# Pressure Reducing and Sustaining Valve

## Model MN-723

Hydraulically operated, Pressure Reducing and Sustaining control valve with two independent functions. It sustains minimum pre-set upstream pressure regardless of fluctuating flow or varying downstream pressure, and it prevents downstream pressure from rising above maximum pre-set regardless of fluctuating flow or excessive 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 valves 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

- Designed to stand up to the toughest conditions
  - Tamper resistant
  - Excellent anti-cavitation properties
  - Wide flow range
  - 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

- Solenoid control – **723-55**
- Check feature – **723-20**
- High sensitivity pilots – **723-12**
- Solenoid control & check feature – **723-25**
- Downstream over pressure guard – **723-48**
- Proportional – **723-PD**

See relevant BERMAD publications

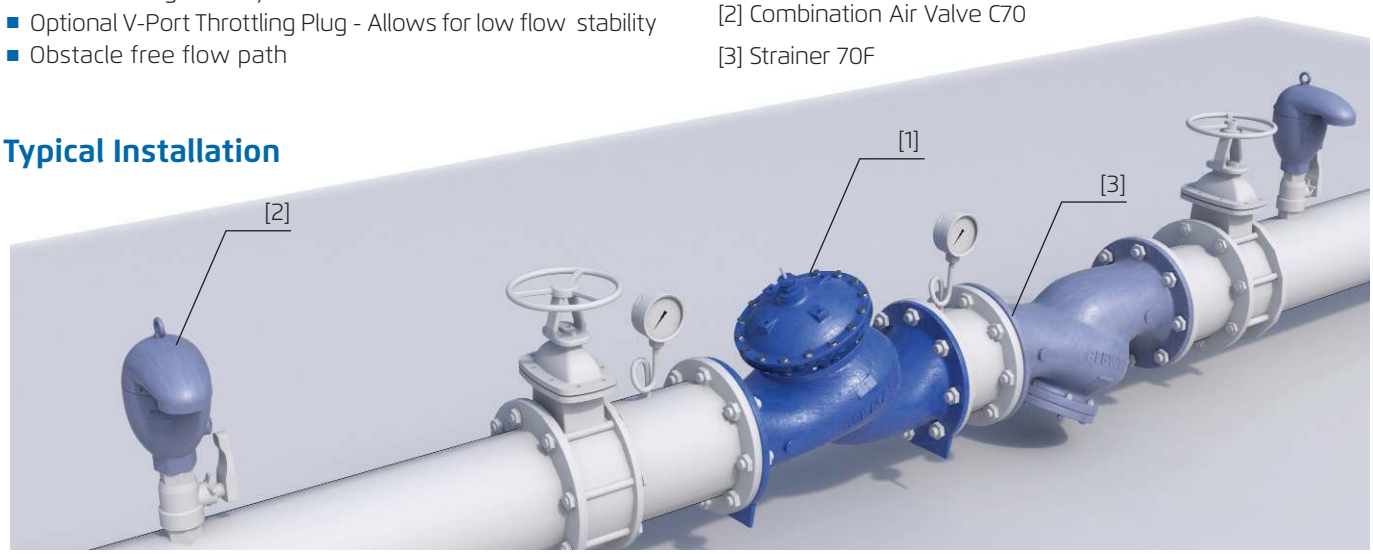
**List of Components:**

[1] Pressure Reducing and Sustaining Valve MN-723

[2] Combination Air Valve C70

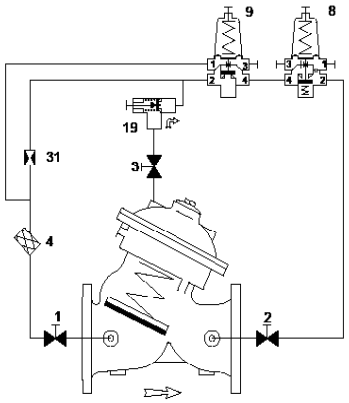
[3] Strainer 70F

## Typical Installation




All images in this catalog are for illustration only

## Control Schematic (*)




**Standard Configuration**

| | |
|---|---|
| 1 | 2W Isolation Valve |
| 2 | 2W Isolation Valve |
| 3 | 2W Isolation Valve |
| 4 | Control Filter |
| 8 | Pressure Reducing Pilot |
| 9 | Pressure Sustaining Pilot |
| 19 | Needle Valve, Opening Speed Control |
| 31 | Restriction Orifice |

**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 |
| U | Orifice Plate |

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

## Operation

- The Model 723 is a pilot controlled valve equipped with two adjustable, 2-Way pilots, pressure sustaining [PS] and pressure reducing [PR], operating independently in series.
- The orifice [31] continuously allows flow from the valve inlet into the upper control-chamber.
- The PS pilot [9] and the PR pilot [8] together control outflow from the upper control chamber.
- Should upstream pressure fall below PS pilot setting, the pilot closes causing pressure to accumulate in the upper control chamber. The main valve throttles closed sustaining upstream pressure at the pilot setting.
- Should upstream pressure rise above PS pilot setting, the pilot releases accumulated pressure from the upper control chamber to the main valve outlet through the held open PR pilot, opening the main valve.
- 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 to PR pilot setting.
- 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 pressure reducing and sustaining pilots product page

| | PSI | Bar |
|---|---|---|
| Adjustment Ranges | 11-150 | 0.7-10 |
| | 15-230 | 1-16 |
| | 30-430 | 2-30 |

## 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 |
| | 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.