Pneumatically Controlled Deluge Valve with Local Reset

Model FP 400Y - 4M

The BERMAD model 400Y-4M is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards.
The 400Y-4M is activated by a pneumatic relay valve which latches the main valve open until locally reset.
The optional valve position indicator can include a limit switch ideal for Fire & Gas monitoring systems.
The 400Y-4M is suitable for systems with open nozzles for water or foam discharge.

(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
  - Latches open: remains open until reset locally
- **High performance**
  - Very high flow efficiency
  - Straight through flow Y- type body
  - Approved for PN25 / 365 psi
- **Specifically-designed for fire protection**
  - Face-to-face length standardized to ISO 5752, EN 588-1
  - Suitable for corrosive fluids and freezing temperatures:
  - Pneumatic relay valve
  - Meets the requirements of 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

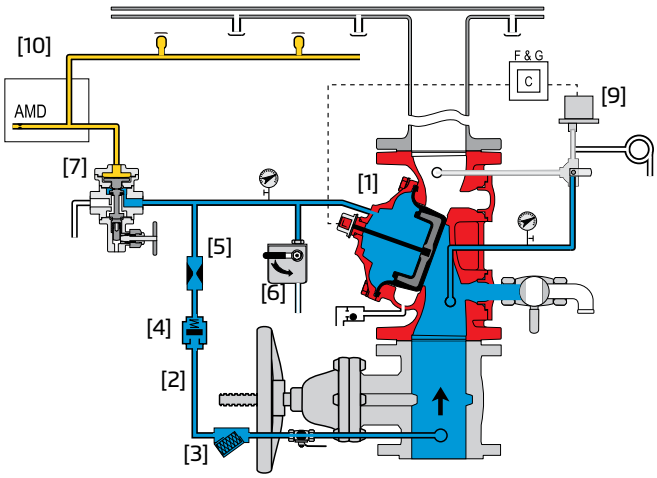
- Fusible plug loops
- Automatic water spray systems
- Foam applications
- Corrosive water supplies
- Freezing Environments

Additional Features

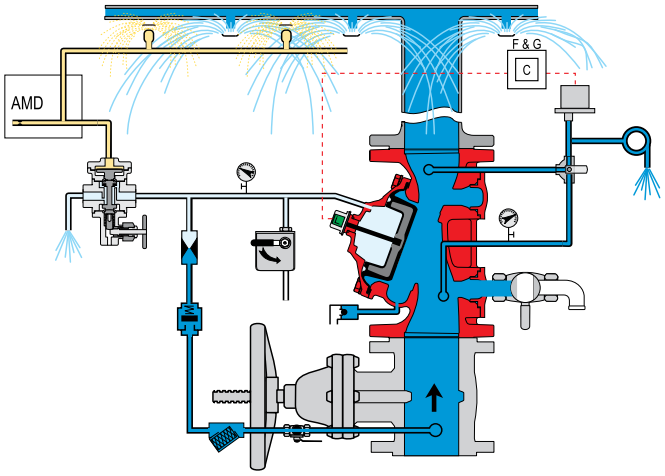
- Valve position limit switches
- Local valve position indicator beacon
- Alarm pressure switch
- Sea water compatibility
- Air maintenance device
- Drain valve/s inlet/outlet

Operation

(for illustrative purposes only)



Valve Closed (normal conditions)



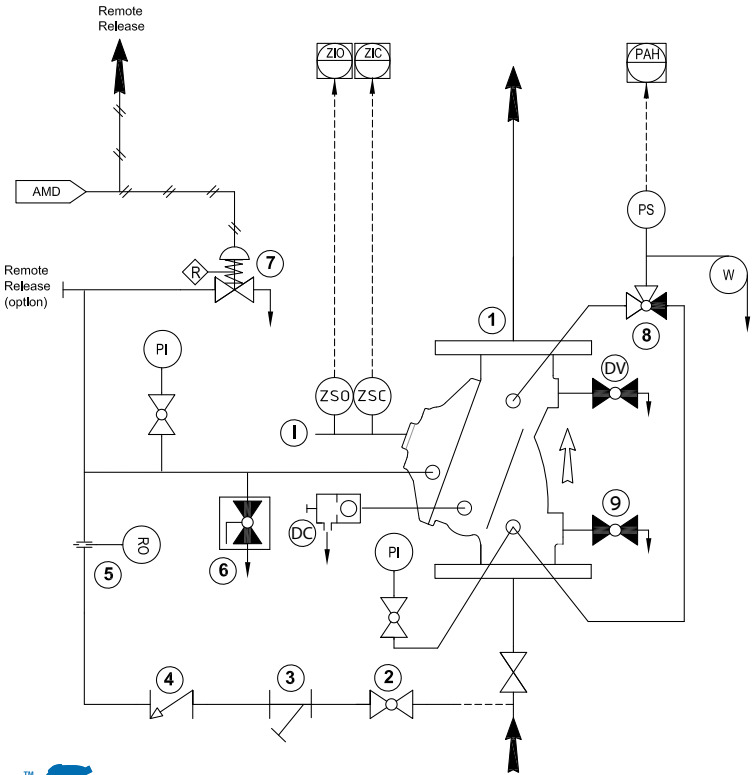
Valve Open (fire conditions)

The BERMAD model 400Y-4M 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] strainer [3] and restriction orifice [5] it is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a relay valve (URV-M) [7] that is held closed by pneumatic pressure in the dry pilot line [10]. The water pressure trapped in the 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 by the URV-M opening automatically in response to a decrease in pneumatic dry pilot-line pressure. This latches the 400Y-4M deluge valve open, allowing water to flow into the system piping and to the alarm device [9].

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-2-M Relay Valve

Optional System Items

ZS	Limit Switch Assembly
I	Visual Indicator
DV	Additional Drain Valve
PS	Pressure Switch
AMD	Air Maintenance Device
W	Water Motor Alarm
DC	Automatic Drip Check Valve*
PI	Pressure Indicator*
8	3-Way Alarm Ball Valve*
9	Drain 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-4M features automatic actuation via a pneumatic universal relay valve, triggered by a fusible plug loop. When fitted with a limit switch, the valve can send a feedback signal to a remote valve position monitoring system.

Optional System Items


Air Maintenance Device

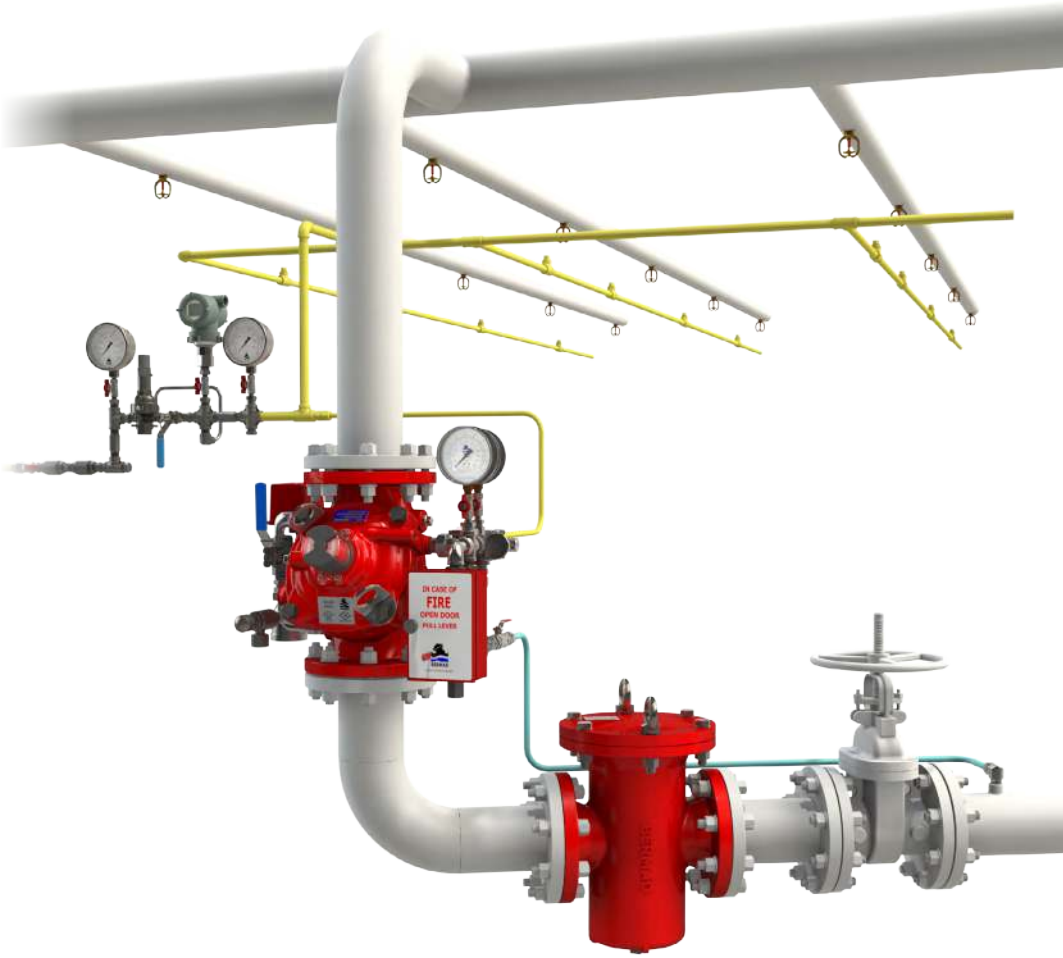

Water Motor Alarm


Pressure Switch


Valve Position Indicator


Limit Switch


Strainer

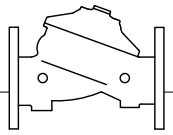


(for Illustration Only)

Suggested Specifications

The deluge valve shall be a UL listed and FM approved, 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 shall include a latching relay pilot valve, 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 with a 360-degree swivel capability.
The valve shall be equipped with a protective-covered, dual-color, rotational position indicator, 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 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 - 4M

400Y Series

Technical Data

Available Sizes (inch)

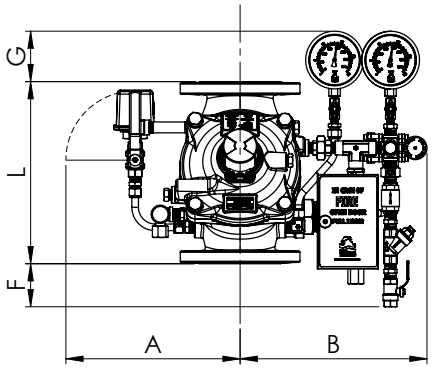
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

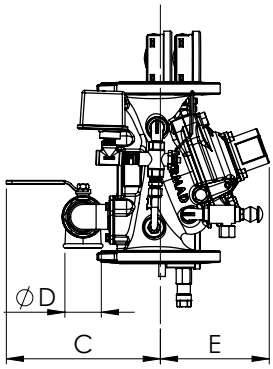
Pressure Rating

- 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





Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
(1) L¹ ANSI #150 mm (in.)	230(9.06)	230(9.06)	310(12.21)	350(13.79)	480(18.91)	600(23.64)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
L² ANSI #300 mm (in.)	230(9.06)	238(9.37)	326(12.84)	368(14.50)	506(19.94)	626(24.66)	730(28.76)	888(34.96)	980(38.61)	1100(43.34)
A mm (in.)	330(13.0)	330(13.0)	390(15.4)	398(15.7)	451(17.8)	481(18.9)	481(18.9)	594(23.4)	594(23.4)	594(23.4)
B mm (in.)	294(11.6)	294(11.6)	352(13.8)	362(14.2)	417(16.4)	445(17.5)	445(17.5)	558(22)	558(22)	558(22)
C mm (in.)	241(9.5)	241(9.5)	274(10.8)	290(11.4)	304(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 mm (in.)	167(6.6)	167(6.6)	191(7.5)	205(8.1)	273(10.7)	338(13.3)	338(13.3)	490(19.3)	490(19.3)	465(18.3)
F mm (in.)	184(7.24)	184(7.24)	114(4.5)	87(3.4)	5.5(0.2)	-	-	-	-	-
G mm (in.)	121(4.76)	121(4.76)	111(4.4)	98(3.86)	49.5(1.94)	25(1)	-	-	-	-
Kv m³/h (Cv gpm)	68(79)	80(92)	190(219)	345(398)	790(912)	1160(1340)	1355(1565)	2370(2737)	2850(3292)	3254(3758)
(2) Leq m (ft)	2(7)	5(16)	7(23)	9(30)	15(49)	27(89)	62(203)	52(171)	59(194)	88(289)
Weight, flanged kg (lbs)	15.1(33.2)	16.2(35.6)	29.9(65.8)	39.9(87.8)	84.2(85.2)	147.4(29.5)	177.4(390.3)	320.5(704.5)	353.3(776.6)	399.3(878.5)

Notes: (1) L1 Dimensions are for grooved, threaded and raised face flanged valves
(2) Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40, values given for general consideration only
(3) Dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations

FP | 6" | 400Y-4M | H | C | A5 | PR | NN | PRS

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) Mandatory for FM approved valves

Installation	code
Horizontal	H
Vertical	V

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
ISO PN16	16
ISO PN25	25
Grooved ANSI C606	VI

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Tubing & Fittings	Code
Stainless Steel 306	NN
Monel	MM
Super Duplex	DD

Factory Fitted Options	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
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
Downstream 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 316 Trim Accessories	N
316 Stainless Steel Seat	T
Pressure Transmitter (3)	Q
Drain and Indicating Components (4)	A

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