

HYDRAULICALLY CONTROLLED DELUGE VALVE WITH LOCAL RESET

Model FP-400E-1M

The BERMAD model 400E-1M is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400E-1M is activated by a pressure drop in a fusible plug wet pilot line. Once open the 400E-1M latches open until locally reset.

The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.

The 400E-1M is ideal 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 elastomeric diaphragm seal - 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"

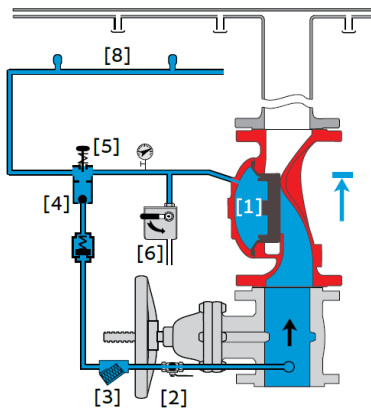
Typical Applications

- Automatic water spray systems
- Foam applications
- Corrosive water systems
- Hydraulic remote controlled systems

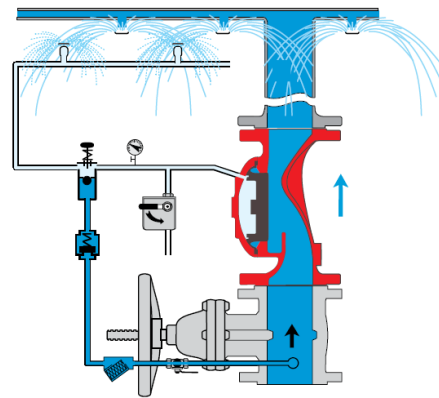
Additional Features

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

Operation



Valve Closed (normal conditions)



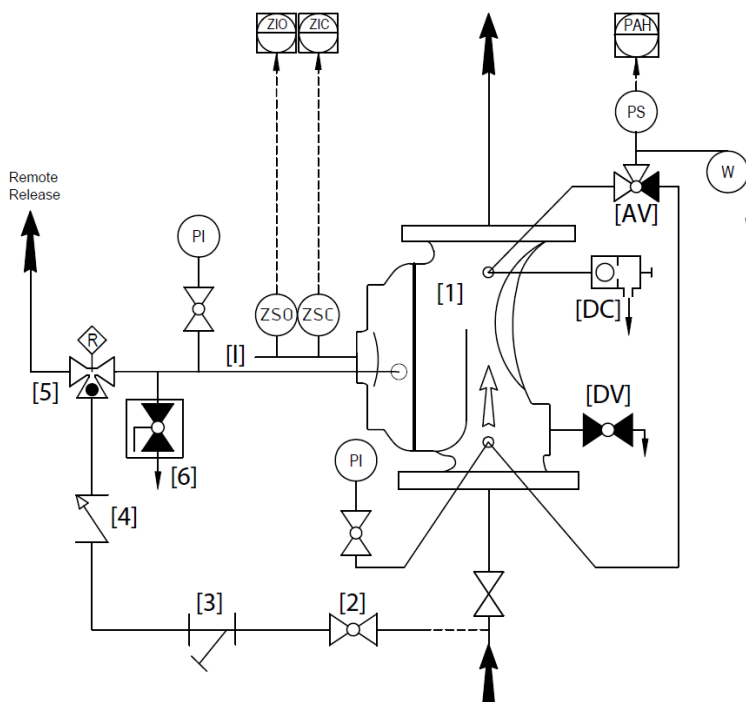
Valve Open (fire conditions)

The BERMAD model 400E-1M 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 is then trapped in the control chamber by the closed manual emergency release [6] and the check feature [4], of the easy-lock manual reset valve [5]. The water pressure trapped in the control chamber of the deluge valve 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 a release of water pressure of the hydraulic fusible plug pilot line [8], this increase in flow switches the easy-lock to close releasing pressure from the valve control chamber and thereby opening the deluge valve, allowing water to flow into the system piping and to the alarm devices. Once open the 400E-1M latches open and can only be closed locally by manually depressing the easy-lock reset button.

System P&ID



Components	
1	BERMAD 400E Deluge Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check Valve
5	Easy-Lock Manual reset
6	Manual Emergency Release

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

* 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-1M, features automatic actuation by way of a fall in pressure of a fusible plug wet pilot line. It can also be triggered manually using the local manual emergency release, or by using a remote hydraulic release.

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



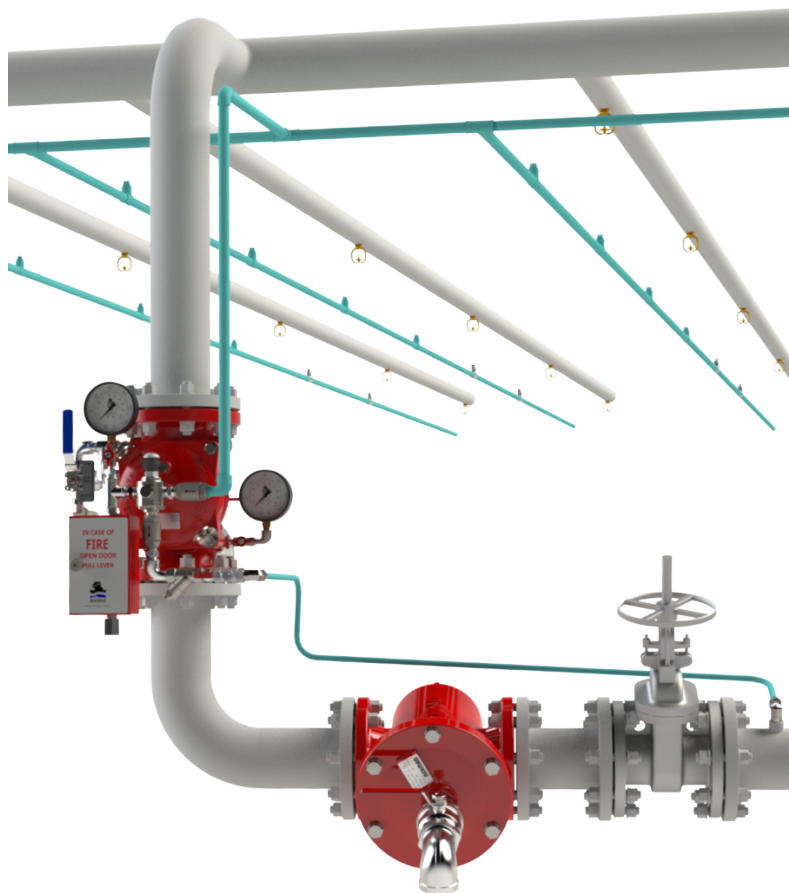
Single Ex d
Proximity S.S.316
Limit Switch



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh



Environments
Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be ULlisted.

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

Valve actuation shall be accomplished by a single-piece, rolling diaphragm bonded with a rugged radial seal disk.

The diaphragm assembly shall be the only moving part.

The deluge valve shall include a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a 316 stainless steel box.

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

The deluge valve and its entire control trim shall be supplied pre-assembled and hydraulically tested in compliance to the UL 260 standard, by a factory certified to ISO 9000 and 9001 quality assurance standard

Technical Data

Available Sizes:

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

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

Pressure Rating:

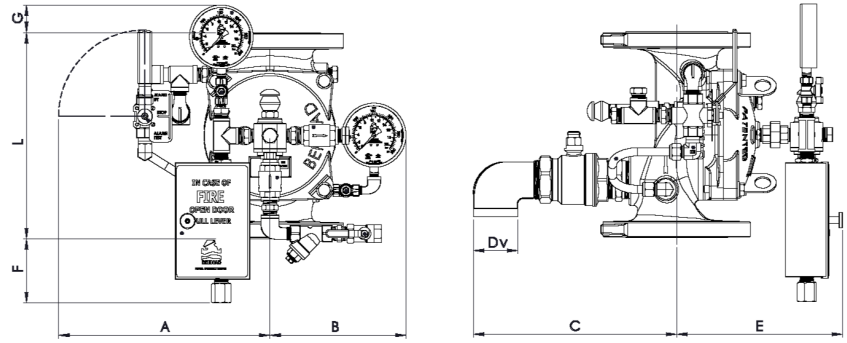
ANSI#150 - 17.2 bar | 250 psi

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 8.0	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	¾"	203 8.0	157 6.2	100 3.9	15 33
DN65 2½"	205 8.1	-	325 12.8	196 7.7	253 10.0	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 8.0	347 13.7	2"	334 13.1	52 2.0	-	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 11.0	384 15.1	2"	382 15.0	-	-	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-1M	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"

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