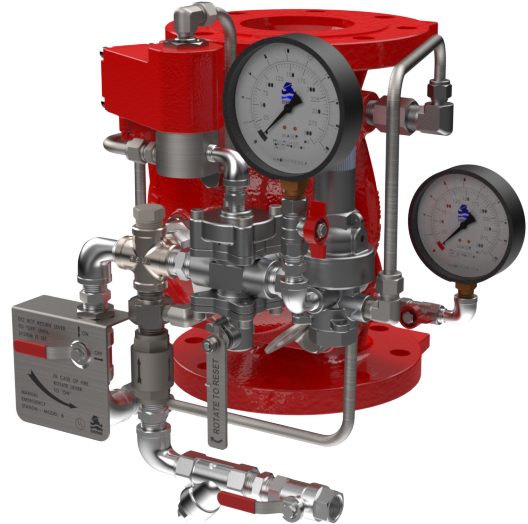


ELECTRIC PRESSURE CONTROL DELUGE VALVE WITH LOCAL RESET

Model FP-400E-2MC

The BERMAD model 400E-2MC is an elastomeric, hydraulic line pressure operated deluge valve. Designed specifically for advanced fire protection systems and the latest industry standards. The 400E-2MC is activated by a 3-Way solenoid valve, that actuates a latching relay valve opening the main valve. Once open, the valve will not close until locally reset.

An integral pressure reducing pilot ensures a stable and precise preset downstream system water pressure. The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems. The 400E-2MC is ideal for open-nozzle systems with a high pressure water supply and is available with electric components to suit any hazardous location.



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
 - UL429A Listed 3-Way Solenoid Valve
 - Latches open: remains open until reset locally
 - Ensures precise, stable downstream water pressure
- Quick and easy maintenance
 - Designed for high reliability and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Typical Applications

- Automatic water spray systems
- Foam applications
- High Pressure Water Supply
- Electric fire detection systems with control panels

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"

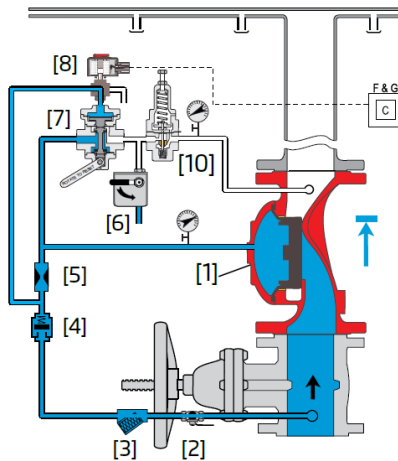


Lloyd's Register
Type Approval
Sizes 1½" - 10"

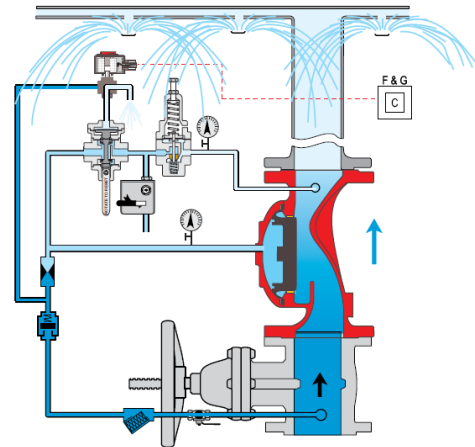
Additional Features

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

Operation



Valve Closed (normal conditions)



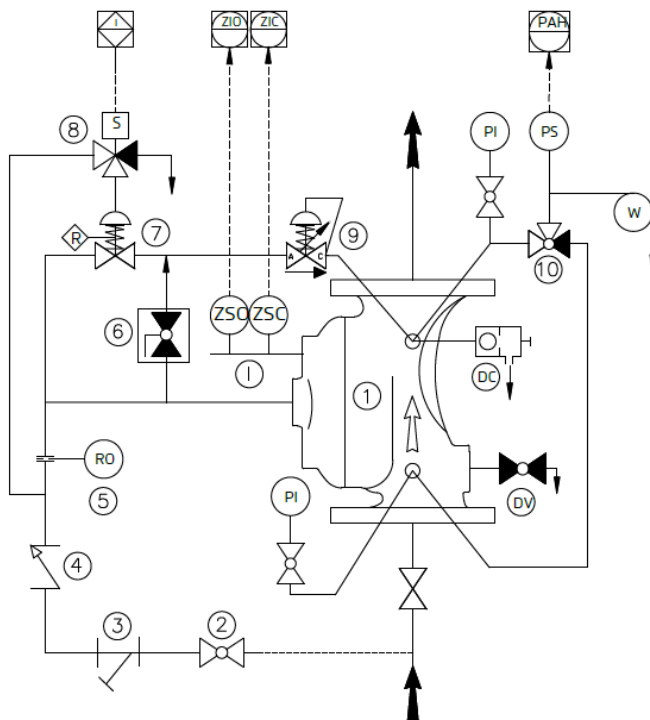
Valve Open (fire conditions)

The BERMAD model 400E-2MC 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 water pressure supplied through a three-way solenoid valve [8]. 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 URV-M opening in response to the solenoid valve being activated by the fire & gas control system [C]. This latches the 400E-2MC deluge valve open, allowing water to flow into the system piping and to the alarm device. The pressure-reducing pilot valve [10] senses changes in outlet pressure and, 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	URV-2-M Relay Valve
8	3-Way NO Solenoid Valve
9	Pressure reducing pilot 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*
DC	Automatic Drip Check Valve*
AV	3-way Alarm Test 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-2MC features automatic actuation via a universal relay valve and a three-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency push-button. A pressure reducing pilot within the control trim, ensures a precise and stable set downstream pressure. 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



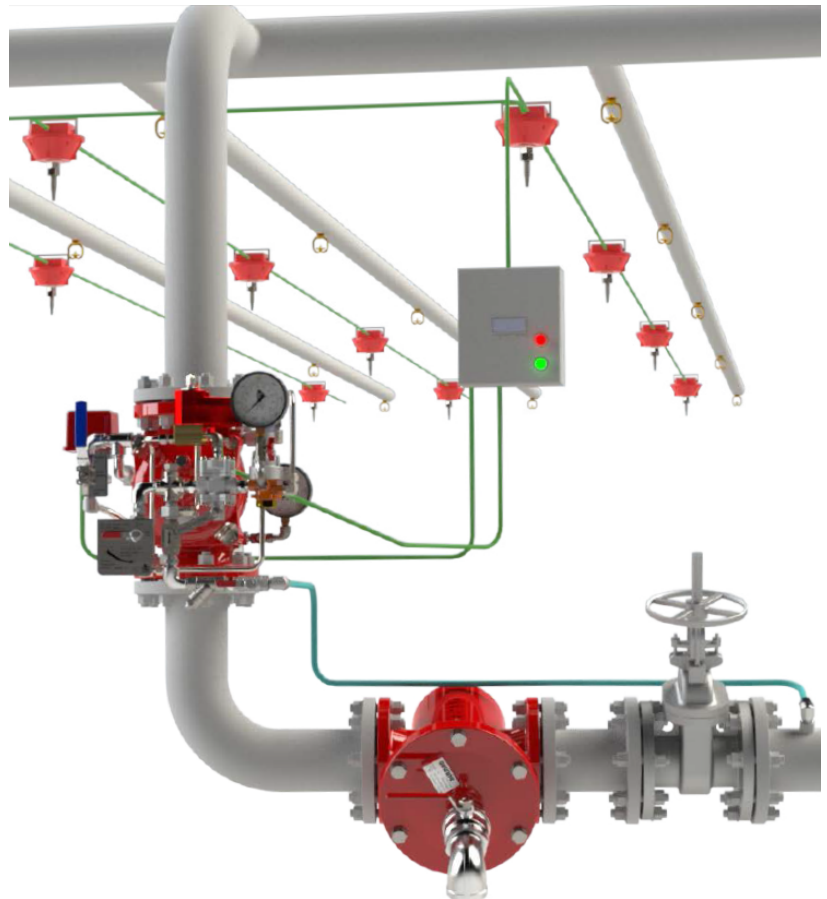
Proximity S.S.316
Limit Switch



Pressure Gauge



Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed, 250 psi/17.2bar 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 3-way FM and UL429A-listed for 365 psi/25 bar with 65% of the rated voltage.

The control trim shall include a pressure control pilot valve, 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:

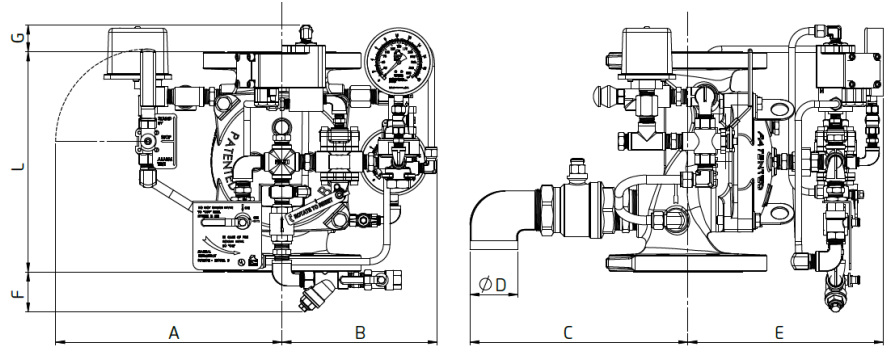
ANSI#150 - 17.2 bar | 250 psi

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	-	284 11.2	223 8.8	282 11.1	¾"	214 8.4	108 4.3	95 3.7	14 31
DN50 2"	205 8.1	205 8.1	284 11.2	223 8.8	282 11.1	¾"	214 4.3	108 4.3	95 3.7	15 33
DN65 2½"	205 8.1	-	295 11.6	223 8.8	287 11.3	1½"	226 8.9	108 4.3	95 3.7	17 37
DN80 3"	257 10.1	250 9.8	345 12.5	223 8.8	302 11.9	1½"	250 9.8	83 3.3	70 2.8	25 55
DN100 4"	320 12.6	320 12.6	329 13	223 8.8	316 12.4	1½"	270 10.6	51 2	38 1.5	34 75
DN150 6"	415 16.3	415 16.3	358 14.1	223 8.8	337 13.3	2"	345 13.6	3 0.1	-	74 163
DN200 8"	500 19.7	500 19.7	374 14.7	223 8.8	364 14.3	2"	396 15.6	-	-	131 289
DN250 10"	605 23.8	-	394 15.5	223 8.8	372 14.6	2"	396 15.6	-	-	146 322
DN300 12"	725 28.5	-	439 17.3	223 8.8	420 16.5	2"	513 20.2	-	-	227 500

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-2MC	03	V	C	A5	ER	4DC	NN	N6nW
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Category	Code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	65 mm
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm

Installation	Code
Vertical	V
Horizontal	H

Material Body & Cover ⁽¹⁾	Code
Ductile Iron A356 ⁽²⁾	C
Steel ASTM A216 WCB ⁽²⁾	S
Stainless Steel 316	N
Nickel Al Bronze C95800	U
Super Duplex Grade 5A	D

Additional Feature	Code
Closing speed	01
Opening speed	02
Opening & Closing speed	03
None	-

End Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
ISO PN16	16
Grooved ANSI C606	VI

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy ⁽³⁾	ZR
Uncoated	UC

Voltage - Main Valve N.O. or N.C.*	
24VDC - N.C.	4DC
24VDC - N.O.	4DO
110VDC - N.C.	5DC
110VDC - N.O.	5DO
110-120/AC - N.C.	5AC
110-120/AC - N.O.	5AO
220-240/AC - N.C.	2AC
220-240/AC - N.O.	2AO

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

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Factory Fitted Options	
General Purpose NEMA-4 Pressure Switch ⁽³⁾	P
Ex Proof NEC, Div.1 Pressure Switch ⁽³⁾	P7
Ex d ATEX Pressure Switch ⁽³⁾	P9
Ex d Pressure Switch, SS316 Enclosure ⁽³⁾	P9Jn
Ex d Pressure Switch, SS316 Enclosure, Monel Sensor ⁽³⁾	P9mJn
Single Limit Switch, General Purpose	S
Single Ex d Proximity limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Double Ex d Proximity Limit Switch with SS316 Junction Box	SS9Jn
Pressure Gauge Assembly ⁽³⁾	6
S.S Glycerin Pressure Gauge Assembly ⁽³⁾	6n
Monel Pressure Gauge Assembly ⁽³⁾	6m
Ex Proof Class I Div. 1 Solenoid	7
Ex d ATEX / IECEx Solenoid	9
Stainless steel 316 Solenoid Valve	K
Drain Valve	DV
Water Motor Alarm Assembly ⁽³⁾	W
Special Elastomer	E ⁽⁴⁾
Large Control Filter	F
Valve Position Indicator	I
S.S Solenoid Valve	K
S.S 316 Trim Accessories	N
Pressure Transmitter ⁽³⁾	Q
Drain and Indicating Components	A

* More options available - contact BERMAD