

# ANTI-SURGE PUMP START CONTROL VALVE

## Model FP-730-48-BL

The BERMAD 730-48 is a Normally Open, Anti Surge, pilot-operated and diaphragm-actuated control valve. It has a double-chambered actuator for positive and reliable actuation with an external lift spring, giving the valve it's normally open characteristic. This affords the BERMAD 730-48 a zero reaction time, preempting and dissipating any pressure surge or excess air at pump start up.

Once the surge has passed and system piping pressure has normalized the 730-48 will close and will continue duty as a relief valve, relieving pressure spikes when needed, keeping the system pressure at its designed level.

The 730-48 is an autonomous valve operating under line pressure alone requiring no external power source.



### Features & Benefits

- Safety and reliability
  - Provides soft pump start for system surge protection
  - Designed for high reliability and easy maintenance
  - Fast, smooth response to pressure fluctuations
  - Obstacle-free, uninterrupted flow path
- High performance
  - Approved for PN25 / 365 psi
  - High discharge capacity
- Quick and easy maintenance
  - In-line serviceable
  - Fast and easy cover removal

### Typical Applications

- Fire pump pressure relief
- Surge prevention on pump start up.

### Approvals



Det Norske Veritas  
Type Approval



ABS  
American Bureau of Shipping  
Type Approval

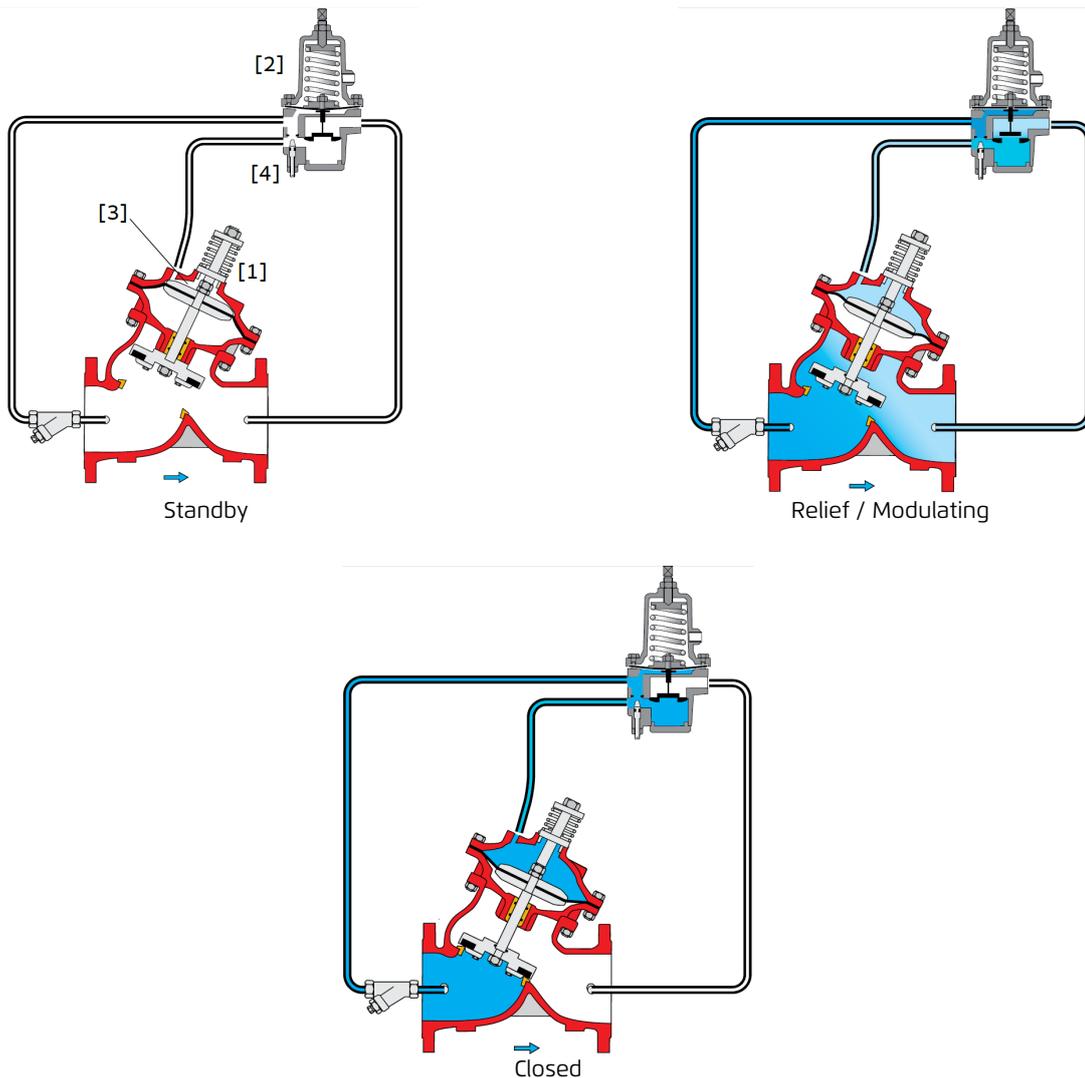


Lloyd's Register  
Type Approval

### Additional Features

- Large control filter
- Corrosion resistant zinc based high build epoxy coating
- Seawater compatibility

## Operation



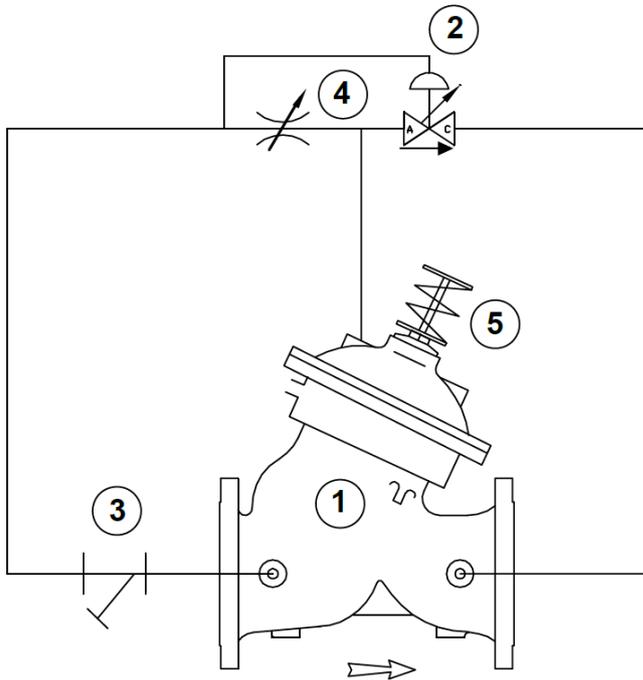
**Standby:** The BERMAD 730-48 is a Normally Open valve with an external lifting spring [1] keeping the valve in a fully open position as default when the system piping is depressurized, as might be before a pump start-up. When the pump starts the initial pressure surge and excess air will be expelled from the system through the valve.

**Relief / Modulating:** After the surge has passed, air has been exhausted and the system piping reaches normal pressure, the BERMAD 730-48 will continue duty as a pressure relief / sustaining valve, controlled by the pressure relief pilot valve [2] which should be pre-adjusted to the required pressure. When the system pressure is above the set pressure, the pilot valve will open, enabling water to exit the main valve control chamber [3] allowing the main valve to open and relieve system over-pressure.

**Closed:** When the system pressure falls below the set pressure the pilot valve will close allowing inlet pressure to accumulate in the main valve control chamber, closing the main valve. The closing speed can be set by changing the needle valve [4] adjustment.

The valve will remain closed and will open only when either the piping system pressure exceeds the required set pressure or when there is no pressure in the piping system.

System P&ID



Components	
1	BERMAD 700 Double Chambered Valve
2	Adjustable Pilot Valve
3	Priming Line Filter
4	Closing Speed Needle Valve
5	Lift Spring

## System Installation

A typical installation of the Model: BERMAD FP-730-48 is in systems where a pump start up would be followed by a pressure surge or contain accumulated residual air that has to be prevented from entering the piping system for the proper and safe function of a fire protection system.

When fitted close to the pump outlet the Normally Open characteristic of the FP-730-48 means a zero reaction time to initial pressure spikes and a maximum amount of the air being exhausted immediately before entering the system piping.

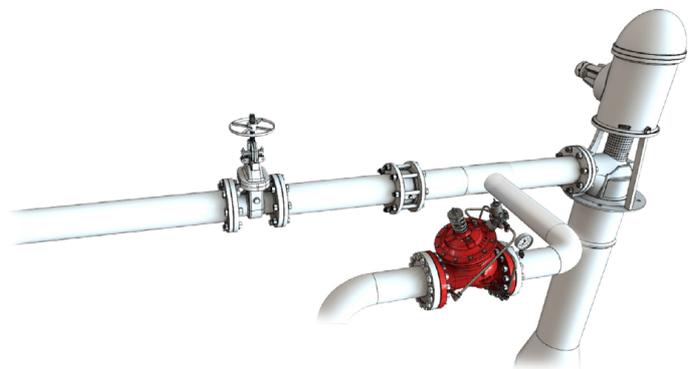
The high flow capacity of the valve enables an efficient and fast surge prevention and air extraction procedure.

When the pipeline pressure normalizes to below the relief set pressure, determined by the adjustable pilot valve, the BERMAD FP-730-48 will tend to close. Closing of the valve is positive and fast due to the double chamber, yet cushioned and smooth, due to the hydraulic characteristic of under-the-seat flow direction.

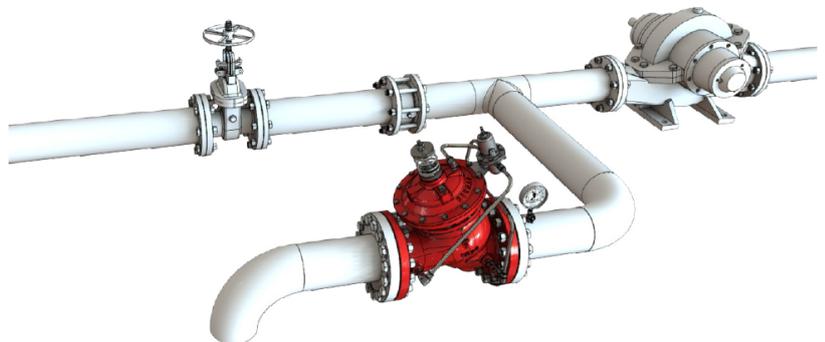
Whilst there is pressure in the pipeline the valve will continue service as a normal pressure relief or sustaining valve.

As soon as the pump is shut down and the pipeline is depressurized, the BERMAD FP-730-48 will return to the Normally Open position in standby and ready to dispel air contamination on the next pump startup.

### The BERMAD FP-730-48 installed downstream of vertical a deep well pump



### The BERMAD FP-730-48 installed downstream of a horizontal centrifugal pump



## Suggested Specifications

The valve body shall be a center guided, diaphragm actuated globe valve, with a Y-type straight-through-flow or angle pattern design.

The flow passage shall be unobstructed and free of any supporting ribs.

The valve shall have a removable non-corrosive stainless steel seat ring with no stem guide, an anti-surge external lift spring and a field adjustable pilot with an integral main valve closing speed adjustment capability.

The valve shall be Normally Open (N.O.).

Valve actuation shall be accomplished by a vented double chambered actuator with a stainless steel stem and seat housing, creating a drip tight seal.

Servicing the valve for inspection or maintenance shall be inline and shall not require removal of the valve from the pipeline.

The valve shall be rated for 25-bar/365psi.

The valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a factory certified to ISO 9000 and 9001 standards.

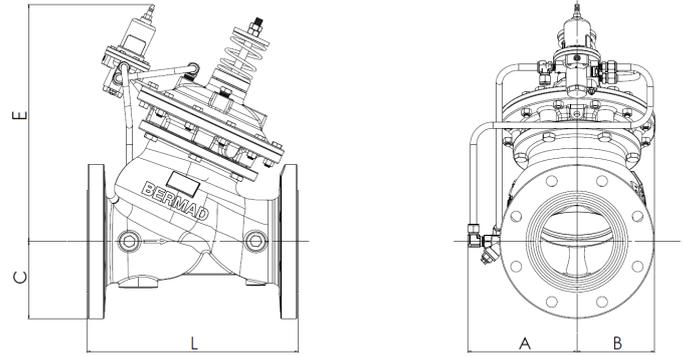
### Technical Data

**Available Sizes:**

Flanged- 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"  
Grooved- 2, 3, 4, 6 & 8"

**Pressure Rating:**

ANSI#150 - 16 bar | 235 psi  
ANSI#300 - 1½" to 10" - 25 bar | 365 psi  
ANSI#300 - 12" to 16" - 25 bar | 365 psi  
Grooved - 25 bar | 365 psi  
Setting range: 2 to 25 bar | 7 to 350 psi



Valve Size	L #150 mm   in	L Grooved mm   in	L #300 mm   in	A mm   in	B mm   in	C mm   in	∅D in	E mm   in	F mm   in	G mm   in	Weight #150 kg   lb	Weight #300 kg   lb
DN40   1½"	205   8.1	205   8.1	210   8.3	191   7.5	78   3.1	75   3	-	312   12.3	-	-	9.1   20	-
DN50   2"	205   8.1	205   8.1	210   8.3	191   7.5	78   3.1	83   3.3	-	312   12.3	-	-	10.6   23	-
DN65   2½"	209   8.2	209   8.2	212   8.3	191   7.5	89   3.5	93   3.7	-	312   12.3	-	-	13   29	-
DN80   3"	250   9.8	250   9.8	264   10.4	207   8.1	100   3.9	100   3.9	-	364   14.3	-	-	22   48	-
DN100   4"	320   12.6	320   12.6	335   13.2	242   9.5	112   4.4	114   4.5	-	405   15.9	-	-	37   81	-
DN150   6"	415   16.3	415   16.3	433   17	290   11.4	160   6.3	140   5.5	-	505   19.9	-	-	75   165	-
DN200   8"	500   19.7	500   19.7	524   20.6	325   12.8	195   7.7	171   6.7	-	566   22.3	-	-	125   275	-
DN250   10"	605   23.8	-	637   25.1	370   14.6	240   9.4	203   8	-	639   25.2	-	-	217   477	-
DN300   12"	725   28.5	-	762   30	515   20.3	275   10.8	241   9.5	-	449   17.7	-	-	370   814	-
DN350   14"	733   28.9	-	767   30.2	525   20.7	275   10.8	267   10.5	-	449   17.7	-	-	381   838	-
DN400   16"	990   39	-	1024   40.3	610   24	370   14.6	298   11.7	-	541   21.3	-	-	846   1861	-

**IMPORTANT:** Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning -Apart from the "L" dimension, allow a tolerance of at least ±15%

### Valve Code Designations

