

Double Interlock Pre-action, Electric-Pneumatic Release System

Model: FP 400E-7DM



Description

The BERMAD Model FP 400E-7DM Double Interlock Pre-action, Electric-Pneumatic 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-pneumatic double interlock systems include automatic sprinklers attached to a dry sprinkler piping system, with a supplementary electric detection system and a Pneumatic Supervised System of air pressure in the system piping, installed in the same area. The Supervised System consists of a Pneumatic Pilot Valve (PORV), pneumatic low pressure supply and an additional listed check valve including trim with low pressure switch, installed downstream from the Preaction Valve. The Double Interlock Electric-Pneumatic System admits water into the sprinkler piping only when the detection system through the control panel triggers the solenoid while simultaneously the PORV is activated due to the supervised system pressure drop.

Typical Applications



Water damageable material storage:

- Computer & Electronics Rooms
- Libraries, Museums & Archives
- Telecommunications equipment
- Cable spreading rooms
- Oil-filled-transformer rooms



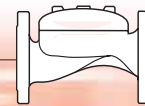
Freezing conditions

Features and Benefits

- **Latch Open** – Closes only upon local reset
- **Factory pre-assembled trim** – Out-of box-quality
- **Advanced globe wide body design**
 - Peripherally supported, one-piece balanced rolling-diaphragm with a rugged radial seal disk
 - Reliable drip tight, leak proof seal under all conditions
 - Only one moving assembly

Optional Features

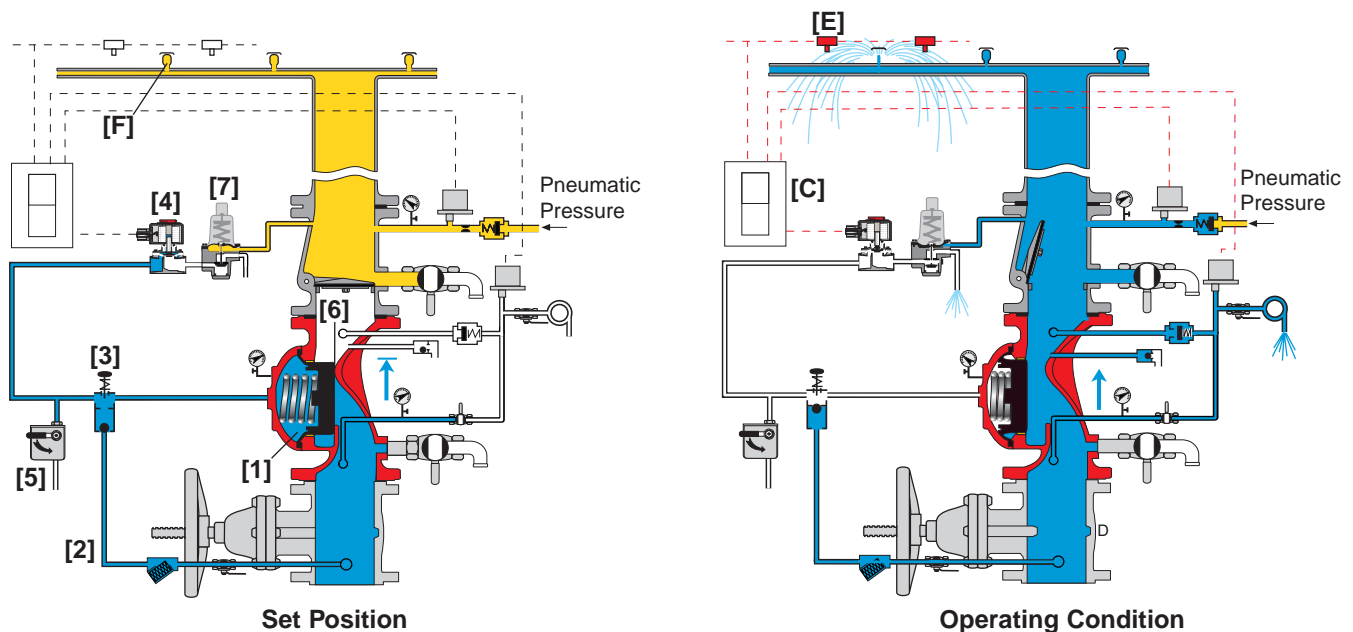
- Explosion-proof for hazardous areas
- Air compressor
- Air pressure maintenance device
- Water motor alarm



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 (EMR) [3], is trapped by the EMR's 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 monitory low air pressure to ensure all sprinklers [F] are sealed.

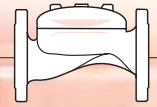
Under FIRE condition, automatic sprinkler activation causes a pneumatic pressure drop that opens a Pneumatic Pilot Valve (PORV) [7] and activates an alarm, but the main valve remains closed. Only upon opening of both the PORV and the Solenoid Valve (triggered by the electric detection system [E], through a control panel [C]), pressure is released from the main valve's control chamber, through the opened Solenoid Valve and 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.



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. 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 (for 15 PSI maintained pressure supervised system), local "EasyLock Manual Reset" (EMR), 2-Way Solenoid Pilot Valve, PORV pneumatic pilot valve, Y strainer 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 Double Interlock Pre-action, Electric-Pneumatic Release System shall latch open in response to simultaneous activation of both the solenoid and a releasing device. The system shall reset to the closed position only upon local manual activation of the reset device.

BERMAD Fire Protection

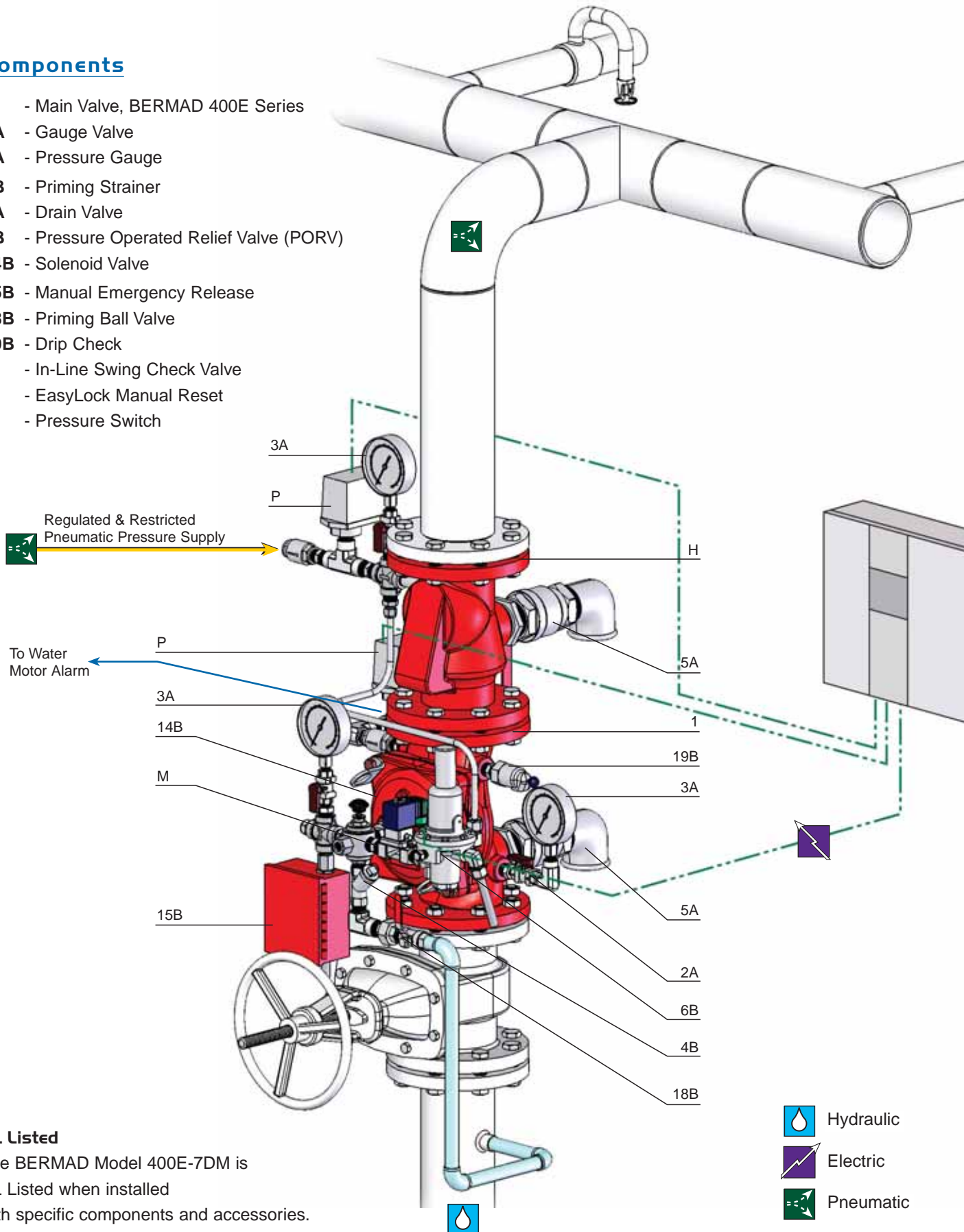


Model: FP 400E-7DM

400 Series




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)
- 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



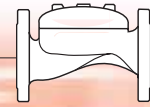
UL Listed

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

-  Hydraulic
-  Electric
-  Pneumatic



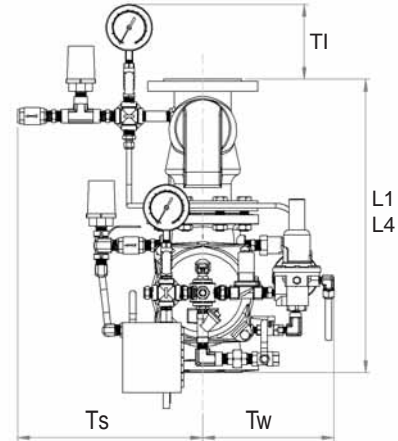
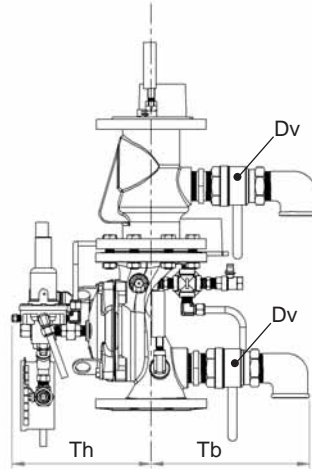
BERMAD Fire Protection



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Technical Data



Valve Size	2"		2½"		3"		4"		6"		8"	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
(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
(2)L4	205	8 ¹ / ₁₆	N/A	N/A	250	9 ¹³ / ₁₆	320	12 ⁵ / ₈	415	16 ⁵ / ₁₆	N/A	N/A
TI	–	–	150	5 ⁷ / ₈	149	5 ⁷ / ₈	150	5 ⁷ / ₈	135	5 ⁵ / ₁₆	–	–
Tw	208	8 ³ / ₁₆	199	7 ¹³ / 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	221	8 ¹¹ / ₁₆	241	9 ¹ / ₂	261	10 ¹ / ₄	336	13 ³ / ₄	407	16
Tb	230	9 ¹ / ₁₆	290	11 ⁷ / ₁₆	300	11 ¹³ / ₁₆	317	12 ¹ / ₂	338	13 ³ / ₁₆	405	15 ¹⁵ / ₁₆
Dv Ø	¾"		1½"		1½"		2"		2"		2"	

Notes:

- L1 is for flanged ANSI #150 and ISO PN16.
- L4 is for grooved end connections.
- Provide adequate space around valve for maintenance.
- Data is for envelope dimensions, specific component positioning may vary.

Connection Standard

- Flanged:
 - ANSI #150 to B16.42 (Ductile Iron),
 - B16.5 (Steel & Stainless Steel),
 - B16.24 (Bronze),
 - ISO PN16
- Grooved: ANSI/AWWA C606 for 2, 3, 4 & 6"

Leakage Class

- Class VI (ANSI B16.104)

Sizes

- UL Listed: 2, 2½, 3, 4, 6 & 8"

Water Temperature

- 0.5 – 80°C (33 – 180°F)

Pressure Rating*

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

* Pressure rating might be limited due to solenoid valve rating

PORV Setting

Valve opens on pneumatic pressure drop

- Factory set: 20 psi (1.5 bar)
- Adjustable range: 10-75 psi (0.7-5 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

Coating

- Electrostatic Powder Coating Poleyester, 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

Elastomers

- NBR
- EPDM

Coating

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

Solenoid Pilot Valve

Standard model

- Enclosure: General purpose water-tight NEMA 4 and 4X
- Optional: Explosion-proof NEMA 7

Voltage

- 24, 110, 220, AC 50 Hz (or 24, 120, 240, AC 60 Hz)
- 24, 120, DC

- Continuous duty-molded Class F
- Wattage rating: 10.6 DC, 9.5 AC

Approvals

- UL Listed
- CSA Certified
- Alternative: ATEX certified for EEx



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