

# Zero Pressure, Solenoid Activated, Foam-Concentrate Valve

## Model FC 700E-3X-B0

The BERMAD FC 700E-3X-B0 is a Double Chambered hydraulically powered foam-concentrate valve, controlled electrically by a solenoid valve.

The FC 700E-3X-B0 is hydraulically actuated by existing fire water pressure, independent from the foam pressure enabling functionality at very low pressure or even non-pressurized foam concentrate. This makes it highly suited for installation at the discharge of atmospheric tanks.

The valve is "Fail Safe Close", designed with an "Over the Seat" flow direction to ensure drip-tight sealing and safe operation.

The BERMAD FC 700E-3X-B0 replaces mechanically actuated valves or pilot-operated solenoid valves, providing safer operation for modern foam systems, assuring maximum reliability of the entire fire-fighting system.



(for Illustration Only)

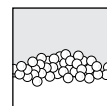
### Features and Benefits

- **Double chambered Actuation** – Zero Line Pressure
- **Obstacle free full bore** – Uncompromising reliability
- **Fail Safe Close** – Safe operation and drip tight sealing
- **In line serviceable** – Minimum downtime and easy maintenance
- **3-Way control** – No continual release of control fluid

### Optional Features

- **Explosion-proof for hazardous locations** (code: 7/8/9)
- **Valve position indicator**
- **Electric indication** (Limit Switch or Pressure Switch)

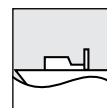
### Typical Applications



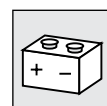
Foam systems



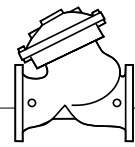
Zone isolating, on-off remote control



Marine environments



Emergency low DC power activation

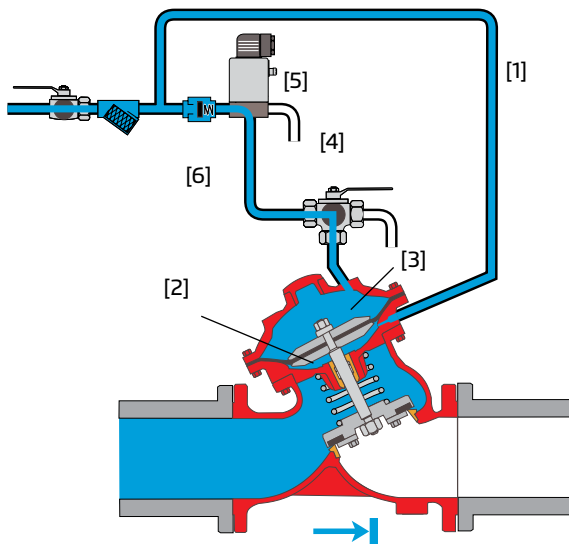


## Operation

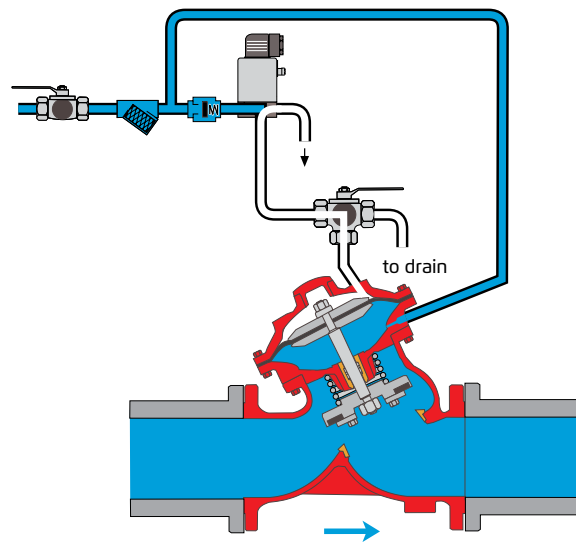
The BERMAD FC-700E-3X-B0 is a “Y” pattern, Fail Safe Close, diaphragm actuated, double chambered, water pressure driven hydraulic valve, that requires existing firewater as a priming pressure source for valve activation. In the set position: The 3-Way solenoid valve [5] is de energized. The priming line [1] constantly supplies pressure to the valve’s lower chamber [2] by way of the Y filter [8] and the 2-Way priming line ball valve [7]. Pressure to the upper chamber is provided via a manual override valve [4] and by the de energized 3-Way solenoid valve. The check valve [6] retains pressure in the upper control chamber ensuring that the main valve remains with a drip tight seal until activated.

In the operating position: The solenoid is energized and the valve upper chamber is vented while the lower chamber remains pressurized, this imbalance of hydraulic forces, lifts the valve seal disc assembly to open the valve and allow fluid to flow into the system.

Alternatively the valve may be opened by use of the 3-Way manual override valve [4]



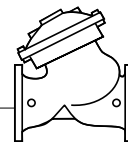
**Valve Closed** (set position)



**Valve Open** (operating position)

## Engineer Specifications

- The valve shall be a solenoid controlled “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 a stainless steel 3-Way solenoid 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 Solenoid Controlled Valve shall open and close in response to an electric signal.

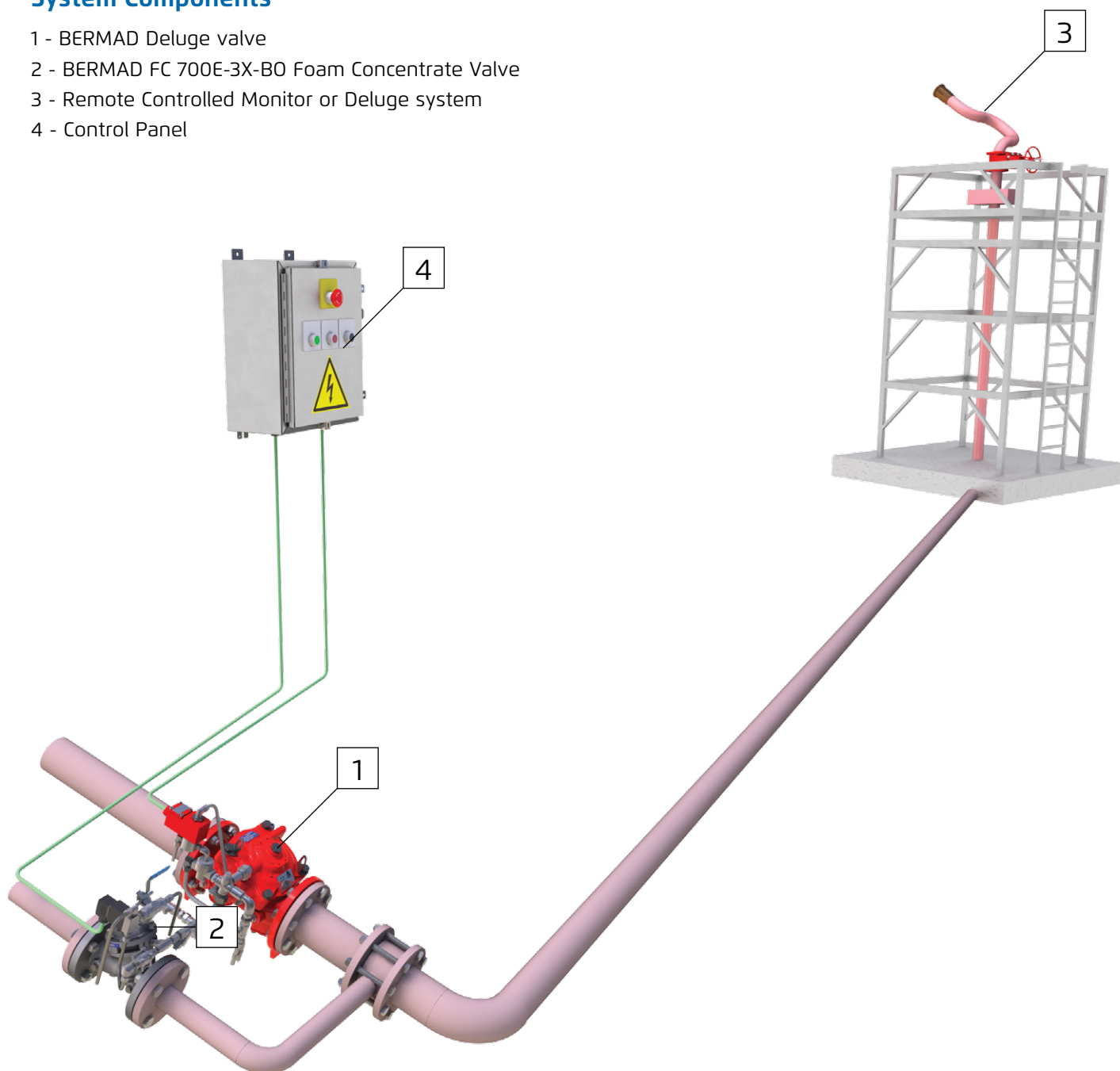


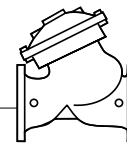
## Remote Controlled Monitor System

(with Foam Concentrate Injection)

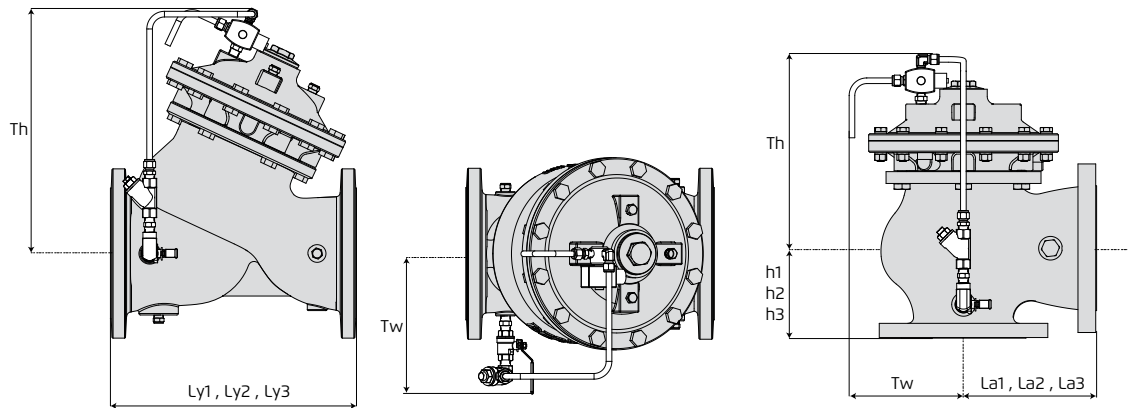
### System Components

- 1 - BERMAD Deluge valve
- 2 - BERMAD FC 700E-3X-B0 Foam Concentrate Valve
- 3 - Remote Controlled Monitor or Deluge system
- 4 - Control Panel





## 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>1</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:**
1. Ly<sub>1</sub>, La<sub>1</sub> & h<sub>1</sub> for flanged ANSI #150 and ISO PN16
  2. Ly<sub>2</sub>, La<sub>2</sub> & h<sub>2</sub> for threaded female, NPT or BSP
  3. Ly<sub>3</sub>, La<sub>3</sub> & h<sub>3</sub> for flanged ANSI #300 and ISO PN25
  4. Dimensions are maximum
  5. 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

### 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)

### Pressure Rating

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

### Optional Materials

#### Main valve body / cover

- Ni-Al-Bronze ASTM B-148

### Solenoid Pilot Valve

#### Standard

- 3-Way, direct actuated type
- Stainless Steel body
- Main valve closed when de-energized
- Enclosure: General purpose watertight, IP65, Class F
- Power: 24VDC, 8 watts

#### Options (see also ordering guide)

- Hazardous locations:
  - Class I Division 1, Gr. A, B, C, D, T4 (code 7)
  - Class I Division 2, Gr. A, B, C, D, T4
  - ATEX, Ex d IIC T5 (code 9)
- Voltage: see ordering guide (voltage option table)

