Surge Anticipating Valve

Model MN-735

Hydraulically operated, diaphragm actuated, off-line surge anticipating valve that immediately opens in response to the pressure drop associated with an 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 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 operating 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
  - 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
- Obstacle free flow path
- Optional V-Port Throttling Plug - Allows for low flow stability
- Obstacle free flow path

Major Additional Features

- Solenoid Control - **735 - 55 - M**
- Hydraulic/Electric override - **735 - 55 - 09 - M**

See relevant BERMAD publications

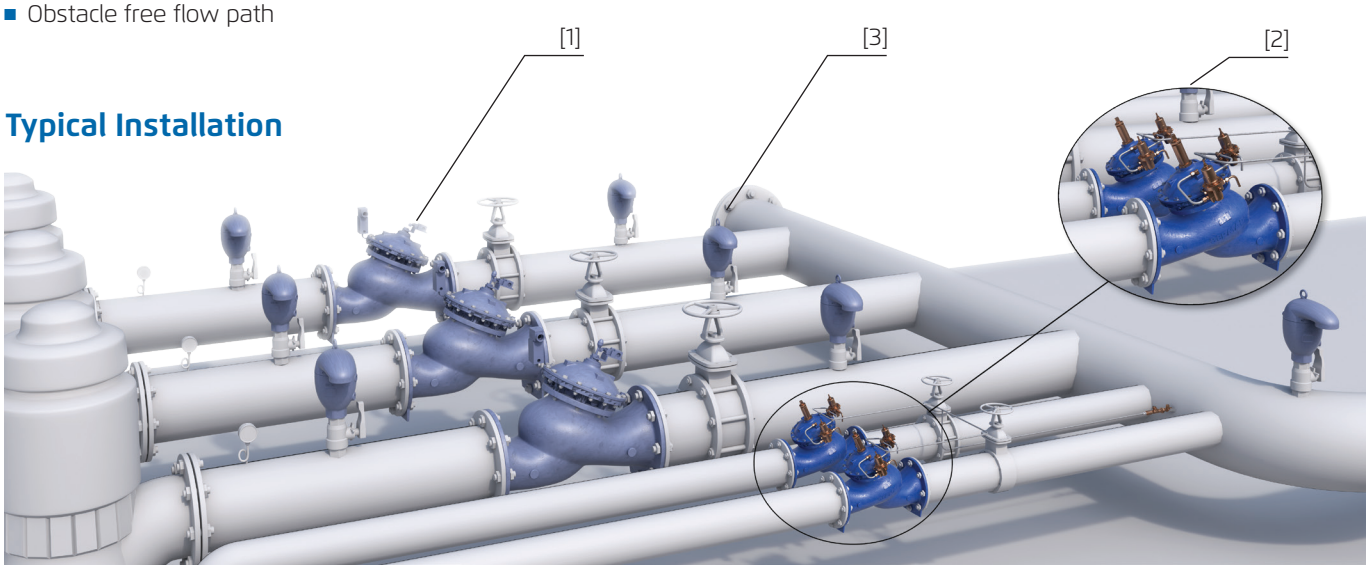
List of Components:

[1] Pump Control Valve 740

[2] Surge Anticipating Valve 735

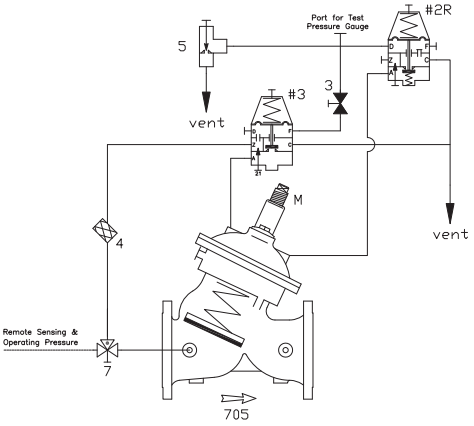
[3] Combination Air Valve C70

Typical Installation



All images in this catalog are for illustration only

Control Schematic (*)



Standard Configuration	
3	2W Isolation Valve
4	Control Filter
5	Needle Valve
7	3W ball valve
#2R	2W Press. Reducing Pilot
#3	2W Press. Sustaining Pilot
M	Flow Stem

Additional features (OPTIONAL)	
V	V-Port Plug
F	Large Control Filter
F1	Extra Large Control Filter
I	Visual Position Indicator
S	Electric Limit Switch
U	Orifice Plate
6	Pressure Gauge

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

Operation

- Low pressure pilot #2R senses the initial pressure drop at down surge and opens. This immediate reaction allows the remaining line pressure to quickly open the main valve. The already opened 735-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 begins 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 pressure sustaining pilots product page.

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

Pressure Rating & End Connections

	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
Pilots	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:

- 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: 0.7 bar / 10 PSI. For lower pressure requirements consult factory.