

Pressure-Reducing and Solenoid Remote-Controlled Deluge Valve Combination

Model - FP 400E - 3DC



Typical Applications



Systems with fluctuating or over pressure



Water-foam fire systems



Deluge & Spray systems



Petrochemical facilities



Flammable materials storage



Marine environments



Gas storage tanks



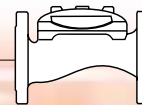
Remote Monitor

Features and Benefits

- **Pressure-Reducing Function** – constant lower preset, downstream pressure
- **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
- **Factory pre-assembled trim** – Out-of-Box Quality
- **In-line serviceable** – minimal down time

Optional Features

- **Water Motor Alarm**
- **Alarm pressure-switch** (code: P or P7)
- **Explosion-proof** for hazardous locations (code: 7 or 8)
- **Automatic cycle feature**, shuts off and resets (requires on/off detection system)
- **Fail-safe open** energized to close main valve
- **Seawater Service** (add FS as prefix to model)

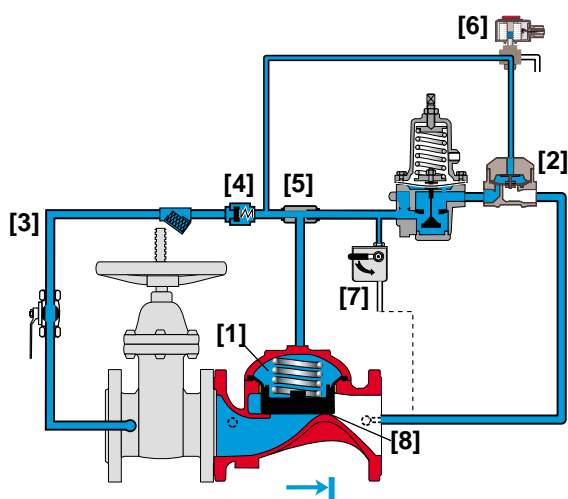


Operation

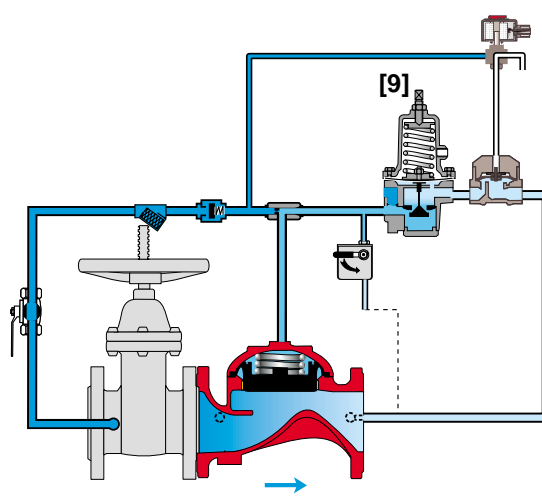
The BERMAD Model 400E-3DC is suitable for systems that include electric fire-detection and a piping system with a wide variety of open nozzles. Combining a pressure-reducing feature, the 400E-3DC is recommended for systems with high-pressure supply source and/or relatively low flow.

In the SET position, the line-pressure supplied to both the main valve's control chamber [1] and a Hydraulic Relay Valve [2] (HRV) via the priming line [3] and through a Check Valve [4], an Accelerator [5] with priming restriction, and a Solenoid [6], is trapped by the Check Valve, by the HRV held closed, and by a closed Manual Emergency Release [7]. The trapped pressure holds the main valve's diaphragm and plug against the valve seat [8], sealing it drip-tight and keeping the system piping dry. The HRV is held closed by the line-pressure, supplied through the Solenoid.

Under FIRE or TEST conditions, an electric signal triggers the Solenoid to open the HRV. Pressure is then released from the main valve control chamber to the downstream, through the Pressure Reducing (PR) Pilot [9] and the opened HRV, or the Manual Emergency Release, allowing the main valve to open, and water to flow into the system piping and to the alarm device. Should system pressure rise above PR pilot setting, the PR pilot throttles, thereby enabling pressure to accumulate in the valve's control chamber. This causes the 400E-3DC to throttle closed, decreasing system pressure to PR pilot setting.



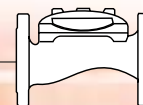
Valve Closed (set position)



Valve Open (operating condition)

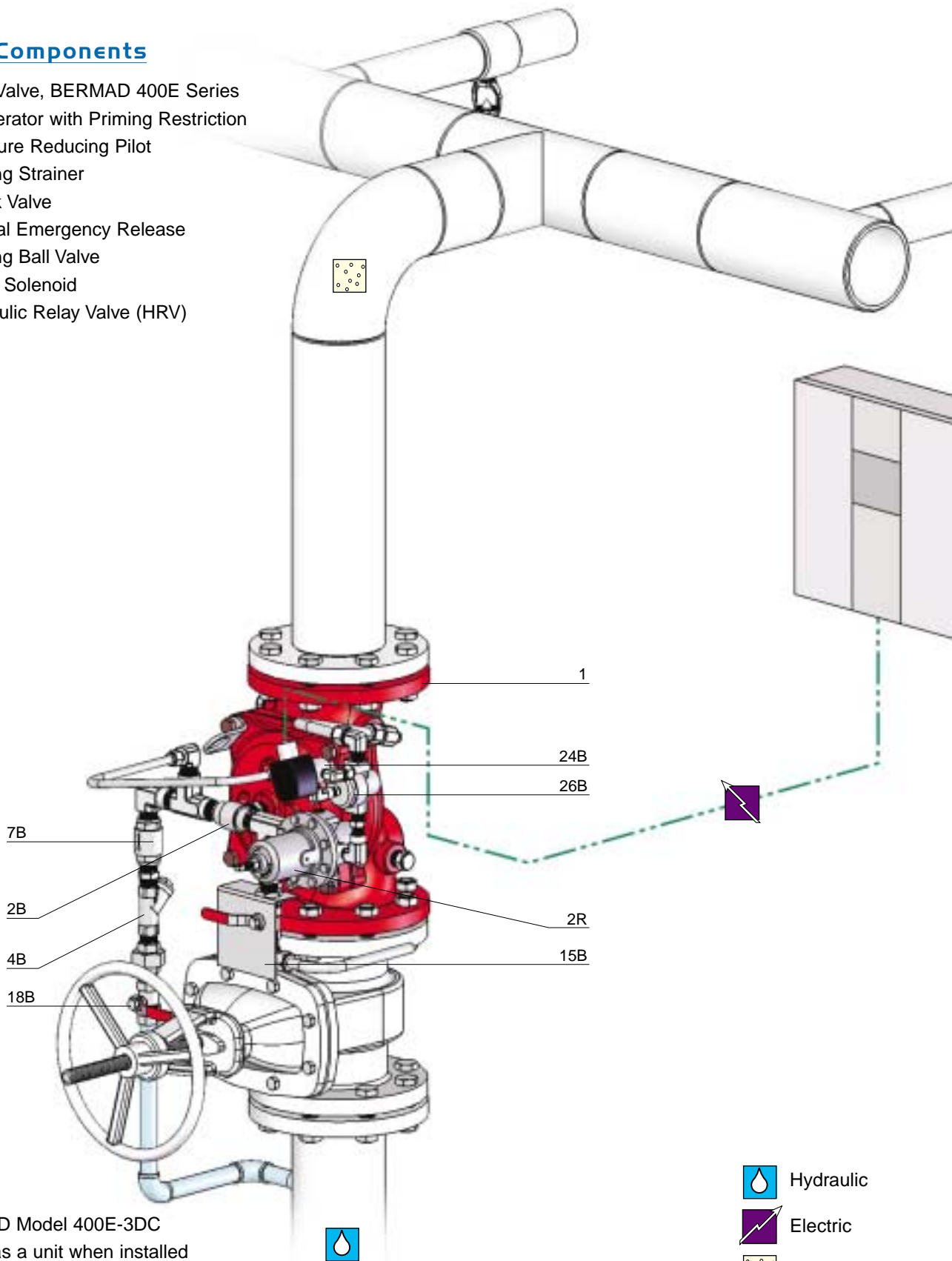
Engineer Specifications

- The deluge valve shall be UL-Listed, solenoid remote 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 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 Accelerator, 3-way Solenoid, HRV hydraulic actuated pilot valve, 2-Way Pressure Reducing Pilot, 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 pressure reducing and solenoid remote controlled deluge valve shall open and close in response to activation of the solenoid, reducing higher upstream pressure to preset lower downstream pressure.






System Components

- 1 - Main Valve, BERMAD 400E Series
- 2B - Accelerator with Priming Restriction
- 2R - Pressure Reducing Pilot
- 4B - Priming Strainer
- 7B - Check Valve
- 15B - Manual Emergency Release
- 18B - Priming Ball Valve
- 24B - 3-way Solenoid
- 26B - Hydraulic Relay Valve (HRV)

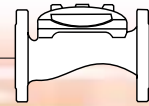


UL-Listed

The BERMAD Model 400E-3DC is UL-listed as a unit when installed with specific components and accessories.

-  Hydraulic
-  Electric
-  Atmosphere

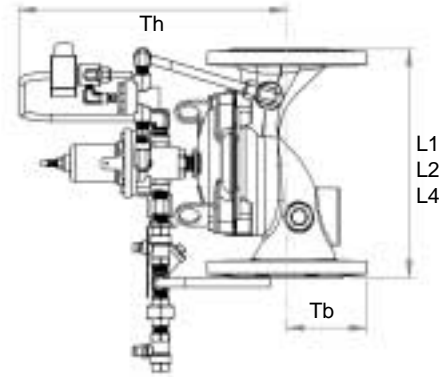
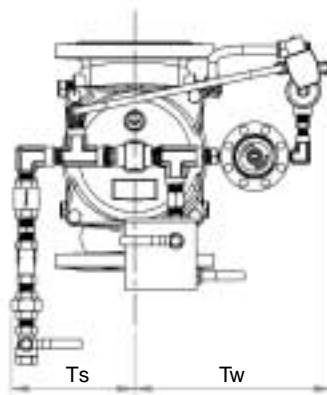
BERMAD Fire Protection



Model - FP 400E - 3DC

400 Series

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	255	10 ¹ / ₁₆	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
	Ts	228	9	220	8 ¹ / ₁₆	243	9 ⁹ / ₁₆	253	10	318	12 ¹ / ₂	191	7 ¹ / ₂	326	12 ¹³ / ₁₆	391	15 ³ / ₈
	Tw	318	12 ¹ / ₂	329	12 ¹⁵ / ₁₆	340	13 ¹³ / ₁₆	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:

- 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)

Available Sizes

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

Pressure Rating

- Max inlet: 250 psi (17 bar)
- Set: 30-165 psi (4.5-11.5 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
- Forged Brass Pressure Reducing Pilot with St. St. 304 Internals & NBR

Elastomers

- Stainless Steel 316 tubing & fittings

Elastomers

- Nylon fabric reinforced polyisoprene

Coating

- Electrostatic Power 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
- Monel®
- Hastalloy C-276

Elastomers

- NBR
- EPDM

Coating

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

Solenoid Pilot Valve

- 3-way brass body
- Main Valve closed when de-energized
- Enclosure: General purpose watertight, NEMA 4 and 4X / IP65
- Optional: Explosion-proof NEMA 6, 6P, 7 & 9

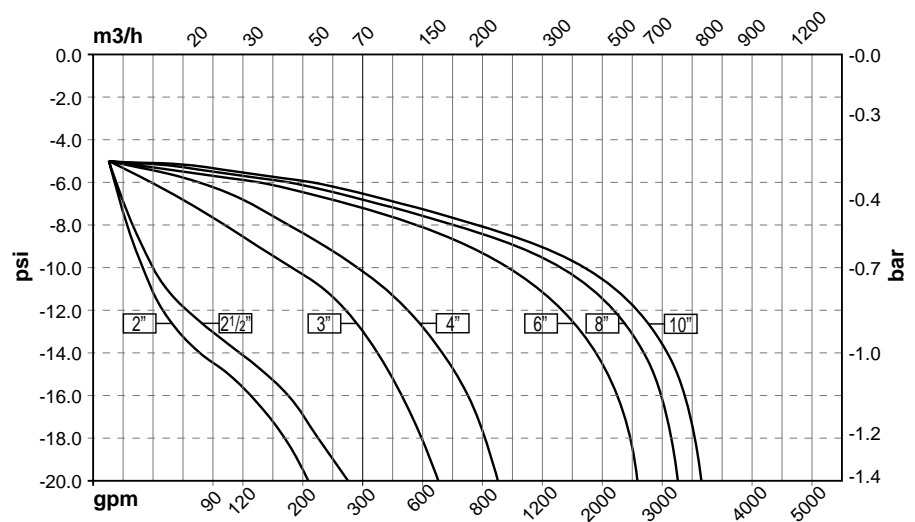
Voltage

- 24, 120, DC
- 24, 110, 220, AC 50 Hz (or 24, 120, 240, AC 60 Hz)
- Continuous duty-molded Class F
- Wattage rating: 10.6 DC, 9.5 AC

Approvals

- UL-Listed, CSA Certified
- Alternative: ATEX / IEC certified
- Other solenoids available on request

Valve Outlet Pressure Fall-off Characteristics On Inlet Under-Set Pressure



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