

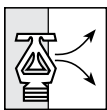
## Pneumatically Controlled Deluge Valve

with EasyLock™ Manual Reset

Model: FP 400E-4M



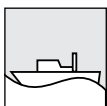
### Typical Applications



Automatic spray or foam systems



Offshore installations



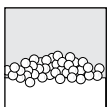
Marine environments



Freezing environments



Seawater / corrosive water supplies



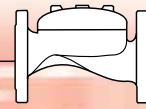
Foam applications

### Features and Benefits

- **Pneumatic PORV** – Best suited for corrosive and freezing conditions
- **Latch open** – Closes upon local reset only
- **One-piece molded elastomeric moving part** – No maintenance required
- **Simple design** – Cost effective
- **Obstacle-free full bore** – Uncompromising reliability
- **Factory pre-assembled trim** – Out-of-box quality
- **In-line serviceable** – Minimal downtime

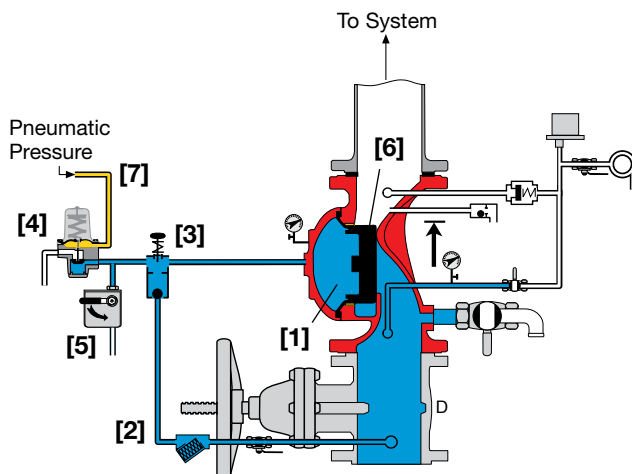
### Optional Features

- **Water motor alarm**
- **Alarm pressure-switch** (code: P or P7)
- **Seawater service** (add FS as prefix to model)
- **Valve Position Single/Double Limit Switches**

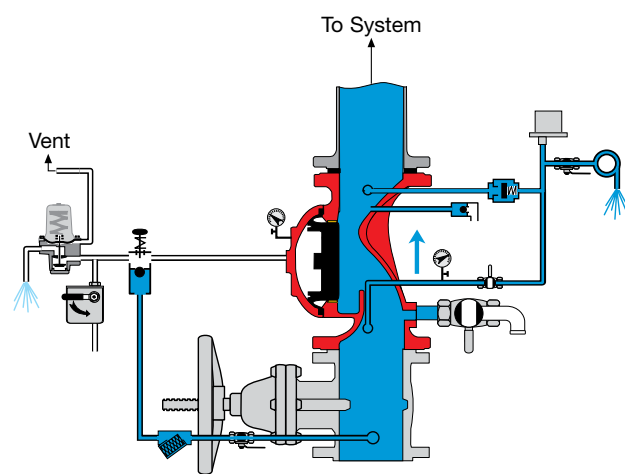


## Operation

BERMAD's Model FP 400E-4M is suitable for systems that include dry pilot lines with closed pneumatic fusible plugs (thermal releases), and piping systems with a wide variety of open nozzles. Since it is pneumatically controlled, the Model FP 400E-4M is recommended for environments with freezing temperatures and/or corrosive water supply. In the SET position, the line-pressure supplied to the main valve's control chamber [1] via the priming line [2] and through an EasyLock Manual Reset [3], is trapped by the EasyLock internal check valve, by a closed Pneumatic Pressure Operated Relief Valve (PORV) [4] and by a closed Manual Emergency Release [5]. The trapped pressure holds the main valve's diaphragm and plug against the valve seat [6], sealing it drip-tight and keeping the system piping dry. The PORV is held closed by the pneumatic pressure maintained in the dry pilot line [7]. Under FIRE or TEST conditions, a pilot line pneumatic pressure drop opens the PORV. Pressure is then released from the main valve's control chamber through the opened PORV, or the Manual Emergency Release. The EasyLock prevents line pressure from entering the control chamber, allowing the main valve to latch open and water to flow into the system piping and to the alarm device.



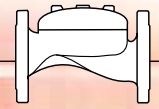
Valve Closed (set position)



Valve Open (operating condition)

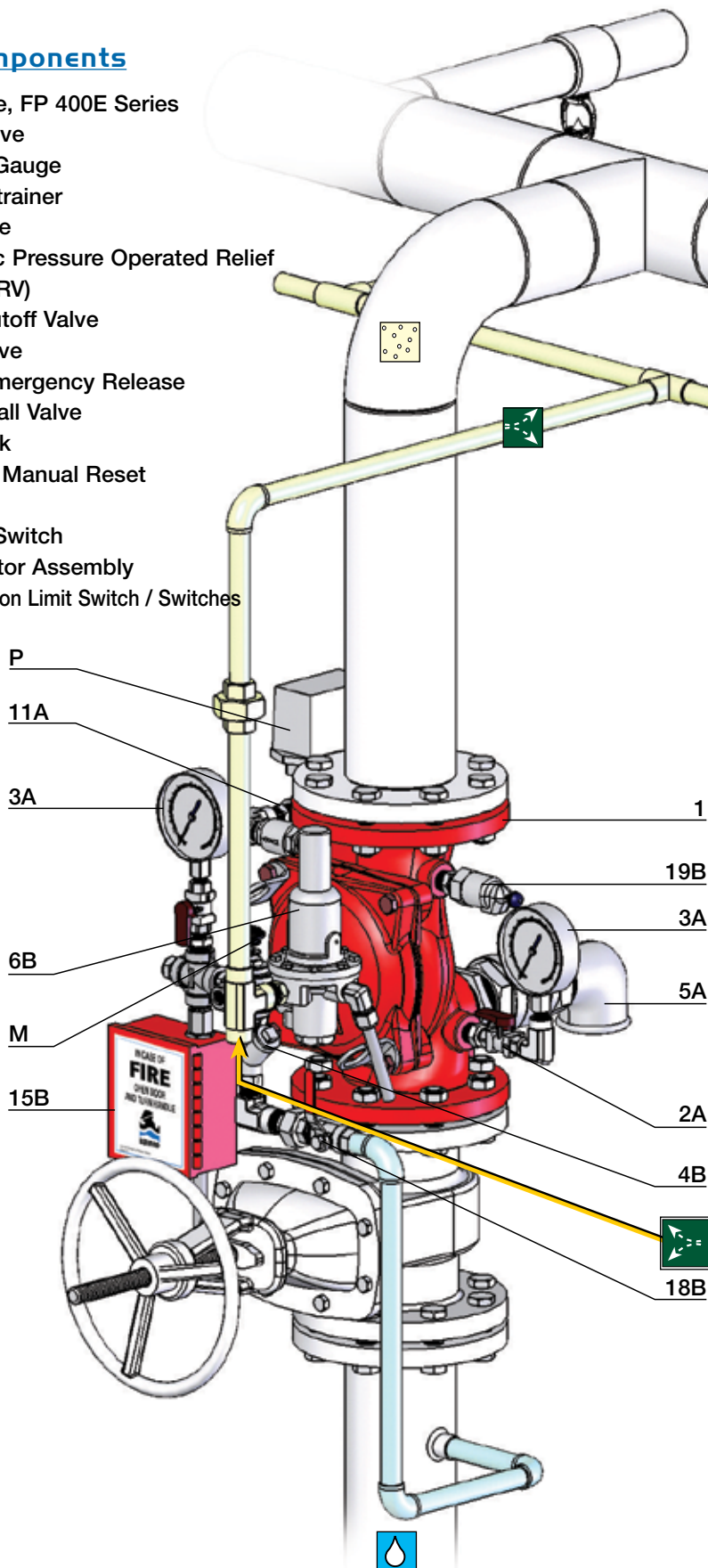
## Engineer Specifications




- The Deluge Valve shall be a **Australian Standard SSL**, pneumatically controlled elastomeric type globe valve 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 a rugged radial seal disk. 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 S.S.316 tubing and fittings, and plated brass accessories, including local **EasyLock** Manual Reset, PORV Pneumatic Pilot Valve, Y Strainer and Manual Emergency Release.
- The control trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.
- The Pneumatically Controlled Deluge Valve shall latch open in response to activation of a releasing device. The valve shall reset the closed position only upon local manual activation of the reset device.



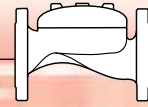
## System Components

- 1 - Main Valve, FP 400E Series
  - 2A - Gauge Valve
  - 3A - Pressure Gauge
  - 4B - Priming Strainer
  - 5A - Drain Valve
  - 6B - Pneumatic Pressure Operated Relief Valve (PORV)
  - 11A - Alarm Shutoff Valve
  - 14A - Check Valve
  - 15B - Manual Emergency Release
  - 18B - Priming Ball Valve
  - 19B - Drip Check
  - M - EasyLock Manual Reset
- Optional
- P - Pressure Switch
  - W - Water Motor Assembly
  - S - Valve Position Limit Switch / Switches



-  Hydraulic
-  Pneumatic
-  Atmosphere

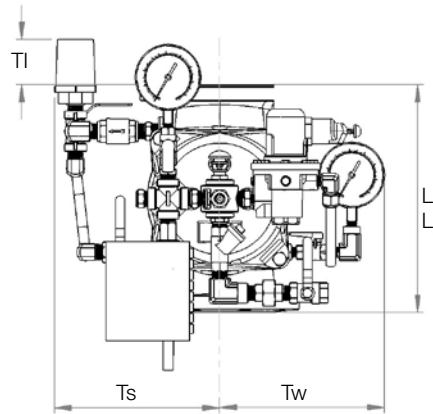
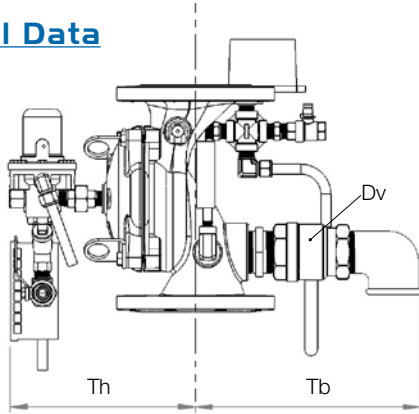
# BERMAD Fire Protection



Model: FP 400E-4M

400 Series

## Technical Data



Size	1½", 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	L <sub>1</sub> <sup>(1)</sup>	205	8 <sup>1</sup> / <sub>16</sub>	205	8 <sup>1</sup> / <sub>16</sub>	257	10 <sup>1</sup> / <sub>8</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>
	L <sub>4</sub> <sup>(2)</sup>	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>	500	19 <sup>11</sup> / <sub>16</sub>	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>11</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>11</sup> / <sub>16</sub>	243	9 <sup>9</sup> / <sub>16</sub>	253	10	318	12 <sup>1</sup> / <sub>2</sub>	326	12 <sup>13</sup> / <sub>16</sub>	326	12 <sup>13</sup> / <sub>16</sub>	391	15 <sup>3</sup> / <sub>8</sub>
	Th	226	8 <sup>7</sup> / <sub>8</sub>	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 Ø	¾"		1½"		1½"		2"		2"		2"		2"		2"	

- Notes:**
- L<sub>1</sub> is for flanged ANSI #150 and ISO PN16.
  - L<sub>4</sub> is for grooved end connections (Ductile Iron Only).
  - Provide adequate space around valve for maintenance.
  - Data is for envelope dimensions, specific component positioning may vary.

### Connection Standard

- Flanged: ANSI B16.42 (Ductile Iron), B16.5 (Steel & Stainless Steel), B16.24 (Bronze) or ISO PN16
- Grooved: ANSI/AWWA C606 for 2, 3, 4, 6 & 8"

### Water Temperature

- 0.5 – 50°C (33 – 122°F)

### 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
- Stainless Steel 316 tubing & fittings

#### Elastomers

- Nylon fabric reinforced polyisoprene NR

#### Coating

- Electrostatic Powder Coating Polyester, Red (RAL 3002)

### Available Sizes

- 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"

### Pressure Rating

- Max. working pressure: 250 psi (17 bar)

### PORV Setting

Valve opens on pilot line pressure drop  
factory set: 20 psi (1.5 bar)

### 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® and Ni-Al-Bronze
- Hastalloy C-276

#### Elastomers

- NBR
- EPDM

#### Coating

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



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