ELECTRO-PNEUMATICALLY CONTROLLED DELUGE VALVE WITH REMOTE RESET

Model FP-400Y-6U

The BERMAD model 400Y-6U is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.
The 400Y-6U is activated by a 3-way solenoid valve which in turn activates a 3 way pneumatic relay valve to open the deluge valve.
It is available with a latching option that maintains the deluge valve open until de- delatched remotely.
The 400Y-6U is ideal for systems with open nozzles for water or foam discharge and is offered with electric components to suit any hazardous location.
The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.



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
  - Valve position limit switches (optional)
  - Local valve position indicator beacon (optional)
- High performance
  - Very high flow efficiency
  - Straight through Y type body
  - Approved for PN25 / 365 psi
- Specifically-designed for fire protection
  - Face-to-face length standardized to ISO 5752 EN 558-1
  - Latching Option
  - Meets the requirements of the industry standards
- 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"
FM APPROVED	FM Approved for Deluge Sprinkler Systems Sizes 1½" - 8"
ABS TYPE APPROVED PRODUCT	ABS American Bureau of Shipping Type Approval Sizes 1½" - 12"
DNV	Det Norske Veritas Type Approval Sizes 1½" to 16"
Lloyd's Register TA TYPE APPROVED	Lloyd's Register Type Approval Sizes 1½" - 10"

Typical Applications

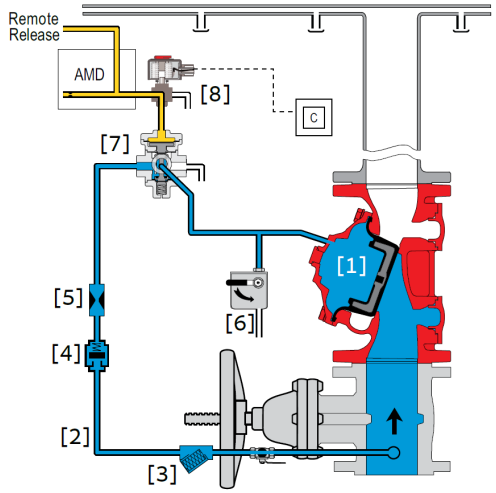
- Electric fire detection systems with control panels
- Automatic water spray systems
- Foam applications
- Corrosive water systems

Additional Features

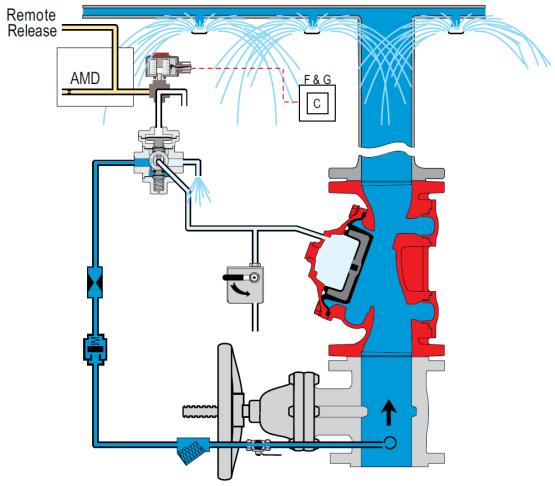
- Valve position limit switches
- Local valve position indicator beacon
- Magna-Latch Solenoid option
- Seawater compatibility
- Remote Reset (remote de-latch)
- Drain valve/s inlet/outlet
- Air Maintentenance Device
- Corrosion resistant zinc based high build epoxy coating

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Operation



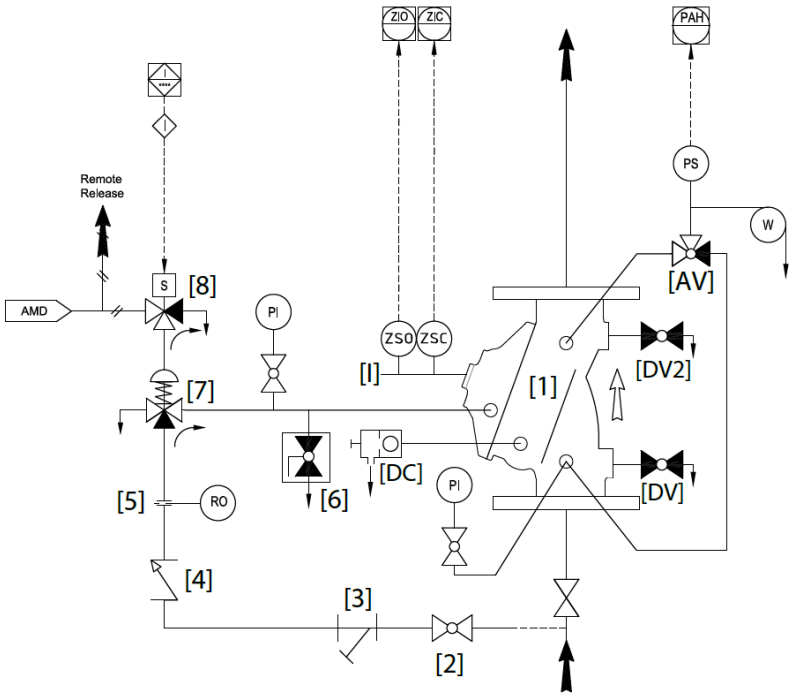
Valve Closed (normal conditions)



Valve Open (fire conditions)

The BERMAD model 400Y-6U is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the deluge valve opens.
Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] and strainer [3], and is then trapped in the control chamber by a check valve [4], restriction orifice [5], manual emergency release [6], and a relay valve (URV) [7] that is held in the supply position by pneumatic pressure supplied through a three-way solenoid valve [8]. The water pressure trapped in the control chamber of the deluge valve 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 switching to the release position. The URV switches position in response either to a decrease in pneumatic line pressure [E] or to the solenoid valve being activated by the fire & gas control system [C]. This opens the deluge valve.
When the Magna latch solenoid is specified for FM approval: model 400Y– 6U with H2 suffix (see code designation on page 4), the deluge valve will latch open until reset remotely.

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 Relay Valve
8	3-Way Solenoid Valve

	Optional System Items
PS	Pressure Switch
W	Water Motor Alarm
ZS	Limit Switch Assembly
AMD	Air Maintenance Device
I	Visual Valve Position indicator
DV2	Downstream Drain valve
DV	Drain Valve*
PI	Pressure Gauge*
AV	3-way Alarm Test Valve*
DC	Automatic Drip Check Valve*

** Included with suffix A in valve code and mandatory for FM approval (drain and indicating components) See code designations on page 4 "Factory Supplied Additional Items"*

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System Installation

A typical installation of the BERMAD model 400Y-6U features automatic actuation via a universal relay valve, triggered by a pneumatic fusible plug loop. It can also be triggered electrically 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.

Optional System Items



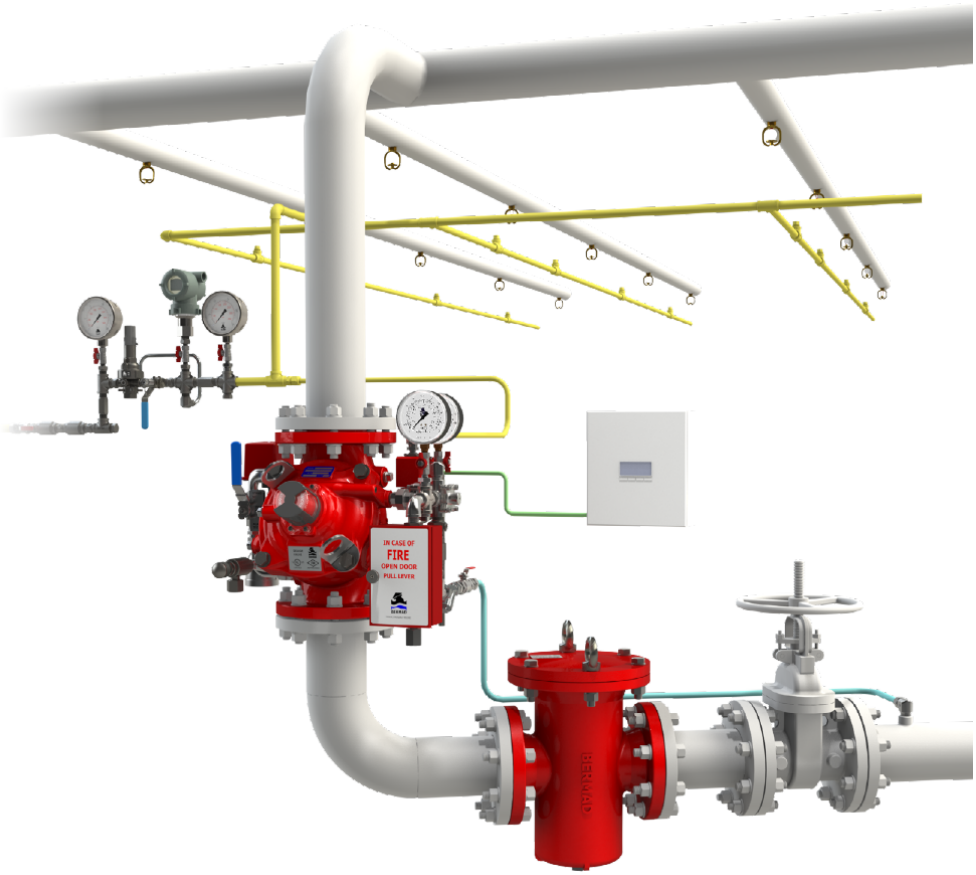
Rotating Limit Switch Box



Visual Position Indicator



Pressure Gauge



Suggested Specifications

The deluge valve shall be UL-listed and FM-approved, 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.

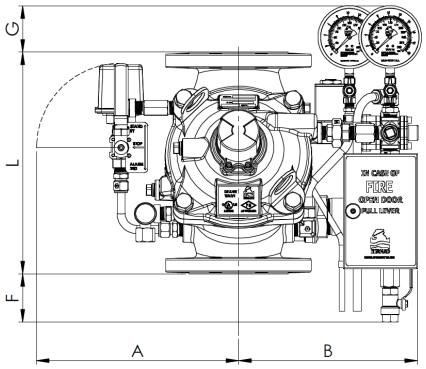
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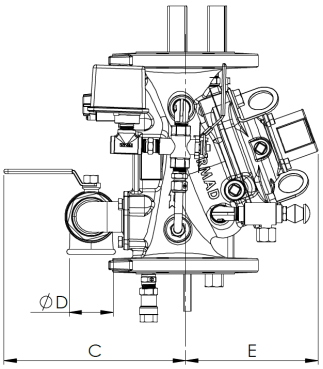
Technical Data

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)	Weight #150 (Kg)	Weight #300 (Kg)
DN40 | 1½"	230	230	230	279	221	241	¾"	120	119	98	22	25
DN50 | 2"	230	230	238	279	221	241	¾"	120	119	98	24	28
DN65 | 2½"	235	235	241	279	221	241	1½"	120	119	98	25	29
DN80 | 3"	310	310	326	339	279	274	1½"	146	49	88	38	43
DN100 | 4"	350	350	368	347	316	290	2"	158	22	75	48	55
DN150 | 6"	480	480	506	400	344	305	2"	228	-	27	92	112
DN200 | 8"	600	600	626	430	372	320	2"	295	-	-	155	175
DN250 | 10"	730	730	730	430	372	320	2"	295	-	-	185	221
DN300 | 12"	850	-	888	543	485	383	2"	441	-	-	328	368
DN350 | 14"	980	-	980	543	485	383	2"	441	-	-	361	433
DN400 | 16"	1100	-	1100	543	485	408	2"	415	-	-	407	527

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-6U | 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" (6)	60 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 (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	VI
Grooved Class 365psi / 25bar	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 - Magna 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	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 Solenoid	H2
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

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

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