Double Interlock Pre-action, Electric-Electric Release System

Model: FP 400E-7BM

Description

The BERMAD Model FP 400E-7BM Double Interlock Pre-Action, Electric-Electric Release System is suitable for use in systems requiring that water be kept out of the sprinkler piping until an electric detecting device and a sprinkler have both been activated. Electric-Electric double interlock systems include automatic sprinklers attached to a dry sprinkler piping system, along with a supplementary electric detection system wired to a Cross-Zone releasing control panel, and an Electric Supervised System of low air pressure in the sprinkler system piping. The Double Interlock Pre-Action System admits water into the sprinkler piping only when both the detection device and the supervised systems simultaneously signal the control panel to trigger the solenoid valve.
An anti-flooding feature is provided by utilizing an in-line check valve, which creates an intermediate vented chamber using a Normally Open drip-check.

Typical Applications

Water damageable material storage:
- Computer & Electronics Rooms
- Libraries, Museums & Archives
- Telecommunications equipment
- Cable spreading rooms
- Oil-filled-transformer rooms

Freezing conditions

Features and Benefits

- **Latch open -** Closes only upon local reset
- **Factory pre-assembled trim –** Out-of box-quality
- **In-line serviceable –** Minimal down time
- **In-line Check Valve –** intermediate vented **chamber-** Anti flooding
- **One-piece molded elastomeric moving part –** No maintenance required

Optional Features

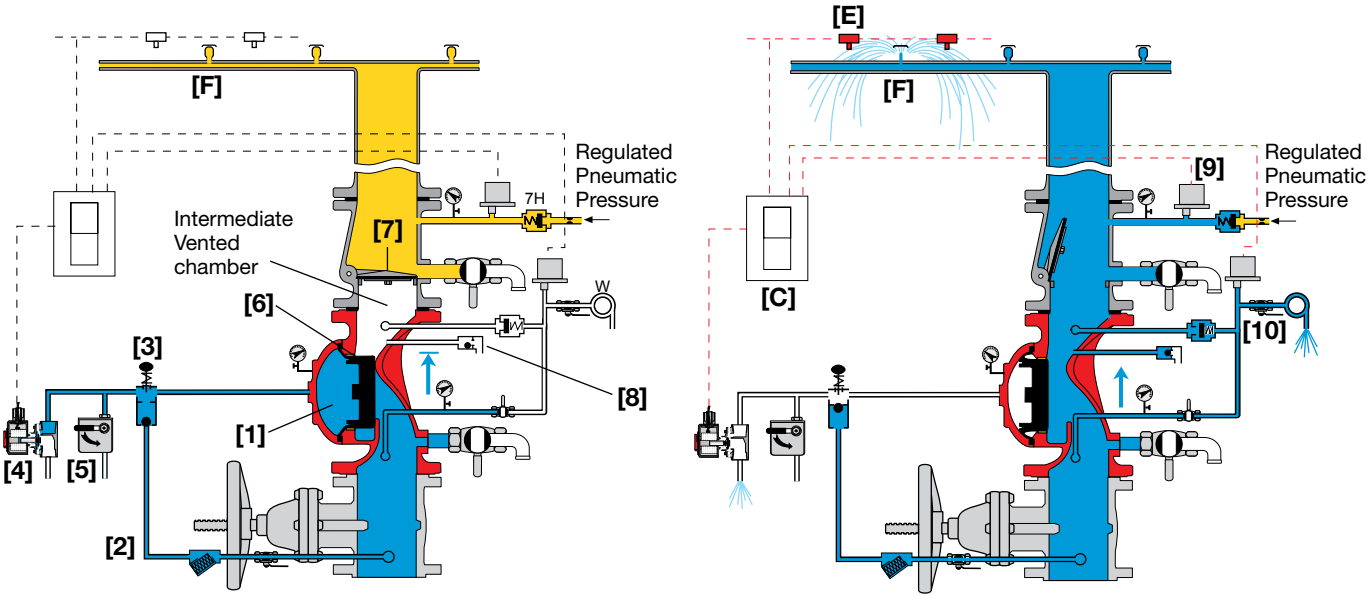
- **Air Maintenance Device** (AMD)
- **Water motor alarm**
- **Valve Position Single/Double Limit Switches**

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 Manual Reset **[3]**, is trapped by the Easy Lock internal check valve, by a closed Solenoid 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. The piping system is filled with supervised low air pressure to ensure all automatic sprinklers **[F]** are sealed. An intermediate vented chamber is created by an in-line swing check valve **[7]**, and a Normally Open drip-check **[8]**.

In the event of FIRE, upon activation of both the electric detection system **(E)** and the low-air pressure switch **[9],** that is activated by the air pressure drop in the system piping due to opened sprinkler head **(F).**

The Cross-Zone Releasing control panel **[C]** triggers the Solenoid Valve to open, water pressure is then released from the main valve's control chamber. The EasyLock prevents line pressure from entering the control chamber, allowing the pre-action valve to latch open and water to flow into the system piping and to alarm device **[10]**.



Set Position **Operating Condition**

Engineer Specifications

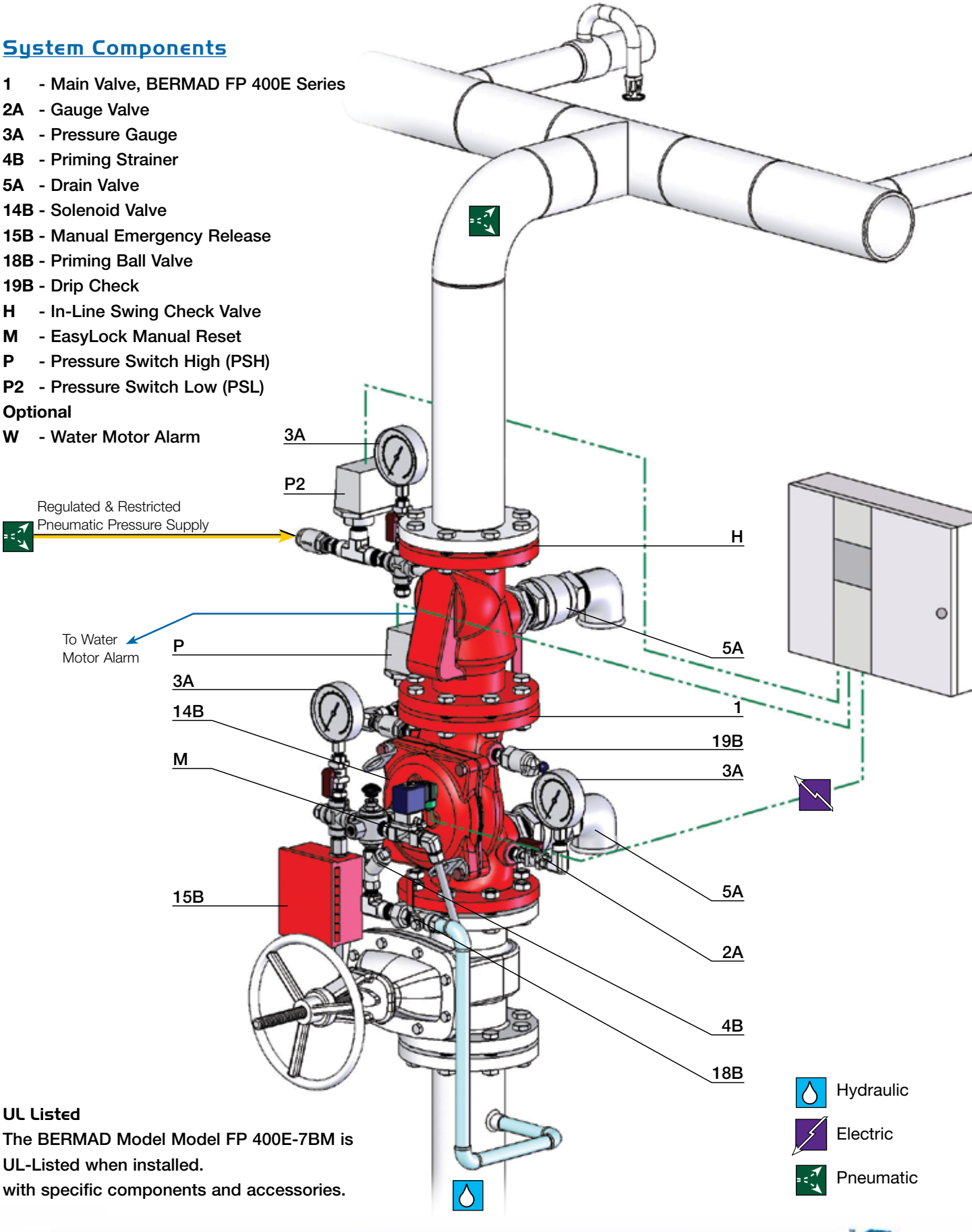
- The pre-action valve shall be a UL-Listed, electrically controlled elastomeric type globe valve with a **rolling-diaphragm**.
- The valve shall have an **unobstructed flow path**, with no stem guide or **supporting ribs**.
- Valve actuation shall be accomplished by a fully peripherally supported, one-piece 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 in line swing check valve with resilient seal, local **EasyLock** Manual Reset, 2-Way Solenoid Pilot Valve, Y strainer, Automatic drip check with manual knob 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 Double Interlock Pre-action, Electric-Electric Release System shall consist of pressure switch low and shall be wired to a Cross-Zone releasing panel.

System Components

1 - Main Valve, BERMAD FP 400E Series
2A - Gauge Valve
3A - Pressure Gauge
4B - Priming Strainer
5A - Drain Valve
14B - Solenoid Valve
15B - Manual Emergency Release
18B - Priming Ball Valve
19B - Drip Check
H - In-Line Swing Check Valve
M - EasyLock Manual Reset
P - Pressure Switch High (PSH)
P2 - Pressure Switch Low (PSL)

Optional

W - Water Motor Alarm



UL Listed

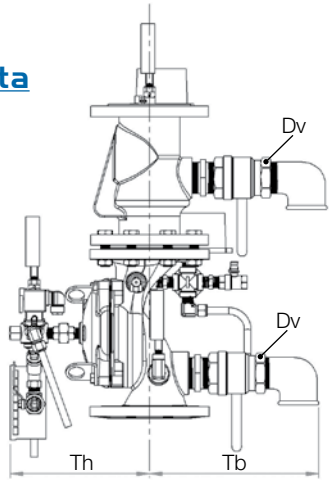
The BERMAD Model Model FP 400E-7BM is UL-Listed when installed.
with specific components and accessories.

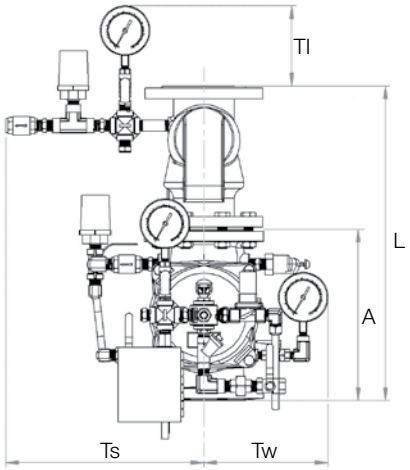
BERMAD Fire Protection

Model: FP 400E-7BM

400 Series

Technical Data





Size		2”		3”		4”		6”		8”	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Dimensions	L_1 (1)	377	14 13/16	450	17 3/4	536	21 3/16	720	28 6/16	865	34 1/16
	L_4 (1)	377	14 13/16	443	17 7/8	536	21 3/16	720	28 6/16	N/A	34 1/16
	Tl	150	5 7/8	149	5 7/8	150	5 7/8	135	5 5/16	135	5 5/16
	Tw	208	8 3/16	223	8 3/4	233	9 3/16	272	10 11/16	326	12 13/16
	Ts	363	14 1/4	367	14 7/16	371	14 5/8	398	15 11/16	428	16 7/8
	Th	205	8 1/16	241	9 1/2	261	10 1/4	336	13 1/4	407	16
	Tb	230	9 1/16	300	11 13/16	317	12 1/2	338	13 5/16	405	15 15/16
	Dv Ø	3/4”		1 1/2”		1 1/2”		2”		2”	

Notes:
1. L_1 and L_4 are for flanged ANSI #150 and ISO PN16.
2. Provide adequate space around valve for maintenance.
3. 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)
- ISO PN16
- Grooved: ANSI/AWWA C606 for 2, 3, 4, 6 & 8”

Leakage Class
- Class VI (ANSI B16.104)

Sizes
- UL-Listed for sizes 1½, 2, 2½, 3, 4, 6, 8 & 10”

Water Temperature
- 0.5 – 50°C (33 – 122°F)

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

* Pressure rating might be limited due to solenoid valve rating

Air Pressure Requirements
- Valve opens on pneumatic pressure drop
- Working pressure 7 – 10psi (0.5 – 0.7 bar)
- Air must be regulated and continually compressed
- Low-pressure alarm switch is factory set to operate at 6psi (0.4 bar)

Manufacturers Standard Materials

Main valve body and cover
- Ductile Iron ASTM A-536

Main valve internals
- Stainless Steel & Elastomer

Control Trim System
- Brass control components/accessories
- Stainless Steel 316 tubing & fittings

Elastomers
- Nylon fabric reinforced polyisoprene NR

Coating
- Electrostatic Powder Coating Poleyester, 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

Elastomers
- NBR
- EPDM

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

Solenoid Pilot Valve

Standard model
- 2-Way Pilot Operated type
- Brass body
- Main valve closed when de-energized
- Enclosure: General purpose watertight, NEMA 4 and 4X / IP65, Class F
- Power: 24VDC, 8 watts
- UL - Listed

Options (see also ordering guide)
- Hazardous locations:
  - Class I Division 1, Gr. A, B, C, D, T4 (code 7)
  - ATEX, EEx em IIC T4 (code 8)
  - ATEX, EEx d IIC T4/5 (code 9)
- Voltage: see ordering guide (voltage option table)
- Stainless steel 316 body material (code K)

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