

## Electro-Pneumatically Controlled Deluge Valve

### Model: FP 400Y-3M

The BERMAD model 400Y-3M is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400Y-3M is activated by a 3-way solenoid valve which in turn activates a pneumatic relay valve that latches the main valve open until locally reset.

The valve's position monitoring device features a visual position indicator and can interface with any fire & gas control system.

The 400Y-3M is suitable in systems with open nozzles for water or foam discharge, and is available with electric components to suit any hazardous location.



### 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 558-1
- Meets the requirements of the industry standards
- **Quick and easy maintenance**
  - In-line serviceable
  - Quick cover removal without detaching control trim\*
  - Swivel mounted drain valves\*

\* not including 1½" & 2" valves

### Typical Applications

- Automatic water spray systems
- Foam applications
- Corrosive water supplies
- Dual redundant detection systems

### Approvals



UL-Listed  
Special System Water Control  
Valves Deluge Type (VLFT)



FM Approved  
for Deluge Sprinkler systems



Det Norske Veritas  
Type Approval



ABS  
American Bureau of Shipping  
Type Approval

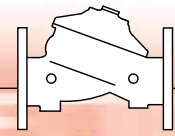


Lloyd's Register  
Type Approval

### Factory Fitted Options

- Valve position limit switches
- Local valve position indicator beacon
- Stainless steel seat ring
- Alarm pressure switch
- Air maintenance device
- Sea water compatibility
- Downstream drain valve

# BERMAD Fire Protection

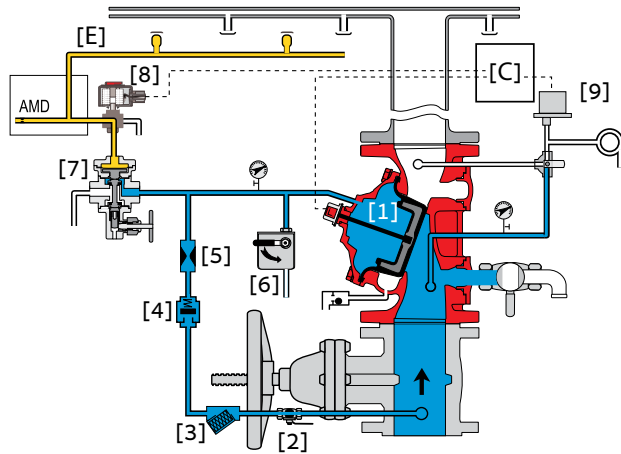


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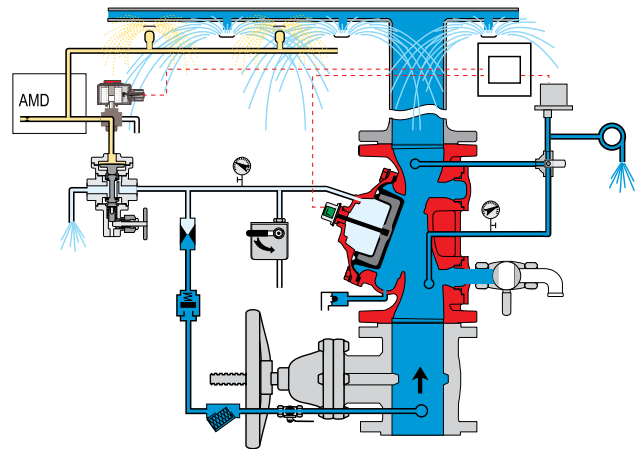
400Y Series

## Operation

(for Illustration Only)



Valve Closed (set position)



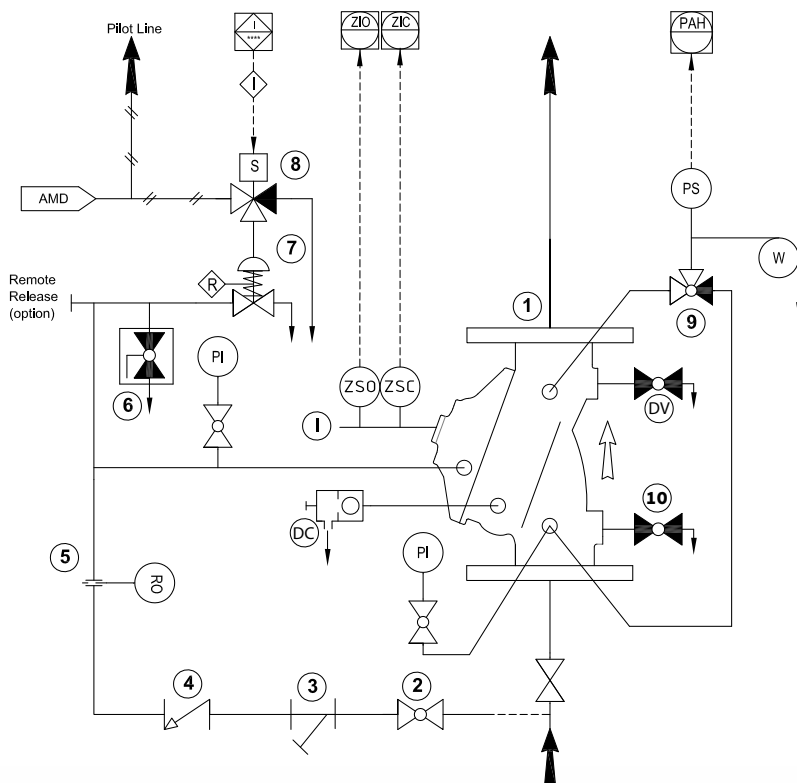
Valve Open (operating condition)

The BERMAD model 400Y-3M 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 by the priming line [2] via the 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]. The relay valve is held closed by pneumatic pressure supplied through a three-way 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. The URV-M opens in response either to a decrease in pneumatic pilot-line pressure [E] or to the solenoid valve being activated by the fire & gas control system [C]. This latches the 400Y-3M deluge valve open, allowing water to flow into the system piping and to the alarm device [9].

## System P&ID



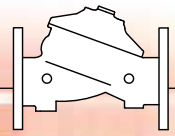
## Components

- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check Valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 Latching Pilot Valve (URV-M)
- 8 3-Way Solenoid Valve
- 9 3-Way Alarm Ball Valve
- 10 Main Drain Valve

## Factory fitted options

- ZS Limit Switch Assembly
- I Valve Position Indicator
- DV Additional Drain Valve
- PS Pressure Switch
- AMD Air Maintenance Device
- W Water Motor Alarm
- PI Pressure Gauge
- DC Automatic Drip Check Valve

# BERMAD Fire Protection



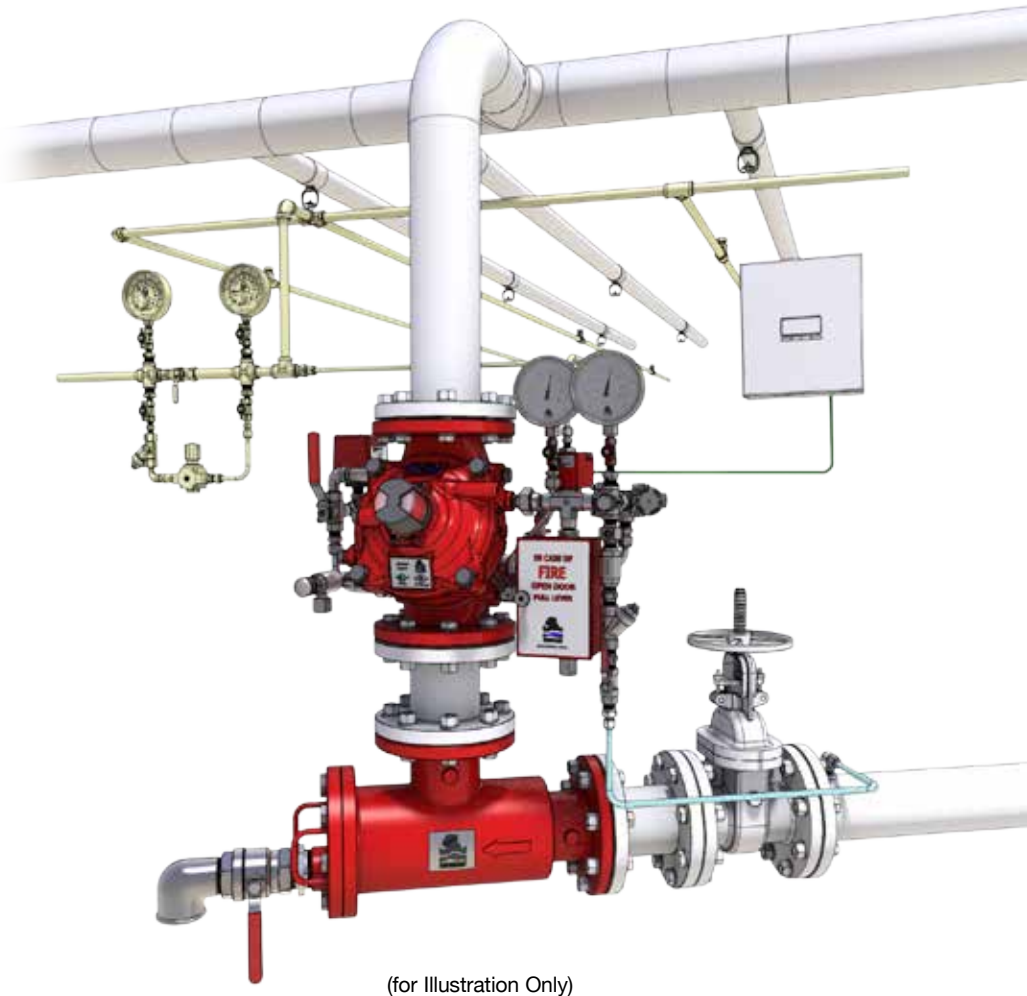
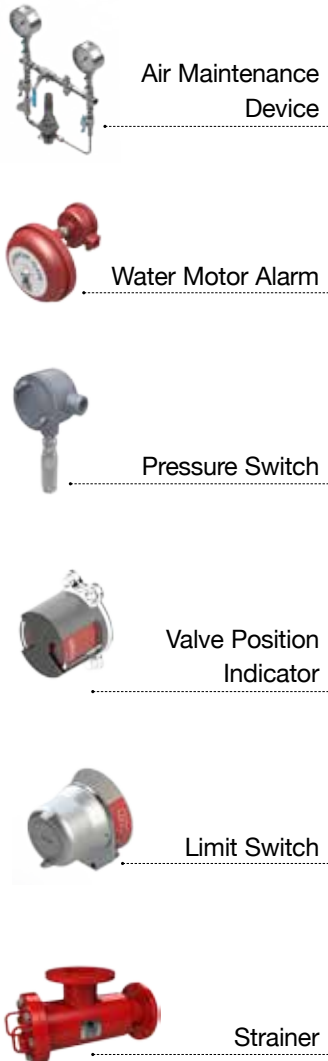
Model: FP 400Y-3M

400Y Series

## System Installation

A typical installation of the BERMAD model 400Y-3M features automatic actuation via a relay valve, triggered by a 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 sends a feedback signal to the remote valve position monitoring system.

## Factory Fitted Options



## Suggested Specifications:

The deluge valve shall be a UL listed and FM approved, 25 bar/365 psi rated, straight-through, Y-type-body valve.

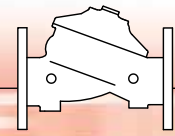
The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

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 3-Way solenoid valve FM approved for 25 bar/365 psi working pressure, 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 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.

# BERMAD Fire Protection



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400Y Series

## Technical Data

### Available Sizes (inch)

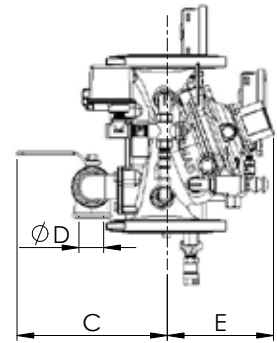
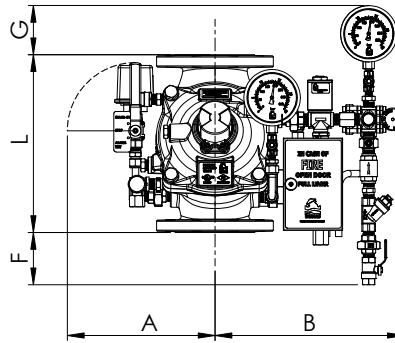
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

### Pressure Rating

- ANSI#150 - 16 bar / 235 psi
- ANSI#300 - 25 bar / 365 psi
- Grooved - 25 bar / 365 psi

### Temperature Rating

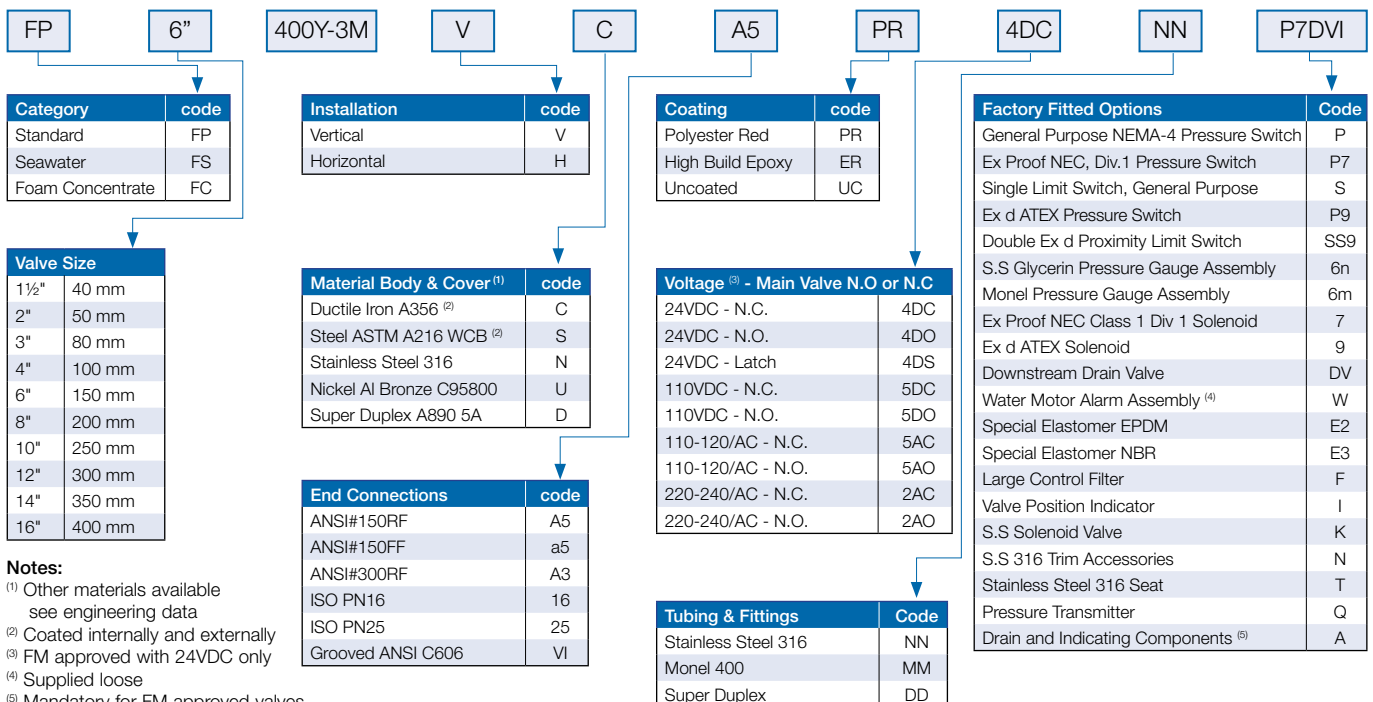
- 60°C / 140°F with NR elastomers (standard)
- 90°C / 194°F with EPDM elastomers



Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
<sup>(1)</sup> L <sup>1</sup> 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 <sup>2</sup> ANSI #300 mm (in.)	230(9.06)	235(9.25)	326(12.84)	368(14.50)	506(19.94)	626(24.66)	730(28.76)	850(33.49)	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.)	300(11.8)	300(11.8)	358(14.1)	368(14.5)	423(16.7)	451(17.8)	451(17.8)	564(22.2)	564(22.2)	564(22.2)
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)
D mm (in.)	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.)	177(7.0)	177(7.0)	107(4.2)	80(3.2)	-	-	-	-	-	-
G mm (in.)	121(4.8)	121(4.8)	111(4.4)	98	50	25	-	-	-	-
KV m <sup>3</sup> /h (Cv gpm)	68(79)	80(92)	190(219)	345(398)	790(912)	1160(1340)	1355(1652)	2600(3040)	2950(3450)	3254(3801)
<sup>(2)</sup> Leq m (ft)	2(6)	4(14)	8(25)	8(25)	13(43)	27(89)	55(179)	40(128)	66(215)	115(370)
Weight, flanged kg (lbs)	15.26(33.5)	16.66(36.6)	31.36(69.0)	41.36(91.0)	84.66(186.3)	147.86(325.3)	177.86(391.3)	320.86(705.9)	353.86(778.5)	399.86(879.7)

Notes: <sup>(1)</sup> L<sup>1</sup> Dimensions are for grooved, threaded and raised face flanged valves  
<sup>(2)</sup> Leq: Equivalent pipe length for turbulent flow in clean commercial steel pipe (SCH 40)

## Valve Code Designations



Notes:  
<sup>(1)</sup> Other materials available see engineering data  
<sup>(2)</sup> Coated internally and externally  
<sup>(3)</sup> FM approved with 24VDC only  
<sup>(4)</sup> Supplied loose  
<sup>(5)</sup> Mandatory for FM approved valves



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