

## Electric Pressure Control On-Off Deluge Valve

### Model FP 400Y - 2DC

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

The 400Y-2DC is activated by a 2-way solenoid valve by which opening and closing of the deluge valve may be controlled remotely.

An integrated pressure reducing pilot ensures a precise and stable pre-set downstream water pressure.

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

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



(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
  - Shuts off on remote command
  - Ensures precise, stable downstream water pressure
  - Valve position limit switches (optional)
- **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\*

\* from 3" valves and larger

### Typical Applications

- Remote control water spray systems
- Foam applications
- Zonal pressure control
- High pressure water supply

### 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

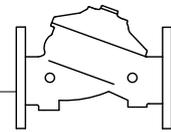


Lloyd's Register  
Type Approval

### Additional Features

- Valve position limit switches
- Sea water compatibility
- Alarm pressure switch
- Drain valve/s inlet/outlet
- For "automatic activation" select BERMAD local or remote reset model

# BERMAD Fire Protection

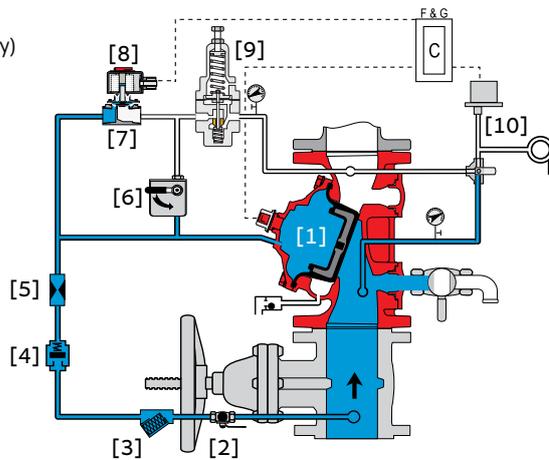


Model FP 400Y - 2DC

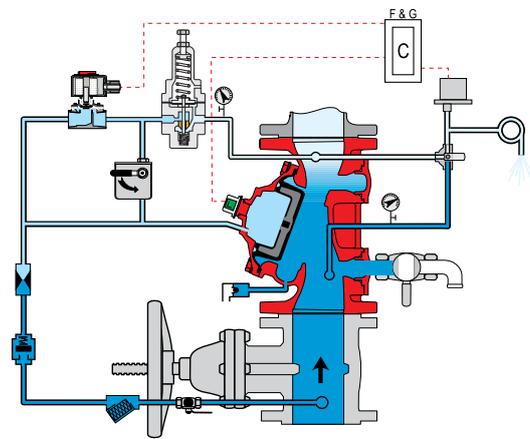
400Y Series

## Operation

(for Illustration Only)



**Valve Closed** (normal conditions)



**Valve Open** (fire conditions)

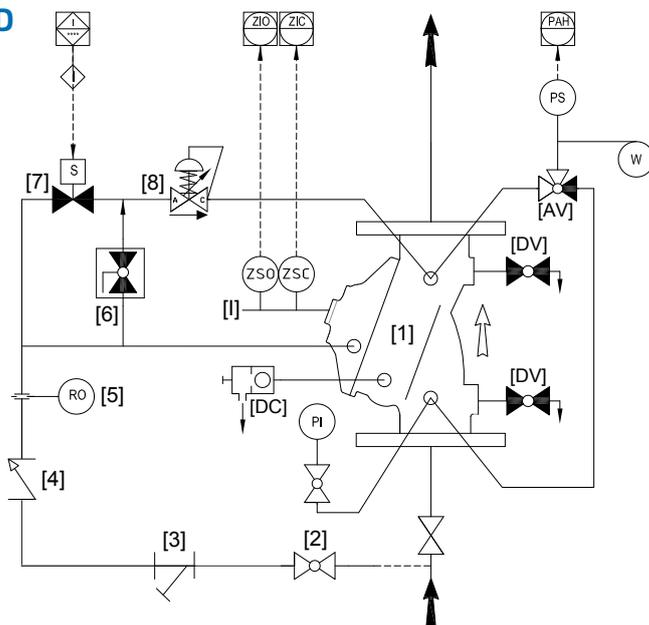
The BERMAD model 400Y-2DC is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] restriction orifice [5], and strainer [3], and is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a relay valve (HRV) [7] that is held closed by hydraulic pressure supplied through a 2-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 HRV opening in response to the solenoid valve being activated by the fire & gas control system [C]. This opens the 400Y-2DC deluge valve, allowing water to flow into the system piping and to the alarm device [10].

The pressure-reducing pilot valve [9] senses changes in outlet pressure and, modulates the main valve to maintain the set downstream pressure. When outlet pressure rises above the pre - set pressure value, the pilot valve throttles, enabling pressure to accumulate in the control chamber. This causes the main valve to close further and reduce outlet pressure, keeping the outlet pressure at the set value. When outlet pressure falls, the pilot valve opens wider, releasing pressure from the control chamber. This causes the main valve to open wider and increase outlet pressure.

## System P&ID



## Components

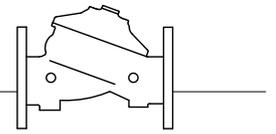
- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 2-way Solenoid valve
- 8 Pressure Reducing Pilot Valve

## Optional System Items\*

- PI Pressure Gauge
- I Valve Position Indicator
- DC Drip Check
- AV 3-Way Alarm Valve
- DV Drain Valve
- PS Pressure Switch
- ZS Limit Switch Assembly
- W Water Motor Alarm

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





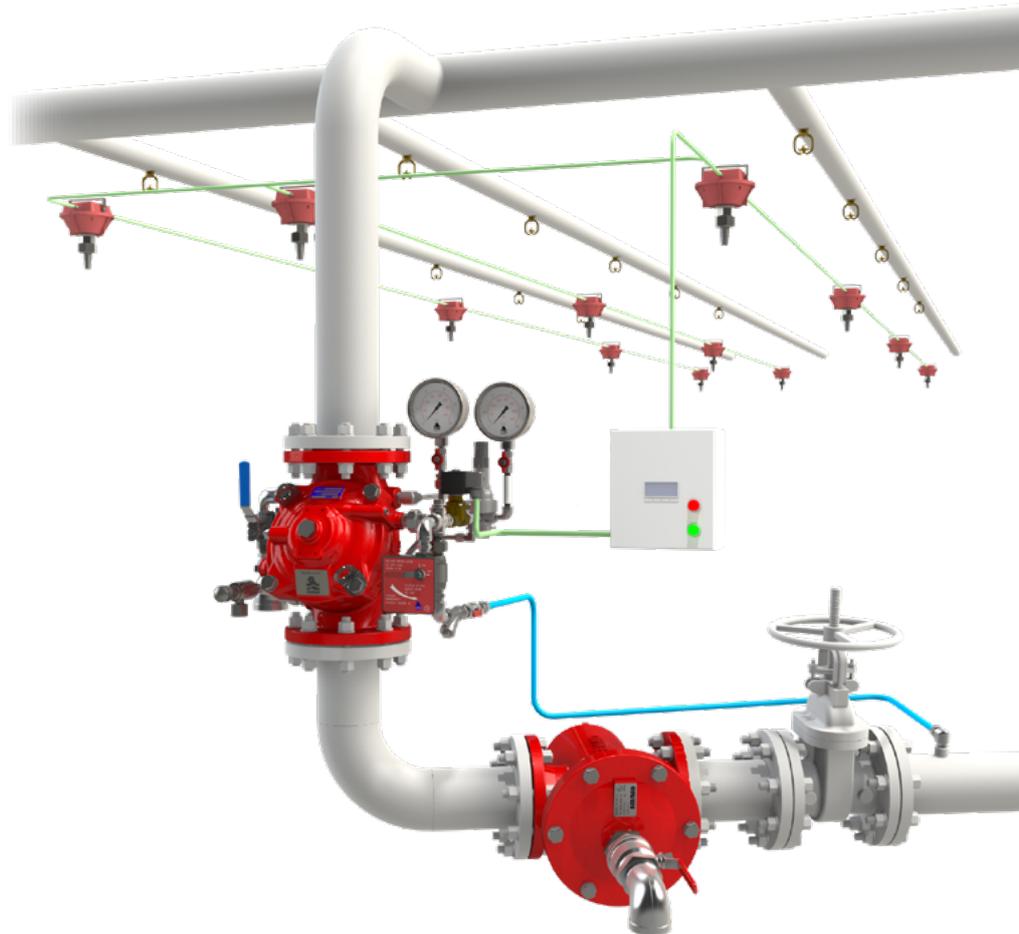
## System Installation

A typical installation of the BERMAD model 400Y-2DC features actuation via a hydraulic relay valve and 2-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency pushbutton. When open, and fitted with a limit switch the valve can send a feedback signal to a remote valve position monitoring system.

A pressure reducing pilot valve integrated in the control trim ensures a precise and stable pre-set downstream water pressure.

## Optional System Items

(Click on item for link to product page)



(for Illustration Only)

## Suggested Specifications

The deluge valve shall be 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 pressure reducing pilot and a 2-way solenoid valve approved for 25 bar (365 psi) working pressure with a tolerance of 35% below the rated voltage.

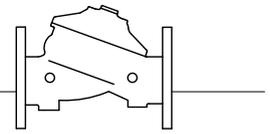
The trim shall include a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges and a manual emergency release housed in a stainless steel box. The valve drain socket shall be flanged and have a 360 degree swivel.

The valve shall be equipped with two limit switches.

Removing the valve cover for inspection and maintenance shall be in-line and not require removal of the control trim or the valve from the pipeline.

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.

# BERMAD Fire Protection



400Y Series

## Technical Data

### Available Sizes (inch)

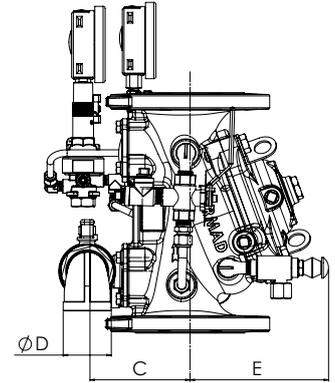
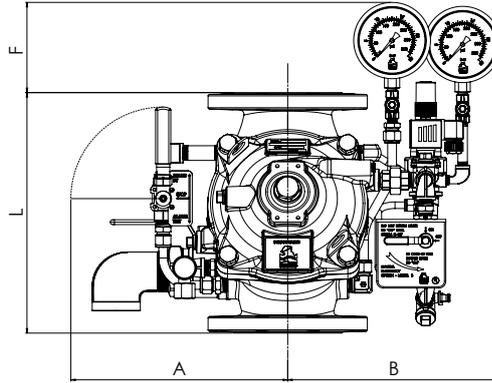
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

### Pressure Rating

- ANSI#150 - 17.2 bar / 250 psi
  - ANSI#300 - 1½" to 10" 25 bar / 365 psi
  - 12" to 16" 20 bar / 300 psi
  - Grooved - 25 bar / 365 psi
  - Threaded - 25 bar / 365 psi
  - Setting range: 4 - 12 bar (60 - 175 psi)
- for other setting ranges consult BERMAD

### Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - see [400Y Engineering](#)



**NOTE** - For high pressure ratings choose appropriate solenoid - see product page [2-Way Solenoid Valve](#)

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
<sup>(1)</sup> L ANSI #150	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
<sup>(2)</sup> L ANSI #300	230	9.1	235	9.3	326	12.8	368	14.5	506	19.9	626	24.7	730	28.7	850	33.5	980	38.6	1100	43.3
A	259	10.2	259	10.2	319	12.6	327	12.9	380	15.0	410	16.1	410	16.1	523	20.6	523	20.6	523	20.6
B	200	7.9	200	7.9	258	10.2	268	10.6	323	12.7	351	13.8	351	13.8	464	18.3	464	18.3	464	18.3
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	7.2	195	7.7	228	9.0	295	11.6	295	11.6	441	17.4	441	17.4	415	16.3
F	146	5.7	146	5.7	136	5.4	123	4.8	75	2.9	50	2.0	-	-	-	-	-	-	-	-
<sup>(3)</sup> Kv / Cv	68/79		80/92		190/219		345/398		790/912		1160/1340		1355/1652		2600/3040		2950/3450		3254/3801	
<sup>(4)</sup> Leq: m (ft)	2/7		6/18		8/25		9/31		15/49		28/92		64/209		46/149		56/184		90/295	
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

<sup>(3)</sup> Flow coefficients apply to a fully opened valve

<sup>(4)</sup> Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40 for a fully opened valve, values given for general consideration only

<sup>(5)</sup> **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%

## ValveCodeDesignations

FP 6" 400Y-2DC 03-06 V C A5 PR 4DC NN NKW

Category	code	Installation	code	Coating	code	Factory Fitted Options*	Code
Standard	FP	Vertical	V	Polyester Red	PR	General Purpose Pressure Switch	P
Seawater	FS	Horizontal	H	High Build Epoxy	ER	Ex Proof NEC, Div.1 Pressure Switch	P7
Foam Concentrate	FC			Uncoated	UC	Ex d ATEX Pressure Switch	P9
						Single Limit Switch, General Purpose	S
						Single Ex d Proximity Limit Switch	S9
						Double Ex d Proximity Limit Switch	SS9
						Pressure Gauge Assembly	6
						S.S Glycerin Pressure Gauge Assembly	6n
						Monel Pressure Gauge Assembly	6m
						Ex Proof NEC Class 1 Div 1 Solenoid	7
						Ex. d Atex Solenoid	9
						Water Motor Alarm Assembly	W
						Drain Valve	DV
						Special Elastomer EPDM	E1
						Large Control Filter	F
						Valve Position Indicator	I
						Stainless Steel 316 Trim Accessories	N
						S.S Solenoid Valve	K
						Pressure Transmitter	Q
						Drain and Indicating Components	A

Valve Size	code	Material Body & Cover <sup>(1)</sup>	code	Voltage*	code
1½"	40 mm	Ductile Iron A356 <sup>(2)</sup>	C	24VDC - N.C.	4DC
2"	50 mm	Steel ASTM A216 WCB <sup>(2)</sup>	S	24VDC - N.O.	4DO
3"	80 mm	Stainless Steel 316	N	24VDC - Latch	4DS
4"	100 mm	Nickel Al Bronze C95800	U	110VDC - N.C.	5DC
6"	150 mm	Super Duplex Grade 5A	D	110-120/AC - N.C.	5AC
8"	200 mm			110-120/AC - N.O.	5AO
10"	250 mm			220-240/AC - N.C.	2AC
12"	300 mm			220-240/AC - N.O.	2AO
14"	350 mm				
16"	400 mm				

Optional Additional Features	code	End Connections	code	Tubing & Fittings	Code
Closing speed Control	01	ANSI#150RF	A5	Stainless Steel 316	NN
Opening speed Control	02	ANSI#150FF	a5	Monel 400	MM
Opening & Closing speed	03	ANSI#300RF	A3	Super Duplex	DD
Differential Sensing	06	ANSI#300FF	a3		
None	-	Flanged ISO PN16	16		
		ISO PN25	25		
		Grooved 250psi/PN16, ANSI C606	VI		
		Grooved 365psi/PN25, ANSI C606	V2		
		Threaded 250psi/PN16, ISO-7-Rp	BP		
		Threaded 365psi/PN25, ISO-7-Rp	PH		
		Threaded 250psi/PN16, NPT	NP		
		Threaded 365psi/PN25, NPT	NH		

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

\*For more Factory Fitted Options - see [400Y Ordering Guide](#) or Consult BERMAD

Notes: <sup>(1)</sup> Other materials available see [400Y Engineering](#) <sup>(2)</sup> Coated internally and externally



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