Electro-Pneumatically Controlled Deluge Valve with Remote Reset

Model FP 400Y - 6U

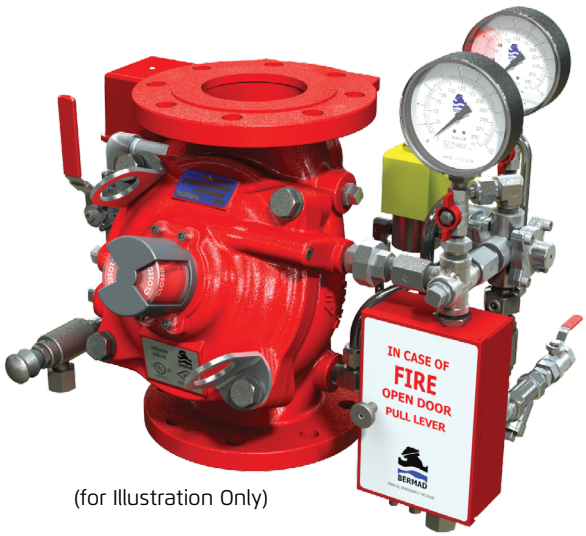
The BERMAD model 400Y-6U is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

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-latched 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.



(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
  - Valve position limit switches (optional)
  - Local valve position indicator beacon (optional)
- **High performance**
  - Very high flow efficiency
  - Straight through flow Y- type body
  - Approved for PN25 / 365 psi
- **Designed for fire protection**
  - Face-to-face length standardized to ISO 5752 / EN558-1
  - 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 *

* not including 1½" & 2" valves

Approvals

c UL us LISTED	UL-Listed Special System Water Control Valves, Deluge Type (VLFT) Sizes 3" - 10"
FM APPROVED	FM Approved for Deluge Sprinkler Systems Sizes 1½" - 8"
DNV	Det Norske Veritas Type Approval
ABS TYPE APPROVAL PROGRAM	ABS American Bureau of Shipping Type Approval
Lloyd's Register	Lloyd's Register Type Approval

Typical Applications

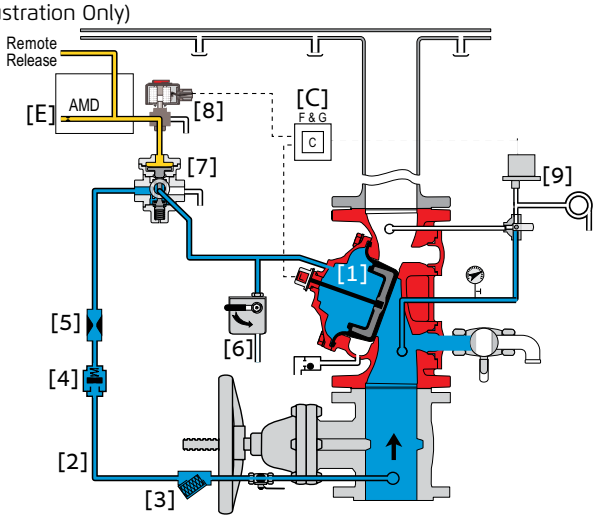
- Electric fire detection systems with control panels
- Automatic water spray systems
- Foam applications
- Corrosive water systems

Additional Features

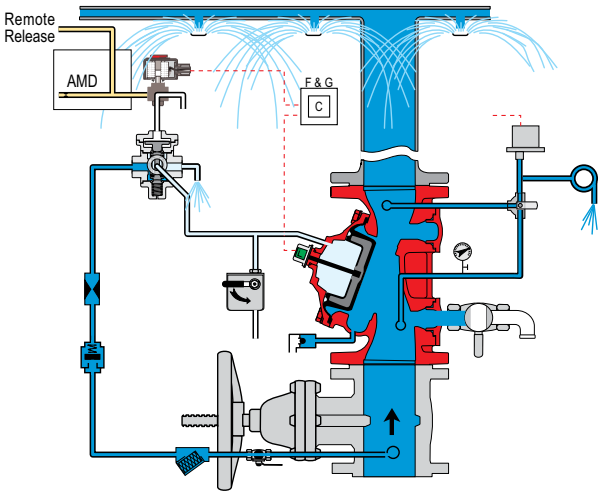
- Valve position limit switches
- Local valve position indicator beacon
- Seawater compatibility
- Remote de-latch
- Drain valve/s inlet/outlet
- Air maintenance device

Operation

(for Illustration Only)



Valve Closed (normal conditions)



Valve Open (fire conditions)

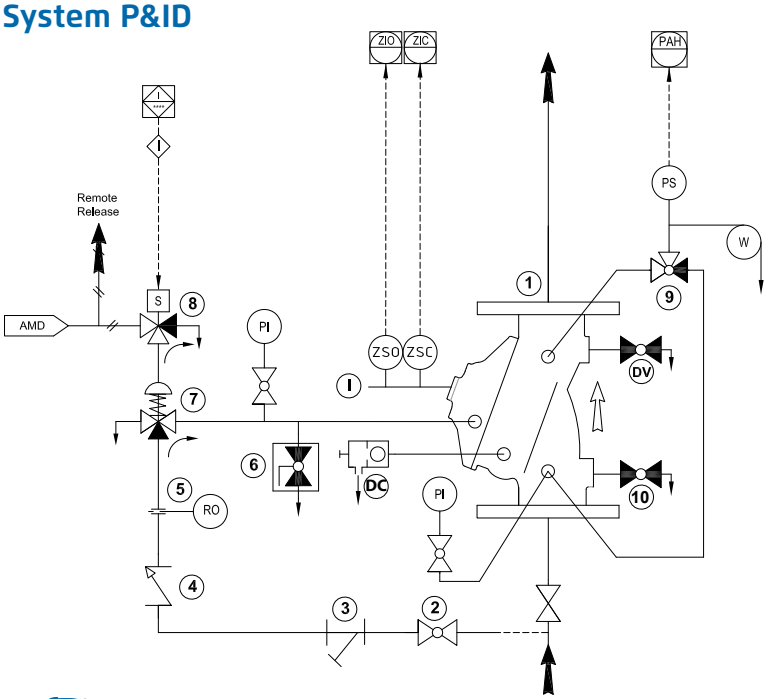
The BERMAD model 400Y-6U is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

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 allowing water to flow into the system piping and to the alarm device.

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

ZS	Limit Switch Assembly
I	Visual Indicator
DV	Additional Drain Valve
W	Water motor Alarm
PS	Pressure Switch
AMD	Air Maintenance Device
9	3-Way Alarm Test Valve*
10	Main Drain Valve*
PI	Pressure Gauge*
DC	Automatic Drip Check Valve*

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

*Mandatory for FM approval
(suffix A in code designations on page 4)

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 status monitoring system.

Optional System Items

Air Maintenance Device

Visual Indicator

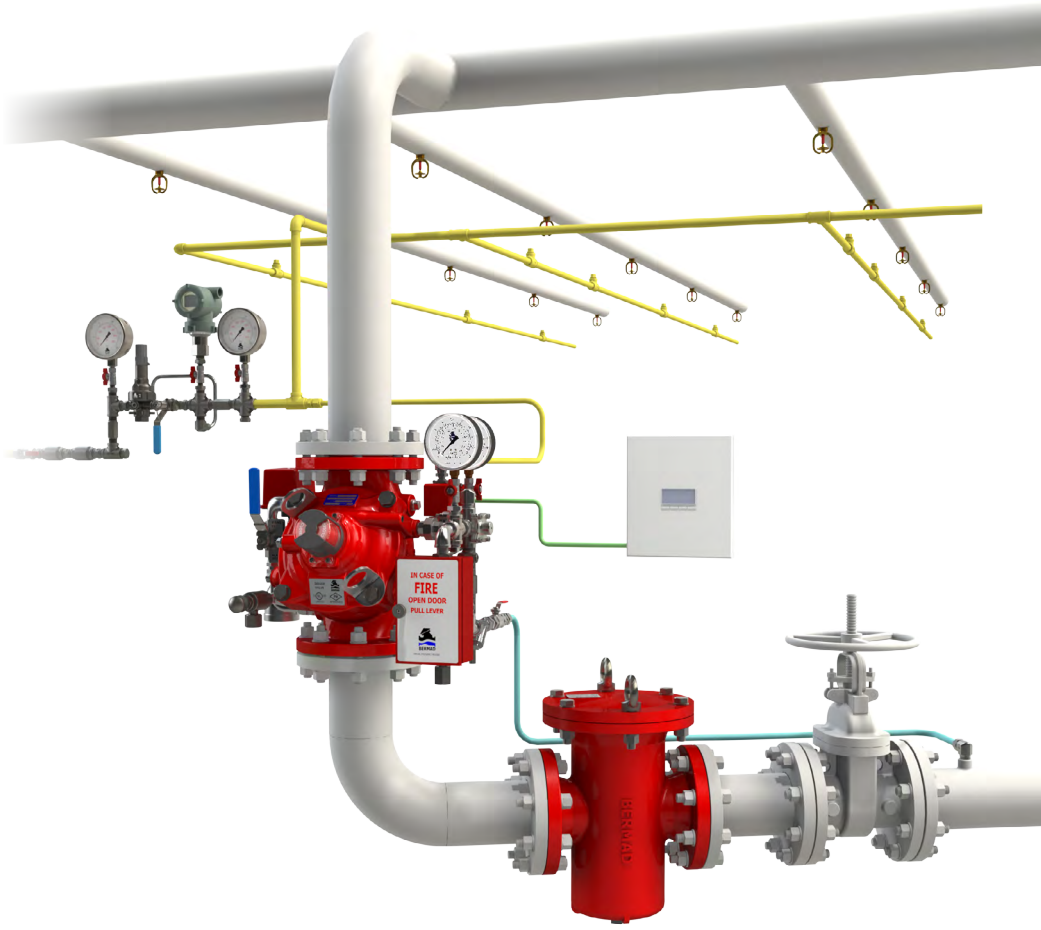
Limit switch

Water Motor Alarm

Pressure Switch

Pressure Gauges

Strainer



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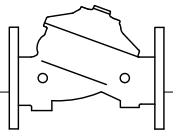
Engineering Specifications

The deluge valve shall be UL-listed and FM-approved, 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 relay pilot valve, a latching FM approved 3-way solenoid valve with a tolerance of 35% below the rated voltage, 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 shall be equipped with a dual-color, 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 not require removal of the 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.

BERMAD Fire Protection



Model FP 400Y - 6U

400Y Series

Technical Data

Available Sizes (inch)

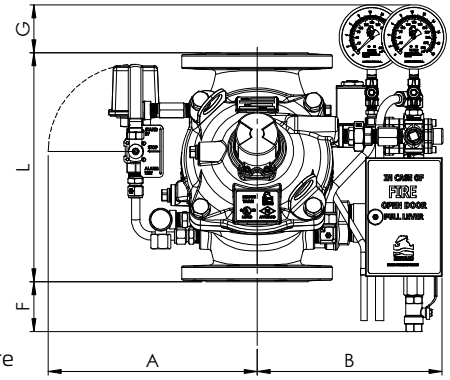
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

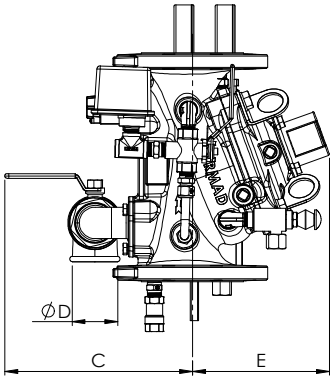
Pressure Rating

- ANSI#150 - 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

Elastomer

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





Size	1½" DN40		2" DN50		3" DN80		4" DN100		6" DN150		8" DN200		10" DN250		12" DN300		14" DN350		16" DN400	
Unit	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
L[1]	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[2]	230	9.1	238	9.4	326	12.8	368	14.5	506	19.9	626	24.7	730	28.8	888	35	980	38.6	1100	43.3
A	279	11.0	279	11.0	339	13.3	347	13.7	400	15.7	430	16.9	430	16.9	543	21.4	543	21.4	543	21.4
B	221	8.7	221	8.7	279	11.0	316	12.4	344	13.5	372	14.6	372	14.6	485	19.1	485	19.1	485	19.1
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	119	4.7	119	4.7	49	1.9	22	0.9	-	-	-	-	-	-	-	-	-	-	-	-
G	98	3.9	98	3.9	88	3.5	75	3.0	26.5	1.0	-	-	-	-	-	-	-	-	-	-
Kv / Cv	68 / 79		80 / 92		190 / 219		345 / 398		790 / 912		1160 / 1340		1355 / 1565		2370 / 2737		2850 / 3292		3254 / 3758	
Leq[3]: m / ft	2 / 7		5 / 16		7 / 23		9 / 30		15 / 49		27 / 89		62 / 203		52 / 171		59 / 194		88 / 289	
kg / lb	22.1 / 48.6		3.5 / 51.7		38.2 / 84		48.2 / 106		91.5 / 201		155 / 340		185 / 407		328 / 721		361 / 794		407 / 895	

Notes:
[1] Refers to the length dimensions for Raised Face ANSI #150, ISO 16 Flanged, Threaded and Grooved valves
[2] Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves
[3] Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40, values given for general consideration only
[4] Dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations

FP | 6" | 400Y-6U | V | C | A5 | PR | 4DC | NN | H2RI

Category	code
Standard	FP
Seawater	FS
Foam Concentrate	FC

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

Notes:
[1] Other materials available, see engineering data
[2] Coated internally and externally
[3] Supplied loose
[4] FM approved with 24 VDC only
[5] Mandatory for FM approved valves
[6] Not suitable with H2 Magna Latch Solenoid

Installation	code
Vertical	V
Horizontal	H

Material Body & Cover[1]	code
Ductile Iron ASTM A356 [2]	C
Steel ASTM A216 WCB [2]	S
Stainless Steel 316 ASTM	N
Nickel Al Bronze C95800	U
Super Duplex Grade 5A	D

End Connections	code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ISO PN16	16
ISO PN25	25
Grooved ANSI C606	VI

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Voltage [4] - Main Valve N.O or N.C	
24VDC - N.C.	4DC
24VDC - N.O.	4DO
24VDC - Latch [5]	4DS
110VDC - N.C.	5DC
110VDC - N.O.	5DO
110-120/AC - N.C.	5AC
110-120/AC - N.O.	5AO
220-240/AC - N.C.	2AC
220-240/AC - N.O.	2AO

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Factory Fitted Options	Code
Remote Reset Magna-Latch Solenoid [5]	H2
Pressure Switch General Purpose [3]	P
Ex Proof NEC, Div.1 Pressure Switch [3]	P7
Ex d ATEX Pressure Switch [3]	P9
Single Limit Switch General Purpose	RS
Single Ex d Proximity Limit Switch	RS9
Double Ex d Proximity Limit Switch	RSS9
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 [6]	7
E xd ATEX solenoid	9
Drain valve	DV
Water Motor Alarm Assembly [3]	W
Special Elastomer EPDM	E1
Special Elastomer NBR	E3
Large Control Filter	F
Valve Position Indicator	RI
S.S Solenoid Valve	K
S.S 316 Trim Accessories	N
Stainless Steel 316 Seat	T
Pressure Transmitter [3]	Q
Drain and Indicating Components [5]	A

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