

## Pneumatically-Controlled On-Off Deluge Valve

Model - FP 400E - 4D



UL LISTED

### Typical Applications



Offshore installations



Marine environments



Self-contained dry systems



Freezing environments



Sea water/Corrosive water supplies



Foam applications



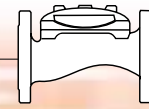
Single-Interlock Pre-action sprinkler systems

### Features and Benefits

- **Pneumatic PORV** – best suited for corrosive and freezing conditions
- **Remote reset** – shut-off on remote command
- **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** (option code: P or P7)
- **Seawater Service** (add FS as prefix to model)

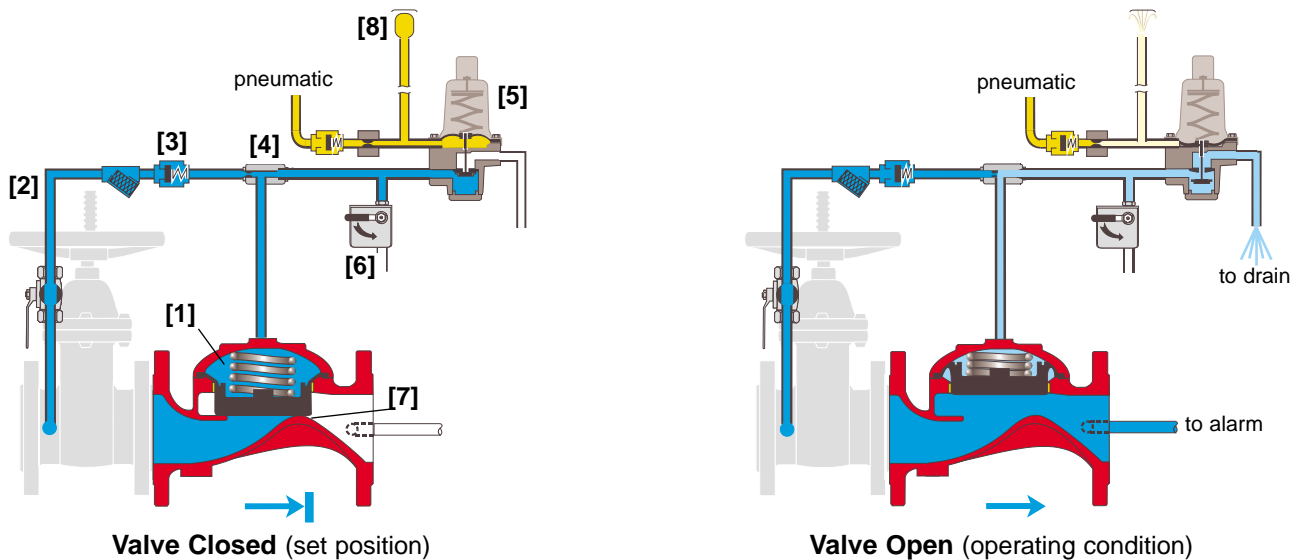


## Operation

The BERMAD Model 400E-4D is suited for systems that include dry pilot line with pneumatic closed fusible plugs (thermal releases), and piping system with a wide variety of open nozzles. Being pneumatically controlled, the Model 400E-4D is recommended in freezing environments and/or corrosive water supply.

In the SET position, the line-pressure, supplied to the main valve's control chamber [1] through the priming line [2] a Check Valve [3] and an Accelerator [4] with priming restriction, is trapped by the 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 to the valve seat [7], sealing it drip-tight and keeps the system piping dry. The PORV is held closed by the maintained pneumatic pressure in the detection dry-pilot line [8].

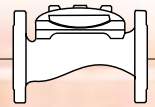
In a FIRE or TEST condition, a pilot-line pneumatic pressure-drop, opens the PORV causing water to exit through the Accelerator faster than it can be supplied. Pressure is then released from the main valve control chamber through the opened PORV, or the Manual Emergency Release, allowing the main valve to fully-open and water to flow into the system piping and to the alarm device (if mounted).



## Engineer Specifications

- The deluge valve shall be UL-Listed, 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 removable cover for quick in-line service enabling all necessary inspection and servicing.
- The control trim materials shall be S.S.316 tubing and fittings and plated brass accessories, including, Y strainer, Accelerator, Pressure-Operated Relief Valve, and Manual Emergency Release.
- The Trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.
- The pneumatically-controlled on-off deluge valve shall open in response to pilot-line pneumatic pressure-drop.

# BERMAD Fire Protection

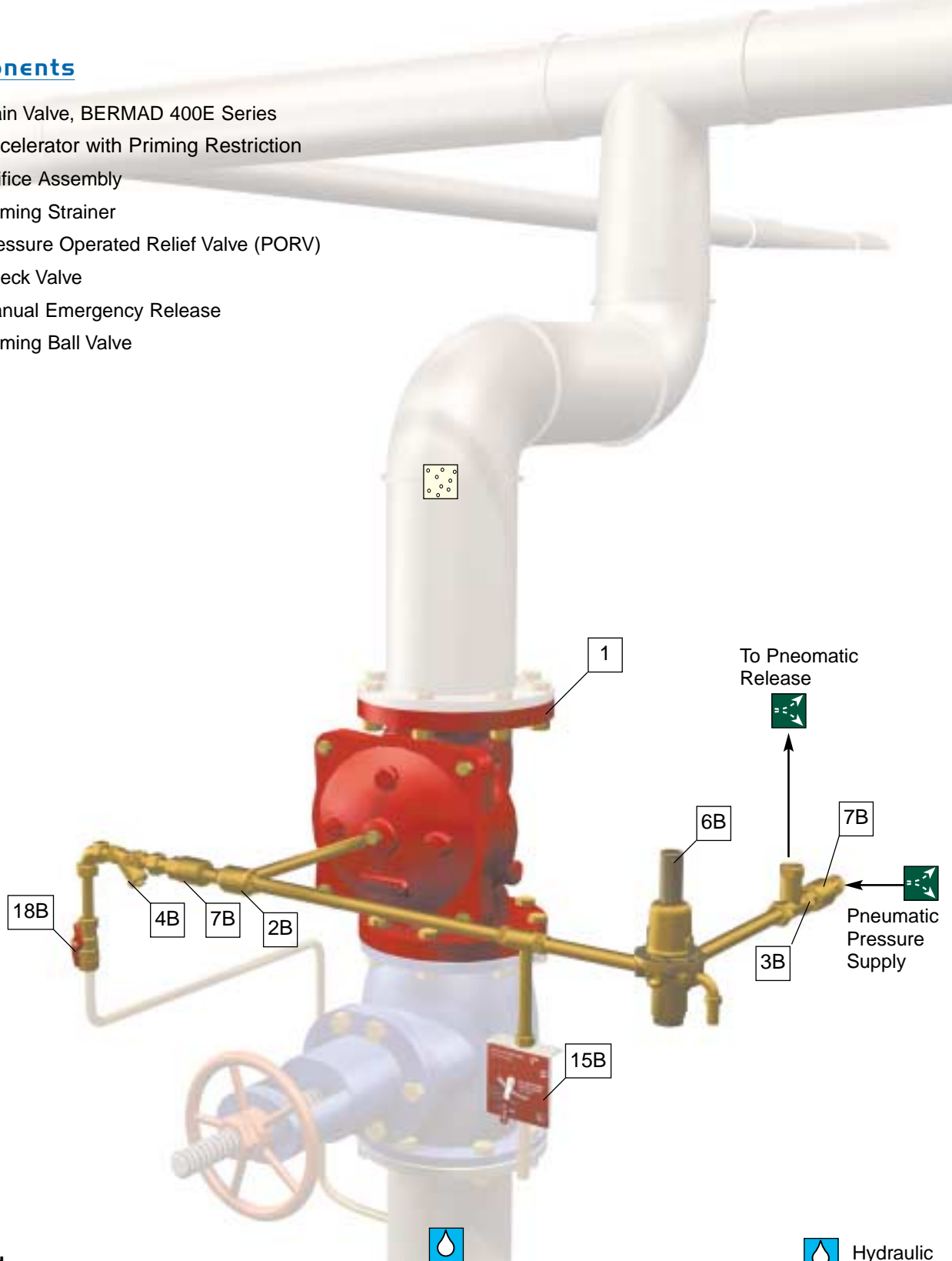


Model - FP 400E - 4D

400 Series

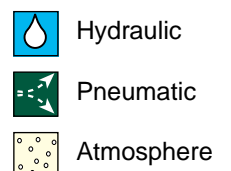
## Components

- 1 - Main Valve, BERMAD 400E Series
- 2B - Accelerator with Priming Restriction
- 3B - Orifice Assembly
- 4B - Priming Strainer
- 6B - Pressure Operated Relief Valve (PORV)
- 7B - Check Valve
- 15B - Manual Emergency Release
- 18B - Priming Ball Valve

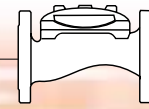


### UL-Listed

The BERMAD Model 400E-4D is UL-listed, as a unit, when installed with specific components and accessories.



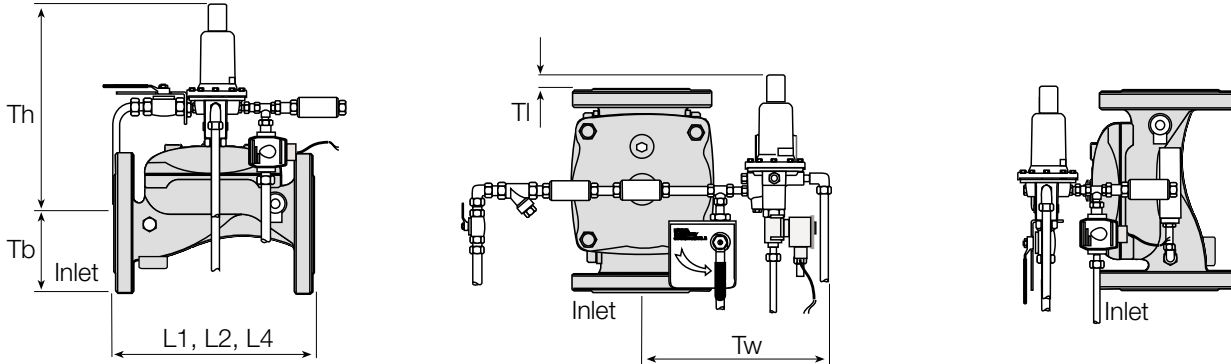
# BERMAD Fire Protection



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## 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>1</sup> / <sub>2</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>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tl	25	1	25	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tw	318	12½	329	12 <sup>15</sup> / <sub>16</sub>	340	13 <sup>13</sup> / <sub>16</sub>	352	13 <sup>13</sup> / <sub>16</sub>	393	15½	423	16 <sup>5</sup> / <sub>8</sub>	443	17 <sup>7</sup> / <sub>16</sub>	481	18 <sup>15</sup> / <sub>16</sub>
	Th	255	10 <sup>1</sup> / <sub>16</sub>	263	10 <sup>3</sup> / <sub>8</sub>	272	10 <sup>11</sup> / <sub>16</sub>	282	11 <sup>1</sup> / <sub>8</sub>	315	12 <sup>7</sup> / <sub>16</sub>	332	13	330	13	368	14½
	Tb	78	3 <sup>1</sup> / <sub>16</sub>	89	3½	100	4	112	4 <sup>7</sup> / <sub>16</sub>	140	5½	170	6 <sup>11</sup> / <sub>16</sub>	202	8	240	9½

### Notes:

- L1 is for flanged ANSI #150 and ISO PN16.
- L2 is for threaded female, NPT or BSP.
- L4 is for grooved.
- 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), 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 Powder 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)

### 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

### 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)



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