

## Pressure-Reducing and Electrically-Controlled Deluge Valve Combination

with EasyLock Manual Reset

---

### Model - FP 400E - 2MC



### Typical Applications



Systems with fluctuating or over pressure



Petrochemical facilities



Tunnels



Power plants & Transformers



Flammable materials storage



Aviation & Airports

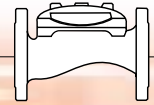
### Features and Benefits

- **Pressure-Reducing Function** – constant lower preset, downstream pressure
- **Latch open** – closes upon local reset only
- **One-piece molded single moving part** – no maintenance required
- **Obstacle-free Full-bore** – uncompromising reliability
- **Factory pre-assembled trim** – Out-of-Box Quality
- **In-line serviceable** – minimal down time

### Optional Features

- **Water Motor Alarm**
- **Alarm pressure-switch** (code: P or P7)
- **Explosion proof** for hazardous locations (code: 7 or 8)
- **Fail-safe open** energized to close main valve
- **Hydraulic release** (requires trim extension)
- **Sea water service** (add FS as prefix to model)

# BERMAD Fire Protection



Model - FP 400E - 2MC

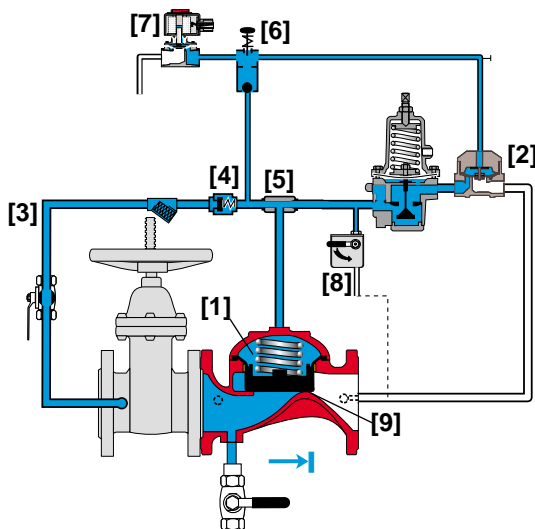
400 Series

## Operation

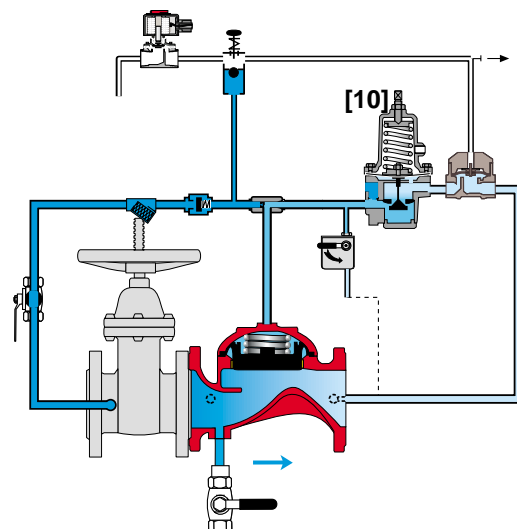
The BERMAD Model 400E-2MC is suitable for systems that include electric fire-detection and a piping system with a wide variety of open nozzles. Combining a pressure-reducing feature, the model 400E-2MC is recommended for systems with high-pressure supply source and/or with relatively low flow.

In the SET position, the line-pressure supplied to both the main valve's control chamber [1] and to a Hydraulic Relay Valve (HRV) [2] via the priming line [3], and through a Check Valve [4], an Accelerator [5] with priming restriction, and an EasyLock Manual Reset device (EMR) [6] is trapped by the Check Valve, by the HRV held closed, by a Solenoid Valve [7], and by a closed Manual Emergency Release [8]. The trapped pressure holds the main valve's diaphragm and plug against the valve seat [9], sealing it drip-tight and keeping the system piping dry.

Under FIRE or TEST conditions, an electric signal triggers the Solenoid Valve to open, opening the HRV. Pressure is then released from the main valve's control chamber to the downstream, through the Pressure Reducing (PR) Pilot [10] and the opened HRV, or the Manual Emergency Release. The EMR prevents line-pressure from entering the HRV, allowing the main valve to latch open, and water to flow into the system piping and to the alarm device. Should system pressure rise above PR pilot setting, the PR pilot throttles, thereby enabling pressure to accumulate in the valve control chamber. This causes the 400E-2MC to throttle closed, decreasing system pressure to PR pilot setting.



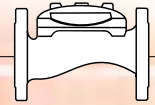
Valve Closed (set position)



Valve Open (operating condition)

## Engineer Specifications

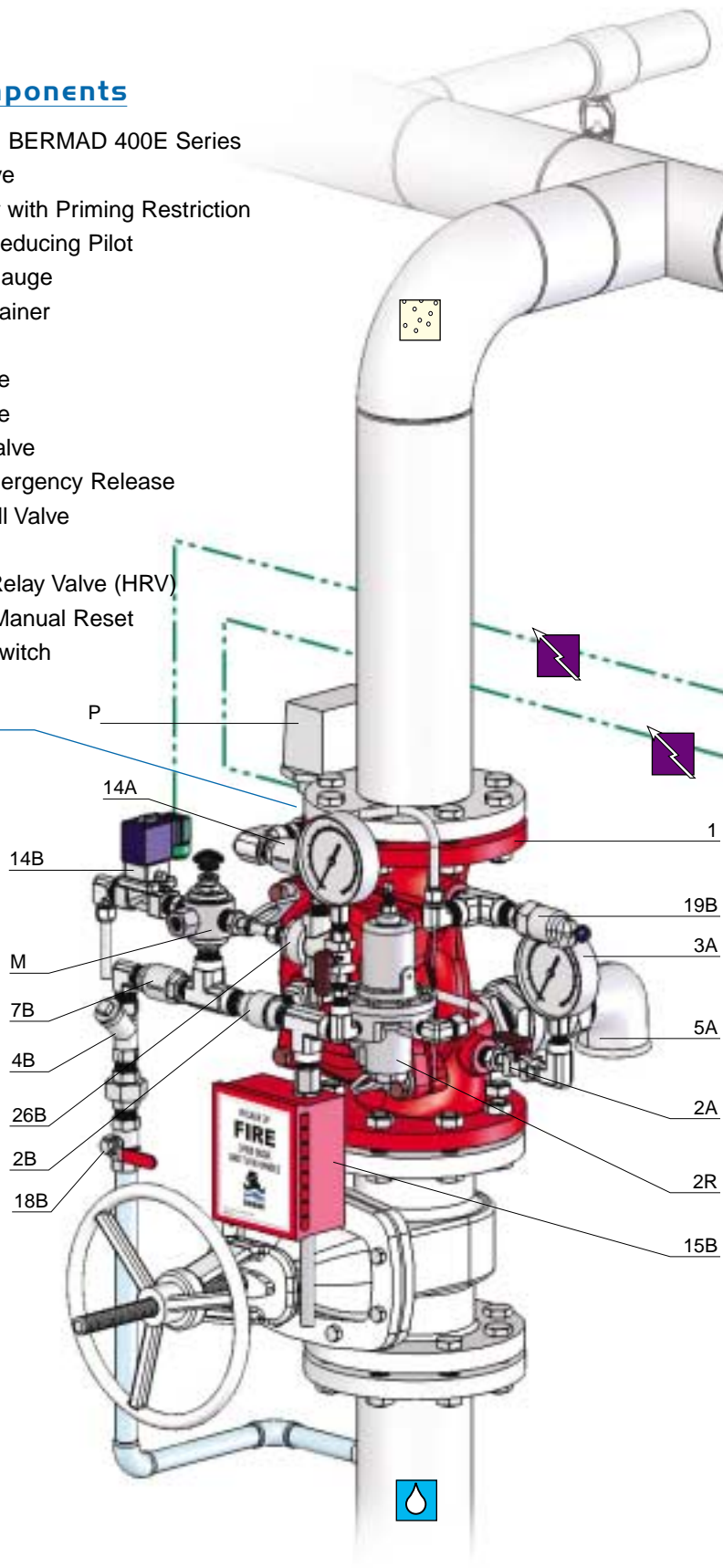
- The deluge valve shall be Australian Standard SSL, electrically controlled, elastomeric globe with a **rolling-diaphragm**.
- The valve shall have an **unobstructed flow path**, with no stem guide or **supporting ribs**.
- Valve actuation shall be accomplished by a fully peripherally supported, one-piece balanced rolling-diaphragm, vulcanized with metal insert. The diaphragm assembly shall be the only moving part.
- The valve shall have a removable cover for quick in-line service enabling all necessary inspection and servicing.
- The control trim materials shall consist of St.St. 316 tubing and fittings, and plated brass accessories, including local **"EasyLock Manual Reset" (EMR)**, 2-way Solenoid Pilot Valve, Y strainer and Manual Emergency Release.
- The Trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 & 9001 certified factory.
- The pressure reducing and electrically-controlled deluge valve shall latch open in response to activation of the solenoid, reducing higher upstream pressure to lower preset downstream pressure.  
The valve shall reset to close only upon local manual activation of the reset device.






## System Components

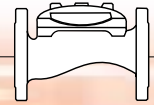
- 1 - Main Valve, BERMAD 400E Series
- 2A - Gauge Valve
- 2B - Accelerator with Priming Restriction
- 2R - Pressure Reducing Pilot
- 3A - Pressure Gauge
- 4B - Priming Strainer
- 5A - Drain Valve
- 7B - Check Valve
- 14A - Check Valve
- 14B - Solenoid Valve
- 15B - Manual Emergency Release
- 18B - Priming Ball Valve
- 19B - Drip Check
- 26B - Hydraulic Relay Valve (HRV)
- M - EasyLock Manual Reset
- P - Pressure Switch

To Water Motor Alarm (option)



-  Hydraulic
-  Electric
-  Atmosphere

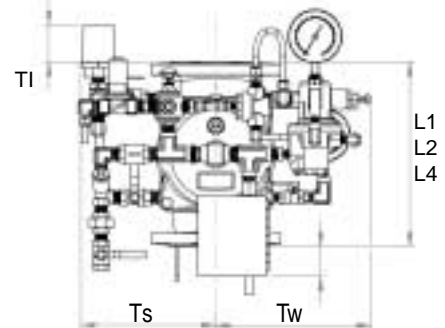
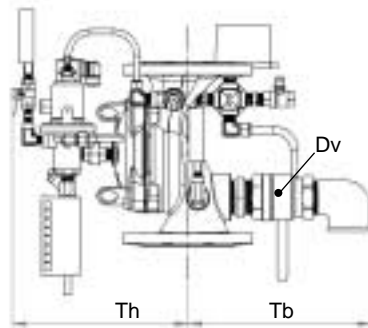
# BERMAD Fire Protection



Model - FP 400E - 2MC

400 Series

## Technical Data



Valve Size	2"		2½"		3"		4"		6"		8"		10"		12"		
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
Dimensions	(1) L1	205	8 <sup>1</sup> / <sub>16</sub>	205	8 <sup>1</sup> / <sub>16</sub>	250	9 <sup>13</sup> / <sub>16</sub>	320	12 <sup>5</sup> / <sub>8</sub>	415	16 <sup>5</sup> / <sub>16</sub>	500	19 <sup>11</sup> / <sub>16</sub>	605	23 <sup>13</sup> / <sub>16</sub>	725	28 <sup>9</sup> / <sub>16</sub>
	(2) L2	180	7 <sup>1</sup> / <sub>16</sub>	210	8 <sup>1</sup> / <sub>4</sub>	255	10 <sup>1</sup> / <sub>16</sub>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(3) L4	205	8 <sup>1</sup> / <sub>16</sub>	N/A	N/A	250	9 <sup>13</sup> / <sub>16</sub>	320	12 <sup>5</sup> / <sub>8</sub>	415	16 <sup>5</sup> / <sub>16</sub>	N/A	N/A	N/A	N/A	N/A	N/A
	TI	142	5 <sup>5</sup> / <sub>8</sub>	142	5 <sup>5</sup> / <sub>8</sub>	119	4 <sup>11</sup> / <sub>16</sub>	84	3 <sup>5</sup> / <sub>16</sub>	57	2 <sup>1</sup> / <sub>4</sub>	—	—	—	—	—	—
	Tw	228	9	220	8 <sup>1</sup> / <sub>16</sub>	243	9 <sup>9</sup> / <sub>16</sub>	253	10	312	12 <sup>5</sup> / <sub>16</sub>	326	12 <sup>13</sup> / <sub>16</sub>	346	13 <sup>5</sup> / <sub>8</sub>	391	15 <sup>3</sup> / <sub>8</sub>
	Ts	228	9	220	8 <sup>1</sup> / <sub>16</sub>	243	9 <sup>9</sup> / <sub>16</sub>	253	10	318	12 <sup>1</sup> / <sub>2</sub>	191	7 <sup>1</sup> / <sub>2</sub>	326	12 <sup>13</sup> / <sub>16</sub>	391	15 <sup>3</sup> / <sub>8</sub>
	Th	305	12	242	9 <sup>1</sup> / <sub>2</sub>	262	10 <sup>5</sup> / <sub>16</sub>	261	10 <sup>5</sup> / <sub>16</sub>	356	14	407	16	407	16	546	21 <sup>1</sup> / <sub>2</sub>
	Tb	278	10 <sup>1</sup> / <sub>16</sub>	289	11 <sup>3</sup> / <sub>8</sub>	300	11 <sup>13</sup> / <sub>16</sub>	337	13 <sup>1</sup> / <sub>4</sub>	378	14 <sup>7</sup> / <sub>8</sub>	405	15 <sup>15</sup> / <sub>16</sub>	413	16 <sup>1</sup> / <sub>4</sub>	473	18 <sup>5</sup> / <sub>8</sub>
	Dv	¾"		1.5"		1.5"		2"		2"		2"		2"		2"	

### Notes:

1. L1 is for flanged ANSI #150 and ISO PN16.
2. L2 is for threaded female, NPT or BSP.
3. L4 is for grooved.
4. Provide adequate space around valve for maintenance.
5. Data is for envelope dimensions, specific component positioning may vary.

### Connection Standard

- Flanged: ANSI B16.42 (Ductile Iron), B16.5 (Steel & Stainless), B16.24 (Bronze) or ISO PN16
- Threaded: NPT or BSP for 2 & 2½
- Grooved: ANSI/AWWA C606 for 2, 3, 4 & 6"

### Water Temperature

- 0.5 – 50°C (33 – 122°F)

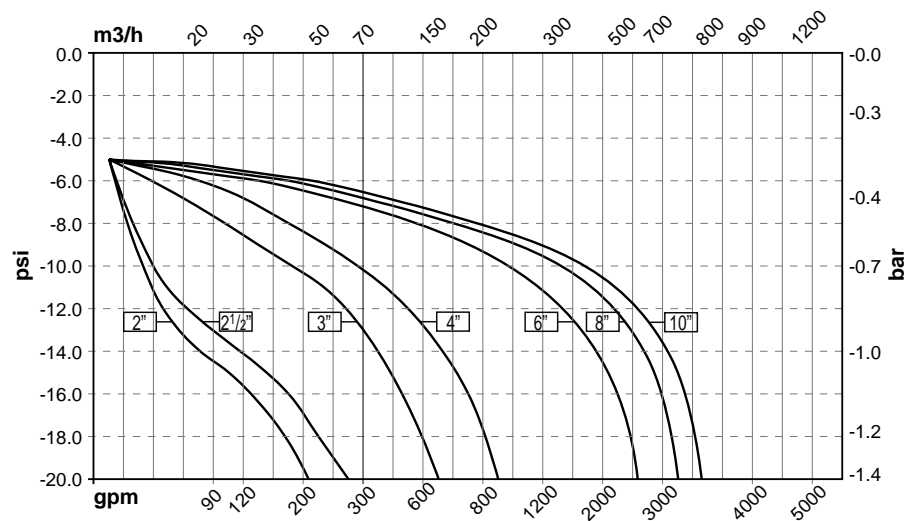
### Available Sizes

- 2, 2½, 3, 4, 6, 8, 10 & 12"

### Pressure Rating

- Max inlet: 250 psi (17 bar)
- Set: 30-165 psi (4.5-11.5 bar)

### Valve Outlet Pressure Fall-off Characteristics On Inlet Under-Set Pressure



### Manufacturers Standard Materials

#### Main valve body and cover

- Ductile iron ASTM A-536

#### Main valve internals

- Stainless steel 304 & Cast iron

#### Control Trim System

- Brass control Components/Accessories
- Forged brass pressure reducing pilot with st. st. 304 internals & NBR elastomers
- Stainless Steel 316 tubing & fittings

#### Elastomers

- Nylon fabric reinforced polyisoprene

#### Coating

- Electrostatic Power Coating Polyester Red (RAL 3000)

### Optional Materials

#### Main valve body

- Carbon steel ASTM A-216 WCB
- Stainless steel 316
- Ni-Al bronze ASTM B-148

#### Control Trim

- Stainless steel 316
- Monel®
- Hastalloy C-276

#### Elastomers

- NBR
- EPDM

#### Coating

- High Built Epoxy Fusion-Bonded with UV Protection, Anti-Corrosive

### Solenoid Pilot Valve

- 2-way brass body
- Main valve closed when de-energized
- Enclosure: General purpose watertight, NEMA 4 and 4X / IP65
- Optional: Explosion-proof NEMA 6, 6P, 7 & 9

#### Voltage

- 24, 120, DC
- 24, 110, 220, AC 50 Hz (or 24, 120, 240, AC 60 Hz)
- Continuous duty-molded Class F
- Wattage rating: 10.6 DC, 9.5 AC

#### Approvals

- CSA Certified
- Alternative: ATEX / IEC certified
- Other solenoids available on request



info@bermad.com • www.bermad.com

The information contained in this document is subject to change without notice. BERMAD shall not be liable for any errors contained herein. All rights reserved. © Copyright by BERMAD. PE4PE-2MC 04