

## Pneumatically Controlled On-Off Deluge Valve

### Model: 400Y-4D

The BERMAD model 400Y-4D is an elastomeric, hydraulic line operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400Y-4D is activated by a pneumatic relay valve, opening and closing of the valve can be controlled remotely. It is suited for use with corrosive fluids and in freezing temperatures.

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



### 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
  - Shuts off on remote command
  - Valve position limit switches
  - Local valve position indicator beacon
- **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, EN 588-1
  - Suitable for corrosive fluids and freezing temperatures: pneumatic relay valve
  - 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

- 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)



Det Norske Veritas  
Type Approval



ABS  
American Bureau of Shipping  
Type Approval

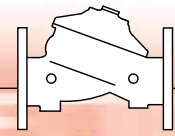


Lloyd's Register  
Type Approval

### Factory Fitted Options

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

# BERMAD Fire Protection

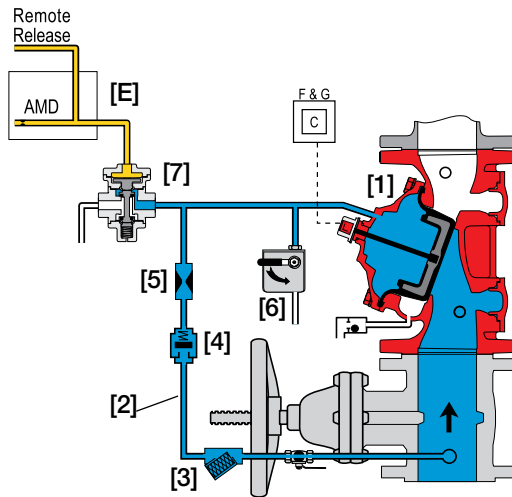


Model: FP 400Y-4D

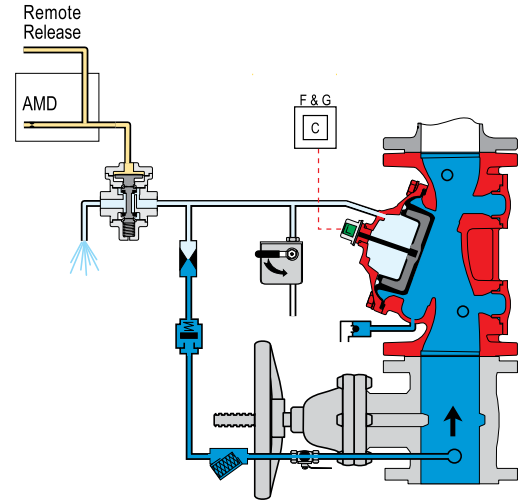
400Y Series

## Operation

(for Illustration Only)



**Valve Closed** (normal conditions)



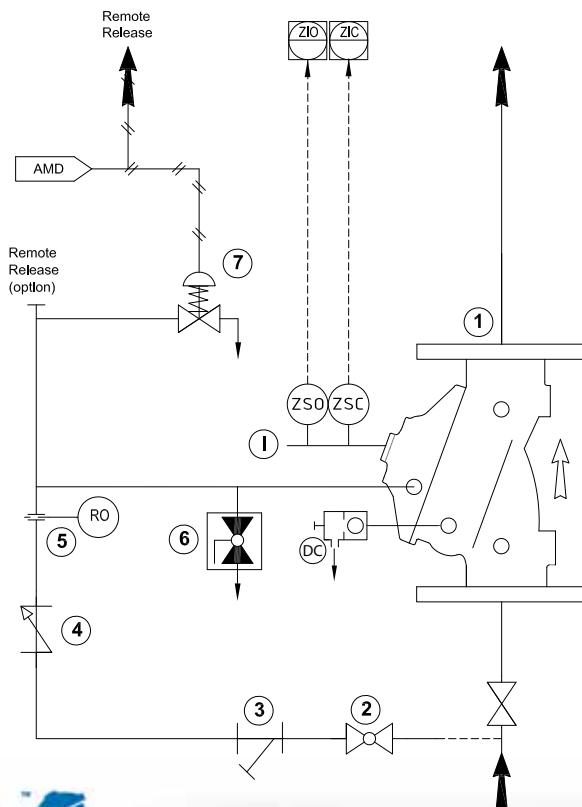
**Valve Open** (fire conditions)

The BERMAD model 400Y-4D 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) [7] that is held closed by pneumatic pressure in the dry pilot line [E]. 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, either with the manual emergency release, or by the URV opening automatically in response to a decrease in pneumatic pilot-line pressure. This opens the 400Y-4D deluge valve, allowing water to flow into the system.

## System P&ID

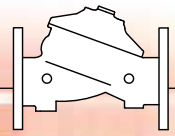


### Components

- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check Valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 URV, Pilot Valve

### Factory fitted options

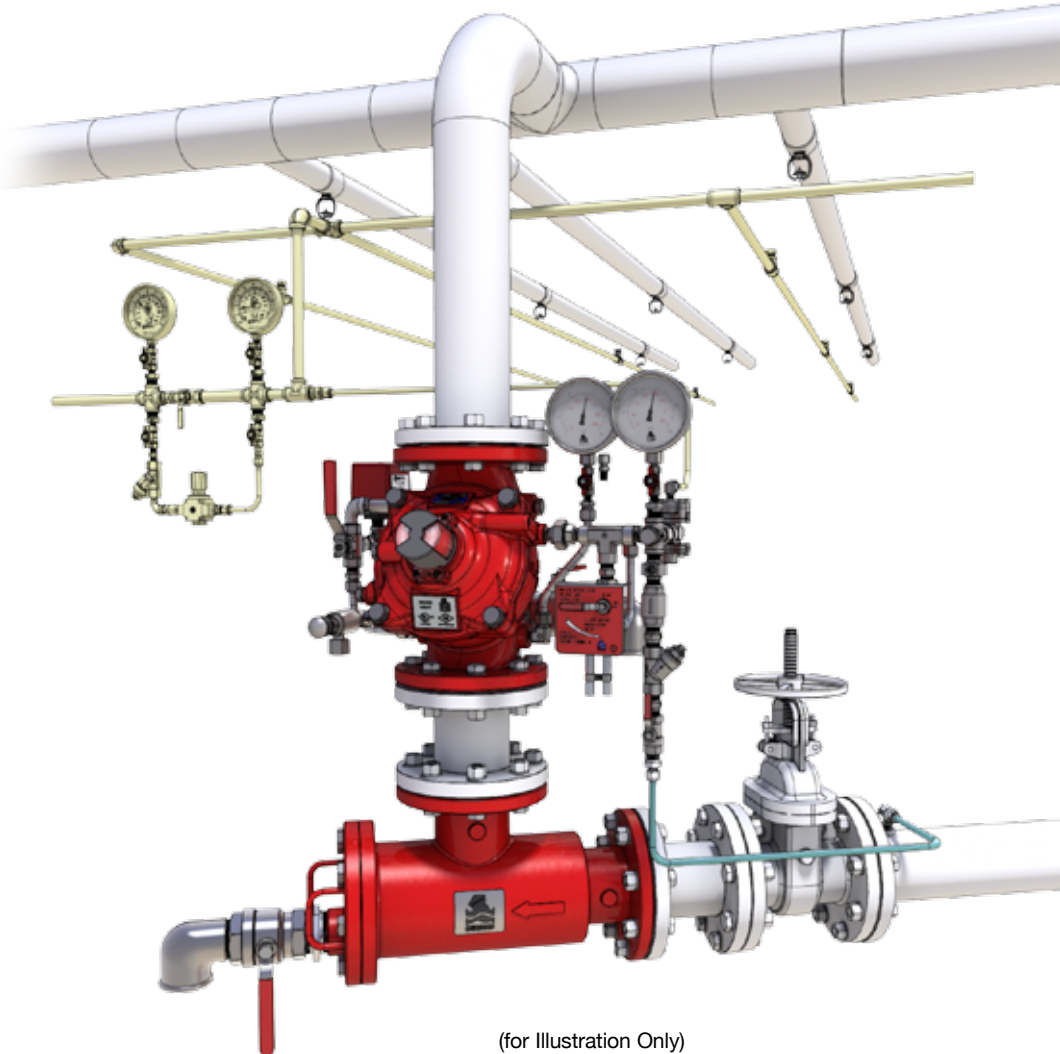
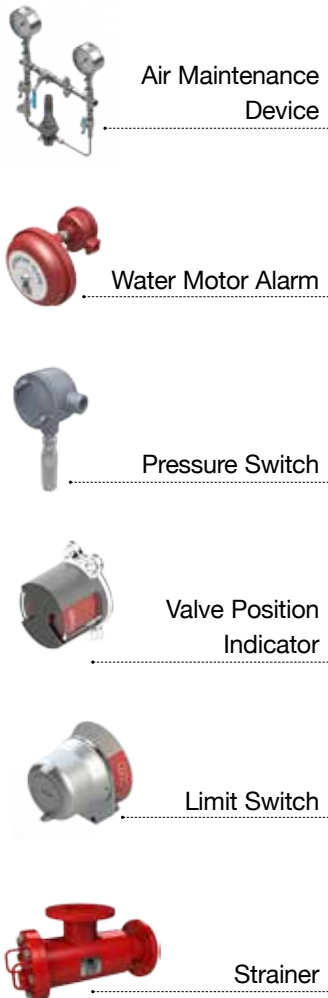
- ZS Limit Switch Assembly
- I Visual Indicator
- AMD Air Maintenance Device
- DC Drip Check Valve



## System Installation

A typical installation of the BERMAD model 400Y-4D features automatic actuation via a pneumatic universal relay valve, triggered by a fusible plug loop. When open and fitted with a limit switch, the valve sends a feedback signal to the remote valve position monitoring system.

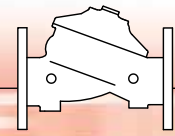
## Factory Fitted Options



## Suggested Specifications:

The deluge valve shall be a UL listed, 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 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 and have 360-degree swivel. The valve shall be equipped with a protective-covered, 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 and maintenance shall be in-line, and not require removal of the control 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-4D

400Y Series

## Technical Data

### Available Sizes (inch)

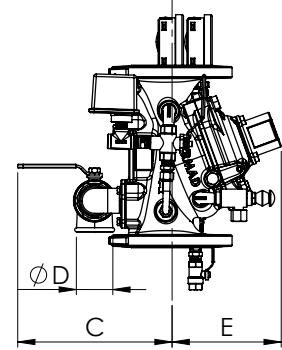
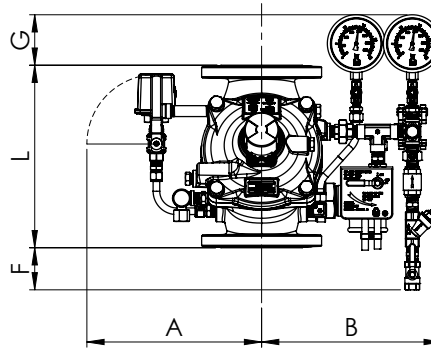
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

### Pressure Rating

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

### Temperature Rating

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

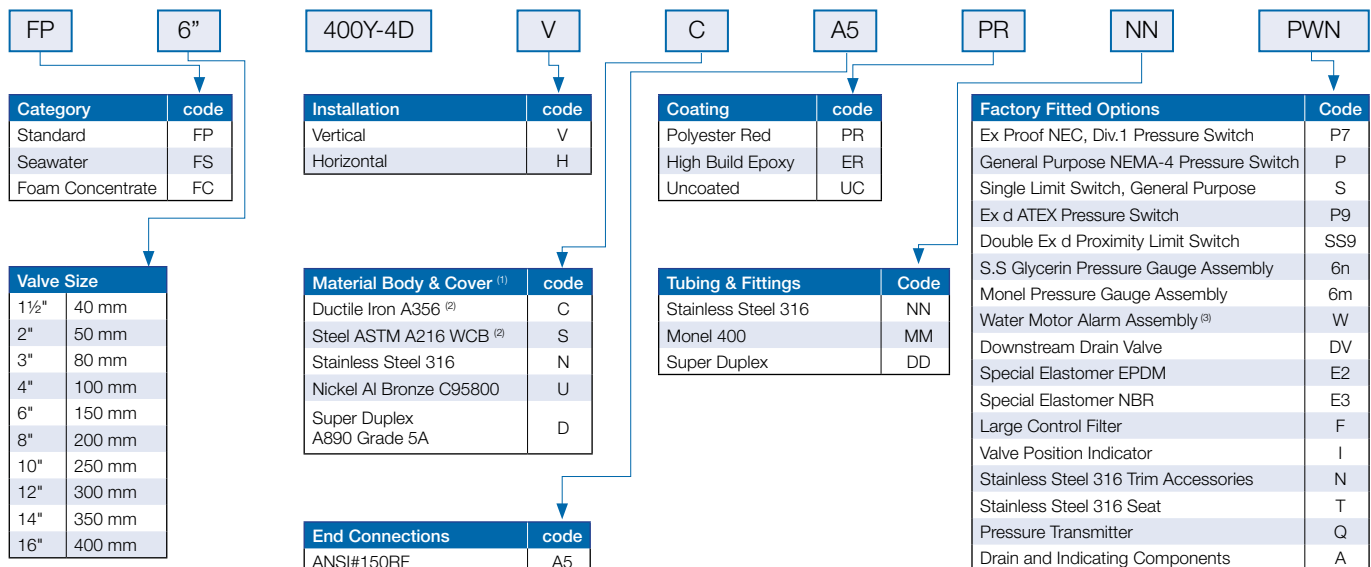


Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" N250	12" DN300	14" DN350	16" DN400
<sup>(1)</sup> L <sup>1</sup> ANSI #150 mm (in.)	230(9.06)	230(9.06)	310(12.21)	350(13.79)	480(18.91)	600(23.64)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
L <sup>2</sup> ANSI #300 mm (in.)	230(9.06)	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.)	279(11)	279(11)	337(13.3)	347(13.7)	402(15.8)	430(16.9)	430(16.9)	543(21.4)	543(21.4)	543(21.4)
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.)	179(7)	179(7)	109(4.3)	82(3.2)	0.5(0.01)	-	-	-	-	-
G mm (in.)	116(4.5)	116(4.5)	106(4.2)	93(3.7)	44.5(1.8)	20(0.8)	-	-	-	-
Kv m <sup>3</sup> /h (Cv gpm)	68(79)	80(92)	190(219)	345(398)	790(912)	1160(1340)	1355(1652)	2650(3100)	2950(3040)	3254(3801)
<sup>(2)</sup> Leq m (ft)	2(6)	4(14)	8(25)	8(25)	13(43)	27(89)	55(179)	38(125)	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(185.2)	147.4(324.2)	177.4(390.3)	320.5(704.5)	353.3(776.6)	399.3(878.5)

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> Supplied loose



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