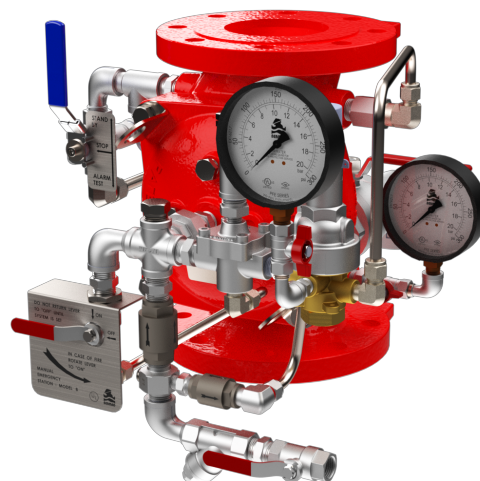


HYDRAULIC PRESSURE CONTROL ON-OFF DELUGE VALVE

Model FP-400E-5DC

The BERMAD model 400E-5DC is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards. The 400E-5DC is activated by a hydraulically operated relay valve, through which opening and closing of the valve can be controlled either with a remote hydraulic command or with a wet pilot line with closed fusible plugs. An integral pressure reducing pilot valve ensures a precise, stable, pre-set downstream water pressure. The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems. The 400E-5DC is ideal for systems that combine a remote wet pilot line with a high pressure water supply.



Features & Benefits

- Safety and reliability
 - Time proven, simple design with a fail safe actuation
 - Single piece rugged elastomer, VRSD technology
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
 - Valve position limit switches (optional)
 - Meets the requirements of the industry standards
- Quick and easy maintenance
 - Designed for high reliability and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 1½" - 10"



Det Norske Veritas
Type Approval
Sizes 1½" to 12"



ABS
American Bureau of Shipping
Type Approval
Sizes 1½" - 12"



Lloyd's Register
Type Approval
Sizes 1½" - 10"

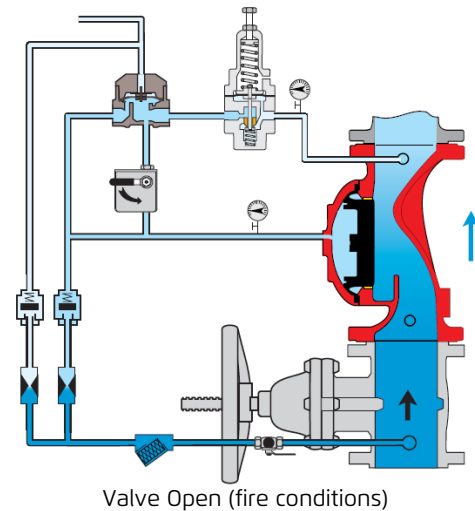
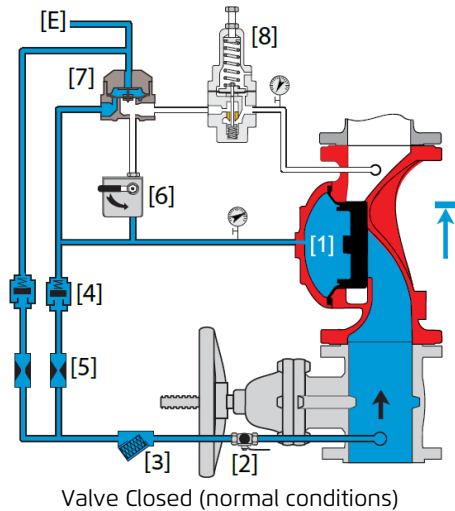
Typical Applications

- Remote Control Water Spray Systems
- Zonal Pressure Control
- Remote hydraulic control
- Foam applications
- High Pressure Water Supply

Additional Features

- Alarm pressure switch
- Seawater compatibility
- Valve position limit switches
- Valve Position Indicator
- Water motor alarm
- Corrosion resistant zinc based high build epoxy coating

Operation

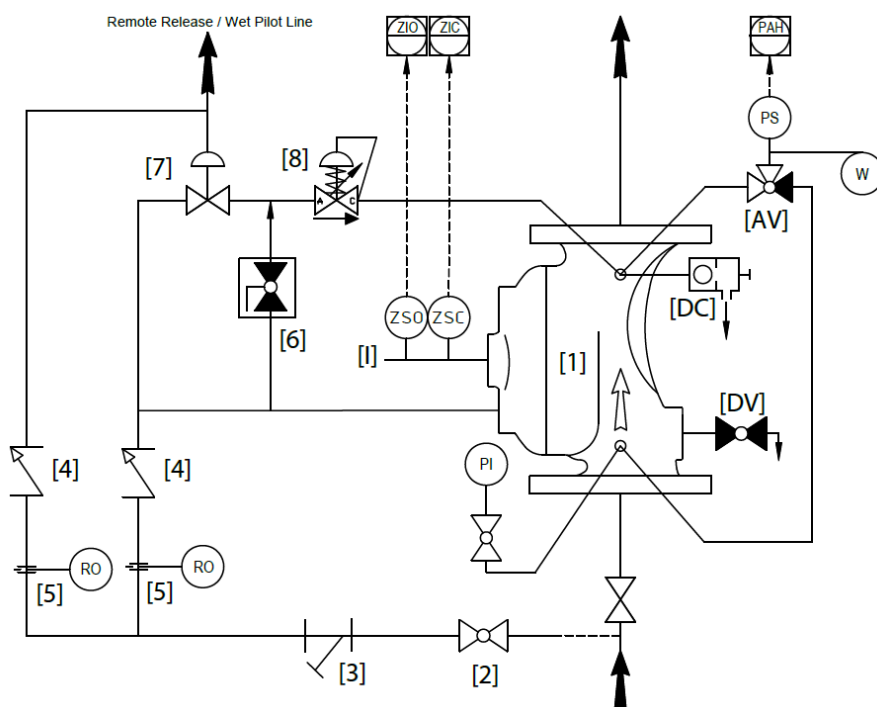


The BERMAD model 400E-5DC is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] strainer [3] and a restricted orifice [5] it is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a hydraulic relay valve (HRV) [7] that is held closed by hydraulic pilot line pressure [E]. The water pressure trapped in the control chamber holds the main valve diaphragm against the valve seat, sealing it drip-tight and keeping the system pipes dry.

Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release, or by the HRV opening in response to a decrease in hydraulic pressure from a pilot line or a remote release [E]. This opens the 400E-5DC deluge valve, allowing water to flow into the system piping and to the alarm device/s. The pressure-reducing pilot valve [8] modulates the main valve to maintain the set downstream pressure.

System P&ID



Components	
1	BERMAD 400E Deluge Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check valve
5	Restriction Orifice
6	Manual Emergency Release
7	HRV-Hydraulic Relay Valve
8	Pressure Reducing Pilot Valve

Optional System Items	
PS	Pressure Switch
W	Water Motor Alarm
ZS	Limit Switch Assembly
I	Visual Valve Position indicator
DV	Drain Valve*
PI	Pressure Gauge*
AV	3-way Alarm Test Valve*
DC	Automatic Drip Check Valve*

* Included with suffix A in valve code (drain and indicating components)
See code designations and "factory supplied additional items" on page 4

System Installation

A typical installation of the BERMAD model 400E-5DC features actuation via a pressure operated relay valve. This relay valve can be operated to actuate the main valve by using either a remote hydraulic pressure supply or a wet pilot line with fusible plugs. A pressure reducing pilot valve within the control trim ensures a precise and stable preset downstream water pressure. When fitted with a limit switch the valve can send a feedback signal to a remote valve position monitoring system.

Optional System Items



Single Ex d
Proximity S.S.316
Limit Switch



Water Motor Alarm



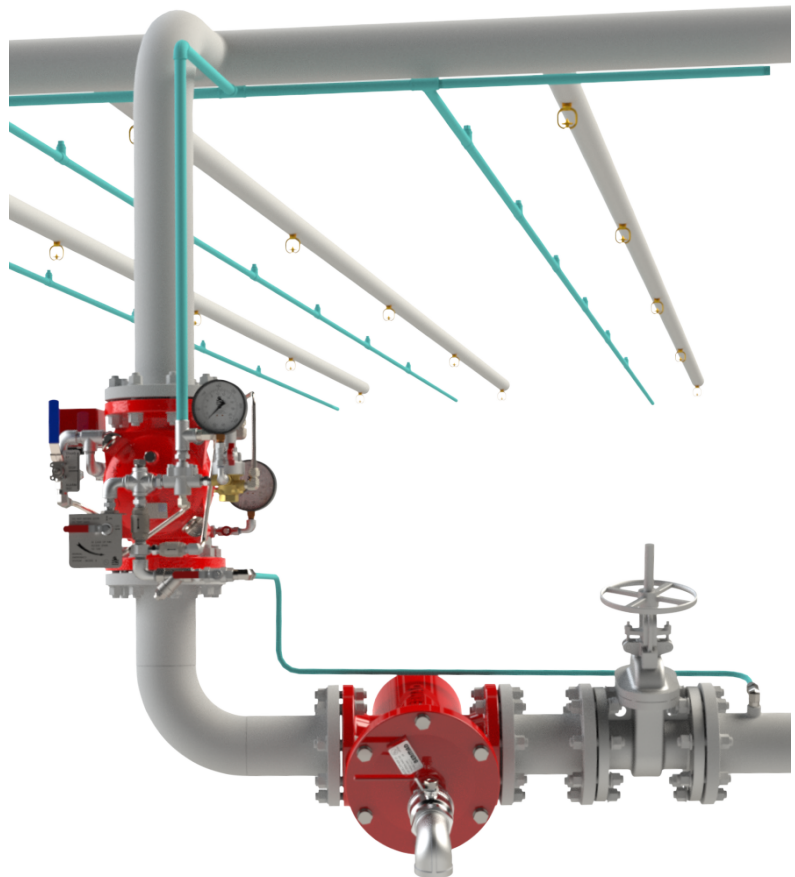
Pressure Gauge



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh



Environments
Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed, 250 psi/17.2 bar rated.

The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

The deluge valve shall have no mechanical moving parts, and the actuation shall utilize a single-piece diaphragm assembly of VRSD technology.

The valve shall be coated internally and externally with UV protection. Optional: C5-VH grade of ISO-12944 standard against corrosive conditions.

The control trim shall include a pressure control pilot valve, an auxiliary relay valve, a manual emergency release unit, a Y-type strainer, two 4-inch pressure gauges, and an automatic drip-check with manual override.

A valve position indicator shall be provided, and equipped with two proximity limit switches.

Removing the valve cover for full inspection and maintenance shall be in-line, and not require removal of the valve from the pipeline.

The deluge valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

Technical Data

Available Sizes:

Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"

Grooved- 2, 3, 4, 6, & 8"

Pressure Rating:

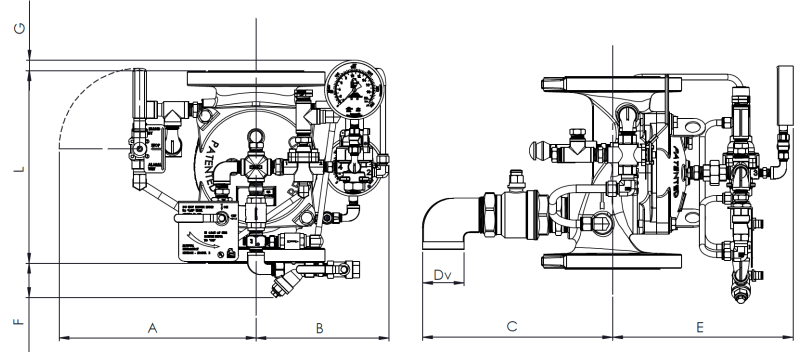
ANSI#150 - 17.2 bar | 250 psi

ANSI#300 - 12" to 16" - 17.2 bar | 250 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature

Compound - See engineering data



Valve Size	L #150 mm in	L Grooved mm in	A mm in	B mm in	C mm in	øD in	E mm in	F mm in	G mm in	Weight #150 kg lb
DN40 1½"	205 8.1	-	313 12.3	225 8.7	199 7.8	¾"	245 9.6	115 4.5	50 2	17 37
DN50 2"	205 8.1	205 8.1	313 12.3	221 8.7	199 7.8	1½"	245 9.6	115 4.5	50 2	18 40
DN65 2½"	205 8.1	-	325 12.8	221 8.7	253 10	1½"	249 9.7	115 4.5	50 2	21 46
DN80 3"	257 10.1	250 9.8	345 13.6	221 8.7	266 10.5	1½"	280 11	89 3.5	49 2	29 64
DN100 4"	320 12.6	320 12.6	328 12.9	221 8.7	316 12.4	2"	300 11.8	57 2.2	18 0.7	43 95
DN150 6"	415 16.3	415 16.3	349 13.7	190 7.4	347 13.7	2"	377 14.8	10 0.4	-	87 191
DN200 8"	500 19.7	-	383 15.1	220 8.7	364 14.3	2"	427 16.8	-	-	149 328
DN250 10"	605 23.8	-	396 15.6	230 9	384 15.1	2"	425 16.7	-	-	166 365
DN300 12"	725 28.5	-	438 17.2	283 11.1	422 16.6	2"	522 16.6	-	-	254 559

IMPORTANT: Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning - Apart from the "L" dimension, allow a tolerance of at least ±15%

Valve Code Designations

