

PNEUMATICALLY CONTROLLED DELUGE VALVE WITH LOCAL RESET

Model FP-400E-4M

The BERMAD model 400E-4M is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards. The 400E-4M is activated by a pneumatic relay valve which latches the main valve open until locally reset. The optional valve position indicator can include a limit switch ideal for Fire & Gas monitoring systems. The 400E-4M is suitable for systems with open nozzles for water or foam discharge.



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
 - Latches open: remains open until reset locally
 - 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"

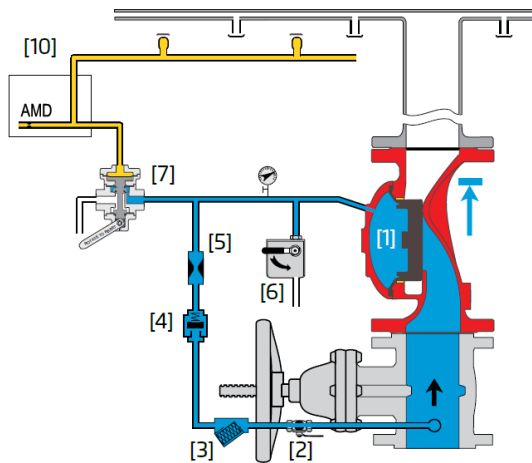
Typical Applications

- Automatic water spray systems
- Foam applications
- Corrosive water systems
- Freezing Environments
- Fusible plug loops

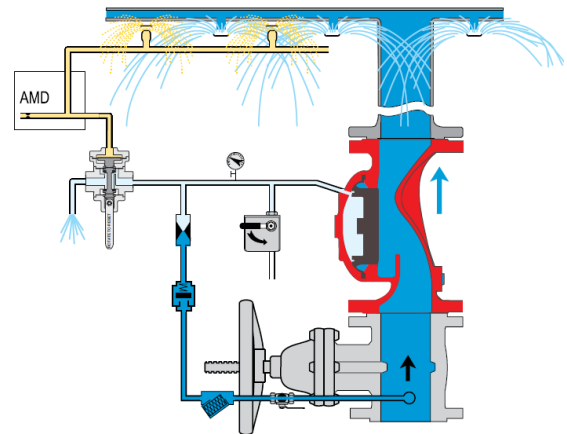
Additional Features

- Valve position limit switches
- Alarm pressure switch
- Seawater compatibility
- Air Maintenance Device
- Corrosion resistant zinc based high build epoxy coating

Operation



Valve Closed (normal conditions)

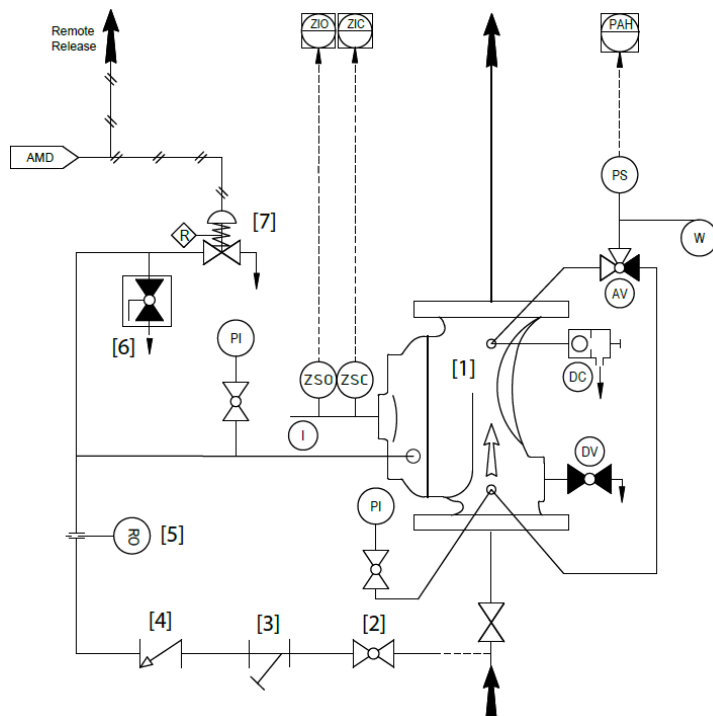


Valve Open (fire conditions)

The BERMAD model 400E-4M 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 restriction orifice [5] it is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a relay valve (URV-M) [7] that is held closed by pneumatic pressure in the dry pilot line [10]. The water pressure trapped in the 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 by the URV-M opening automatically in response to a decrease in pneumatic dry pilot-line pressure. This latches the 400E-4M deluge valve open, allowing water to flow into the system piping and to the alarm devices.

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	URV-2-M Relay Valve

Optional System Items	
ZS	Limit Switch Assembly
W	Water Motor Alarm
PS	Pressure Switch
AMD	Air Maintenance Device
PI	Pressure Gauge*
I	Visual Valve Position indicator
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-4M features automatic actuation via a pneumatic universal relay valve, triggered by a fusible plug loop. When fitted with a limit switch, the valve can send a feedback signal to a remote valve position monitoring system.

Optional System Items



Water Motor Alarm



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments



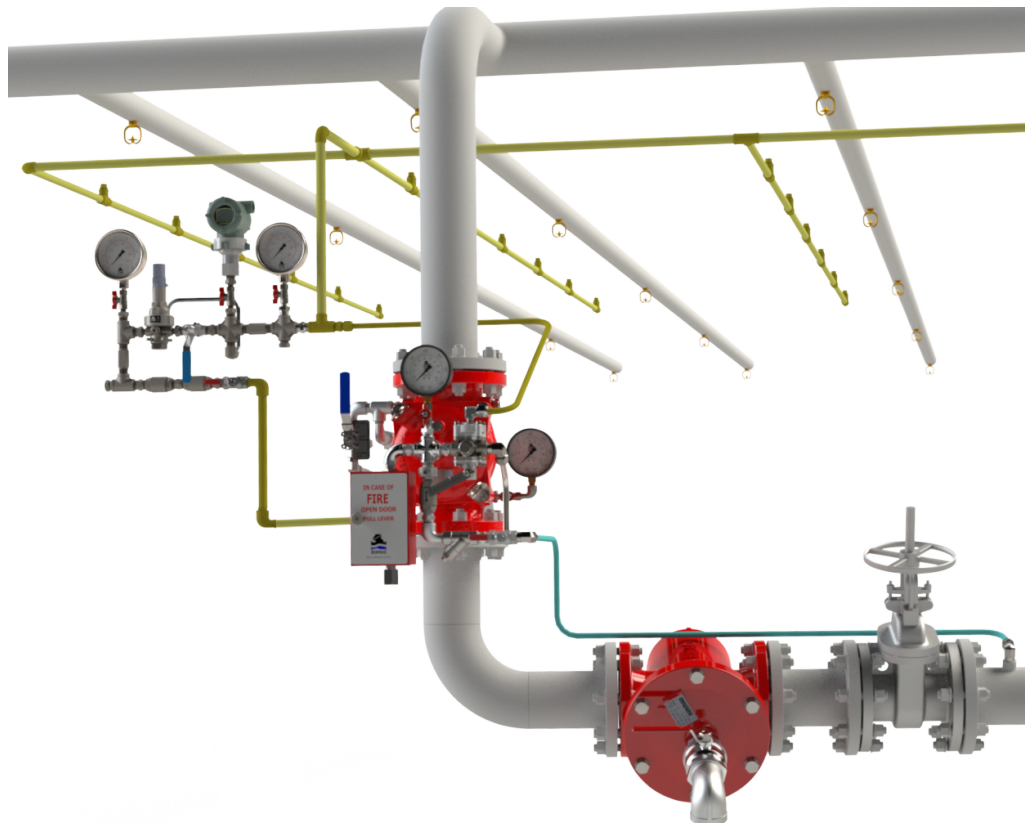
Single Ex d
Proximity S.S.316
Limit Switch



Pressure Gauge



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 an auxiliary latching 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:

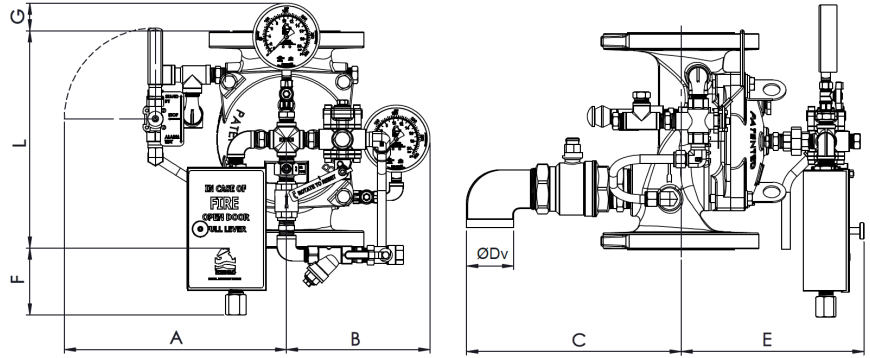
ANSI#150 - 17.2 bar | 250 psi

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	191 7.5	199 7.8	¾"	203 8	157 6.2	100 3.9	14 31
DN50 2"	205 8.1	205 8.1	313 12.3	191 7.5	199 7.8	1½"	203 8.1	157 6.2	100 3.9	15 33
DN65 2½"	205 8.1	-	325 12.8	196 7.7	253 10	1½"	205 8.1	157 6.2	74 2.9	17 37
DN80 3"	257 10.1	250 9.8	345 13.6	205 8.1	266 10.5	1½"	238 9.4	131 5.2	43 1.7	28 62
DN100 4"	320 12.6	320 12.6	328 12.9	212 8.3	316 12.4	1½"	258 10.2	99 3.9	-	40 88
DN150 6"	415 16.3	415 16.3	349 13.7	204 8	347 13.7	2"	334 13.1	52 2	-	84 185
DN200 8"	500 19.7	-	383 15.1	270 10.6	364 14.3	2"	385 15.2	9 0.4	-	147 323
DN250 10"	605 23.8	-	396 15.6	280 11	384 15.1	2"	382 15	-	-	162 356
DN300 12"	725 28.5	-	438 17.2	333 13.1	422 16.6	2"	513 20.2	-	-	242 532

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-4M	03	V	C	A5	ER	NN	N6nW																																																																																																																														
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Notes:

(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"

*More options available – consult BERMAD