

ELECTRICALLY CONTROLLED ON-OFF DELUGE VALVE

Model FP-400E-2D

The BERMAD model 400E-2D is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards. The 400E-2D is activated by a 2-way solenoid valve, suitable for electric fire detection systems and is ideal for open nozzles with water or foam discharge. Available with electric components to suit any hazardous location and offered with an optional visual valve position indicator that can include a limit switch suitable for Fire & Gas monitoring systems.



Features & Benefits

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

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"

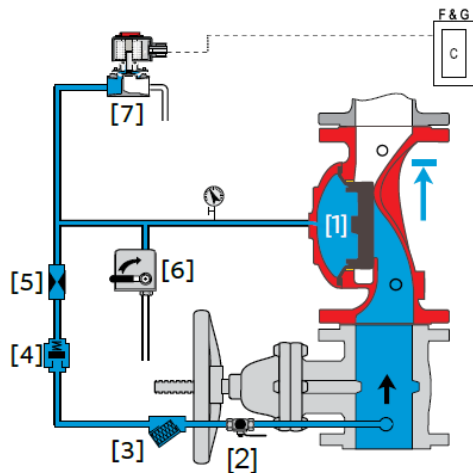
Typical Applications

- Electric fire detection systems with control panels
- Remote Control Water Spray Systems
- Foam applications
- Corrosive water systems

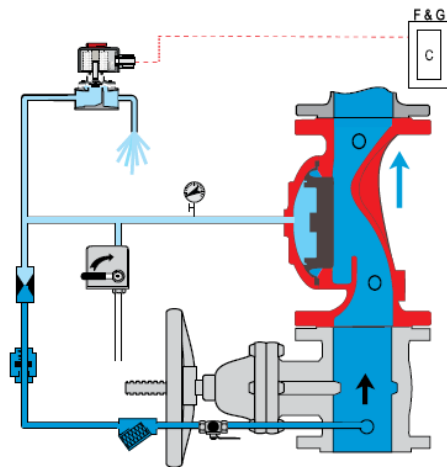
Additional Features

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

Operation



Valve Closed (normal conditions)



Valve Open (fire conditions)

The BERMAD model 400E-2D is held closed by water pressure in the control chamber [1].

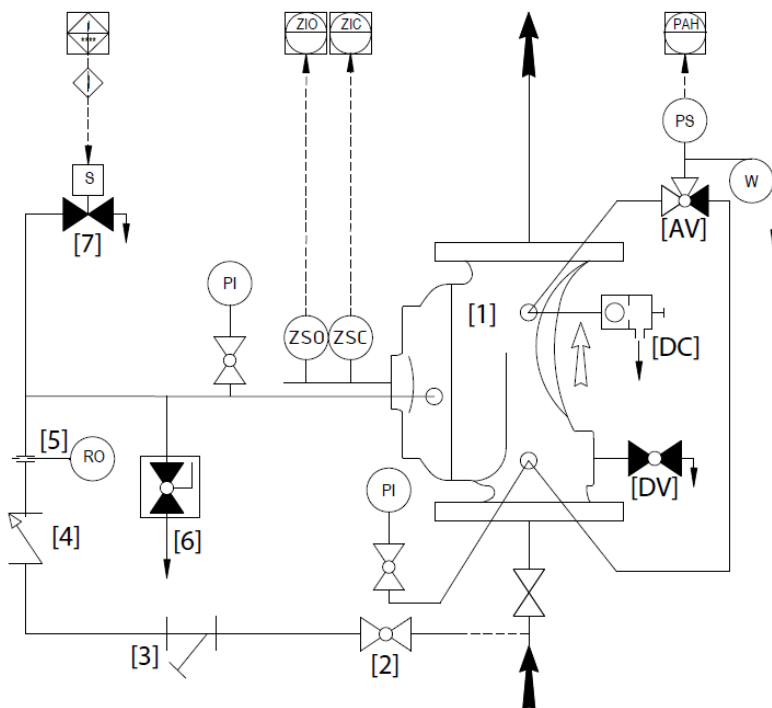
Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2], restriction orifice [5] and strainer [3], and is then trapped in the control chamber by a check valve [4], manual emergency release [6], And a 2-way solenoid valve [7].

The water pressure trapped in the main valve control chamber holds the 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 solenoid valve being activated by the fire & gas control system [C]. This opens the 400E-2D deluge valve, allowing water to flow into the system piping and alarm devices.

System P&ID



Components	
1	BERMAD 400Y Deluge Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check valve
5	Restriction Orifice
6	Manual Emergency Release
7	2-Way NC Solenoid Valve

Optional System Items	
ZS	Limit Switch Assembly
W	Water Motor Alarm
PS	Pressure Switch
I	Visual Valve Position indicator
PI	Pressure Gauge*
DV	Drain Valve*
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-2D features actuation via a 2-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency push-button. When open and fitted with a limit switch the valve can send a feedback signal to a remote valve status monitoring system.

Optional System Items



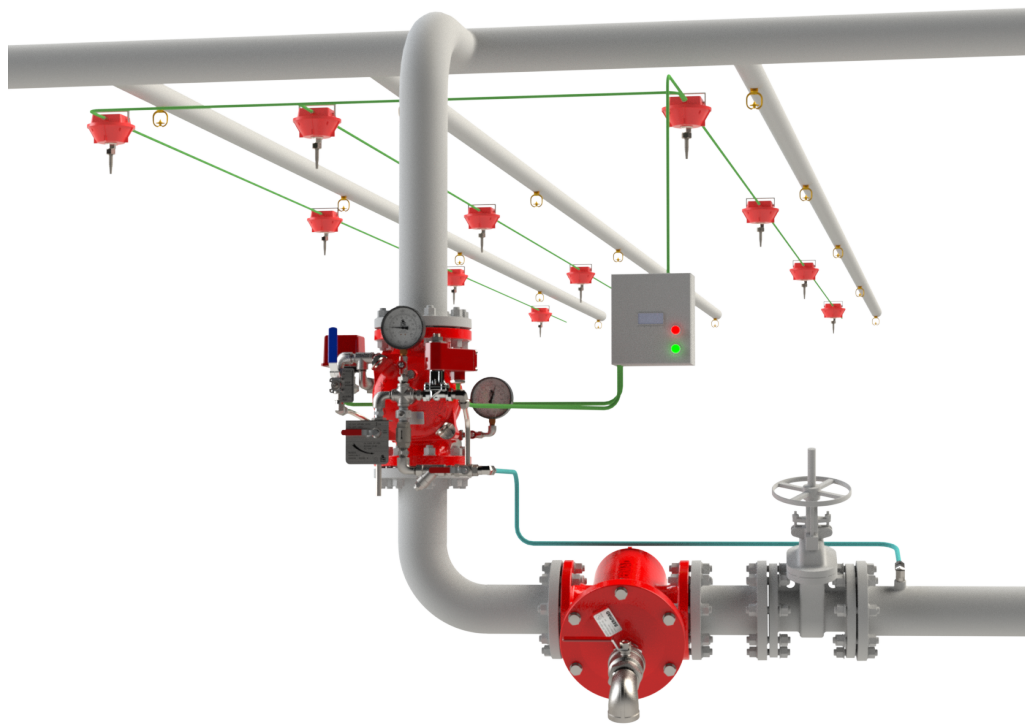
Water Motor Alarm



Pressure Gauge


Single Ex d
Proximity S.S.316
Limit Switch

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 solenoid valve shall be a 2-way FM and UL429A-listed for 365 psi/25 bar with 65% of the rated voltage.

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

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:

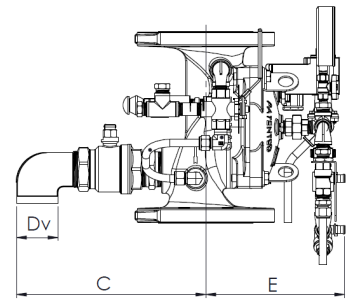
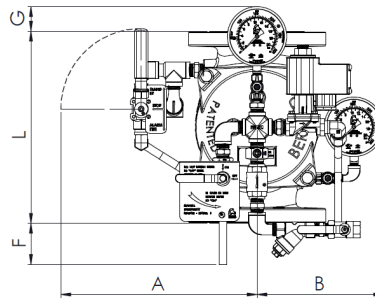
ANSI#150 - 17.2 bar | 250 psi

Grooved - 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	167 6.6	199 7.8	¾"	177 7	126 4.5	100 3.9	16 35
DN50 2"	205 8.1	205 8.1	313 12.3	167 6.6	199 7.8	¾"	177 7	126 5	100 3.9	17 37
DN65 2½"	205 8.1	-	325 12.8	172 10	253 10	1½"	179 7	126 5	100 3.9	19 42
DN80 3"	257 10.1	250 9.8	345 13.6	180 7.1	266 10.5	1½"	232 9.1	100 3.9	74 2.9	28 66
DN100 4"	320 12.6	320 12.6	328 12.9	212 8.3	316 12.4	2"	232 9.1	69 2.7	43 1.7	40 88
DN150 6"	415 16.3	415 16.3	349 13.7	204 8	347 13.7	2"	309 12.2	21 0.8	-	84 185
DN200 8"	500 19.7	500 19.7	383 15.1	270 10.6	364 14.3	2"	359 16.1	-	-	147 323
DN250 10"	605 23.8	-	396 15.6	280 11	384 15.1	2"	357 14	-	-	164 361
DN300 12"	725 28.5	-	438 17.2	333 13.1	422 16.6	2"	488 19.2	-	-	252 554

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

FP	6"	400E-2D	03	V	C	A5	ER	4DC	NN	N6nW																																																																																																																																																																			
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(1) Other materials available see engineering data

(2) Coated internally and externally

(3) Supplied loose

(4) Consult BERMAD for availability

(5) For valves up to and including 10"

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* NO or NC refers to the main valve status when the Solenoid is de-energized

*More options available – consult BERMAD