

## Dry Pipe Control Valve

Model: FP 400E-DP



UL LISTED

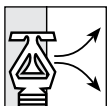
### Description

The BERMAD Model 400E-DP, Dry Pipe Control Valve, is suitable for dry pipe systems with automatic sprinklers attached to a dry sprinkler piping system, with a supplementary electric monitoring system and a Pneumatic Supervised System of air pressure in the system piping, installed in the same area.

### Typical Applications



Freezing conditions



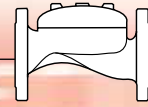
Dry Sprinklers Systems

### Features and Benefits

- **Latch open** – Closes only upon local reset
- **Factory pre-assembled trim** – Out-of box-quality
- **One-piece molded elastomeric moving part** – No maintenance required

### Optional Features

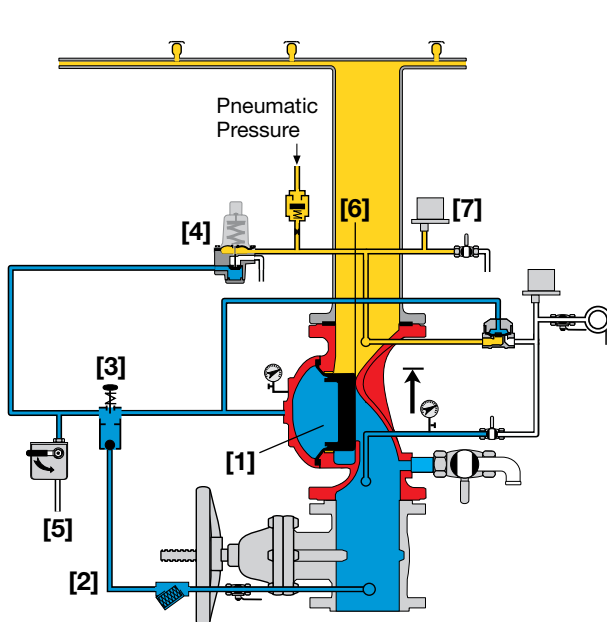
- **Air Maintenance Device (AMD)**
- **Alarm pressure switch (PSH)**
- **Air-Low pressure switch (PSL)**
- **Water motor alarm**
- **Valve Position Single/Double Limit Switches**



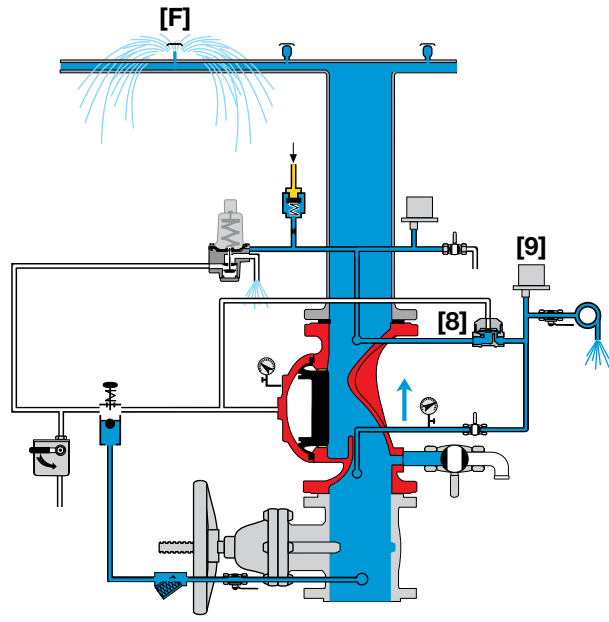
## Operation

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 Reset device (EMR) [3], is trapped by the EMR's internal check valve, PORV-M (Latching type, Pressure Operated Relief Valve) [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 bubble tight and keeping the system piping dry. The PORV-M is held closed by 2 bars air pressure maintained in the closed sprinkler system, the low air pressure can be monitored by a PSL (pressure switch low, optional) [7].

Under fire conditions, activation of an automatic sprinkler [F] causes a pneumatic pressure drop that opens the PORV-M. Water pressure is then released from the main valve's control chamber, through the opened PORV-M. 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 discharge through sprinklers that have been opened due to excessive heat. The released water also causes the Alarm Hydraulic Relay Valve (HRV-2) [8] to open, allowing water to flow to the Water Alarm Pressure Switch High (PSH) and/or Water Motor Alarm Gong [9].



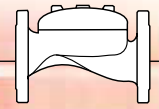
Valve Closed (set position)



Valve Open (operating condition)

## Engineer Specifications

- The Dry Pipe Control valve shall be a UL Listed, 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 St.St. 316 tubing and fittings, and plated brass accessories, including local "EasyLock Manual Reset" (EMR), PORV-M latching type pneumatic pilot valve.  
Air supply spring-loaded check valve, Hydraulic Relay valve (HRV-2), 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 Dry Pipe Control Valve shall latch open in response to activation of a releasing device. The valve shall reset to close only upon local manual activation of the reset device.



## System Components

1 - Main Valve, BERMAD FP 400E Series

2A - Gauge Valve

3A - Pressure Gauge

4B - Priming Strainer

5A - Drain Valve

6B - PORV-M (Latching type)

18B - Priming Ball Valve

19B - Air Supply Check Valve

26B - Hydraulic Relay Valve (HRV-2)

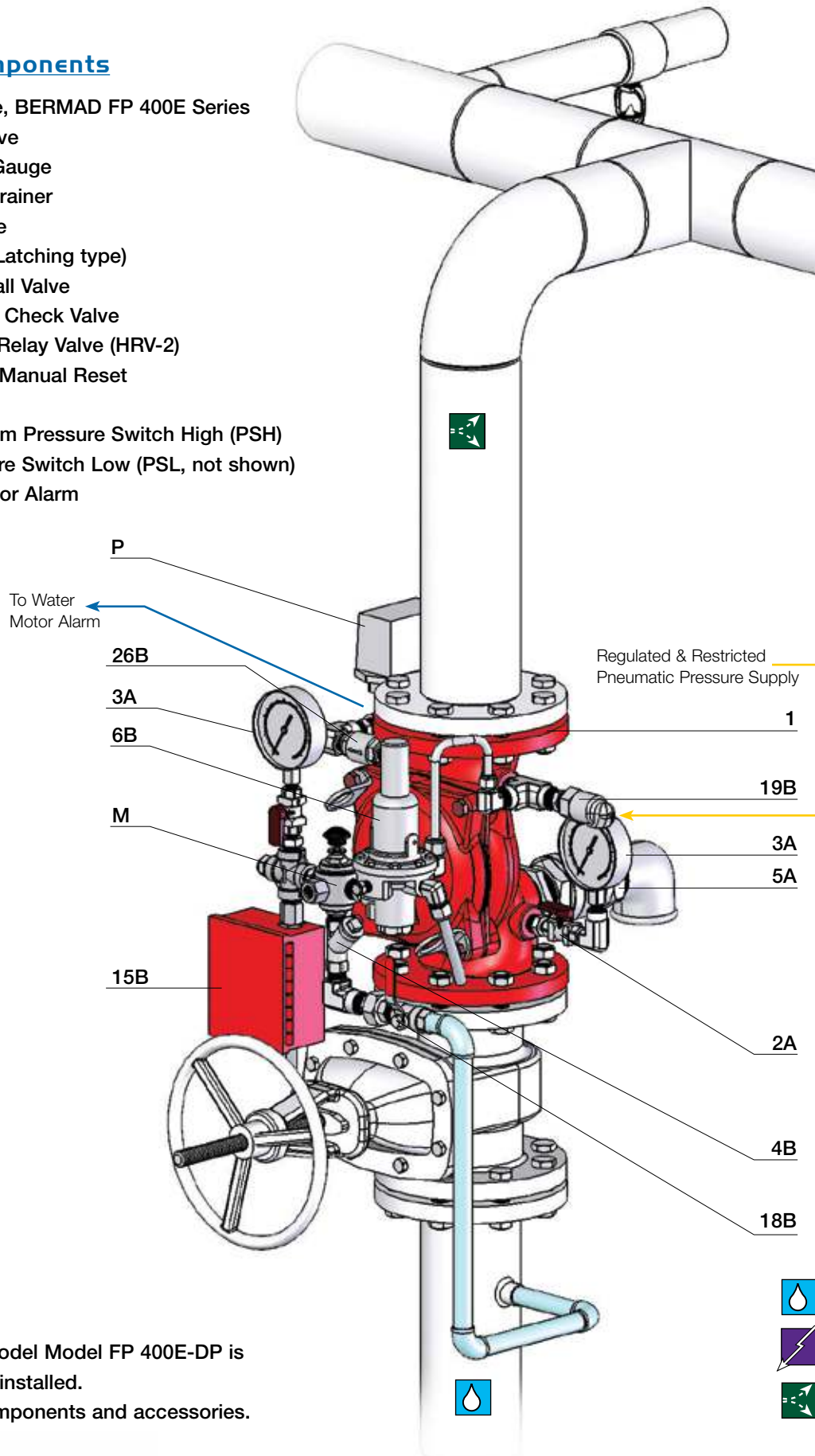
M - EasyLock Manual Reset

### Optional

P - Water Alarm Pressure Switch High (PSH)

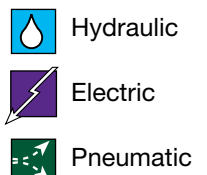
P2 - Air Pressure Switch Low (PSL, not shown)

W - Water Motor Alarm

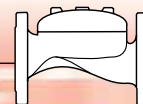


### UL Listed

The BERMAD Model Model FP 400E-DP is UL-Listed when installed with specific components and accessories.



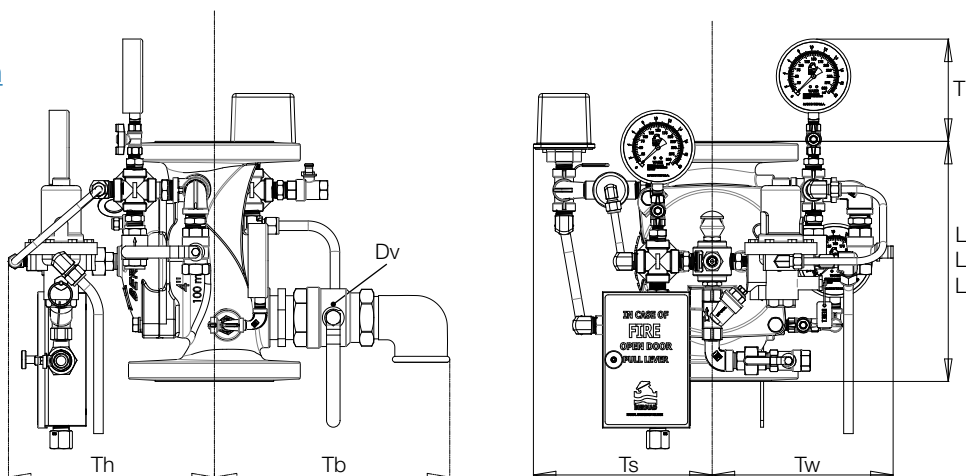
# BERMAD Fire Protection



Model: FP 400E-DP

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 1/16  | 205  | 8 1/16  | 257  | 10 1/8   | 320 | 12 5/8  | 415 | 16 5/16 | 500 | 19 11/16 | 605 | 23 13/16 | 725 | 28 9/16 |
|            | L <sub>4</sub> <sup>(2)</sup> | 205     | 8 1/16  | N/A  | N/A     | 250  | 9 13/16  | 320 | 12 5/8  | 415 | 16 5/16 | 500 | 19 11/16 | N/A | N/A      | N/A | N/A     |
|            | TI                            | 142     | 5 5/8   | 142  | 5 5/8   | 119  | 4 11/16  | 84  | 3 5/16  | 57  | 2 1/4   | -   | -        | -   | -        | -   | -       |
|            | Tw                            | 228     | 9       | 220  | 8 11/16 | 243  | 9 9/16   | 253 | 10      | 312 | 12 5/16 | 326 | 12 13/16 | 346 | 13 5/8   | 391 | 15 3/8  |
|            | Ts                            | 228     | 9       | 220  | 8 11/16 | 243  | 9 9/16   | 253 | 10      | 318 | 12 1/2  | 326 | 12 13/16 | 326 | 12 13/16 | 391 | 15 3/8  |
|            | Th                            | 226     | 8 7/8   | 242  | 9 1/2   | 262  | 10 5/16  | 261 | 10 5/16 | 356 | 14      | 407 | 16       | 407 | 16       | 546 | 21 1/2  |
|            | Tb                            | 278     | 10 1/16 | 289  | 11 3/8  | 300  | 11 13/16 | 337 | 13 1/4  | 378 | 14 7/8  | 405 | 15 15/16 | 413 | 16 1/4   | 473 | 18 5/8  |
|            | Dv Ø                          | ¾"      |         | 1 ½" |         | 1 ½" |          | 2"  |         | 2"  |         | 2"  |          | 2"  |          | 2"  |         |

### Notes:

1. L<sub>1</sub> is for flanged ANSI #150 and ISO PN16.
2. L<sub>4</sub> is for grooved end connections (Ductile Iron Only).
3. Provide adequate space around valve for maintenance.
4. 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)

### Available Sizes

- 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"
- UL-Listed for sizes 1½, 2, 2½, 3, 4, 6, 8 & 10"

### 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)

### 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)

### 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



bermadfire@bermad.com • www.bermad.com

The information herein is subject to change without notice. BERMAD shall not be held liable for any errors. All rights reserved. © Copyright by BERMAD. PE4PE-DP 11