

Pneumatically Controlled Deluge Valve

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

The 400Y-4M is suitable for systems with open nozzles for water or foam discharge.



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
 - Quick cover removal without detaching control trim*
 - Swivel mounted drain valves*

* not including 1½" & 2" valves

Factory Fitted Options

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

Approvals



UL-Listed
Valves Deluge Type (VLFT)



FM Approved
for Deluge Sprinkler Systems



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval

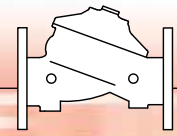


Lloyd's Register
Type Approval

Typical Applications

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

BERMAD Fire Protection

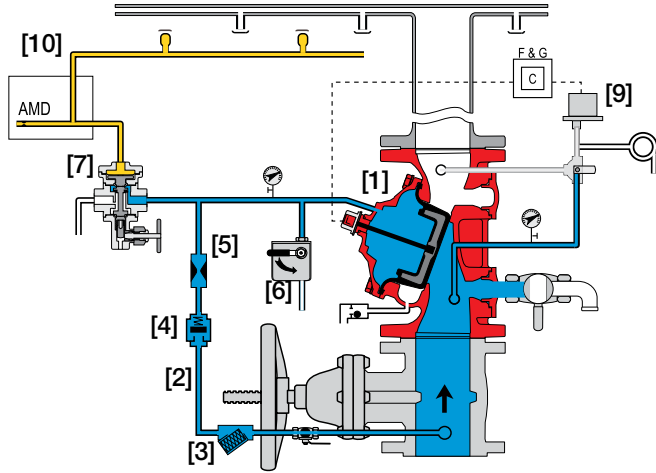


Model: FP 400Y-4M

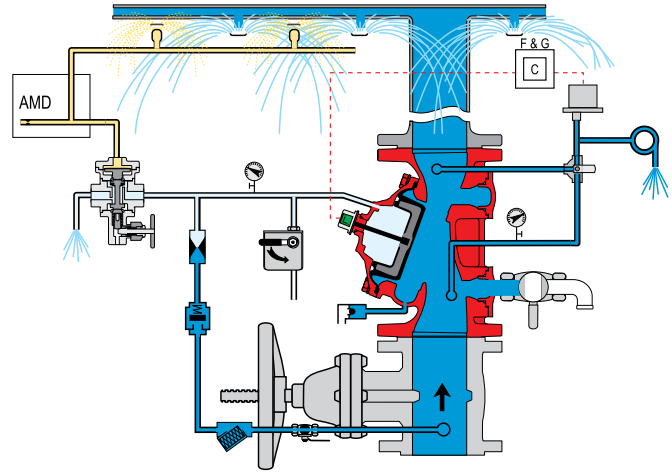
400Y Series

Operation

(for illustrative purposes only)



Valve Closed (normal conditions)



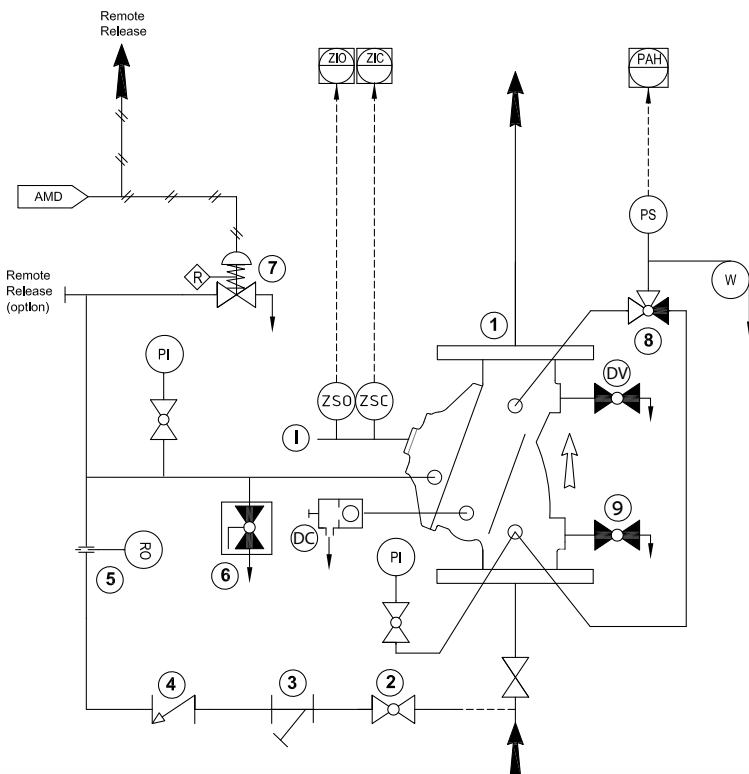
Valve Open (fire conditions)

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

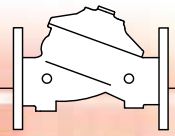


Components

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

Factory fitted options

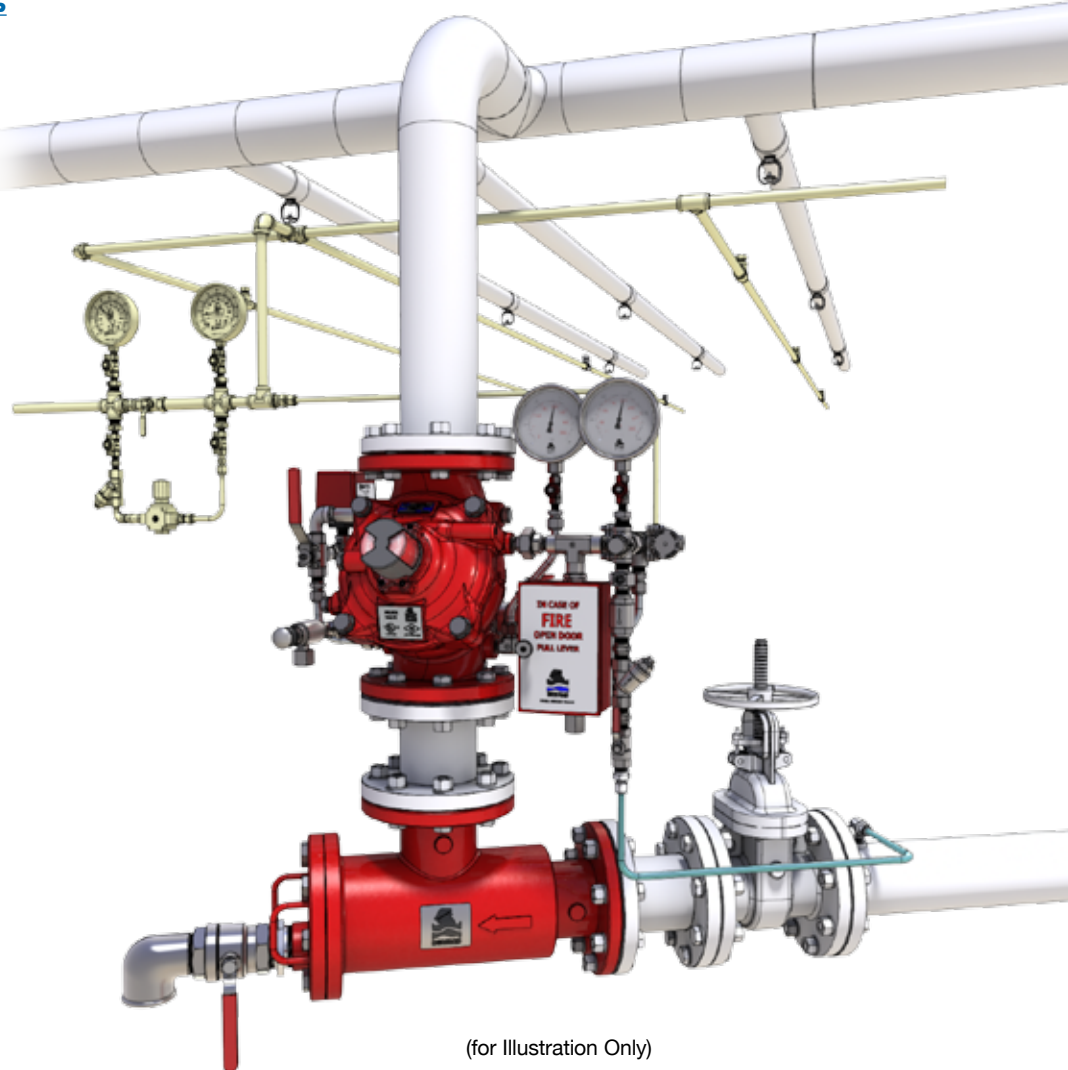
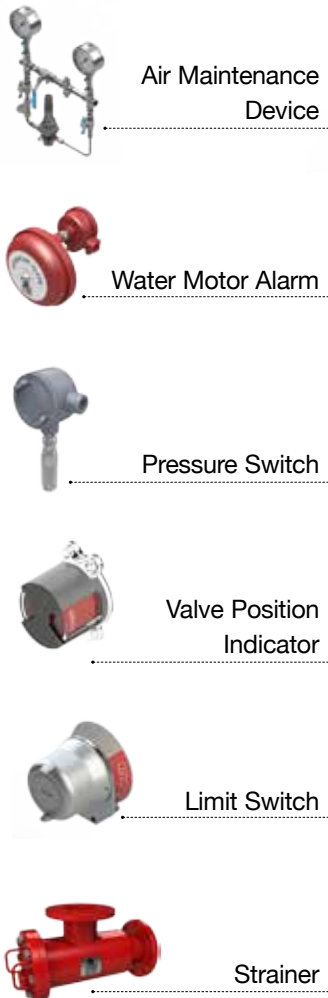
- ZS Limit Switch Assembly
- I Visual Indicator
- DV Additional Drain Valve
- PI Pressure Indicator
- PS Pressure Switch
- AMD Air Maintenance Device
- W Water Motor Alarm
- DC Automatic Drip Check Valve



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 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, 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.

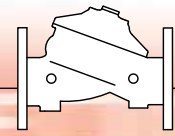
The diaphragm assembly shall be the only moving part.

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)

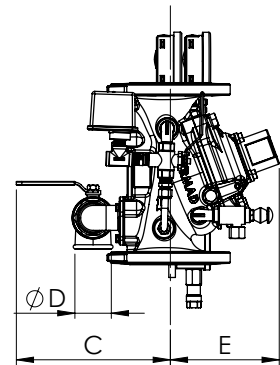
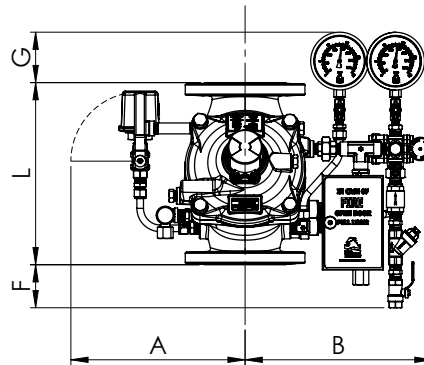
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

Pressure Rating

- ANSI#150 - 16 bar / 235
- 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

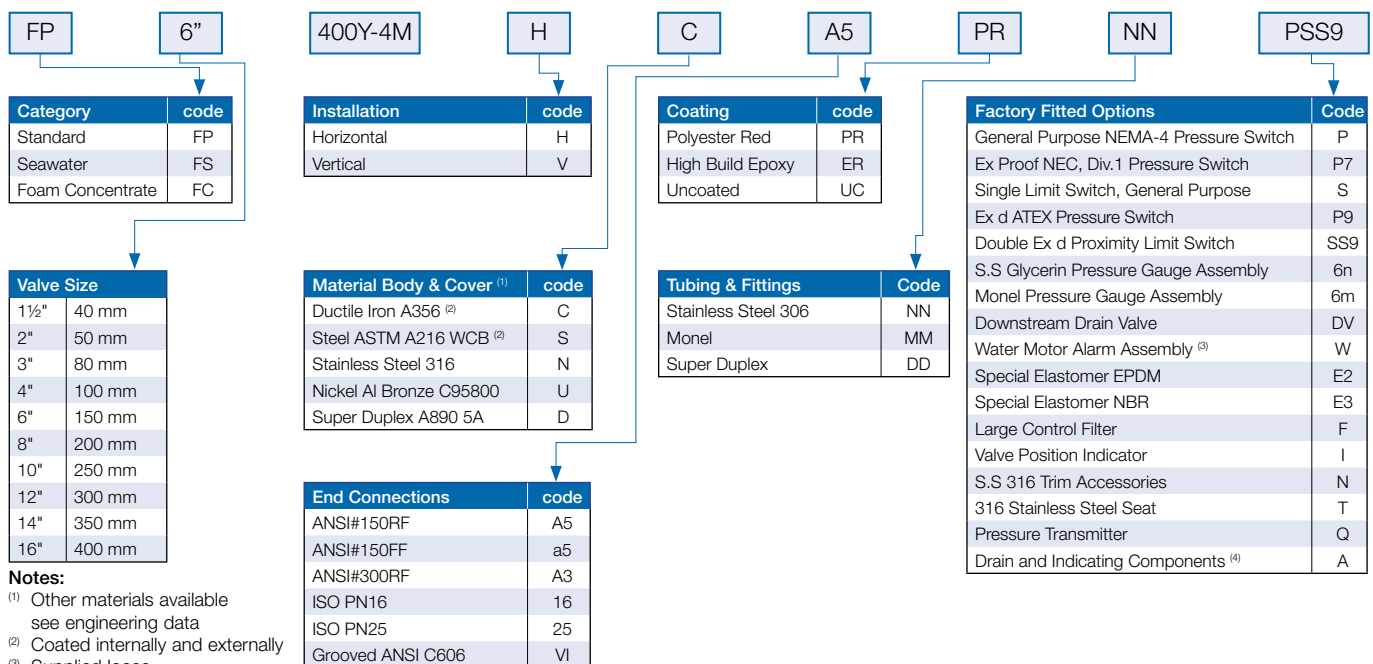


Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
⁽¹⁾ L ¹ ANSI #150 mm (in.)	230(9.06)	230(9.06)	310(12.21)	350(13.79)	480(18.91)	600(23.64)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
L ² ANSI #300 mm (in.)	230(9.06)	235(9.25)	326(12.84)	368(14.50)	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.)	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)
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.)	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)	1430(1671)	1355(1652)	2950(3450)	3254(3801)
⁽²⁾ 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)	15.1(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 for turbulent flow in clean commercial steel pipe (SCH 40)

Valve Code Designations



Notes:

- ⁽¹⁾ Other materials available see engineering data
- ⁽²⁾ Coated internally and externally
- ⁽³⁾ Supplied loose
- ⁽⁴⁾ Mandatory for FM approved valves



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