

Booster Pump Control Valve **Quick Active Check Valve**

Model MN-740

Hydraulically operated, active check pump control valve that opens fully or shuts off in response to electric signals. The valve isolates the pump from the system during pump startup and shutdown, thereby preventing pipeline surges.

The Bermad 700 Series valves are hydraulic operated, diaphragm actuated, oblique pattern, globe valves with a seat assembly and double chambered 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 high flow capabilities.

The valves are available in the standard configuration or with an independent flow check (code "2S"). They are made of the highest quality materials, suitable for different mining applications.

Features and Benefits

- Self-operated valves that can work without an external source of power, just a command is needed
- Electric controlled
 - Low power consumption
 - Normally Open or Normally Closed main valve
- Hydrodynamic wide globe valve body provides: Higher flow (Kv;Cv) than standard globe valves
- Check feature (spring loaded type) Replaces line sized check valve
 - □ Fail-safe mechanical closure
- Designed to stand up to the toughest conditions Tamper resistant
 - Drip tight sealing
- Double chamber actuator design
- Full powered opening and closing (option "B")
- Protected diaphragm
- Simplified maintenance as it can be removed as a single unit. In-line serviceable
- Flexible design Easy addition of optional features



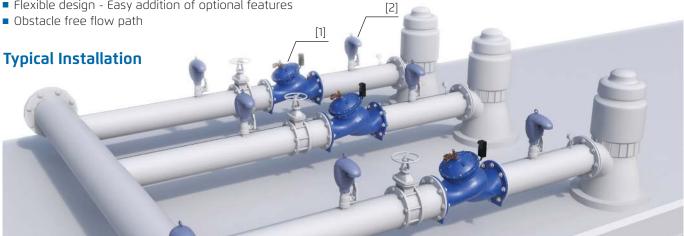
Major Additional Features

- Full powered opening & closing 740 B
- Independent flow check 740Q 2S
- Pressure sustaining 743
- Pressure reducing 742
- Flow control 747 U
- Pump circulation control 748
- Electronic control 740 18

See relevant BERMAD publications

List of Components:

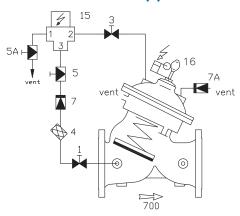
[1] Pump Control Valve 740 [2] Combination Air Valve C70







Control Schematic (*)



Standard Configuration

- 1/3 2W Isolation Valve
- 4 Control Filter
- 5 Closing Needle Valve
- 5A Opening Needle Valve
- 7/7A Check Valve
- 15 Solenoid / Motorized Ball Valve
- 16 Limit Switch

Additional features (OPTIONAL)

F Large Control FilterF1 Extra Large Control Filter

(*) As a reference only. Components may vary based on valve's size and class. For poor quality fluids, motorized ball valve option is highly recommended

Sequence of Operation

Pump Starting Procedure

When pump starts, valve upstream pressure rises above the system static pressure, allowing the valve to open gradually.

Pump Stopping Procedure

- While the pump is still working, and the shut-down command is issued, first, the solenoid - or the motorized ball valve MVB - applies pumped pressure to the upper control chamber. Then, the main valve starts to close isolating the running pump from the system.
- When valve is almost closed, its limit switch is activated and it shuts down the pump.

Power Failure

If electric power fails during pumping, valve works immediately as a check valve, closing before the flow can change direction.

Pressure Rating & End Connections

Electrical Data

Solenoid Data:

Voltages: (AC): 24, 110, 220 (DC): 12, 24, 110, 220



(AC): 30VA, inrush; 15VA (8W) holding (DC): 8W

Motorized Ball Valve Data:

Power Consumption:

Voltages: (AC): 24, 110, 220 (DC): 24

Power Consumption:

(AC/DC): 45W Limit Switch Data:

Switch Type: SPDT Electrical Rating: 10A, type gl or gG Enclosure Rating: IP66



| | 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 AN | SI/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 | 219111622 21661 210 | |
| | Elastomers | Synthetic rubber | Synthetic rubber | Synthetic rubber | Viton | |
| | Coating | Fusion Bonded Epoxy | Fusion Bonded Epoxy | Fusion Bonded Epoxy | Uncoated | |
| Solenoid | Body | Brass | Brass | Stainless Steel 316 | Stainless Steel 316 | |
| | Internals | Stainless Steel | Stainless Steel | Stainless Steel 316 | Stainless Steel 316 | |
| | Elastomers | Synthetic rubber | Synthetic rubber | Synthetic rubber | Viton | |
| Motorized Ball Valve | Body/Internals | Stainless Steel 316 | Stainless Steel 316 | Stainless Steel 316 | 5 Stainless Steel 316 | |
| | 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:

- Pump pressure and flow rate are required for optimal sizing.
- Maximum recommended flow velocity: 6m/sec; 18ft/sec. Intermittent: 7.5m/sec; 21ft/sec.
- Minimum operating pressure: 0.7 bar / 10 PSI. For lower pressure requirements consult factory.

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