

# Electrically Controlled On-Off Deluge Valve

## Model FP 400Y- 2D

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

The 400Y-2D is activated by a 2-way solenoid valve, suitable for electric fire detection systems and is ideal for open nozzles with water or foam discharge.

Available with electric components to suit any hazardous location and offered with an optional visual valve position indicator that 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
- **High performance**
  - Very high flow efficiency
  - Approved for PN25 / 365 psi
  - Straight through flow Y-type body
- **Specifically-designed for fire protection**
  - Face-to-face length standardized to ISO 5752, EN 558-1
  - Meets the requirements of industry standards
- **Quick and easy maintenance**
  - In-line serviceable
  - Fast and easy valve cover removal
  - Swivel mounted drain valves\*

\* for 3" valves and larger

### Typical Applications

- Electric fire detection systems with control panels
- Remote control water spray systems
- Foam applications
- Corrosive water supplies

### Approvals



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



Det Norske Veritas  
Type Approval



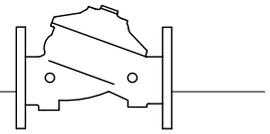
ABS  
American Bureau of Shipping  
Type Approval



Lloyd's Register  
Type Approval

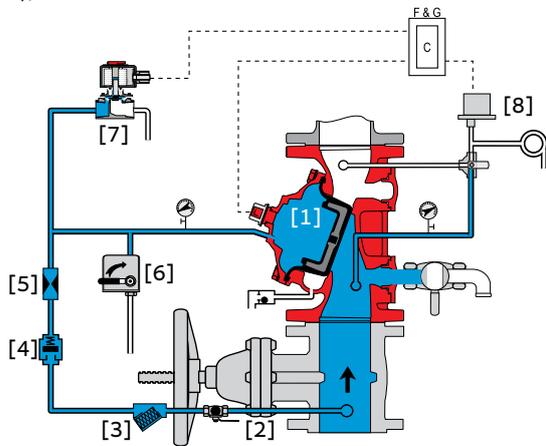
### Additional Features

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

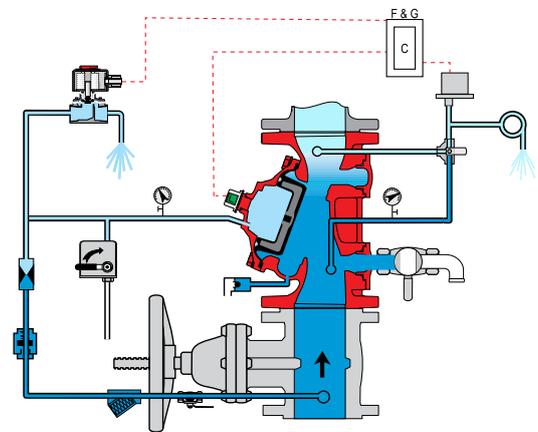


## Operation

(for Illustration Only)



**Valve Closed** (normal conditions)



**Valve Open** (fire conditions)

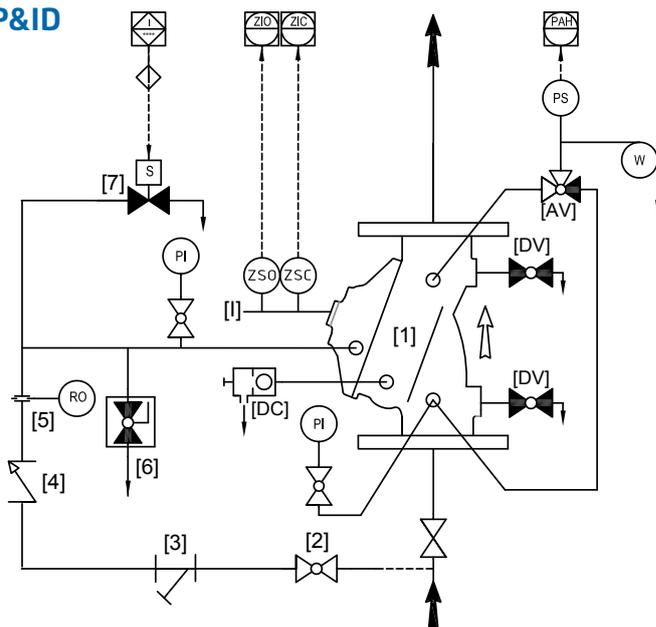
The BERMAD model 400Y-2D is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

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 2-way solenoid valve [7].

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 solenoid valve being activated by the fire & gas control system [C]. This opens the 400Y-2D deluge valve, allowing water to flow into the system piping and alarm devices [8].

## System P&ID



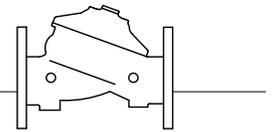
### Components

- 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 NC Solenoid Valve

### Optional System Items\*

- PI Pressure Gauge
- PS Pressure Switch
- ZS Limit Switch Assembly
- I Visual Indicator
- AV Alarm Valve
- DV Drain Valve
- DC Automatic Drip Check

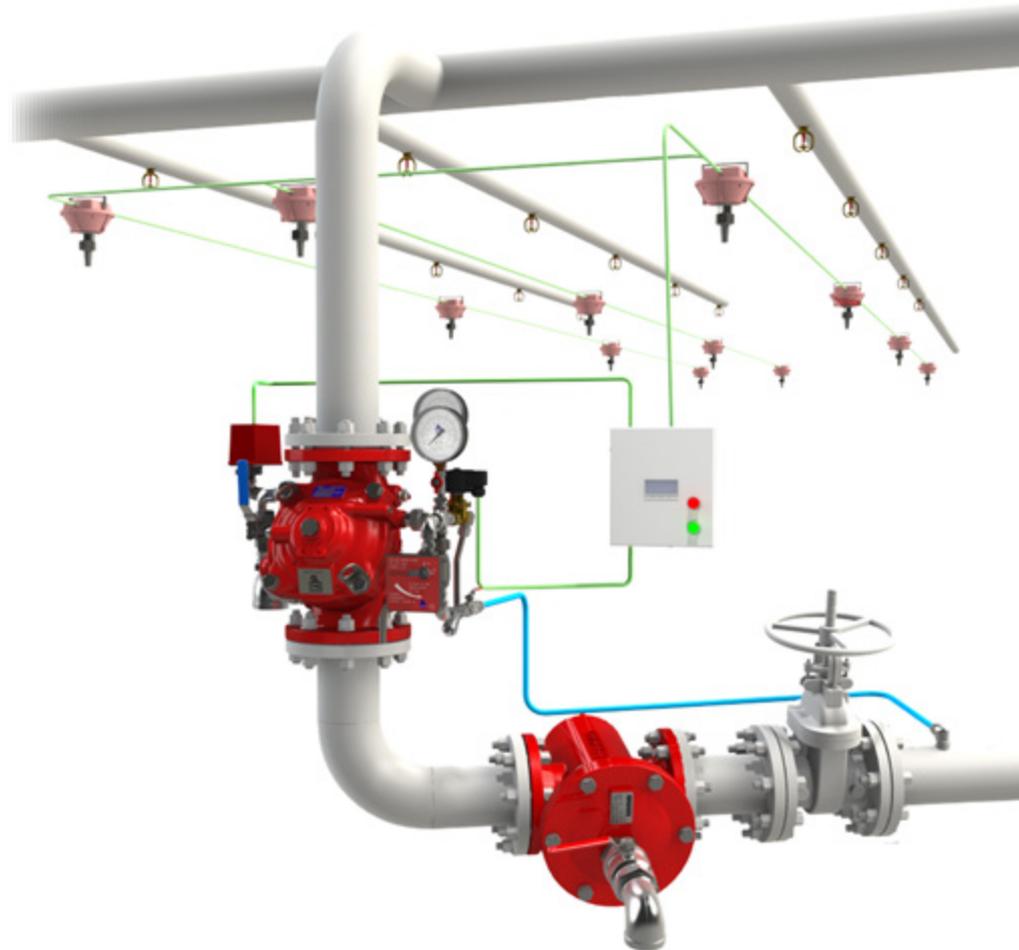
\*See also Factory Fitted Options under the *Valve Code Designations* on the last page



## System Installation

A typical installation of the BERMAD model 400Y-2D features actuation via a 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 status monitoring system.

## Optional System Items



(for Illustration Only)

## Suggested Engineering Specifications

The deluge valve shall be UL-listed, 25 bar / 365 psi rated, elastomeric type, straight-through, Y-type-body valve.

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.

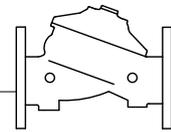
The diaphragm assembly shall be the only moving part. The deluge valve have a 2-Way solenoid valve certified for at least 21 bar/300 psi compliant with UL429A.

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

The valve shall be equipped with a dual-colour, rotational position indicator, readable from 50 meters, and with two limit switches enclosed in a protective switch box.

Removing the valve cover for inspection or maintenance shall be in line and 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.



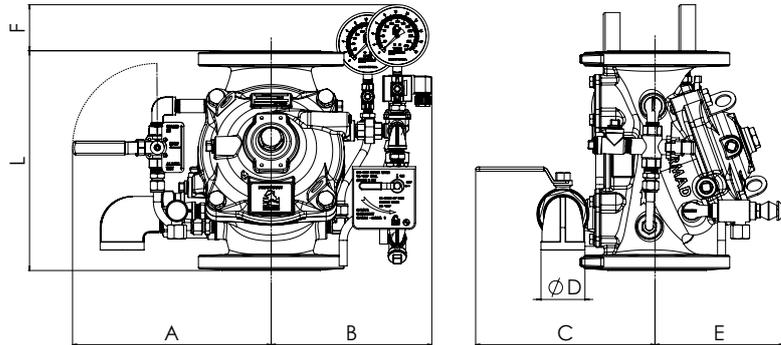
## Technical Data

### 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 - 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



NOTE - The Maximum Allowable Operating Pressure is determined by the selected solenoid valve. see product page

### Elastomer:

HTNR - Fabric Reinforced High Temperature Compound - see

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 <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 <sup>(2)</sup>	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	187	7.4	187	7.4	245	9.6	255	10.0	310	12.2	338	13.3	338	13.3	451	17.8	451	17.8	451	17.8
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	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	93	3.7	93	3.7	83	3.3	70	2.8	22	0.8	-	-	-	-	-	-	-	-	-	-
Kv / Cv <sup>(3)</sup>	68 / 79		80 / 92		190 / 219		345 / 398		790 / 912		1160 / 1340		1355 / 1652		2600 / 3040		2950 / 3450		3254 / 3801	
Leq <sup>(4)</sup> : 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)	9.4/21		10.8/24		26/56		36/78		89/174		142/313		172/379		315/695		348/767		394/869	
Kg / lb (ANSI # 300)	11.8/26		12.7/28		30/67		43/95		99/217		162/357		208/459		365/805		420/926		514/1133	

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

L(2) Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves

(3) Flow coefficients apply to a fully opened valve

(4) 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

(5) Dimensions for the trim envelope may vary with specific component positioning

## Valve Code Designations

FP	6"	400Y-2D	03	V	C	A5	PR	4DC	NN	P6W
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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
Valve Size		Material Body & Cover <sup>(1)</sup>		Voltage*		Single Limit Switch, General Purpose	S
40 mm	1½"	Ductile Iron A356 <sup>(2)</sup>	C	24VDC - N.C.	4DC	Single Ex d Proximity Limit Switch	S9
50 mm	2"	Steel ASTM A216 WCB <sup>(2)</sup>	S	24VDC - N.O.	4DO	Double Ex d Proximity Limit Switch	SS9
80 mm	3"	Stainless Steel 316	N	24VDC - Latch	4DS	Pressure Gauge Assembly	6
100 mm	4"	Nickel Al Bronze C95800	U	110VDC - N.C.	5DC	S.S Glycerin Pressure Gauge Assembly	6n
150 mm	6"	Super Duplex Grade 5A	D	110-120/AC - N.C.	5AC	Monel Pressure Gauge Assembly	6m
200 mm	8"			110-120/AC - N.O.	5AO	Ex Proof NEC Class 1 Div 1 Solenoid	7
250 mm	10"			220-240/AC - N.C.	2AC	Ex. d Atex Solenoid	9
300 mm	12"			220-240/AC - N.O.	2AO	Water Motor Alarm Assembly	W
350 mm	14"					Drain Valve	DV
400 mm	16"					Special Elastomer EPDM	E1
Optional Feature		End Connections		Tubing & Fittings		Large Control Filter	F
Closing speed Control	01	ANSI#15ORF	A5	Stainless Steel 316	NN	Valve Position Indicator	I
Opening speed Control	02	ANSI#15OFF	a5	Monel 400	MM	Stainless Steel 316 Trim Accessories	N
Opening & Closing speed	03	ANSI#30ORF	A3	Super Duplex	DD	Stainless Steel Solenoid Valve	K
None	-	ANSI#30OFF	a3			Pressure Transmitter	Q
		Flanged ISO PN16	16			Drain and Indicating Components	A
		Flanged ISO PN25	25				
		Grooved 250psi, ANSI C606	VI				
		Grooved 365psi, ANSI C606	V2				
		Threaded 250psi, ISO-7-Rp	BP				
		Threaded 365psi, ISO-7-Rp	BH				
		Threaded 250psi, NPT	NP				
		Threaded 365psi, NPT	NH				

\* NO or NC refers to main valve status with de-energized Solenoid

\* For more Factory Fitted Options - see or Consult BERMAD

