ELECTRICALLY CONTROLLED ON-OFF DELUGE VALVE

Model FP-400Y-3D

The BERMAD model 400Y-3D is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards.
The 400Y-3D is activated by a 3-way solenoid valve, suitable for electric fire detection systems.
The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.
The 400Y-3D is ideal for systems with open nozzles for water or foam discharge.
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 elastomer, VRSD technology
  - Obstacle-free, uninterrupted flow path
  - No mechanical moving parts
  - Shuts off on remote command
- High performance
- Specifically-designed for fire protection
  - Very high flow efficiency
  - Approved for PN25 / 365 psi
  - Straight through Y type body
- Quick and easy maintenance
  - In-line serviceable
  - Fast and easy cover removal
  - Swivel mounted drain valves (for valves 3" and larger)

Approvals

c UL us LISTED	UL-Listed Special System Water Control Valves, Deluge Type (VLFT) Sizes 1½" - 16"
DNV	Det Norske Veritas Type Approval Sizes 1½" to 12"
ABS TYPE APPROVED PRODUCT	ABS American Bureau of Shipping Type Approval Sizes 1½" - 12"
Lloyd's Register TA TYPE APPROVED	Lloyd's Register Type Approval Sizes 1½" - 10"

Typical Applications

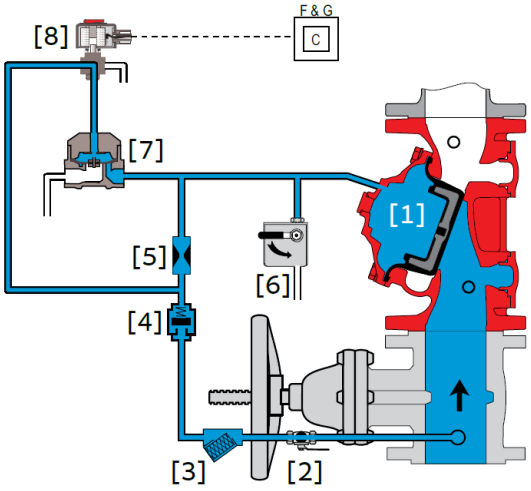
- Electric fire detection systems with control panels
- Remote Control Water Spray Systems
- Foam applications
- Corrosive water systems

Additional Features

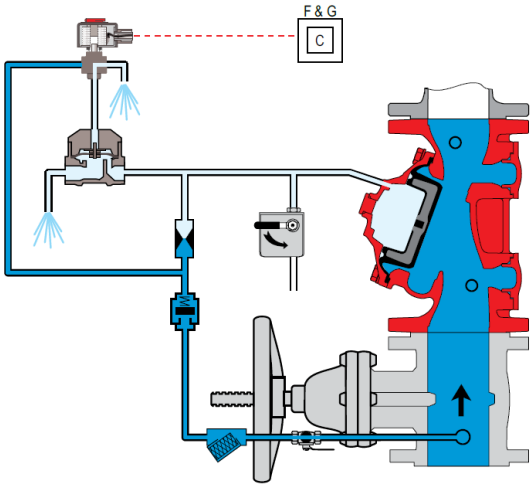
- Valve position limit switches
- Local valve position indicator beacon
- Seawater compatibility
- Alarm pressure switch
- Drain valve/s inlet/outlet
- For "automatic activation" select BERMAD local or remote reset model
- Corrosion resistant zinc based high build epoxy coating

All images in this catalog are for illustration only

Operation



Valve Closed (normal conditions)



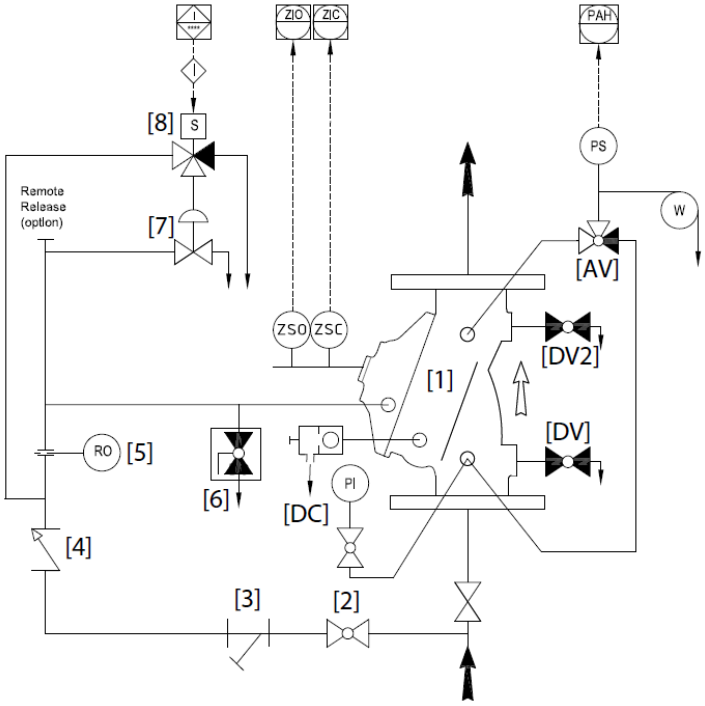
Valve Open (fire conditions)

The BERMAD model 400Y-3D 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 three-way Normally De-Energized 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 energized by the fire & gas control system [C]. This opens the 400Y-3D deluge valve, allowing water to flow into the system piping.

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	HRV-Hydraulic Relay Valve
8	3-Way Solenoid Valve

	Optional System Items
PS	Pressure Switch
W	Water Motor Alarm
ZS	Limit Switch Assembly
DV2	Downstream Drain valve
I	Visual Valve Position indicator
DV	Drain Valve*
PI	Pressure Gauge*
AV	3-way Alarm Test Valve*
DC	Automatic Drip Check 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 400Y-3D features actuation via a hydraulic relay valve and three-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



Pressure Gauge



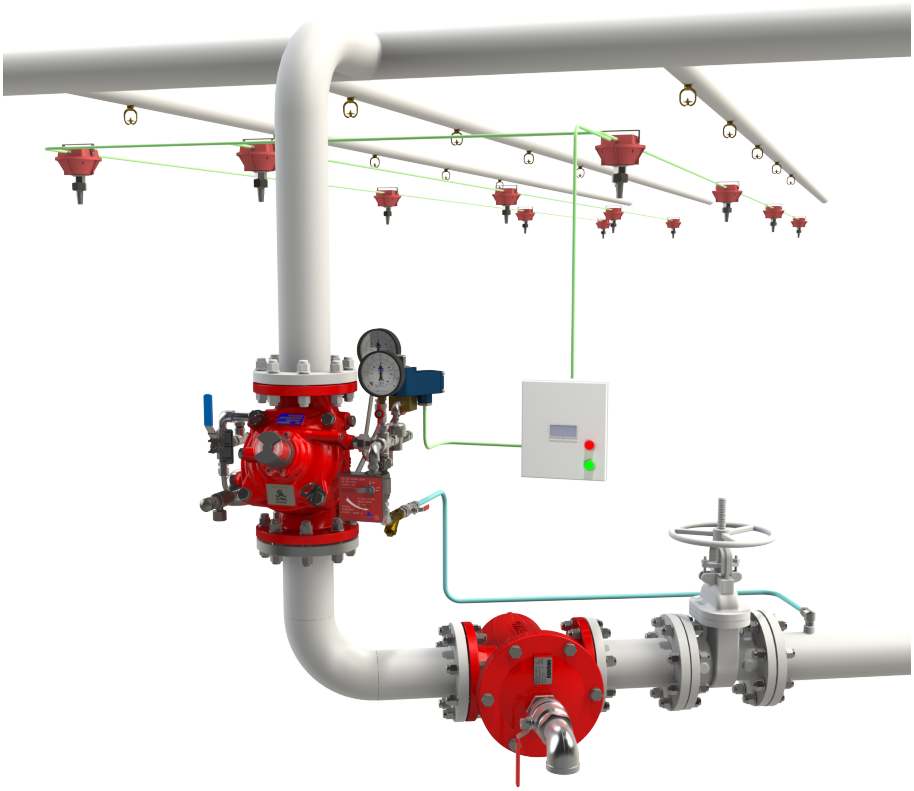
Visual Position Indicator



Rotating Limit Switch Box



Pressure Switch



Suggested Specifications

The deluge valve shall be UL-listed, 365-psi/25-bar rated, with a straight-through, Ytypebody.
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 an auxiliary relay valve, a manual emergency release unit, a Y-type strainer, two 4-inch pressure gauges, an automatic drip-check with manual override, and a ball drain valve with a 360 degree swivel.
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 control trim.
The deluge valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

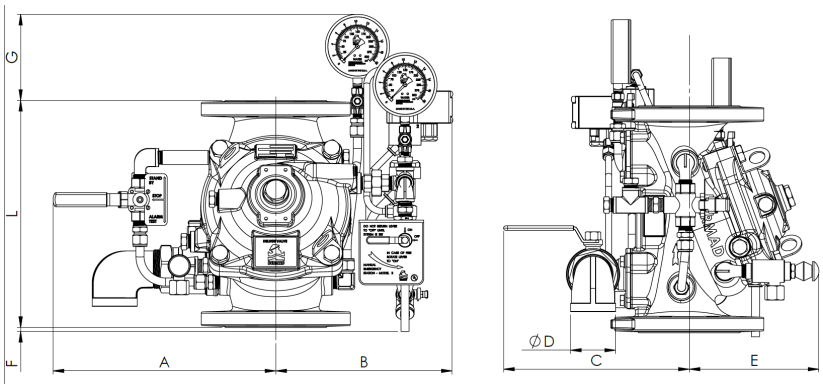
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Technical Data

Available Sizes:
Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10, 12, 14 & 16"
Grooved- 1½, 2, 2½, 3, 4, 6, 8 & 10"

Pressure Rating:
ANSI#150 - 17.2 bar
ANSI#300 - 1½" to 10" - 25 bar
ANSI#300 - 12" to 16" - 20 bar
Grooved - 17.2 / 25 bar

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



Valve Size	L #150 (mm)	L Grooved (mm)	L #300 (mm)	A (mm)	B (mm)	C (mm)	øD(in)	E (mm)	F (mm)	G (mm)
DN40 | 1½"	230	230	230	293	-	177	¾"	-	-	-
DN50 | 2"	230	230	238	293	-	177	¾"	-	-	-
DN65 | 2½"	235	235	241	293	-	177	1½"	-	-	-
DN80 | 3"	310	310	326	313	-	177	1½"	-	-	-
DN100 | 4"	350	350	368	343	-	287	2"	-	-	-
DN150 | 6"	480	480	506	358	-	302	2"	-	-	-
DN200 | 8"	600	600	626	392	-	317	2"	-	-	-
DN250 | 10"	730	730	730	406	-	317	2"	-	-	-
DN300 | 12"	850	-	888	478	-	380	2"	-	-	-
DN350 | 14"	980	-	980	478	-	379	2"	-	-	-
DN400 | 16"	1100	-	1100	478	-	405	2"	-	-	-

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" | 400Y-3D | 03 | V | C | A5 | ER | 4DC | NN | N6nW

Category	Code
Standard	FP
Seawater	FS
Foam	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	60 mm(6)
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm
14"	350 mm
16"	400 mm

Notes:
(1) Other materials available see engineering data
(2) Coated internally and externally
(3) Supplied loose
(4) Consult BERMAD for availability
(5) For valves up to and including 10"
(6) Available in Ductile Iron only

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

End Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ANSI#300FF	a3
ISO PN16	16
ISO PN25	25
Grooved Class 250psi/17.2bar(5)	VI
Grooved Class 365psi/25bar(5)	V2

Additional Feature	Code
Closing Speed Control	01
Opening Speed Control	02
Opening & Closing Speed Control	03
None	-

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy (5)	ZR
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.C.	5AO
220 - 240/AC - N.C.	2AC
221 - 240/AC - N.C.	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 Supplied Additional Items	Code
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 NEC Class 1 Div 1 Solenoid	7
Ex. d Atex Solenoid	9
Magna Latch – 2 wires	H2
Magna Latch – 3 wires	H3
Stainless steel 316 Solenoid Valve	K
Drain Valve	DV
Water Motor Alarm Assembly (3)	W
Large Control Filter	F
Valve Position Indicator	I
S.S 316 Trim Accessories	N
S.S Solenoid Valve	K
Pressure Transmitter (3)	Q
Drain and Indicating Components	A

*More options available – consult BERMAD

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