

Surge Anticipating Valve

Model MN-835-M (For High Pressure Applications)

Hydraulically operated, piston actuated, off-line surge anticipating valve that immediately opens in response to the pressure drop associate with abrupt pump stoppage. The pre-opened valve dissipates the returning high pressure wave; thereby, eliminating the surge. The valve smoothly closes drip tight as quickly as the relief feature allows; thereby, preventing closing surge. The valve also relieves excessive system pressure.

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

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 800 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
- Replace surge air vessels
 - Relieves surge, fail-safe open
 - Lower investment & minimal maintenance costs
 - Economy of space
 - Especially economic for high pressure ratings
- Designed to stand up to the toughest conditions
 - Tamper resistant
 - Excellent anti-cavitation properties
 - Drip tight sealing
- Double chamber actuator design
 - Moderate valve closing (no surges)
 - Simplified maintenance as it can be removed as a single unit. In-line serviceable
- Obstacle free flow path - Uncompromising reliability
- Balanced seal disc - High flow capacity

Major Additional Features

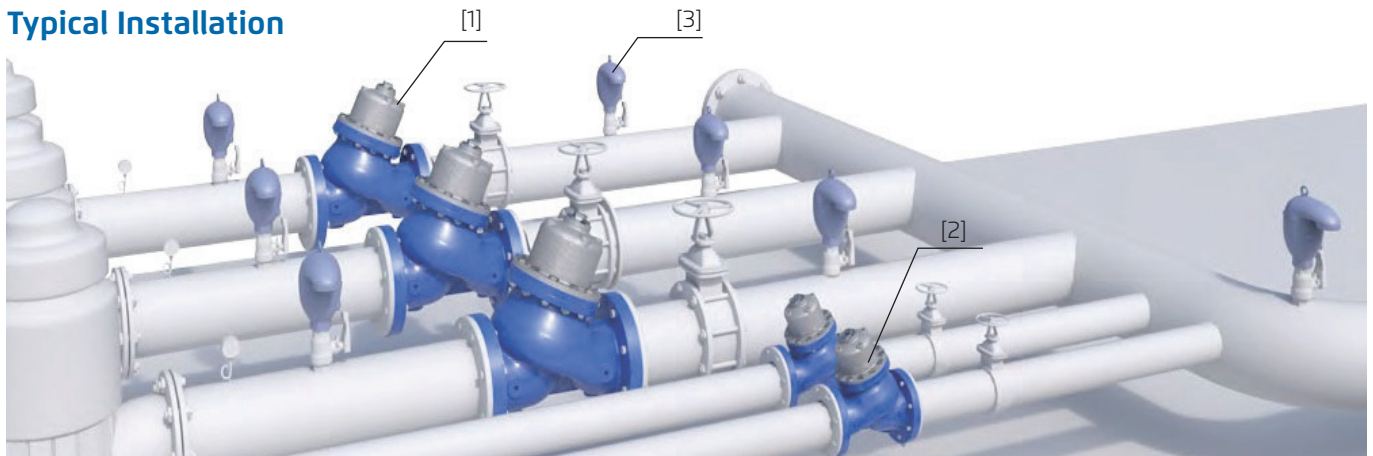
- Solenoid Control - **835 - 55 - M**
- Hydraulic/Electric override - **835 - 55 - 09 - M**

See relevant BERMAD publications

List of Components:

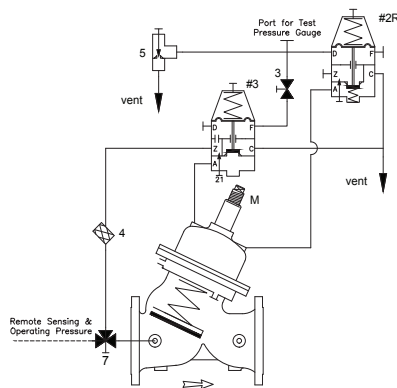
- [1] Pressure Control Valve MN-840
- [2] Surge Anticipating Valve MN-835-M
- [3] Combination Air Valve C70

Typical Installation





Control Schematic (*)



Standard Configuration

- 3 2W Isolation Valve
- 4 Control Filter
- 5 Needle Valve
- 7 3W Ball Valve
- #2R 2W Pressure Reducing Pilot
- #3 2W Pressure Sustaining Pilot
- M Flow Steam

Additional features (OPTIONAL)

- F Large Control Filter
- F1 Extra Large Control Filter
- 25 Pressure Gauge
- I2 Visual Position Indicator (side)
- S2 Electric Limit Switch (side)
- U Orifice Plate

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

Operation

- When pump stops abruptly, a pressure drop is produced due to the inherent moment of the water column, which continue to travel along the pipe, generating the down surge. When water column loses its momentum, it travels back towards the pump. Should it hit the closed check valve, a very high pressure surge is created and travels through the system, generating the up surge.
- Low pressure pilot #2R senses the initial pressure drop at down surge and opens. This immediately reaction allows the remaining line pressure to quickly open the main valve. The already opened 835-M releases the returning water column minimizing the line pressure rise.
- Should the relief rate be insufficient, and the pressure exceeds the high pressure pilot #3 setting, it immediately opens; thereby, further opening the main valve.
- As system pressure stabilizes again at static pressure, both pilots close and the main valve begin closing.
- The flow stem limits the relief flow to prevent column separation and preserve closing pressure.

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.



Adjustment Ranges	PSI	Bar
	30-430	2-30
	30-650	2-45

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	
Pilot	Body	Brass/Bronze	Stainless Steel 316	Stainless Steel 316	Stainless Steel 316
	Internals	Stainless Steel	Stainless Steel	Stainless Steel 316	Stainless Steel 316
		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:

- Full system data is required for surge analysis and optimal valve sizing.
- A flow stem enables limiting valve opening stroke, adjusting precisely the required flow through the valve.
- Recommended maximum intermittent flow velocity: 15m/sec; 50ft/sec.
- Minimum operating pressure: 2 bar / 30 PSI.

