



Hydraulically Controlled Anti-Columning Deluge Valve with Local Reset Model 400Y - 5M

The BERMAD model 400Y-5M is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400Y-5M is activated by a pressure operated relay valve, which latches the main valve open until locally reset. The 400Y-5M is ideal for systems with remote or elevated wet pilot lines, due to its boosted local pressure release. The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.



(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
 - Valve position limit switches (optional)
 - Local valve position indicator beacon (optional)
- **High performance**
 - Very high flow efficiency
 - Minimal head loss: straight-through-flow Y-type body
 - Approved for PN25/365 psi
- **Designed for fire protection**
 - Face-to-face length standardized to ISO 5752, EN 558-1
 - Designed to meet the requirements of the industry standards
 - Opens quickly in systems with long wet pilot lines
- **Quick and easy maintenance**
 - In-line serviceable
 - Fast and easy cover removal
 - Swivel mounted drain valves*

* not including 1½" & 2" valves

Typical Applications

- Remote or elevated wet pilot lines
- Automatic water spray systems
- Hydraulic remote controlled systems
- Automatic foam systems

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 3" - 10"



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



Det Norske Veritas
Type Approval



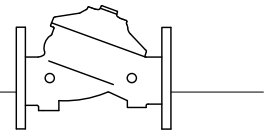
ABS
American Bureau of Shipping
Type Approval



Lloyd's Register
Type Approval

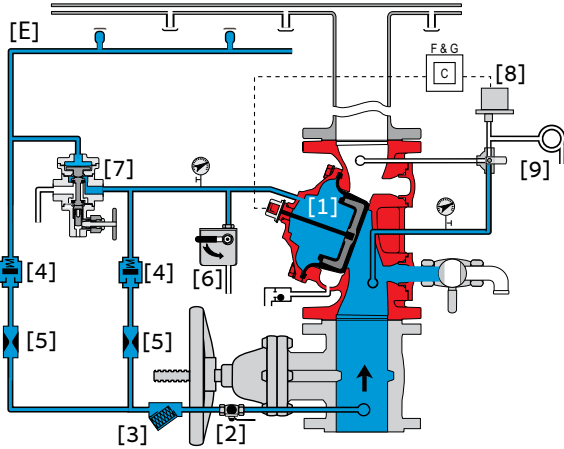
Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Alarm pressure switch
- Water motor alarm
- Sea water compatibility
- Drain valve/s inlet/outlet

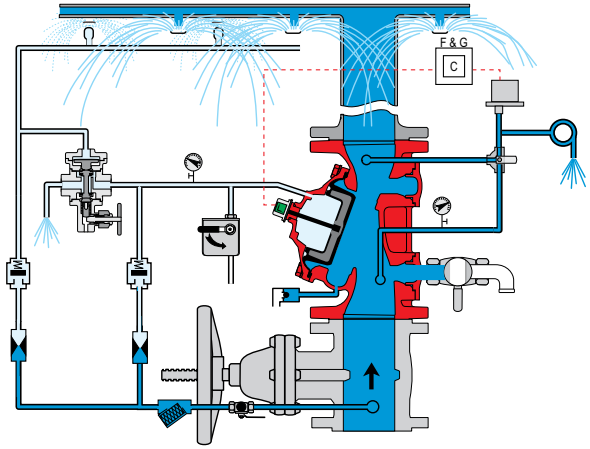


Operation

(For illustration only)



Valve Closed (normal conditions)



Valve Open (fire conditions)

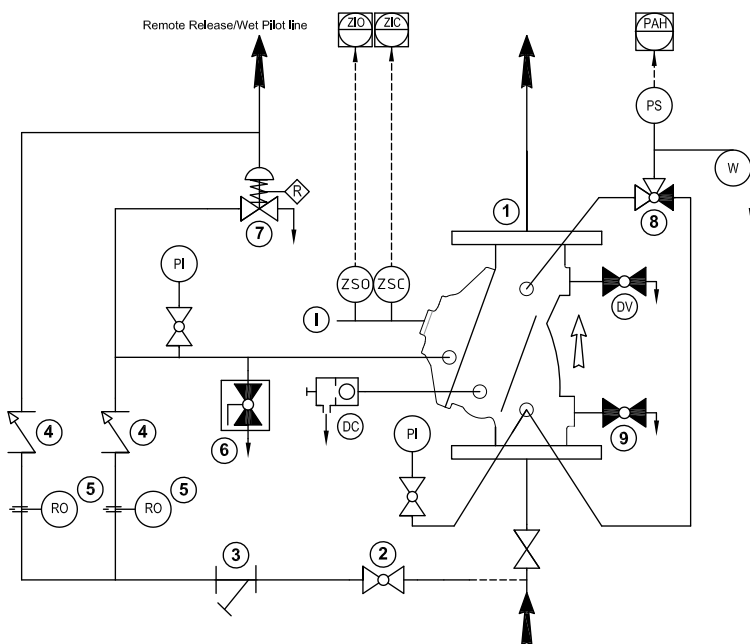
The BERMAD model 400Y-5M is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] and strainer [3], and a restriction orifice [5] and then trapped in the control chamber by a check valve [4], a manual emergency release [6], and a relay valve (URV-M) [7] that is held closed by hydraulic pilot line pressure [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-M opening automatically in response to a decrease in hydraulic pilot-line pressure. This latches the 400Y-5M deluge valve open, allowing water to flow into the system piping and to the alarm device [9].

The URV-M is factory set to operate with a minimum pilot line elevation of 10 meters above the valve. Additional spring tension can be set to suit greater elevations, up to a maximum of 70 meters above the valve (refer to the Valve Code Designation on the last page).

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
- W Water Motor Alarm
- PI Pressure Gauge*
- DC Automatic Drip Check Valve*
- 8 3-Way Alarm Test Valve*
- 9 Main 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-5M features automatic actuation via a pressure operated relay valve, triggered by a wet pilot line with closed fusible plugs elevated above the deluge valve. When open and fitted with a limit switch, the valve sends a feedback signal to the remote valve position monitoring system.

Optional System Items



Water Motor Alarm



Pressure Switch



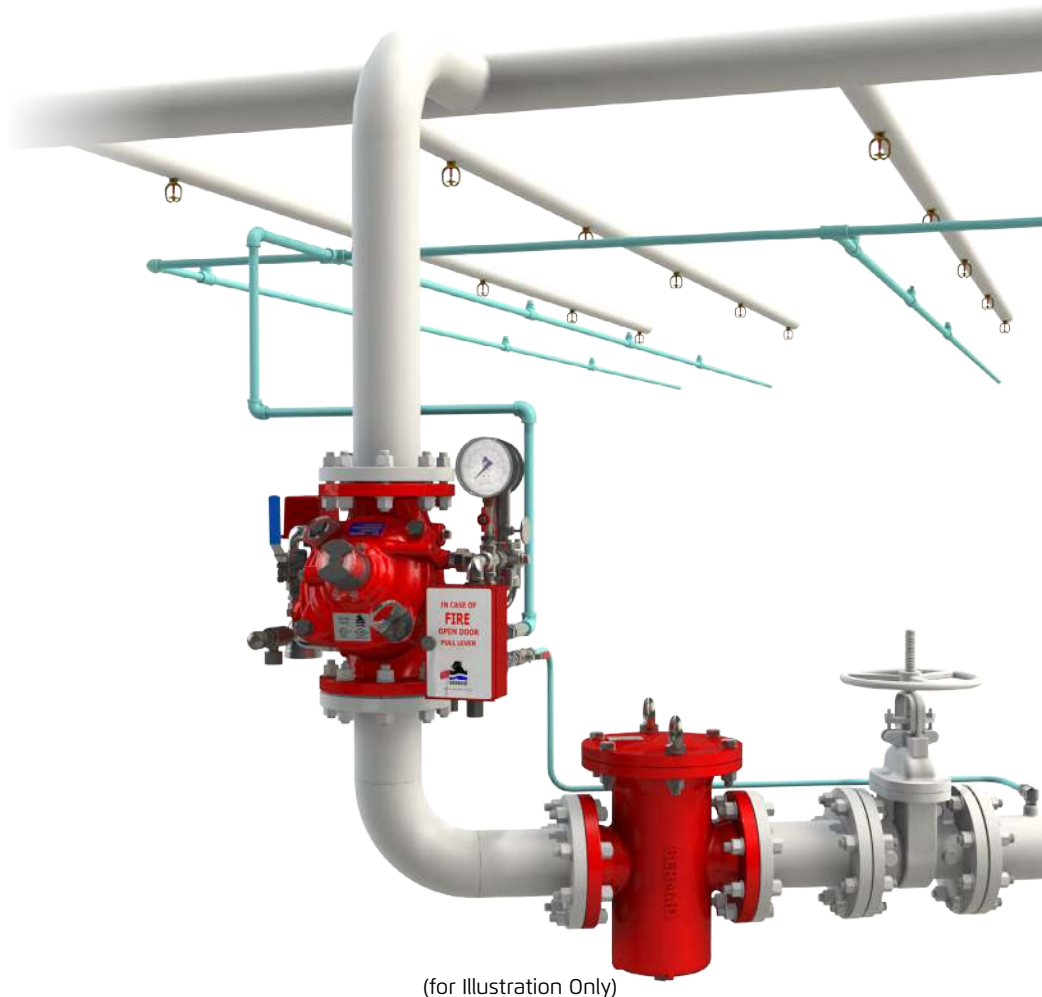
Valve Position Indicator



Limit Switch



Strainer



(for Illustration Only)

Suggested Specifications

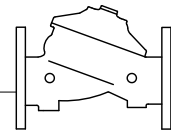
The deluge valve shall be a UL listed and FM approved, 25 bar/365 psi rated, elastomeric-type, straight-through, Y-type-body valve. The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

Valve actuation shall be accomplished by a one-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 and have 360-degree swivel.

The valve shall be equipped with a dual-color, rotational position indicator, readable from 50 meters, with two limit switches enclosed in a protective switch box. Removing the valve cover for inspection or maintenance shall not require removing 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.



Technical Data

Available Sizes (inch)

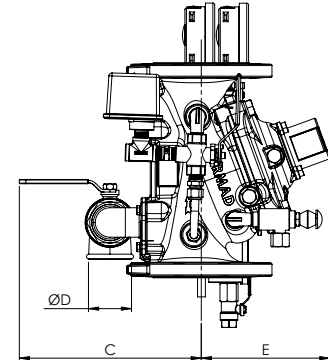
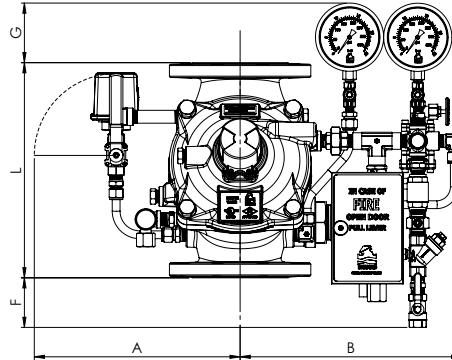
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

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
- Minimum supply pressure is related to the the selected Pilot Trip Point setting, see notes 5 and 6 in code designations below

Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - See engineering data



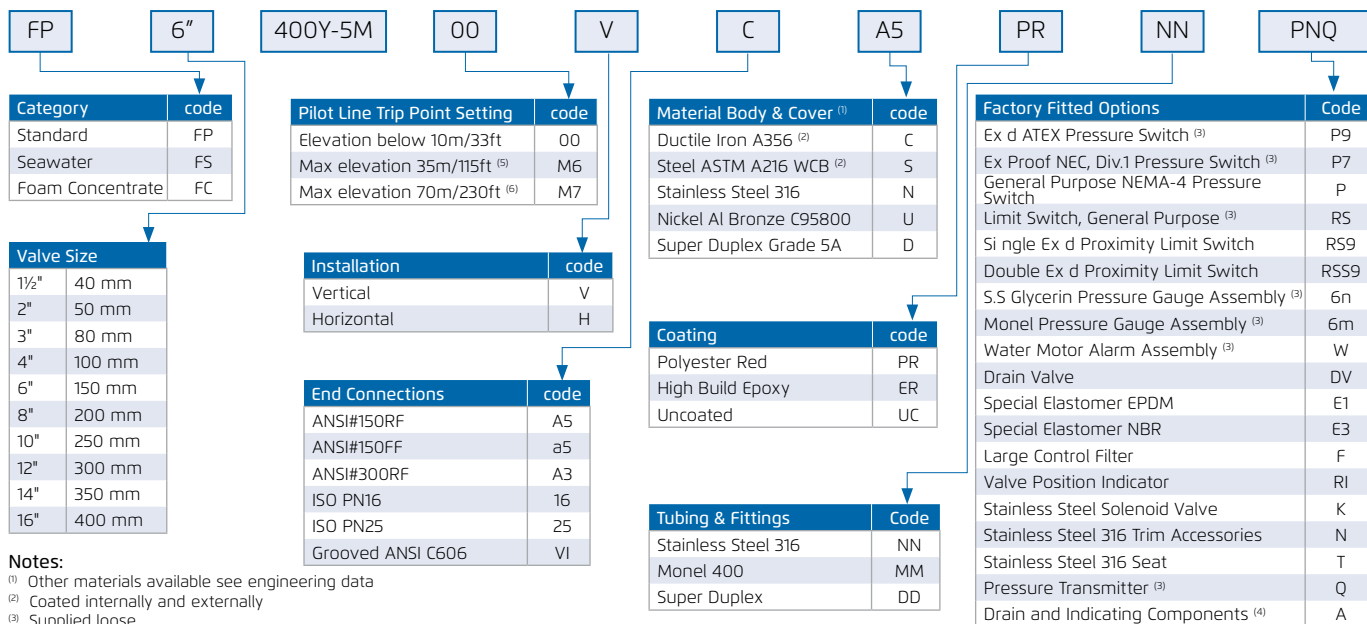
Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
⁽¹⁾ L ¹ ANSI #150 mm (in.)	230(9.06)	230(9.06)	310(12.21)	350(13.79)	480(18.91)	600(23.64)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
L ² ANSI #300 mm (in.)	230(9.06)	238(9.37)	326(12.84)	368(14.50)	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(14.3)	417(16.4)	445(17.5)	455(17.9)	568(22.4)	568(22.4)	568(22.4)
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)
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.)	179(7)	179(7)	109(4.3)	82(3.2)	0.5(0.02)	-	-	-	-	-
G mm (in.)	121(4.8)	121(4.8)	111(4.4)	98(3.9)	49.5(2)	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)	17.7(39)	19.1(42)	33.8(74.4)	43.8(96.4)	87.1(191.6)	150.3(330.7)	180.3(396.7)	323.3(711.3)	356.3(783.9)	402.3(885)

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



Notes:

- ⁽¹⁾ Other materials available see engineering data
- ⁽²⁾ Coated internally and externally
- ⁽³⁾ Supplied loose
- ⁽⁴⁾ Mandatory for FM approved valves
- ⁽⁵⁾ Minimum supply pressure to the Deluge Valve shall be at least 5.0 barg
- ⁽⁶⁾ Minimum supply pressure to the Deluge Valve shall be at least 8.5 barg

