

Pressure-Reducing and Hydraulically Remote-Controlled Deluge Valve Combination

Model - FP 400E - 5DC



Typical Applications



Deluge Systems with over pressure



Petrochemical facilities



Tunnels



Power plants & Transformers



Flammable materials storage



Gas storage tanks



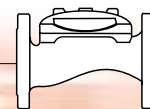
Hydraulic remote-controlled systems

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

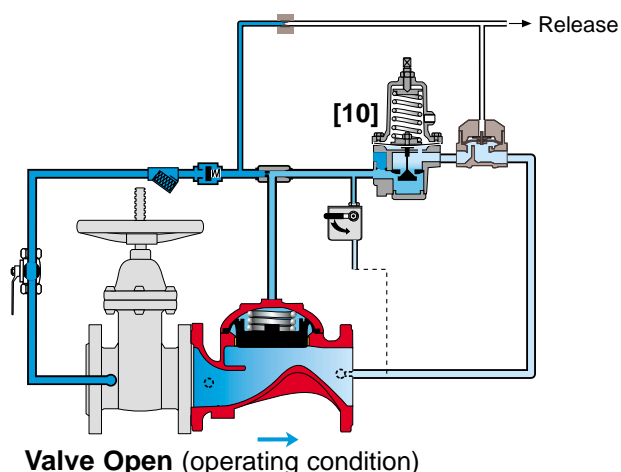
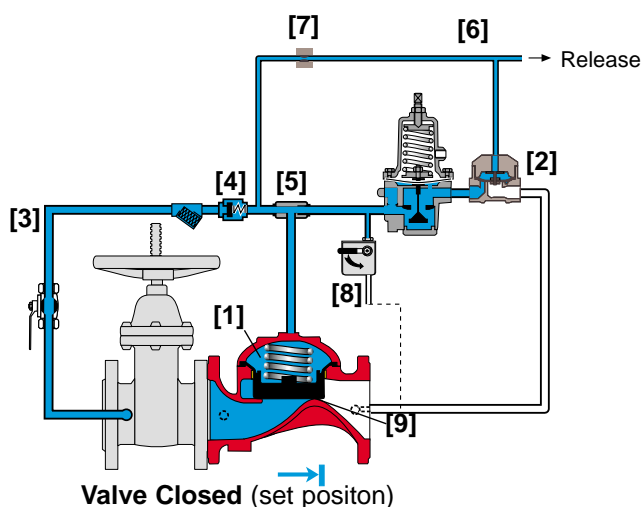
- **Water Motor Alarm**
- **Alarm Pressure-Switch** (code: P or P7)
- **Seawater Service** (add FS as prefix to model)



Operation

The BERMAD's Model 400E-5DC 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. Providing boosted local pressure release from its control chamber, Model 400E-5DC is recommended for systems with remote and/or elevated fusible plug line. Combining a pressure-reducing feature, it's also suitable for systems with high-pressure supply source and/or relatively low flow.

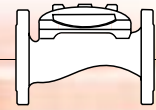
In the SET position the line-pressure, supplied to both the main valve's control chamber [1] and to a Hydraulic Relay Valve (HRV) [2] via the priming line [3], and through a Check Valve [4], an Accelerator [5] with priming restriction, and the wet-pilot line [6] Restriction [7], is trapped by the Check Valve, by the HRV held closed, 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 line-pressure in the wet pilot line. Under FIRE or TEST conditions, a pilot-line hydraulic pressure-drop opens the HRV. Pressure is then released from the main valve's control chamber to the downstream, through the Pressure-Reducing (PR) Pilot [10] and the opened HRV or the Manual Emergency Release. This allows 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 control chamber. This causes the 400E-5DC to throttle closed, decreasing system pressure to PR pilot setting.



Engineer Specifications

- The deluge valve shall be UL-Listed, hydraulically 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 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, 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 hydraulically remote controlled deluge valve shall open and close in response to pilot line pressure drop, reducing higher upstream pressure to preset lower downstream pressure.

BERMAD Fire Protection

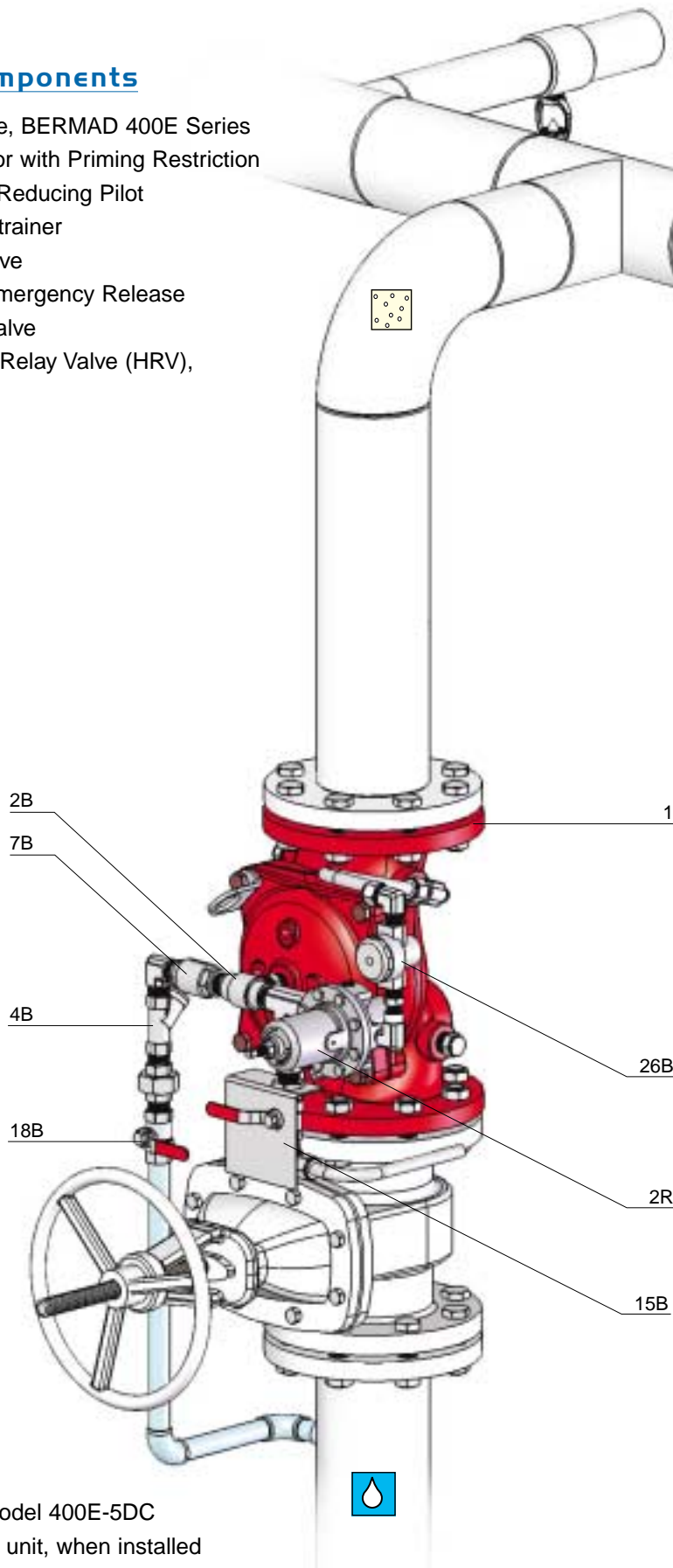


Model - FP 400E - 5DC

400 Series

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 Valve
- 26B - Hydraulic Relay Valve (HRV),



UL-Listed

The BERMAD Model 400E-5DC is UL-listed, as a unit, when installed with specific components and accessories.



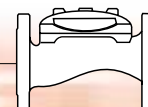
Hydraulic



Atmosphere



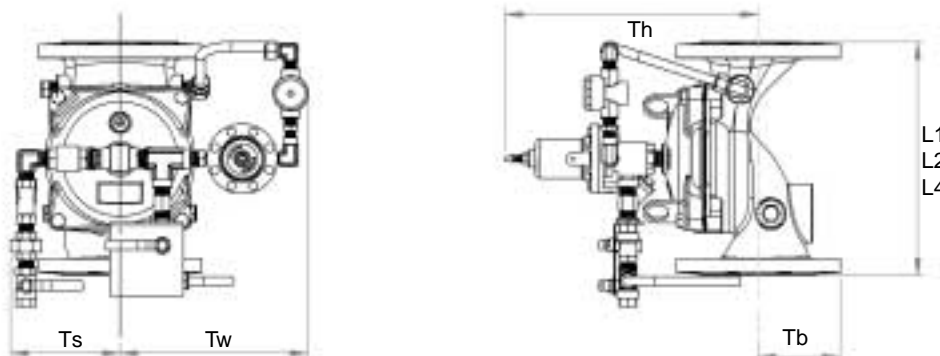
BERMAD Fire Protection



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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 ⁹ / 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 ⁹ / 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 ¹¹ / 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 ½	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

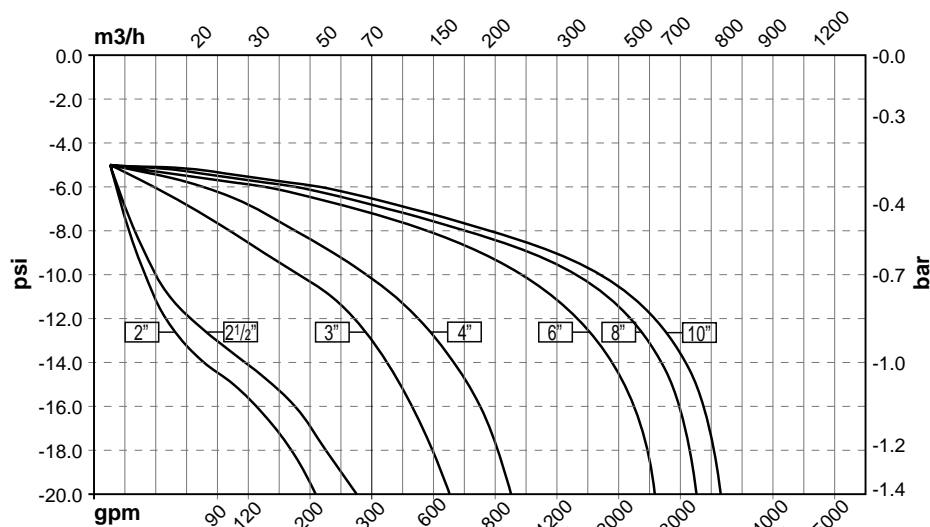
Elastomers

- Nylon fabric reinforced polyisoprene

Coating

- Electrostatic Power Coating Poleyester Red (RAL 3000)

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



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
- MoneI®
- Hastalloy C-276

Elastomers

- NBR
- EPDM

Coating

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



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