

Hydraulic Pressure-Control, On-Off Deluge Valve

Model: FP 400Y-5DC

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

The 400Y-5DC is activated by a hydraulically operated relay valve, through which opening and closing of the valve can be controlled either with a remote hydraulic command or with a wet pilot line with closed fusible plugs.

An integral pressure reducing pilot valve ensures a precise, stable, pre-set downstream water pressure.

The 400Y-5DC is ideal for systems that combine a remote wet pilot line with a high pressure water supply.



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
- Ensures precise, stable downstream water pressure
- Valve position limit switches

■ High performance

- Very high flow efficiency
- Straight-through Y-type body
- Approved for PN25/365psi

■ Specifically-designed for fire protection

- Face-to-face length standardized to ISO 5752, EN 558-1
- Meets industry standards requirements

■ 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
- Alarm pressure switch
- Sea water compatibility
- Stainless steel seat ring
- Downstream drain valve

Approvals



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



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval

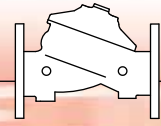


Lloyd's Register
Type Approval

Typical Applications

- Fusible plug loops
- Remote hydraulic control
- Foam applications
- High/Fluctuating pressure water supply

BERMAD Fire Protection

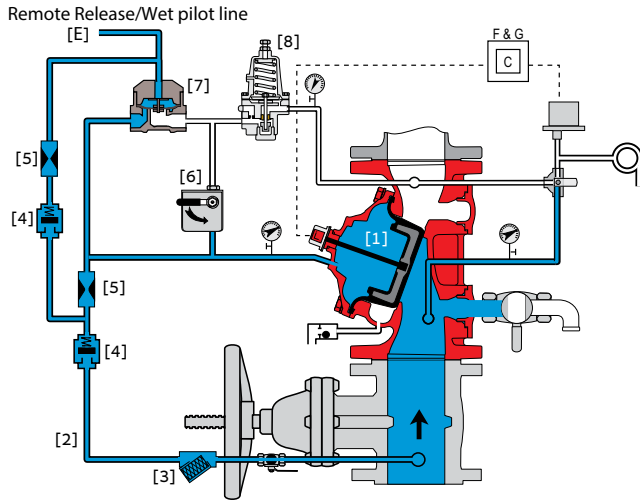


Model: FP 400Y - 5DC

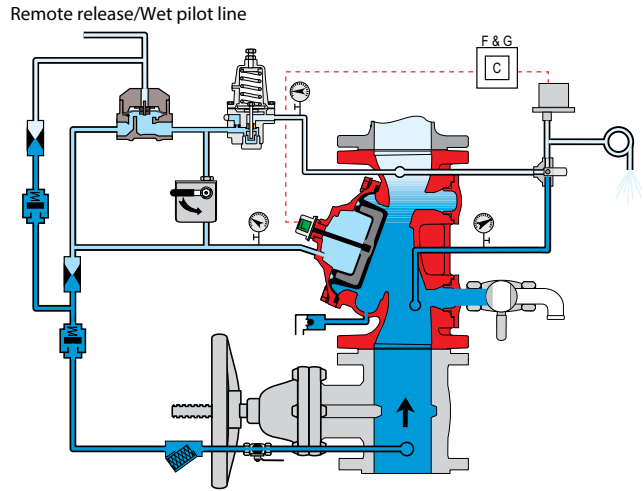
400Y Series

Operation

(For illustration only)



Valve Closed (normal conditions)



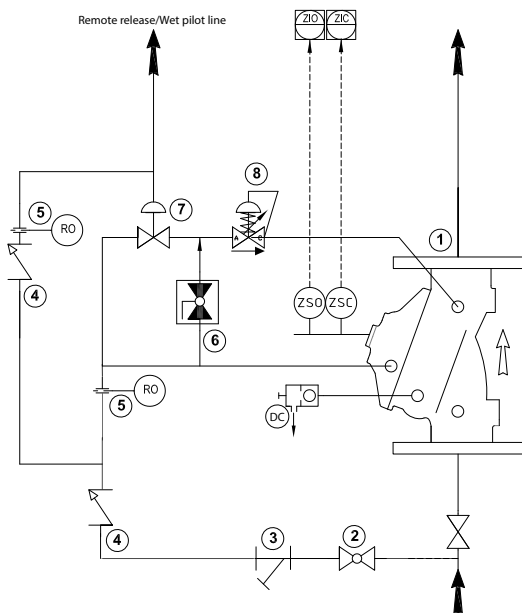
Valve Open (fire conditions)

The BERMAD model 400Y-5DC 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 a restricted orifice [5] it is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a hydraulic relay valve (HRV) [7] that is held closed by hydraulic pilot line pressure [E]. The water pressure trapped in the control chamber holds the main valve 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 HRV opening automatically in response to a decrease in hydraulic pilot-line [E] pressure. This opens the 400Y-5DC deluge valve, allowing water to flow into the system piping and to the alarm device. The pressure-reducing pilot valve [8] modulates the main valve to maintain the set downstream pressure. When outlet pressure changes, the pressure-reducing pilot opens or closes in response. This regulates the pressure in the main valve's control chamber, thus modulating the position of the diaphragm seal disk to maintain the set downstream pressure.

System P&ID

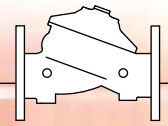


Components

- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check Valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 HRV-Hydraulic Relay Valve
- 8 Pressure Reducing Pilot Valve

Factory Fitted Options

- ZS Limit Switch Assembly
- DC Automatic Drip Check Valve



System Installation

A typical installation of the BERMAD model 400Y-5DC features automatic actuation via a pressure operated relay valve, triggered by a wet pilot line with fusible plugs. When open and fitted with a limit switch the valve sends a feedback signal to the remote valve position monitoring system. A pressure reducing pilot valve integrated in the trim ensures precise, pre-set, stable downstream water pressure.

Factory Fitted Options



Water Motor Alarm



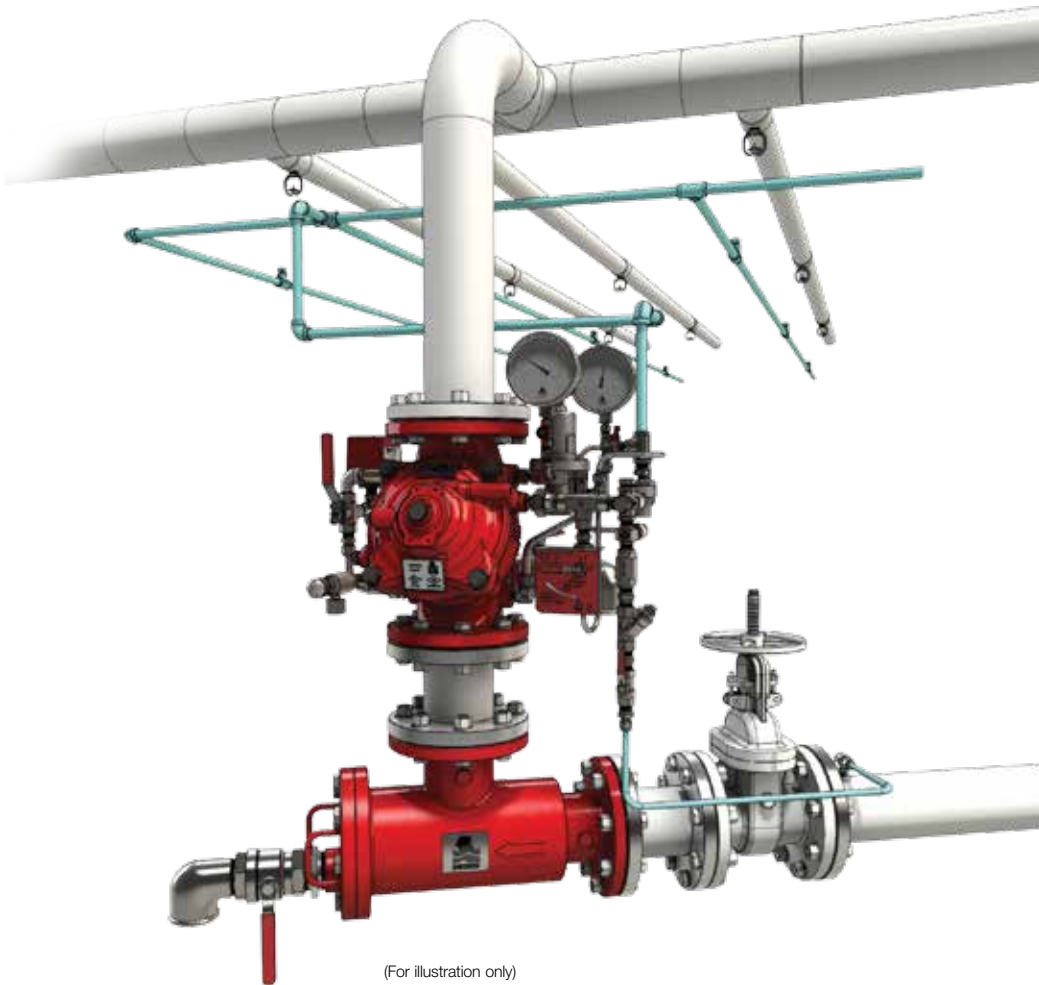
Limit Switch



Pressure Switch



Strainer



(For illustration only)

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 pressure operated relay pilot valve, a pressure reducing 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.

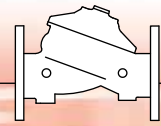
The valve drain socket shall be flanged and have 360-degree swivel.

The valve shall be equipped with limit switches.

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 - 5DC

400Y Series

Technical Data

Available Sizes (inch)

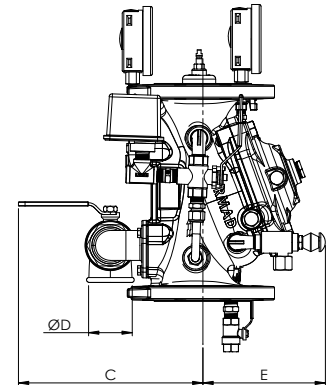
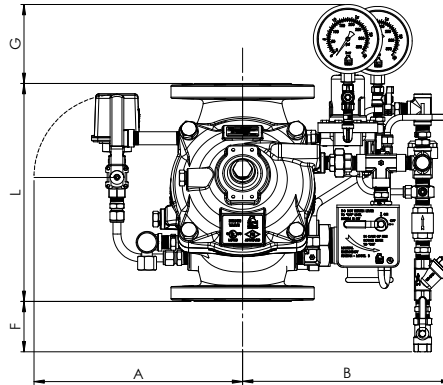
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

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

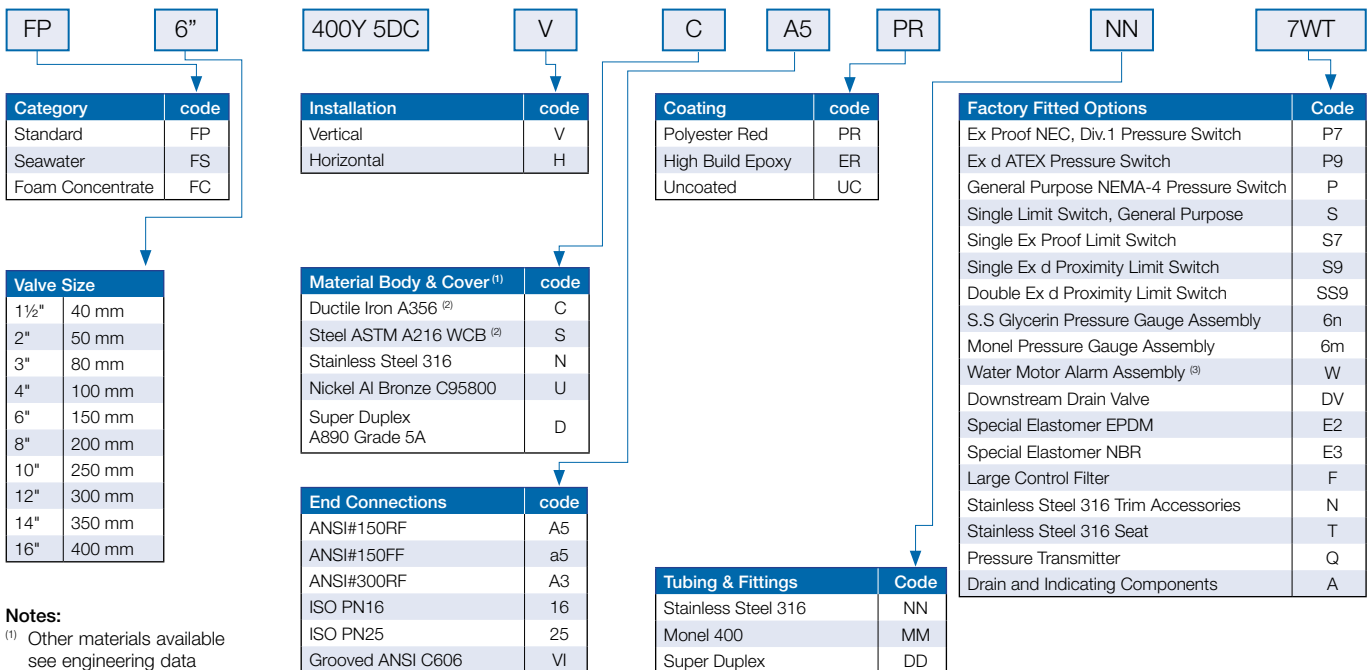


Valve Size	1½" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
⁽¹⁾ L ¹ ANSI #150 mm (in.)	230(9.06)	230(9.06)	310(12.21)	350(13.79)	480(18.91)	600(23.64)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
L ² ANSI #300 mm (in.)	230(9.06)	235(9.25)	326(12.84)	368(14.50)	506(19.94)	626(24.66)	730(28.76)	850(33.49)	980(38.61)	1100(43.34)
A mm (in.)	304(12)	304(12)	364(14.3)	372(14.6)	425(16.7)	455(18)	455(18)	568(22.4)	568(22.4)	568(22.4)
B mm (in.)	269(10.6)	269(10.6)	327(12.9)	337(13.3)	392(15.5)	420(16.5)	420(16.5)	533(21)	533(21)	533(21)
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.)	120(4.7)	120(4.7)	146(5.7)	158(6.2)	228(9.0)	295(11.6)	295(11.6)	441(17.4)	441(17.4)	415(16.3)
F mm (in.)	179(7)	179(7)	109(4.3)	82(3.2)	0.5(0.02)	-	-	-	-	-
G mm (in.)	151(6)	151(6)	141(5.6)	128(5)	80(3.2)	55(2.2)	-	-	-	-
Kv m ³ /h (Cv gpm)	68(79)	80(92)	190(219)	345(398)	790(912)	1160(1340)	1355(1652)	2600(3040)	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)	22.6(48)	24.0(53)	38.7(85)	48.7(107)	92.0(202)	155.2(341)	185.2(407)	328.2(722)	361.2(794)	407.2(895)

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



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