

Flow Control and Pressure Reducing Valve

Model MN-772-U

Hydraulically operated, Flow Control and Pressure Reducing control valve with two independent functions. It maintains both pre-set maximum flow and reduces higher upstream pressure to lower constant downstream pressure, regardless of varying demand or upstream pressure.

Bermad 700 Series valves are hydraulic, pilot operated, oblique pattern, globe valves with a seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit.

The valve's hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications.

The 700 Series operate under difficult operation conditions with minimal cavitation and noise. They are made of the highest quality materials suitable for different mining applications.



Features and Benefits

- Hydraulic flow sensor
 - No moving parts. No electronic components.
 - No need for flow straightening
- Designed to stand up to the toughest conditions
 - Tamper resistant
 - Excellent anti-cavitation properties
 - High stability and accuracy
 - Drip tight sealing
- Double chamber actuator design
 - Protected diaphragm
 - Provide rapid response to sudden changes in system conditions
 - Simplified maintenance as it can be removed as a single unit. In-line serviceable
- Flexible design - Easy addition of features
- Optional V-Port Throttling Plug - Allows for low flow stability
- Obstacle free flow path

Major Additional Features

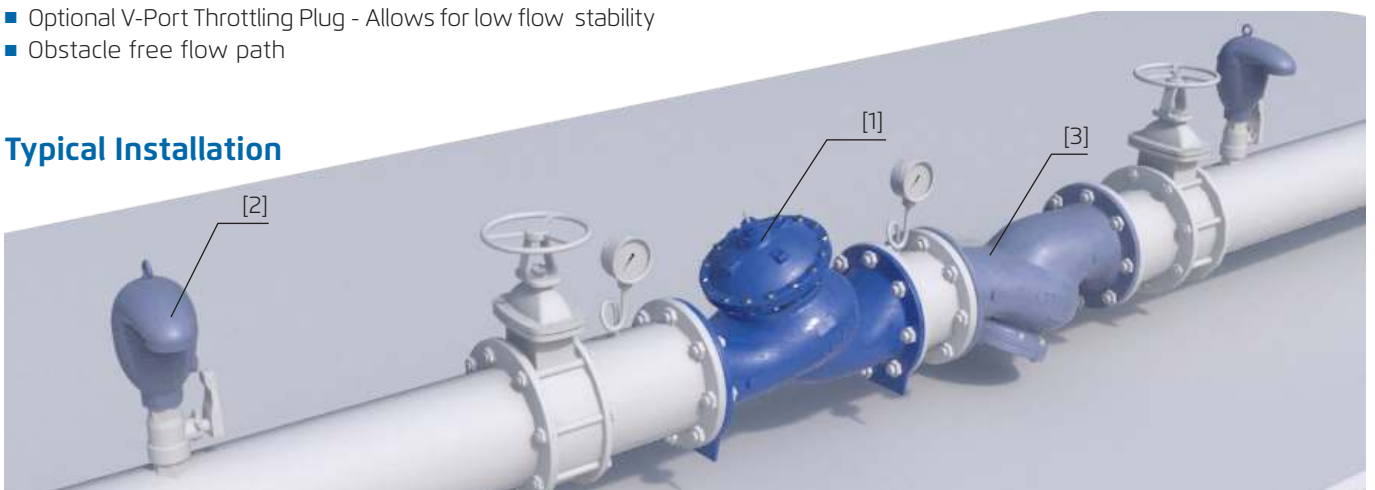
- ON/OFF Solenoid control - **772 - 55 - U**
- Check feature - **772 - 20 - U**
- Solenoid control & check feature - **772 - 25 - U**
- Downstream over pressure guard - **772 - 48 - U**

See relevant BERMAD publications

List of Components:

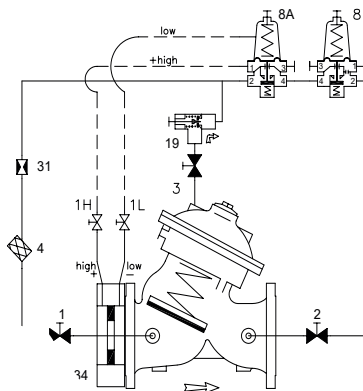
- [1] Flow Control and Pressure Reducing Valve MN-772
- [2] Combination Air Valve C70
- [3] Strainer MN-70F

Typical Installation





Control Schematic (*)



Standard Configuration

- 1 2W Isolation Valve
- 1L/1H 2W Isolation Valve
- 2 2W Isolation Valve
- 3 2W Isolation Valve
- 4 Control Filter
- 5 Restriction Orifice
- 8 Pressure Reducing Pilot
- 8A Flow Control Pilot
- 19 Opening Speed Control
- 31 Restriction Orifice
- 34 Orifice Plate

Additional features (OPTIONAL)

- V V-Port Plug
- F Large Control Filter
- F1 Extra Large Control Filter
- 6 Pressure Gauge
- I Visual Position Indicator
- S Electric Limit Switch
- Q Position Transmitter 4-20 mA

(*) As a reference only. Components may vary based on valve's size and class

Operation

- The Model 772-U is a pilot controlled valve equipped with an orifice assembly and two adjustable, 2-Way pilots for Flow Control (FC) and Pressure Reducing (PR), operating independently in series.
- The restriction orifice [31] continuously allows flow from valve inlet into the upper control chamber.
- Should orifice plate [34] differential pressure rise above FC pilot [8A] setting, the pilot throttles causing pressure to accumulate in the upper control chamber. The main valve throttles closed maintaining maximum flow at pilot setting.
- Should this differential pressure fall below FC pilot setting, the pilot releases accumulated pressure to the main valve outlet through the held open PR pilot [8] causing the main valve to modulate open.
- Should opening the main valve cause downstream pressure to rise above PR pilot setting, the pilot closes, causing the main valve to throttle closed, reducing downstream pressure.
- The needle valve controls the opening speed.

Pilot Options

Various pilots and calibration springs are available. Select according to valve size and operation conditions. For more details check flow (pressure reducing modified to differential sensing) and pressure reducing pilots product pages.

| Pressure Reducing Pilots | PSI | Bar |
|--------------------------|-------------------|----------------------------|
| | Adjustment Ranges | 11-150 15-230 30-430 |
| Flow Pilots | PSI | Bar |
| | Adjustment Ranges | 3-25 11-150 |



Pressure Rating

| | Class 150 | | | Class 300 | | |
|---------------------------|------------------|------------------------|----------|------------------|------------------------|----------|
| Max. Recommended Pressure | 250 PSI | | | 400 PSI | | |
| Available End Connection | Flanged ANSI#150 | Grooved ANSI/AWWA C606 | Threaded | Flanged ANSI#300 | Grooved ANSI/AWWA C606 | Threaded |

Materials

| Components | | Water Applications | Thermal Shock Applications | Base Solutions Applications | Acid Solutions Applications (**) |
|--------------------------|---------------------|---------------------|----------------------------|-----------------------------|----------------------------------|
| Main Valve | Body & Cover | Ductile Iron | Carbon Steel | Ductile Iron | Stainless Steel 316 |
| | Internals | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel 316 |
| | | Brass/Coated Steel | Brass/Coated Steel | Coated Steel | |
| | Elastomers | Synthetic rubber | Synthetic rubber | Synthetic rubber | Viton |
| Coating | Fusion Bonded Epoxy | Fusion Bonded Epoxy | Fusion Bonded Epoxy | Uncoated | |
| Pilot | Body | Brass/Bronze | Brass/Bronze | Stainless Steel 316 | Stainless Steel 316 |
| | Internals | Stainless Steel | Stainless Steel | Stainless Steel 316 | Stainless Steel 316 |
| | | Brass | Brass | | |
| Elastomers | Synthetic rubber | Synthetic rubber | Synthetic rubber | Viton | |
| Control Loop Accessories | Accessories | Brass/Bronze | Stainless Steel 316 | Stainless Steel 316 | Stainless Steel 316 |
| | Orifice Plate | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel 316 |
| | Tubing & Fittings | Brass | Stainless Steel 316 | Stainless Steel 316 | Stainless Steel 316 |

(**) For highly aggressive acid solutions: Super Duplex, Hastelloy C-276, SMO-254 6-MO. Others by request.

Notes:

- Inlet pressure, outlet pressure and flow rate are required for optimal sizing and cavitation analysis.
- Recommended average flow velocity: 0.1-3.5m/sec; 0.3-11ft/sec. Intermittent flow velocity: 7.5m/sec-23ft/sec
- Minimum operating pressure: 0.7 bar / 10 PSI. For lower pressure requirements consult factory.

