

## Electric Pressure Control Deluge Valve with Local Reset

### Model FP 400Y - 2MC

The BERMAD model 400Y-2MC is an elastomeric, hydraulic line pressure operated deluge valve. Designed specifically for advanced fire protection systems and the latest industry standards.

The 400Y-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 400Y-2MC is ideal for open-nozzle systems with a high pressure water supply and is available with electric components to suit any hazardous location.



(for Illustration Only)

### Benefits and Features

- **Safety and reliability**
  - Time proven, simple, 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
  - Ensures precise, stable downstream water pressure
- **High performance**
  - Very high flow efficiency
  - Straight through flow Y- type body
  - Approved for PN25 / 365 psi
- **Specifically-designed for fire protection**
  - Face-to-face length standardized to ISO 5752, EN 558-1
  - Meets the requirements of the industry standards
- **Quick and easy maintenance**
  - In-line serviceable
  - Fast and easy cover removal
  - Swivel mounted drain valves\*

\* not including 1½" & 2" valves

### Typical Applications

- Electric fire detection systems with control panels
- Automatic water spray
- Foam applications
- Corrosive water supply
- High pressure water supply

### Approvals



UL-Listed  
Special System Water Control  
Valves, Deluge Type (VLFT)  
Sizes 3" - 10"



Det Norske Veritas  
Type Approval



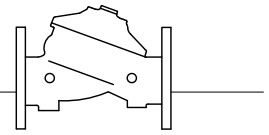
ABS  
American Bureau of Shipping  
Type Approval



Lloyd's Register  
Type Approval

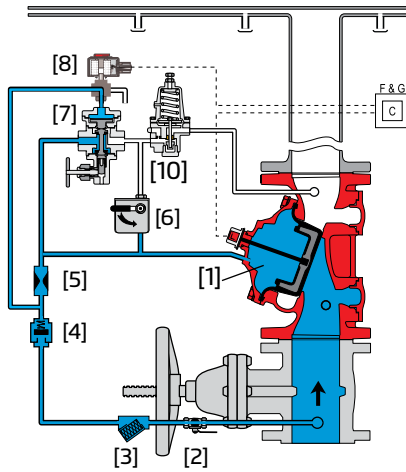
### Additional Features

- Valve position limit switches
- Alarm pressure switch
- Sea water compatibility
- Drain valve/s inlet/outlet
- Valve position limit switches

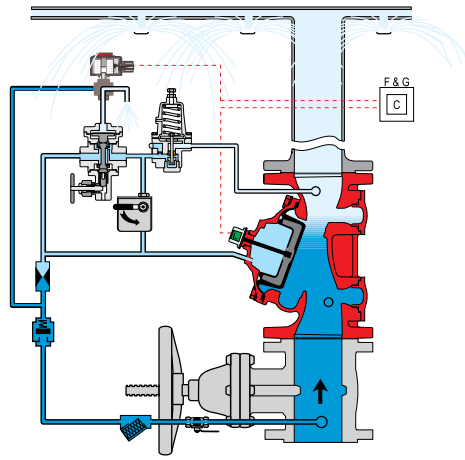


## Operation

(for Illustration Only)



**Valve Closed** (normal conditions)



**Valve Open** (fire conditions)

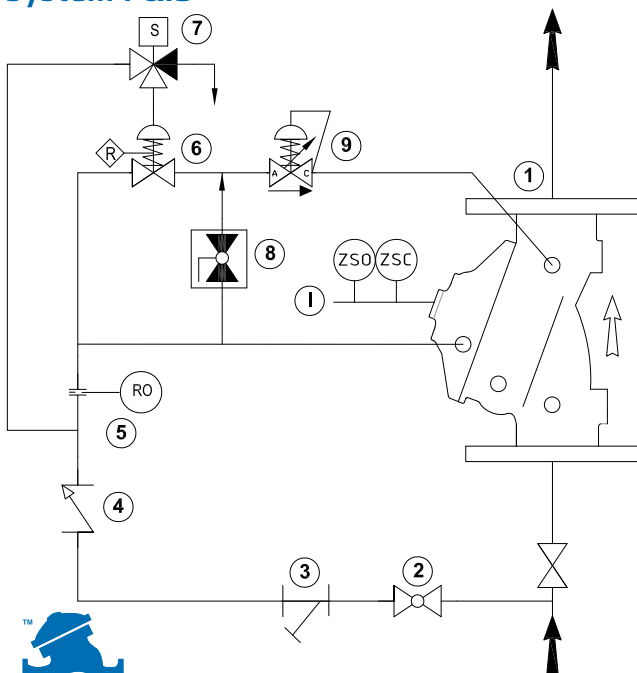
The BERMAD model 400Y-2MC is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

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 400Y-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. When outlet pressure rises above the setting of the pilot spring force, the pilot valve throttles, enabling pressure to accumulate in the control chamber, this causes the main valve to close further and reduce outlet pressure to the set pressure. When outlet pressure falls, the pilot valve opens wider, releasing pressure from the control chamber. This causes the main valve to immediately open wider and increase outlet pressure to maintain the set pressure.

## System P&ID



### Components

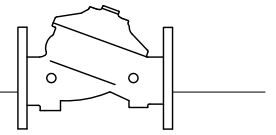
- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 3-Way NC Solenoid Valve
- 8 URV-2-M Relay Valve
- 10 Pressure Reducing Pilot Valve

### Optional System Items

- ZS Limit Switch Assembly
- I Visual Indicator

See also Factory Fitted Options under the Valve Code Designations on the last page

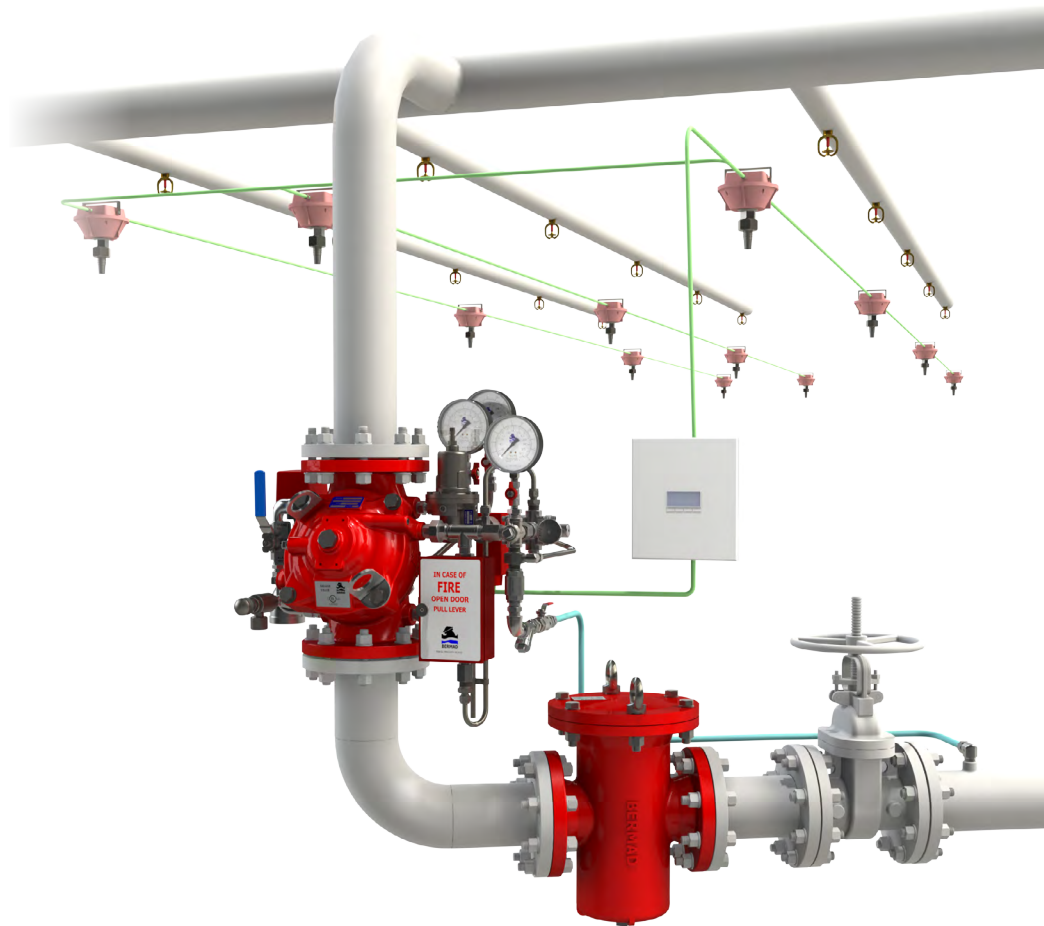
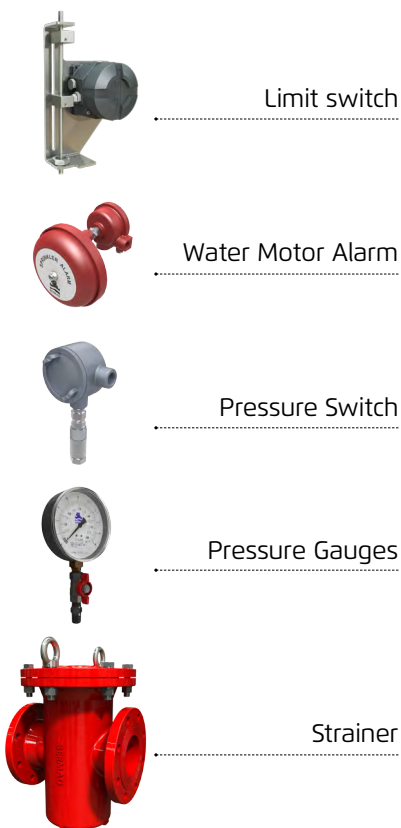




## System Installation

A typical installation of the BERMAD model 400Y-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 pushbutton. 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



(for Illustration Only)

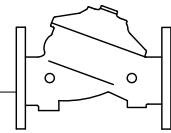
## Suggested Specifications

The deluge valve shall be a UL-listed, 25-bar/365-psi rated, elastomeric type with a straight-through, Y-type-body. 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 latching relay pilot valve, a 3-way solenoid valve approved for 25 bar/365 psi working pressure, with a tolerance of 35% below the rated voltage, a pressure reducing pilot valve, 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 stainless steel box.

The valve drain socket shall be flanged and have a 360-degree swivel. The valve shall be equipped with two limit switches.

Removing the valve cover for inspection and maintenance shall be in line and shall not require removing the control trim. The deluge valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a factory certified to ISO 9000 and 9001 standards.



## Technical Data

### Available Sizes (inch)

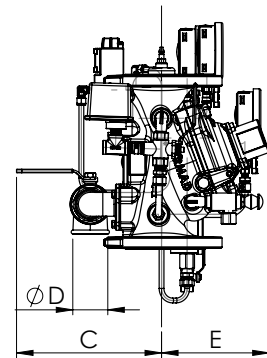
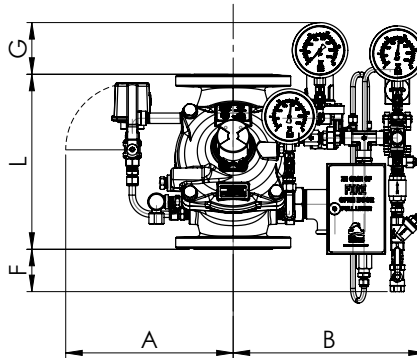
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

### Pressure Rating

- ANSI#150 - 16 bar / 235 psi
- ANSI#300 - 1½" to 10" 25 bar / 365 psi  
12" to 16" 20 bar / 300 psi
- Grooved/Threaded - 25 bar / 365 psi
- Setting range: 4 - 12 bar (60 - 175 psi)

### Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - See engineering data



Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
<sup>(1)</sup> L <sup>1</sup> ANSI #150 mm (in.)	230(9.06)	230(9.06)	310(12.21)	350(13.79)	480(18.91)	600(23.64)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
L <sup>2</sup> ANSI #300 mm (in.)	230(9.06)	238(9.37)	326(12.84)	368(14.50)	506(19.94)	626(24.66)	730(28.76)	888(34.96)	980(38.61)	1100(43.34)
A mm (in.)	330(13.0)	330(13.0)	390(15.4)	398(15.7)	451(17.8)	481(18.9)	481(18.9)	594(23.4)	594(23.4)	594(23.4)
B mm (in.)	311(12.24)	311(12.24)	369(14.5)	379(14.9)	434(17)	462(18.2)	462(18.2)	575(22.6)	575(22.6)	575(22.6)
C mm (in.)	241(9.5)	241(9.5)	274(10.8)	290(11.4)	304(12.0)	320(12.6)	320(12.6)	383(15.1)	383(15.1)	408(16.1)
ØD	¾"	¾"	1½"	2"	2"	2"	2"	2"	2"	2"
E mm (in.)	120(4.7)	120(4.7)	146(5.7)	158(6.2)	228(9.0)	295(11.6)	295(11.6)	441(17.4)	441(17.4)	415(16.3)
F mm (in.)	204(25.4)	204(25.4)	134(5.23)	107(4.21)	25.5(1)	-	-	-	-	-
G mm (in.)	141(5.55)	141(5.55)	131(5.16)	118(4.64)	69.5(2.73)	45(1.77)	-	-	-	-
KV m <sup>3</sup> /h (Cv gpm)	68(79)	80(92)	190(219)	345(398)	790(912)	1160(1340)	1355 / 1565	2370 / 2737	2850 / 3292	3254 / 3758
<sup>(2)</sup> Leq m (ft)	2 / 7	5 / 16	7 / 23	9 / 30	15 / 49	27 / 89	62 / 203	52 / 171	59 / 194	88 / 289
Kg (lb) flanged#150/ISO16	18.3(40.3)	19.7(43.3)	34.4(75.7)	44.4(97.7)	87.7(193)	151(332.2)	181(398)	324(713)	357(785)	403(887)

Notes: <sup>(1)</sup> L1 Dimensions are for grooved, threaded and raised face flanged valves

<sup>(2)</sup> Leq (Equivalent Pipe Length) refers to a fully opened valve with turbulent flow in new steel pipe schedule 40, values given for general consideration only

<sup>(3)</sup> Dimensions for the trim envelope may vary with specific component positioning

<sup>(4)</sup> Kv and Cv values given for a fully opened valve.

## Valve Code Designations

FP	6"	400Y-2MC	V	C	A5	PR	4DC	NN	P77I
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Category	code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Valve Size	code
1½"	40 mm
2"	50 mm
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm
14"	350 mm
16"	400 mm

Installation	code
Vertical	V
Horizontal	H

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

End Connections	code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ISO PN16	16
ISO PN25	25
Grooved ANSI C606	VI

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Voltage - Main Valve N.O or N.C	code
24VDC - N.C.	4DC
24VDC - N.O.	4DO
24VDC - Latch	4DS
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

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

Factory Fitted Options	Code
General Purpose Pressure Switch <sup>(3)</sup>	P
Ex Proof NEC, Div.1 Pressure Switch <sup>(3)</sup>	P7
Ex d ATEX Pressure Switch <sup>(3)</sup>	P9
Single Limit Switch, General Purpose	S
Single Ex d Proximity Limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Pressure Gauge Assembly <sup>(3)</sup>	6
S.S Glycerin Pressure Gauge Assembly <sup>(3)</sup>	6n
Monel Pressure Gauge Assembly <sup>(3)</sup>	6m
Ex Proof NEC Class 1 Div 1 Solenoid	7
Ex d ATEX Solenoid	9
Drain valve	DV
Water Motor Alarm Assembly <sup>(3)</sup>	W
Special Elastomer EPDM	E1
Special Elastomer NBR	E3
Large Control Filter	F
Valve Position Indicator	I
S.S Solenoid Valve	K
S.S 316 Trim Accessories	N
Stainless Steel 316 Seat	T
Pressure Transmitter <sup>(3)</sup>	Q
Drain and Indicating Components	A

### Notes:

<sup>(1)</sup> Other materials available, see engineering data

<sup>(2)</sup> Coated internally and externally

<sup>(3)</sup> Supplied loose

