.
- Anti-cavitation enhancing orifices incorporated into the fixed downstream plate.
- Jet enhancing upstream plate orifices for severe service conditions.
- Capable of controlling transient and reverse flow conditions.
- Hydraulic anti-lift flow design (typical of butterfly valves).
- Field-replaceable stem packings for low friction operation and efficient maintenance.
- Rugged construction with hardened thick plates, heavy duty shafts and seals.
- Compact size and lay length.
- Small actuation packages available.
- Full control packages available.

OPERATION
The Ross Model MOV is based on bi-directional operating principles and contains one fixed (downstream) valve plate, and one linearly moving (upstream) valve plate. Both plates have matching orifices at a large number of engineered locations. These orifices divide the flow into jets that dissipate energy in a short linear distance. Operation is typically smooth enough to allow placement of monitoring equipment within close proximity of the valve.

FULL OPEN
Orifices in plates are completely aligned.

50% OPEN
Orifices in plates are partially aligned.

CLOSED
Orifices in linear plate are blocked by fixed plate.

Taper Ring allows for fine adjustment of spacing between plates to control leak rate.

Suitable for both Horizontal and Vertical Installations.

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

1. Locate the anticipated differential pressure 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.

Note: Use this chart as a guideline only. The exact hole pattern and design will be custom engineered for each application, depending on pressure and flow requirements.

Available in sizes up to 90”. 48” valve being manufactured in house by Ross Valve, shown above.
DIMENSIONS AND WEIGHTS
MODEL MOV

Note: A variety of actuator styles and sizes are available. Please consult the factory for details.

See Note.

Manual Gear & Hydraulic Cylinder

Electric Actuator

Quality In-House Production

Ross Valve is proud of the fact that we’ve continued to manufacture our valves in our own ISO Certified facilities in Troy, NY for nearly 130 years. While others have moved facilities overseas, resorted to using “job shops”, or sacrificed material integrity, we’ve remained dedicated to our commitment to quality, so we can guarantee that the materials we use are of the highest grade, while controlling the manufacturing process at every crucial step.

Quality System

ISO 9001:2000

Dimensions and weights are approximate and for reference only, subject to change. Please request drawings once actuation type has been determined. Dimensions based on 150 lb flanges in sizes 4” (100mm) through 90” (2250mm) AWWA Table Class E standard steel hub flanges.

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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.