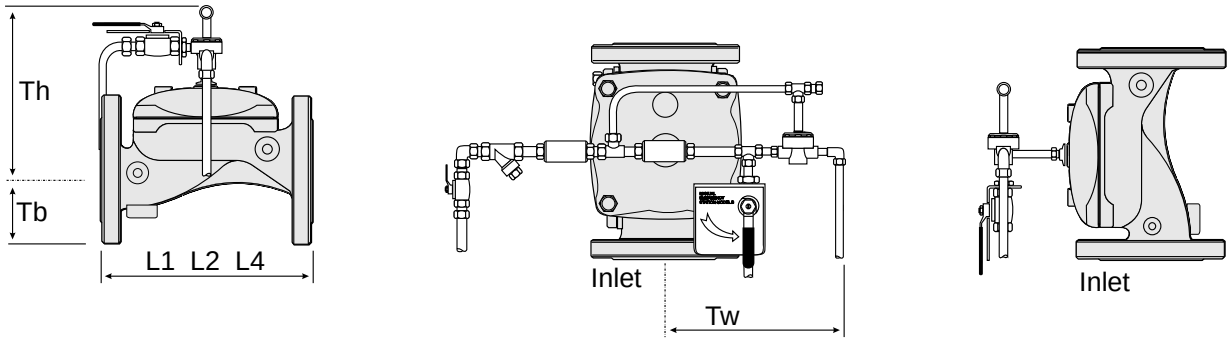
## Technical Data




| 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 1/16 | 205 | 8 1/16 | 250 | 9 13/16 | 320 | 12 5/8 | 415 | 16 5/16 | 500 | 19 11/16 | 605 | 23 13/16 | 725 | 28 1/2 |
| | (2)L2 | 180 | 7 1/16 | 210 | 8 1/4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | (3)L4 | 205 | 8 1/16 | N/A | N/A | 250 | 9 13/16 | 320 | 12 5/8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Tw | 318 | 12 1/2 | 329 | 12 15/16 | 340 | 13 3/8 | 352 | 13 13/16 | 393 | 15 1/2 | 423 | 16 5/8 | 443 | 17 7/16 | 481 | 18 15/16 |
| | Th | 255 | 10 1/16 | 263 | 10 3/8 | 272 | 10 11/16 | 282 | 11 1/8 | 315 | 12 7/16 | 332 | 13 | 330 | 13 | 368 | 14 1/2 |
| | Tb | 78 | 3 1/16 | 89 | 3 1/2 | 100 | 4 | 112 | 4 7/16 | 140 | 5 1/2 | 170 | 6 11/16 | 202 | 8 | 240 | 9 1/2 |

**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 end connections.
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 Steel), 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"
- UL Listed for sizes 2, 2½, 3, 4, 6, & 8"

### Pressure Rating
- Max. working pressure: 250 psi (17 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

#### Coating
- Electrostatic Powder 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® and Al-Bronze
- Hastalloy C-276

#### Elastomers
- NBR
- EPDM

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



# Hydraulically Controlled On-Off Deluge Valve

## Model: FP 400E-5D

LISTED

### Typical Applications

- Petrochemical facilities
- Tunnels
- Power plants & transformers
- Flammable material storage
- Gas storage tanks
- Hydraulic remote controlled systems

### Features and Benefits

- **Local release HRV –** Quick opening for long hydraulic remote control piping lines
- **Remote reset –** Shut-off on remote command
- **One-piece molded diaphragm-Only 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 down time

### Optional Features

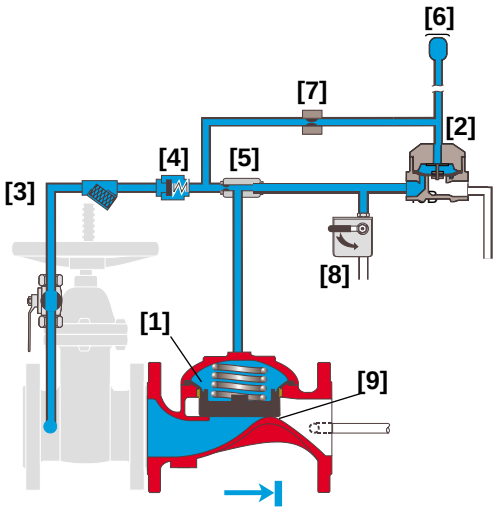
- **Alarm pressure switch** (option code: P or P7)
- **Seawater service** (add FS as prefix to model)

## Operation

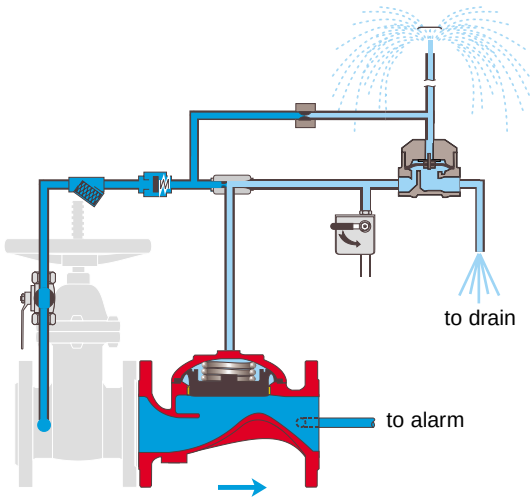
The BERMAD Model 400E–5D is suitable for systems that include wet pilot lines with closed fusible plugs (thermal releases), and piping systems with a wide variety of open nozzles. The typical wet pilot line, is installed in the covered area and connected to the valve trim. Providing boosted local pressure release from its control chamber, the Model 400E–5D is recommended for systems with remote and/or elevated pilot line fusible plugs.

In the SET position line pressure, which is supplied to both the main valve's control chamber **[1]** and a Hydraulic Relay Valve (HRV) **[2]** by the priming line **[3]**, through both a Check Valve **[4]**, an Accelerator **[5]** with priming restriction and the wet pilot line **[6]** restriction **[7]**, is trapped by the Check Valve, by the closed HRV, by the closed wet pilot line 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. The HRV is held closed by the pressure in the wet pilot line.

In a FIRE or TEST condition, a pilot line hydraulic pressure drop opens the HRV causing water to exit through the Accelerator faster than it can be supplied. Pressure is then released from the main valve's control chamber through the opened HRV, 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).




**Valve Closed** (set position)



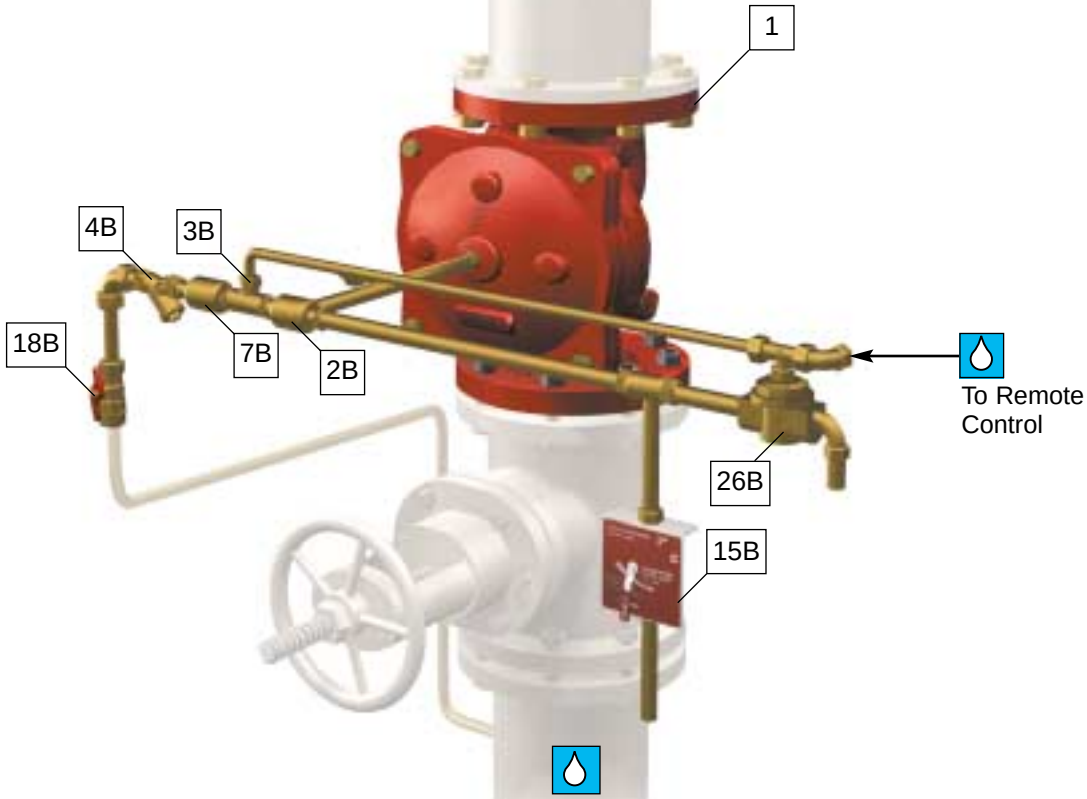

**Valve Open** (operating condition)

## Engineer Specifications

- The deluge valve shall be a UL Listed, hydraulically 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 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, Hydraulic Relay 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 Hydraulically Controlled On-Off Deluge Valve shall fully open in response to a wet pilot line hydraulic pressure drop.

## Components

**1** - Main Valve, BERMAD 400E Series
**2B** - Accelerator with Priming Restriction
**3B** - Orifice Assembly
**4B** - Priming Strainer
**7B** - Check Valve
**15B** - Manual Emergency Release
**18B** - Priming Valve
**26B** - Hydraulic Relay Valve (HRV)




**UL Listed**
The BERMAD Model 400E-5D is UL Listed as a unit when installed with specific components and accessories.

Hydraulic
Atmosphere