

## Electro-Pneumatically Controlled Deluge Valve With EasyLock Manual Reset

Model - FP 400E - 3M



### Typical Applications



Automatic spray or foam systems



Offshore platforms



Marine environments



Sea water/Corrosive water supplies



Foam fire systems



Increased reliable response by dry solenoid



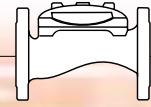
Dual redundant detection systems

### Features and Benefits

- **Dry solenoid** – suitable for corrosive water or foam
- **Latch open** – closes upon local reset only
- **One-piece molded single moving part** – no maintenance required
- **Simple design** – cost effective
- **Obstacle-free full-bore** – uncompromising reliability
- **Fully factory pre-assembled trim** – Out-of-Box Quality
- **In-line serviceable** – minimal down time

### Optional Features

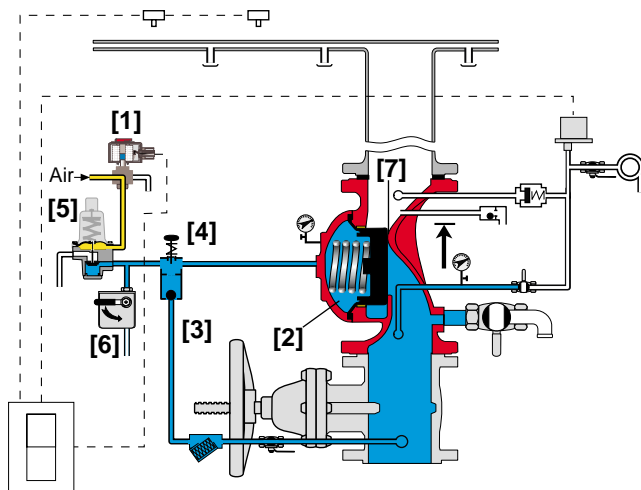
- **Water Motor Alarm**
- **Alarm Pressure-Switch** (code: P or P7)
- **Explosion proof** for hazardous locations (code: 7 or 8)
- **Seawater service** (add FS as prefix to model)



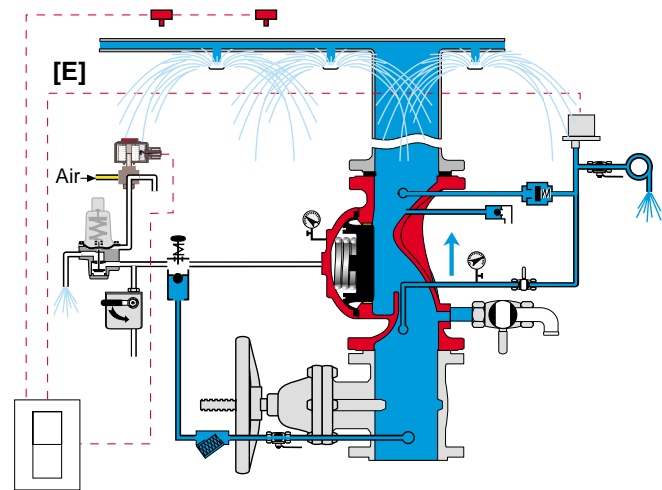
## Operation

The BERMAD Model 400E-3M is suitable for systems that include electric fire-detection and a piping system with a wide variety of open nozzles. Being electro-pneumatically controlled, the Model 400E-3M is recommended for those cases, such as seawater installations, where it is advantageous to keep the solenoid [1] dry.

In the SET position, the line-pressure supplied to the main valve's control chamber [2] via the priming line [3] and through an EasyLock Manual Reset device (EMR), [4] is trapped by the EMR's internal check valve, by a Pressure-Operated Relief Valve (PORV) [5] held closed, and by a closed Manual Emergency Release [6]. The trapped pressure holds the main valve's diaphragm and plug against the valve seat [7], sealing it drip-tight and keeping the system piping dry. The PORV is held closed by the maintained pneumatic pressure, supplied through the Solenoid [1]. Under FIRE or TEST conditions, an electric detection system [E], through a control panel [C], triggers the Solenoid to release the trapped pneumatic-pressure from the PORV, thereby opening it. Pressure is then released from the control chamber through the opened PORV, or the Manual Emergency Release. The EMR 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)

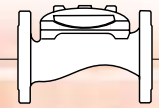


Valve Open (operating condition)

## Engineer Specifications

- The deluge valve shall be a UL-Listed, electro-pneumatically 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 S.S.316 tubing and fittings, and plated brass accessories, including local **“EasyLock Manual Reset” (EMR)**, PORV pneumatic pilot valve, 3-way Solenoid 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 electro-pneumatically deluge valve shall latch open in response to an electric signal. The valve shall reset to close only upon local activation of the manual reset device.

# BERMAD Fire Protection

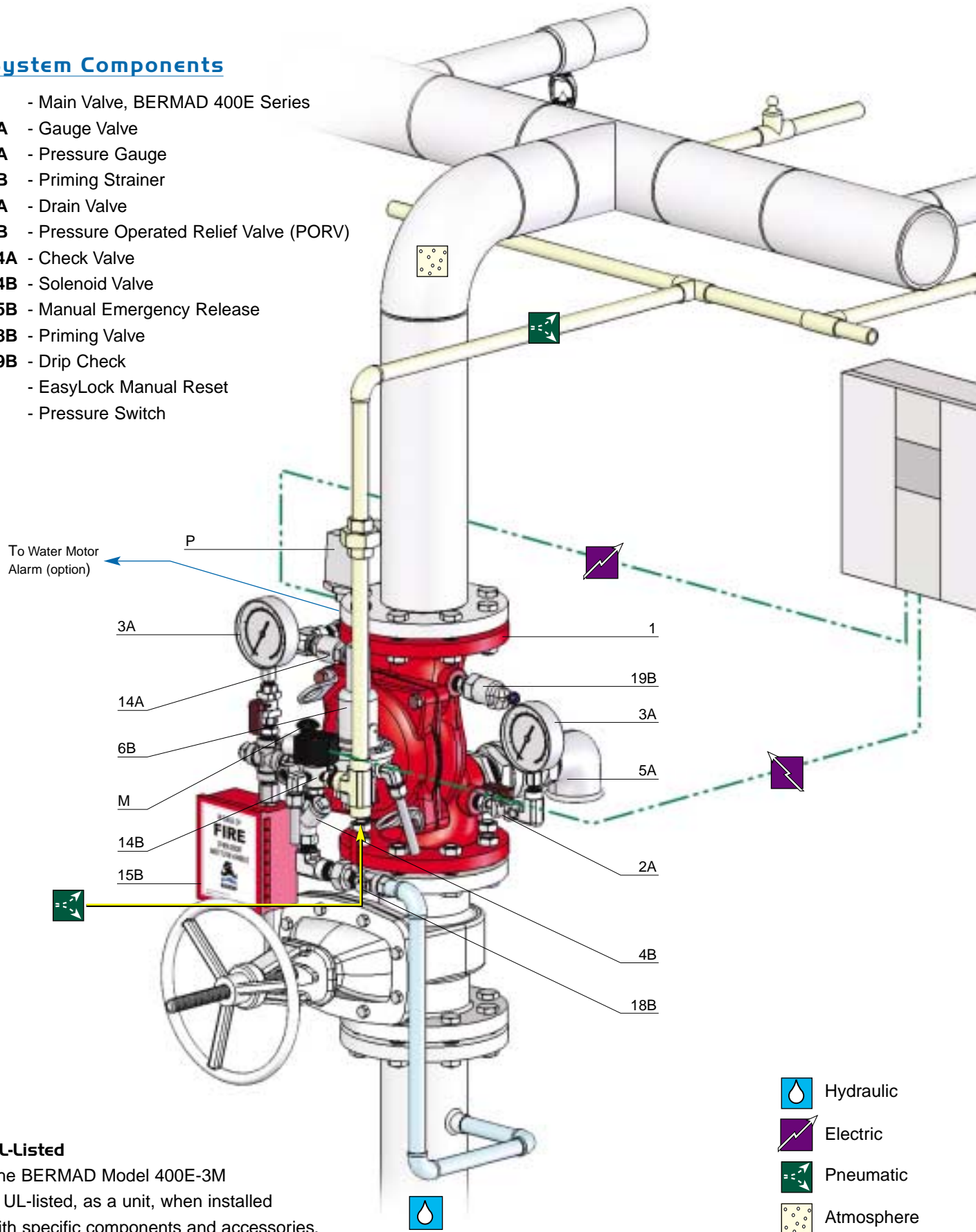


Model - FP 400E -3M

400 Series





## System Components

- 1 - Main Valve, BERMAD 400E Series
- 2A - Gauge Valve
- 3A - Pressure Gauge
- 4B - Priming Strainer
- 5A - Drain Valve
- 6B - Pressure Operated Relief Valve (PORV)
- 14A - Check Valve
- 14B - Solenoid Valve
- 15B - Manual Emergency Release
- 18B - Priming Valve
- 19B - Drip Check
- M - EasyLock Manual Reset
- P - Pressure Switch



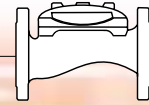
### UL-Listed

The BERMAD Model 400E-3M is UL-listed, as a unit, when installed with specific components and accessories.

-  Hydraulic
-  Electric
-  Pneumatic
-  Atmosphere



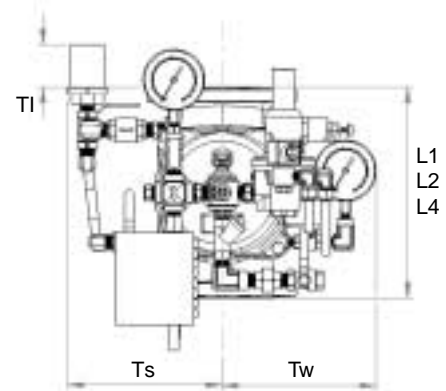
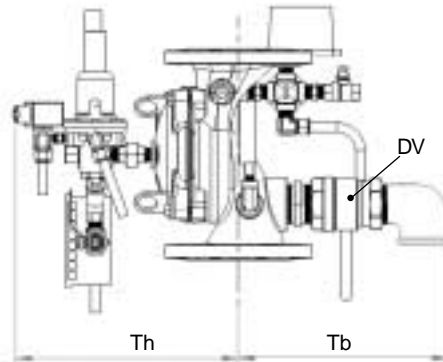
# BERMAD Fire Protection



Model - FP 400E - 3M

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 1/4	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>	37	1 <sup>7</sup> / <sub>16</sub>	N/A	N/A	N/A	N/A	N/A	N/A
	Tw	228	9	220	8 <sup>11</sup> / <sub>16</sub>	243	9 <sup>9</sup> / <sub>16</sub>	253	9 <sup>15</sup> / <sub>16</sub>	292	11 <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>
	Ts	228	9	220	8 <sup>11</sup> / <sub>16</sub>	243	9 <sup>9</sup> / <sub>16</sub>	253	9 <sup>15</sup> / <sub>16</sub>	299	11 <sup>3</sup> / <sub>4</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	300	11 <sup>13</sup> / <sub>16</sub>	315	12 <sup>7</sup> / <sub>16</sub>	335	13 <sup>3</sup> / <sub>16</sub>	355	14	N/A	16 <sup>15</sup> / <sub>16</sub>	501	19 <sup>11</sup> / <sub>16</sub>	501	19 <sup>11</sup> / <sub>16</sub>	640	25 <sup>3</sup> / <sub>16</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>	N/A	14 <sup>1</sup> / <sub>16</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)

### 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

#### Coating

- Electrostatic Power Coating Poleyester
- Red (RAL 3000)

### Available Sizes

- 2, 2½, 3, 4, 6, 8, 10 & 12"
- UL-listed for sizes 2, 2½, 3, 4, 6, & 8"

### 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)
- Adjustable range: 10-75 psi (0.7-5 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®
- Hastalloy C-276

#### Elastomers

- NBR
- EPDM

#### Coating

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

### Solenoid Pilot Valve

#### Standard

- 3-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

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



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