

## Zero Pressure, Hydraulically controlled, Foam Concentrate Valve

Model: FC 700E-5X-BO



### Description

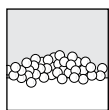
The BERMAD FC 700E-5X-N-BO is a Double Chambered hydraulically powered Foam-concentrate valve. The valve is actuated by fire water from the Main, which makes it independent from the foam concentrate line's pressure. Hence it may operate when line pressure is low or even in non-pressurized systems. This makes it best suited for installation at the discharge of atmospheric tanks.

The FC 700E-5X-N-BO is controlled by pilot line pressure which is related to the main deluge valve's trim, allowing the foam concentrate valve to open simultaneously with the main valve, providing flow at the same time with the water discharge, thus assuring an immediate supply of foam solution into the system piping.

The valve is Fail-safe Close and designed with an "over the seat flow" opening to ensure drip-tight sealing and safe operation.

This Bermad valve replaces ¼ turn actuated valves or pilot-operated solenoid valves in order to provide safer operation of modern foam systems, thus assuring maximum reliability of entire fire-fighting system.

### Typical Applications



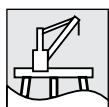
Foam systems



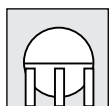
Zone isolating, on-off remote control



Hydraulic remote controlled systems



Offshore platforms / marine vessels



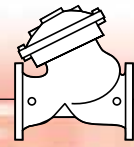
Gas storage tanks

### Features and Benefits

- **Double chambered Actuation** – Zero Line Pressure
- **Obstacle free full bore** – Uncompromising reliability
- **In line serviceable** – Minimum downtime and easy maintenance
- **Simultaneous opening with the main deluge valve** – immediate Foam supply
- **3-Way control system** – avoids continuous releasing
- **Fail safe** – safe operation and drip-tight sealing
- **Suited for Water or Air pilot line pressure**

### Optional Features

- **Valve position indicator**
- **Electric indication** (Limit Switch)

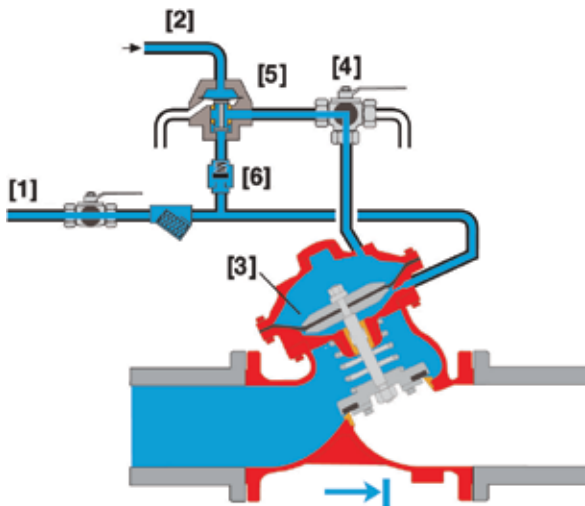


## Operation

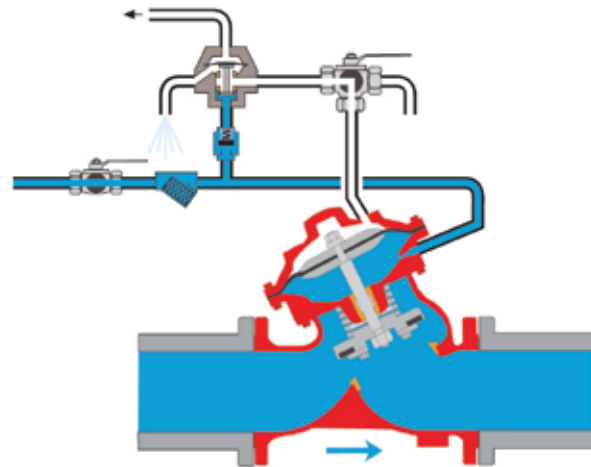
The BERMAD FC 700E-5X-N-BO is a Water Actuated Foam-concentrate valve, it is double chambered actuated valve, hydraulically powered opening and "over the seat flow" with Fail safe Close feature. The FC-700E-5X-BO is a "Y" pattern, diaphragm actuated, double chambered, water driven valve that requires firewater external source, as a priming pressure to be able to activate.

The water priming line pressure [1] is connected to both Lower [2] and Upper [3] control chambers. The pressure to the upper chamber is provided through a manual override valve [4] and through the Relay Valve [5]. The check valve [6] traps high pressure peaks in the main line ensuring that the main valve remains locked in the closed position to maintain a drip tight sealing. The hydraulic pilot line applies control pressure to the Relay Valve diaphragm to apply water pressure to the upper control chamber balancing the diaphragm and enable the spring to push the seal disc to the seat thus holding the main valve closed and sealed.

When the pilot line pressure is released the relay valve is activated and vents the valve upper control chamber, while lower chamber is fully pressurized, the actuator is hydraulically powered, allowing the valve seal disc to open and fluid to flow through the valve discharge to the system.



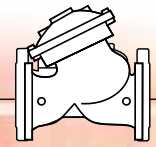
Valve Closed (set position)



Valve Open (operating condition)

## Engineer Specifications

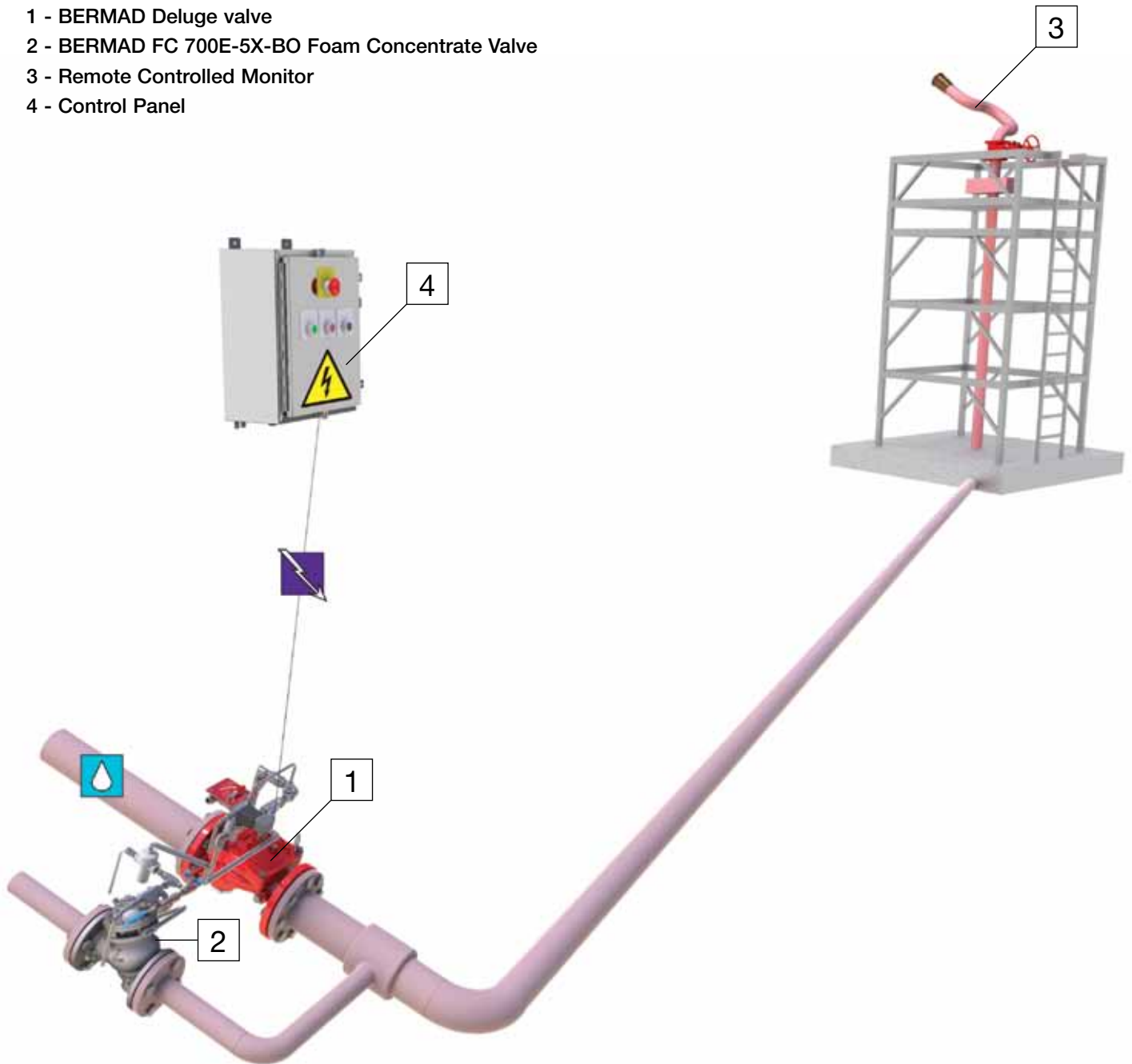
- The valve shall be a hydraulically operated "Y" pattern body with **integral unitized double chamber actuator**.
- Valve actuation shall be accomplished by one moving assembly, which shall include the diaphragm assembly, a flat seal disk and a stainless steel stem.
- All valve body and internal parts shall be of stainless steel and have an **unobstructed flow path**, with no stem guide or **supporting ribs**.
- The valve actuator shall be removable for quick in-line service enabling all necessary inspection and servicing.
- The control trim shall consist of stainless steel 316 tubing, fittings and accessories, including stainless steel HRV-3 (3-Way Relay Valve), Y strainer, 3-Way Manual Override Valve and check valve.
- The control Trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.
- The Hydraulically Operated Valve shall open and close in response to the dry pilot line hydraulic pressure status.





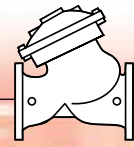
## Remote Controlled Monitor System (with Foam Concentrate Injection)

### System Components

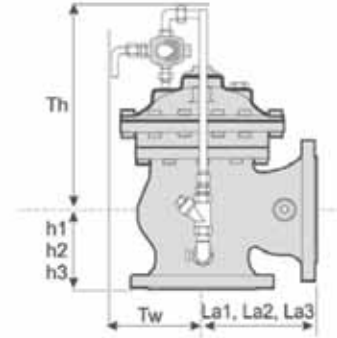
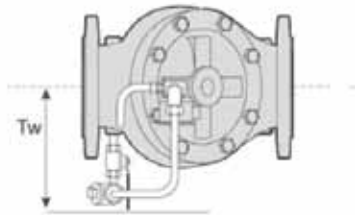
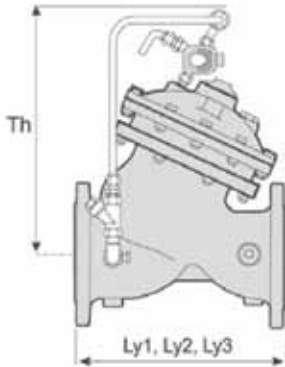
- 1 - BERMAD Deluge valve
- 2 - BERMAD FC 700E-5X-BO Foam Concentrate Valve
- 3 - Remote Controlled Monitor
- 4 - Control Panel



 Hydraulic  
 Electric



## Technical Data



Size	1½"		2"		2½"		3"		4"		
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
Dimensions	Ly <sub>1</sub> <sup>(1)</sup>	205	8 <sup>1</sup> / <sub>16</sub>	205	8 <sup>1</sup> / <sub>16</sub>	209	8 <sup>1</sup> / <sub>4</sub>	250	9 <sup>7</sup> / <sub>8</sub>	320	12 <sup>5</sup> / <sub>8</sub>
	Ly <sub>2</sub> <sup>(2)</sup>	155	6 <sup>1</sup> / <sub>8</sub>	155	6 <sup>1</sup> / <sub>8</sub>	212	8 <sup>3</sup> / <sub>8</sub>	250	9 <sup>13</sup> / <sub>16</sub>	N/A	N/A
	Ly <sub>3</sub> <sup>(3)</sup>	210	8 <sup>1</sup> / <sub>4</sub>	210	8 <sup>1</sup> / <sub>4</sub>	212	8 <sup>3</sup> / <sub>8</sub>	264	10 <sup>7</sup> / <sub>16</sub>	335	13 <sup>3</sup> / <sub>4</sub>
	La <sub>1</sub> <sup>(1)</sup>	121	4 <sup>3</sup> / <sub>4</sub>	121	4 <sup>3</sup> / <sub>4</sub>	140	5 <sup>1</sup> / <sub>2</sub>	152	6	190	7 <sup>1</sup> / <sub>2</sub>
	La <sub>2</sub> <sup>(2)</sup>	120	4 <sup>3</sup> / <sub>4</sub>	120	4 <sup>3</sup> / <sub>4</sub>	140	5 <sup>1</sup> / <sub>2</sub>	159	6 <sup>1</sup> / <sub>4</sub>	N/A	N/A
	La <sub>3</sub> <sup>(3)</sup>	127	5	127	5	149	5 <sup>7</sup> / <sub>8</sub>	159	6 <sup>1</sup> / <sub>4</sub>	200	7 <sup>7</sup> / <sub>8</sub>
	Tw	191	7 <sup>1</sup> / <sub>2</sub>	191	7 <sup>1</sup> / <sub>2</sub>	191	7 <sup>1</sup> / <sub>2</sub>	207	8 <sup>1</sup> / <sub>16</sub>	242	9 <sup>1</sup> / <sub>2</sub>
	Th	312	12 <sup>5</sup> / <sub>16</sub>	312	12 <sup>5</sup> / <sub>16</sub>	312	12 <sup>5</sup> / <sub>16</sub>	364	14 <sup>1</sup> / <sub>2</sub>	405	15 <sup>15</sup> / <sub>16</sub>
	h <sub>1</sub> <sup>(1)</sup>	82	3 <sup>1</sup> / <sub>4</sub>	82	3 <sup>1</sup> / <sub>4</sub>	102	4	102	4	127	5
	h <sub>2</sub> <sup>(2)</sup>	82	3 <sup>1</sup> / <sub>4</sub>	82	3 <sup>1</sup> / <sub>4</sub>	102	4	114	4 <sup>1</sup> / <sub>2</sub>	N/A	N/A
	h <sub>3</sub> <sup>(3)</sup>	89	3 <sup>1</sup> / <sub>2</sub>	89	3 <sup>1</sup> / <sub>2</sub>	109	4 <sup>5</sup> / <sub>16</sub>	108	4 <sup>1</sup> / <sub>4</sub>	135	5 <sup>5</sup> / <sub>16</sub>

**Notes:**

- Ly<sub>1</sub>, La<sub>1</sub> & h<sub>1</sub> for flanged ANSI #150 and ISO PN16
- Ly<sub>2</sub>, La<sub>2</sub> & h<sub>2</sub> for threaded female, NPT or BSP
- Ly<sub>3</sub>, La<sub>3</sub> & h<sub>3</sub> for flanged ANSI #300 and ISO PN25
- Dimensions are maximum
- Provide adequate clearance around valve for maintenance

**Connection Standard**

- B16.5 Stainless Steel
- B16.24 Bronze

**Fluid Temperature**

- 0.5 – 80°C (33 – 180°F)

**Sizes ("Y", "G" & Angle)**

- "Y" or Angle: 1½, 2, 2½, 3 & 4

**Pressure Rating**

- Max. for Class #150/PN16: 250 psi (17 bar)
- Max. for Class #300/PN25: 400 psi (28 bar)

**Manufacturers Standard Materials**

**Main valve body and cover**

- Stainless Steel 316 CF8M

**Main valve internals**

- Stainless Steel 316

**Control Trim**

- Stainless Steel 316 components/accessories
- Stainless Steel 316 tubing & fittings

**Elastomers**

- NBR (Buna-N)

**Coating**

- Externally, Electrostatic Powder Polyester, Red (RAL 3002)

**Optional Materials**

**Main valve body/internals**

- Ni-Al-Bronze ASTM B-148

**Pilot Control Pressure**

- Valve opens on pilot line pressure drop

**In case of Pneumatic Pilot Line**

- Minimum Pneumatic pressure supply – 5 bar
- Pneumatic Pilot line must be continually pressurized to keep the main valve closed.

**Option**

- Fail Safe Close (pressure to open)

