

Pressure Reducing Valve Proportional Type

Model MN-820-PP (For High Pressure Applications)

Hydraulically operated, piston actuated control valve that reduces higher upstream pressure to lower downstream pressure at a fixed ratio.

Bermad 800 Series valves are hydraulic, oblique pattern, globe valves with a seat assembly and double chamber unitized actuator.

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

- Robust structure, piston actuated
 - High pressure service
- 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
 - 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 optional features
- Obstacle free flow path
- Optional V-Port Throttling Port - Allows for low flow stability

Major Additional Features

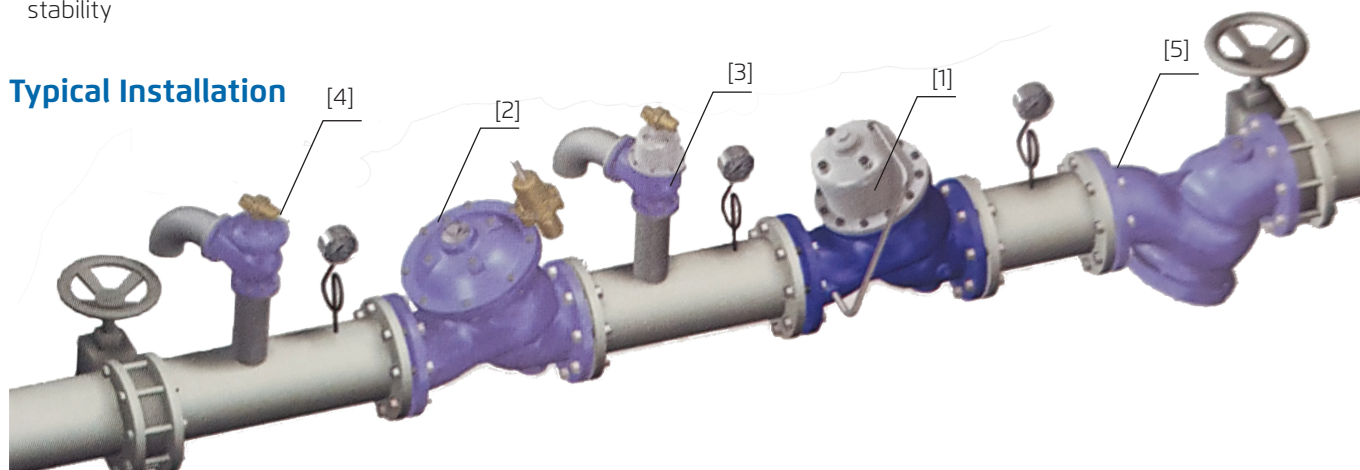
- ON/OFF Solenoid Control - **820 - PP - 55**
- Opening and closing speed control - **820 - PP - 03**
- Emergency pressure reducing valve - **820 - PP - 59**
- Pressure Sustaining - **823 - PP**
- Hydraulic check valve - **820 - PP - 20**

See relevant BERMAD publications

List of Components:

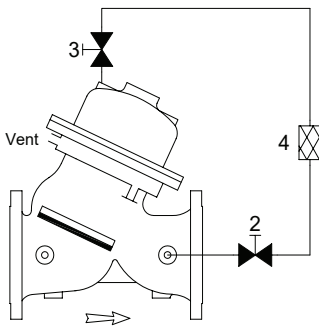
- [1] Pressure Reducing Valve, Proportional Type MN-820-PP
- [2] Pressure Reducing Valve MN-720
- [3] Pressure Relief Valve MN-83Q
- [4] Pressure Relief Valve MN-73Q
- [5] Strainer MN-80F

Typical Installation





Control Schematic (*)



Standard Configuration

- 1 2W Isolation Valve
- 2 2W Isolation Valve
- 4 Control Filter

Additional features (OPTIONAL)

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

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

Operation

- The Model 820-PP: pilotless double chambered control valve. Its downstream pressure is applied as the closing force on the top side of both the piston and the seal disk areas. The upstream pressure is applied as the opening force on the bottom side of the seal disk area.
- The net force, resulting from the two opposing dynamic forces acting on the actuator's piston and seal, determines the degree to which the valve is open. The valve seeks the point where these forces are equal. As the ratio of the areas of the seal disk and the piston is constant, the ratio of the upstream and downstream pressures is constant as well.
- A rise in downstream pressure causes a momentary increase of the closing force. As a result, the valve throttles closed reducing downstream pressure according to the constant ratio.
- A drop in downstream pressure causes a momentary decrease of the closing force. As a result, the valve throttles open increasing downstream pressure according to the constant ratio.
- When demand is zero, downstream pressure rises in proportion to the ratio, causing the valve to shut off.

Reduction Ratios Table

Valve Size		800
inches	mm	
1.5",2",2.5"	40,50,65	2.3
3"	80	2.3
4"	100	2.5
6"	150	2.2
8"	200	2.3
10"	250	2.3
12"	300	2.1
14"	350	2.1
16"	400	2.2
18"	450	2.2
20"	500	2.2

Pressure Rating

Class 300			
Max. Recommended Pressure	600 PSI		
Available End Connection	Flanged ANSI#300	Grooved ANSI/AWWA C606	Threaded

Materials

Components		Water Applications	Thermal Shock Applications	Base Solutions Applications	Acid Solutions Applications (**)
Main Valve	Body	Ductile Iron	Carbon Steel	Ductile Iron	Stainless Steel 316
	Cover	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316	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	
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, SM0-254 6-MO. Others by request.

Notes:

- Recommended continuous flow velocity: 0.1-6m/sec; 0.3-20ft/sec
- Minimum operating pressure: 2 bar / 30 PSI
- For lower pressure requirements consult factory.

