



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

Typical Applications

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

Approvals



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



FM Approved
for Deluge Sprinkler Systems
Sizes 1½" - 8"



Det Norske Veritas
Type Approval



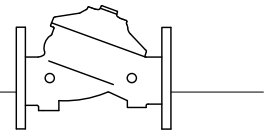
ABS
American Bureau of Shipping
Type Approval



Lloyd's Register
Type Approval

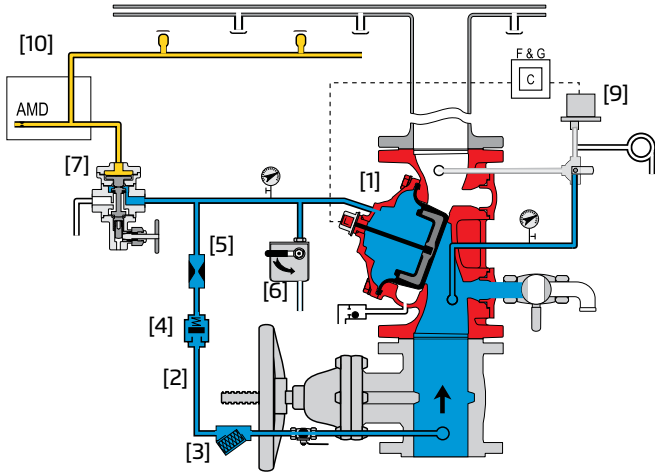
Additional Features

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

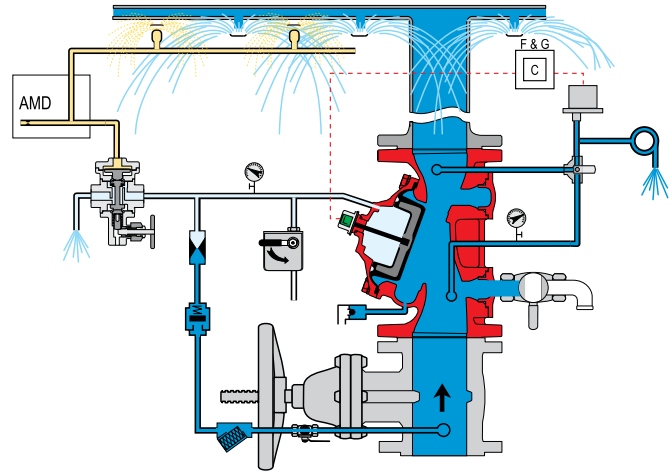


Operation

(for illustrative purposes only)



Valve Closed (normal conditions)



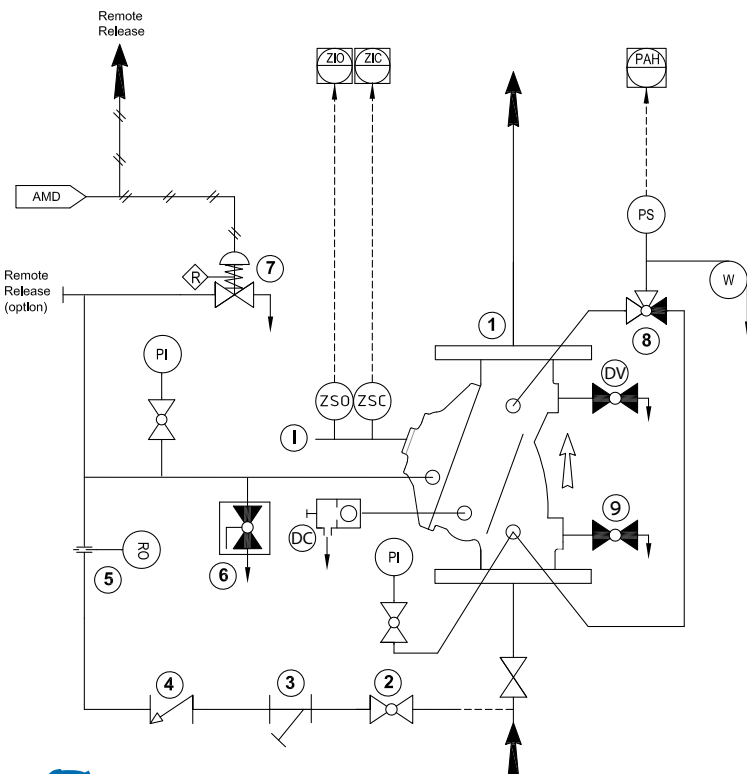
Valve Open (fire conditions)

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)

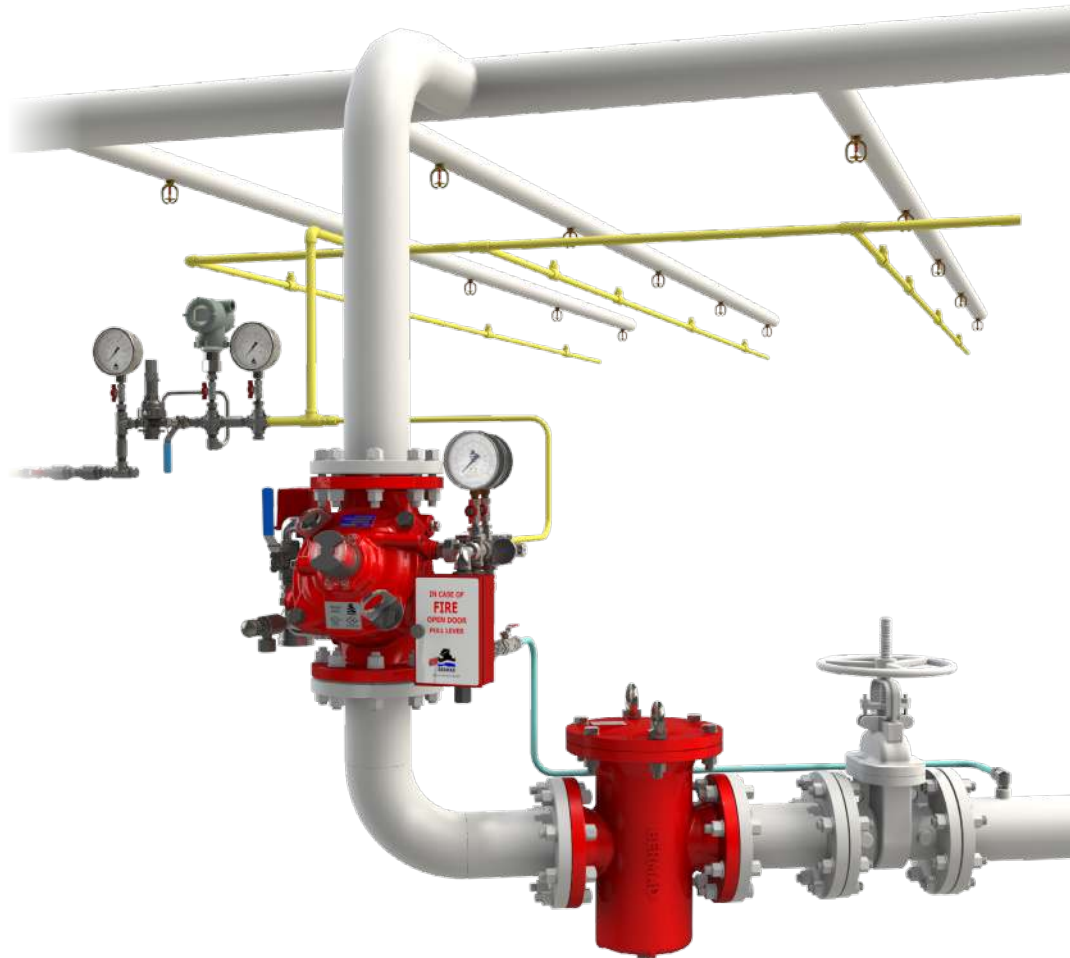
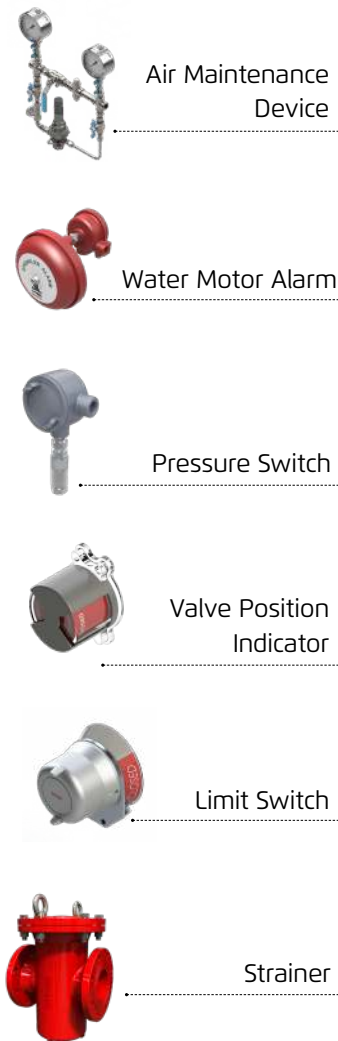




System Installation

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



(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.

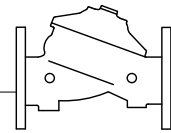
Valve actuation shall be accomplished by a single-piece, rolling diaphragm bonded with a rugged radial seal disk. The diaphragm assembly shall be the only moving part.

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)

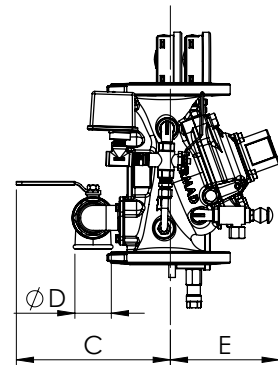
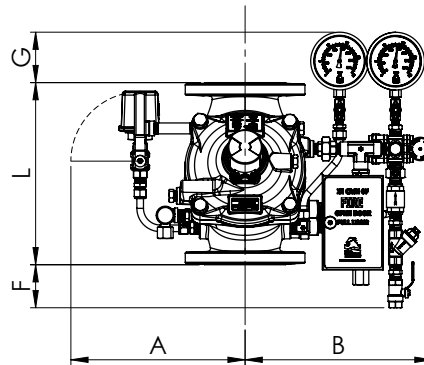
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

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⁾ L ¹ 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)
L ² 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 m ³ /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
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Category	code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Valve Size	code
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

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

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

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

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

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

Notes:

- Other materials available see engineering data
- Coated internally and externally
- Supplied loose
- Mandatory for FM approved valves



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