

## 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

### Approvals



UL-Listed  
Special System Water Control  
Valves, Deluge Type (VLFT)  
Sizes 1½" - 16"



Det Norske Veritas  
Type Approval



ABS  
American Bureau of Shipping  
Type Approval



Lloyd's Register  
Type Approval

### Typical Applications

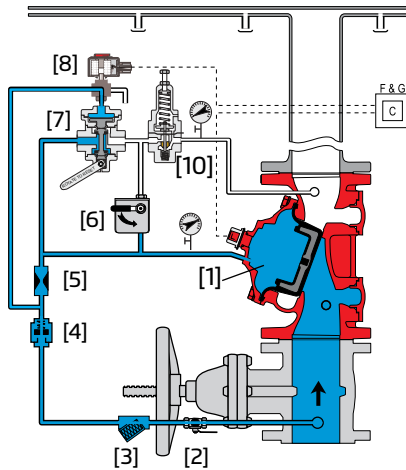
- Electric fire detection systems with control panels
- Automatic water spray
- Foam applications
- Corrosive water supply
- High pressure water supply

### Additional Features

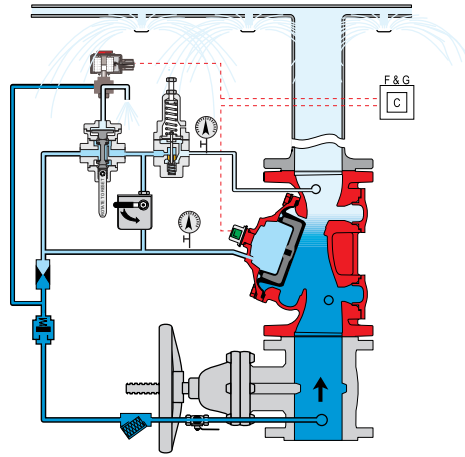
- Valve position limit switches
- Alarm pressure switch
- Sea water compatibility
- Drain valve/s inlet/outlet

## Operation

(for Illustration Only)



**Valve Closed** (normal conditions)



**Valve Open** (fire conditions)

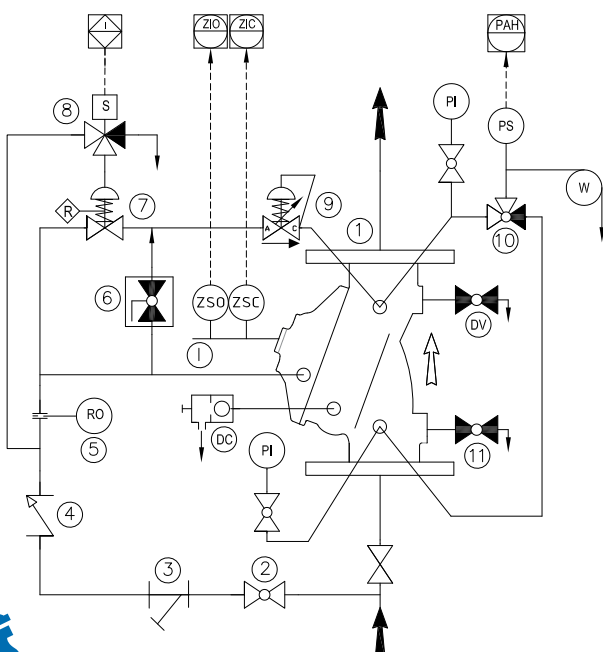
The BERMAD model 400Y-2MC is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

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



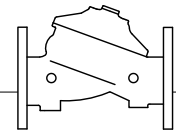
## Components

- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 URV-3-M Relay Valve
- 8 3-Way NO Solenoid Valve
- 9 Pressure reducing pilot valve

## Optional System Items

- ZS Limit Switch Assembly
- I Visual Indicator
- DC Automatic Drip Check Valve\*
- DV Additional Drain Valve
- PI Pressure Indicator\*
- PS Pressure Switch
- W Water Motor Alarm
- 10 3-Way Alarm Valve\*
- 11 Drain Valve\*

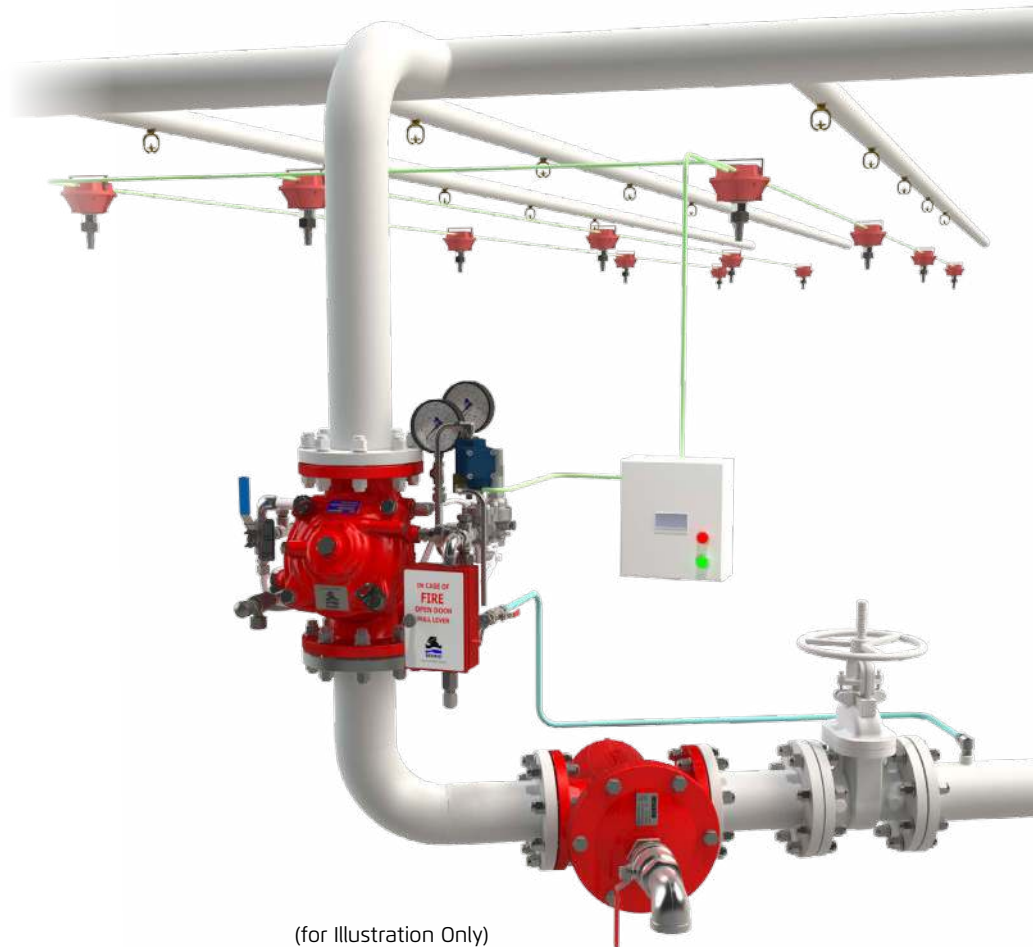
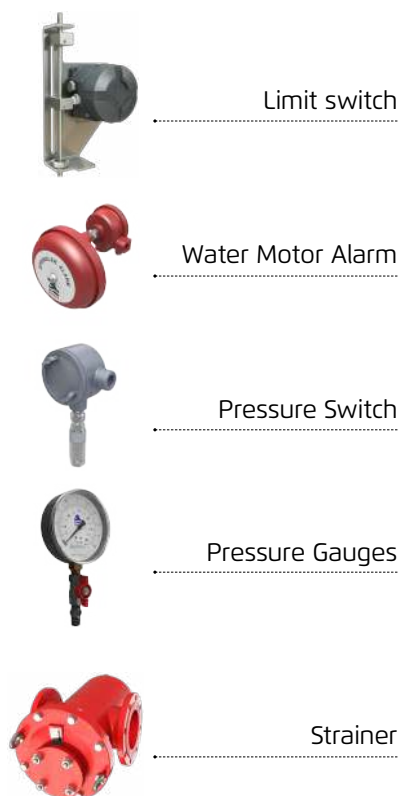
\* Included with suffix A in valve code (drain and indicating components)  
See code designations and additional Factory Fitted Options on page 4



## 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



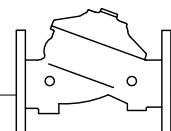
## Suggested Specifications

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.

The valve shall be coated internally and externally creating a corrosion barrier with UV protection.

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)

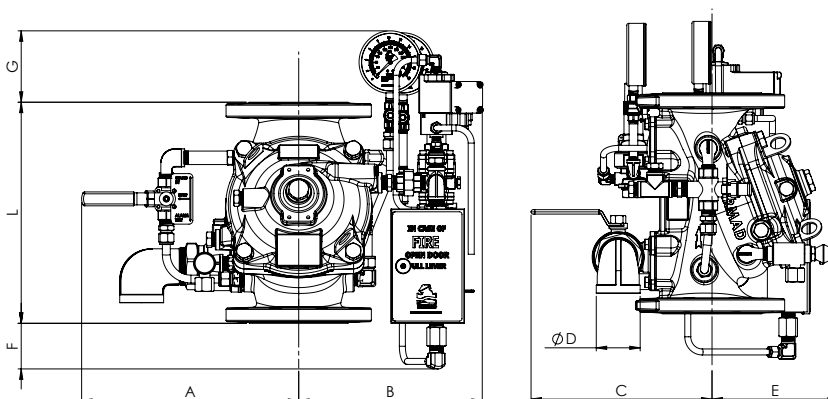
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

#### 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	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
L ANSI #150 <sup>(1)</sup>	230	9.1	230	9.1	310	12.2	350	13.8	480	18.9	600	23.6	730	28.7	850	33.5	980	38.6	1100	43.3
L ANSI #300 <sup>(2)</sup>	230	9.1	235	9.3	326	12.8	368	14.5	506	19.9	626	24.7	730	28.8	850	33.5	980	38.6	1100	43.3
A	274	10.8	274	10.8	334	13.1	342	13.5	395	15.6	425	16.7	425	16.7	538	21.2	538	21.2	538	21.2
B	212	8.3	212	8.3	270	10.6	280	11.0	335	13.2	363	14.3	363	14.3	476	18.7	476	18.7	476	18.7
C	241	9.5	241	9.5	274	10.8	290	11.4	305	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	180	7.1	180	7.1	185	7.3	195	7.7	228	9.0	295	11.6	295	11.6	441	17.4	441	17.4	415	16.3
F	160	6.3	160	6.3	90	3.5	63	2.5	-	-	-	-	-	-	-	-	-	-	-	-
G	141	5.6	141	5.6	131	5.2	118	4.6	70	2.7	45	1.8	-	-	-	-	-	-	-	-
Kg / lb (ANSI # 150)	18 / 40		20 / 43		34 / 76		44 / 98		88 / 193		151 / 332		181 / 398		324 / 713		357 / 785		403 / 887	
Kg / lb (ANSI # 300)	20 / 45		22 / 48		35 / 77		51 / 113		108 / 238		171 / 376		217 / 477		364 / 801		429 / 944		523 / 1151	

<sup>(1)</sup> Refers to the length dimensions for Raised Face ANSI #150, ISO 16 Flanged, Threaded and Grooved valves

<sup>(2)</sup> Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves

**IMPORTANT:** Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning; - allow a tolerance of at least ±10%.

### Valve Code Designations

FP	6"	400Y-2MC	V	C	A5	ER	4DC	NN	P77I																																																																																																																																															
<table><tr><th>Category</th><th>code</th></tr><tr><td>Standard</td><td>FP</td></tr><tr><td>Seawater</td><td>FS</td></tr><tr><td>Foam Concentrate</td><td>FC</td></tr></table>	Category	code	Standard	FP	Seawater	FS	Foam Concentrate	FC	<table><tr><th>Valve Size</th><td></td></tr><tr><td>1½"</td><td>40 mm</td></tr><tr><td>2"</td><td>50 mm</td></tr><tr><td>3"</td><td>80 mm</td></tr><tr><td>4"</td><td>100 mm</td></tr><tr><td>6"</td><td>150 mm</td></tr><tr><td>8"</td><td>200 mm</td></tr><tr><td>10"</td><td>250 mm</td></tr><tr><td>12"</td><td>300 mm</td></tr><tr><td>14"</td><td>350 mm</td></tr><tr><td>16"</td><td>400 mm</td></tr></table>	Valve Size		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	<table><tr><th>Installation</th><th>code</th></tr><tr><td>Vertical</td><td>V</td></tr><tr><td>Horizontal</td><td>H</td></tr></table>	Installation	code	Vertical	V	Horizontal	H	<table><tr><th>Material Body &amp; Cover <sup>(1)</sup></th><th>code</th></tr><tr><td>Ductile Iron A536 <sup>(2)</sup></td><td>C</td></tr><tr><td>Steel ASTM A216 WCB <sup>(2)</sup></td><td>S</td></tr><tr><td>Stainless Steel 316</td><td>N</td></tr><tr><td>Nickel Al Bronze C95800</td><td>U</td></tr><tr><td>Super Duplex Grade 5A</td><td>D</td></tr></table>	Material Body & Cover <sup>(1)</sup>	code	Ductile Iron A536 <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	<table><tr><th>End Connections</th><th>code</th></tr><tr><td>ANSI#150RF</td><td>A5</td></tr><tr><td>ANSI#150FF</td><td>a5</td></tr><tr><td>ANSI#300RF</td><td>A3</td></tr><tr><td>ISO PN16</td><td>16</td></tr><tr><td>ISO PN25</td><td>25</td></tr><tr><td>Grooved ANSI C606</td><td>VI</td></tr></table>	End Connections	code	ANSI#150RF	A5	ANSI#150FF	a5	ANSI#300RF	A3	ISO PN16	16	ISO PN25	25	Grooved ANSI C606	VI	<table><tr><th>Coating</th><th>code</th></tr><tr><td>Polyester Red</td><td>PR</td></tr><tr><td>High Build Epoxy</td><td>ER</td></tr><tr><td>Uncoated</td><td>UC</td></tr></table>	Coating	code	Polyester Red	PR	High Build Epoxy	ER	Uncoated	UC	<table><tr><th>Voltage - 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**Notes:**

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

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

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

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

#### Notes:

- <sup>(1)</sup> Other materials available, see engineering data  
<sup>(2)</sup> Coated internally and externally  
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