

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 optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.

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



Features & Benefits

- Safety and reliability
 - Time proven, simple design with a fail safe actuation
 - Single piece rugged elastomer, VRSD technology
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
 - Ensures precise, stable downstream water pressure
 - Valve position limit switches (optional)
- High performance
 - Very high flow efficiency
 - Straight through 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
 - Fast and easy cover removal
 - Swivel mounted drain valves (for valves 3" and larger)

Typical Applications

- Remote Control Water Spray Systems
- Remote hydraulic control
- Foam applications
- High Pressure Water Supply

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 1½" - 16"



Det Norske Veritas
Type Approval
Sizes 1½" to 16"



ABS
American Bureau of Shipping
Type Approval
Sizes 1½" - 12"

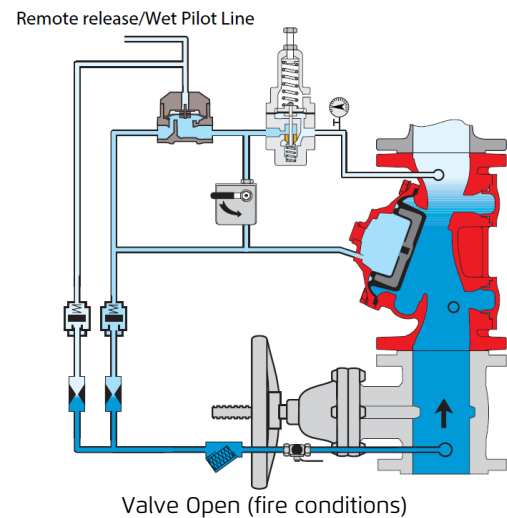
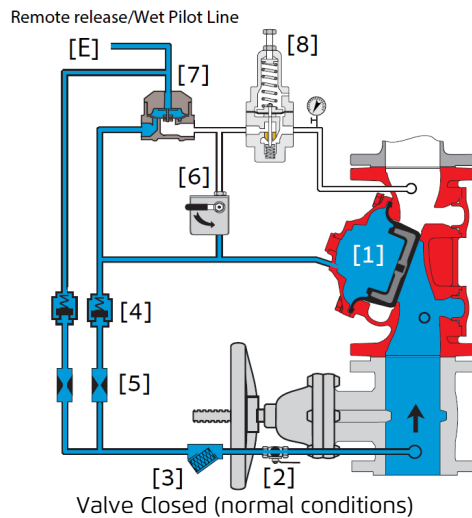


Lloyd's Register
Type Approval
Sizes 1½" - 10"

Additional Features

- Valve position limit switches
- Alarm pressure switch
- Seawater compatibility
- Drain valve/s inlet/outlet
- For "automatic activation" select BERMAD local or remote reset model

Operation

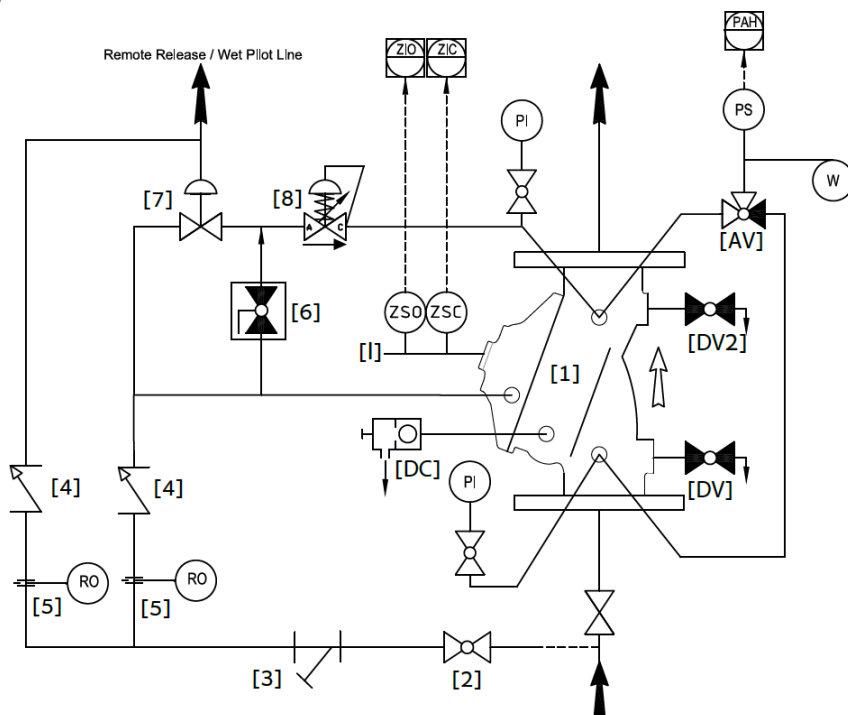


The BERMAD model 400Y-5DC is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

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 held 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 in response to a decrease in hydraulic pressure from a pilot line or a remote release [E]. This opens the 400Y-5DC deluge valve, allowing water to flow into the system piping and to the alarm device/s [9]. 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, modulating the opening position of the deluge valve 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

Optional System Items	
ZS	Limit Switch Assembly
I	Visual Valve Position indicator
W	Water Motor Alarm
PS	Pressure Switch
DV2	Downstream Drain valve
DV	Drain Valve*
PI	Pressure Gauge*
AV	3-way Alarm Test Valve*
DC	Automatic Drip Check Valve*

* Included with suffix A in valve code (drain and indicating components)
See code designations and "factory supplied additional items" on page 4

System Installation

A typical installation of the BERMAD model 400Y-5DC features actuation via a pressure operated relay valve. This relay valve can be operated to actuate the main valve by using either a remote hydraulic pressure supply or a wet pilot line with fusible plugs. A pressure reducing pilot valve within the control trim ensures a precise and stable preset downstream water pressure.

When fitted with a limit switch the valve can send a feedback signal to a remote valve position monitoring system.

Optional System Items



Pressure Gauge



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments
Single Ex d



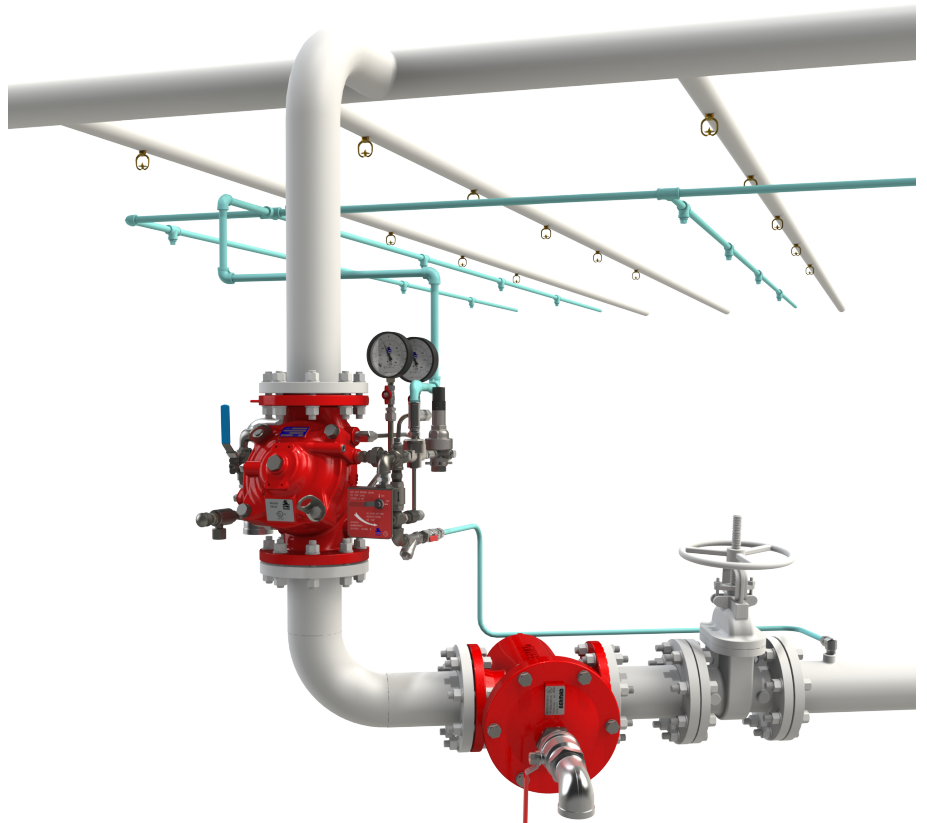
Proximity S.S.316
Limit Switch



Visual Position
Indicator, Linear



Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed, 365-psi/25-bar rated, with a straight-through Ytypebody.

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

The deluge valve shall have no mechanical moving parts, and the actuation shall utilize a single-piece diaphragm assembly of VRSD technology.

The valve shall be coated internally and externally with UV protection. Optional: C5-VH grade of ISO-12944 standard against corrosive conditions.

The control trim shall include a pressure control pilot valve, an auxiliary relay valve, a manual emergency release unit, a Y-type strainer, two 4-inch pressure gauges, an automatic drip-check with manual override, and a ball drain valve with a 360-degree swivel.

A valve position indicator shall be provided, and equipped with two proximity limit switches.

Removing the valve cover for full inspection and maintenance shall be in-line and not require removal of the control trim.

The deluge valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

Technical Data

Available Sizes:

Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10, 12, 14 & 16"

Grooved- 1½, 2, 2½, 3, 4, 6, 8 & 10"

Pressure Rating:

ANSI#150 - 17.2 bar | 250 psi

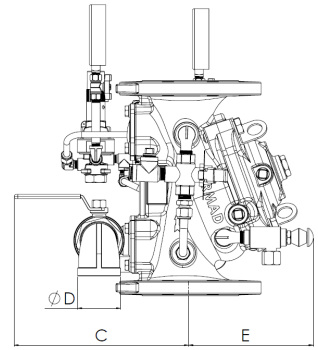
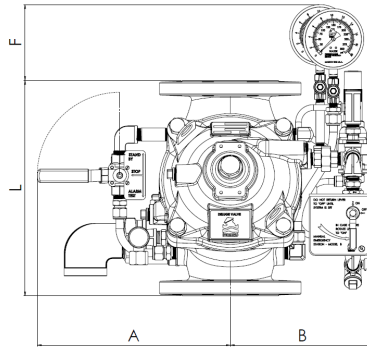
ANSI#300 - 1½" to 10" - 25 bar | 365 psi

ANSI#300 - 12" to 16" - 20 bar | 300 psi

Grooved - 17.2 / 25 bar | 250 / 365 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature Compound - See engineering data



Valve Size	L #150 mm in	L Grooved mm in	L #300 mm in	A mm in	B mm in	C mm in	ØD in	E mm in	F mm in	G mm in
DN40 1½"	230 9.1	230 9.1	230 9.1	293 11.5	-	177 7	¾"	-	-	-
DN50 2"	230 9.1	230 9.1	238 9.4	293 11.5	-	177 7	¾"	-	-	-
DN65 2½"	235 9.3	235 9.3	241 9.5	293 11.6	-	177 7.2	1½"	-	-	-
DN80 3"	310 12.2	310 12.2	326 12.8	313 12.3	-	177 7	1½"	-	-	-
DN100 4"	350 13.8	350 13.8	368 14.5	343 13.5	-	287 11.3	2"	-	-	-
DN150 6"	480 18.9	480 18.9	506 19.9	358 14	-	302 11.9	2"	-	-	-
DN200 8"	600 23.6	600 23.6	626 24.7	392 15.4	-	317 12.5	2"	-	-	-
DN250 10"	730 28.7	730 28.7	730 28.7	406 16	-	317 12.5	2"	-	-	-
DN300 12"	850 33.5	-	888 35	478 18.8	-	380 15	2"	-	-	-
DN350 14"	980 38.6	-	980 38.6	478 18.8	-	379 14.9	2"	-	-	-
DN400 16"	1100 43.3	-	1100 43.3	478 18.8	-	405 16.1	2"	-	-	-

IMPORTANT: Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning - Apart from the "L" dimension, allow a tolerance of at least ±15%

Valve Code Designations

FP	6"	400Y-5DC	03	V	C	A5	ER	NN	N6nW																																																																																																																																											
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Notes:

(1) Other materials available see engineering data

(2) Coated internally and externally

(3) Supplied loose

Notes:

(1) Other materials available see engineering data

(2) Coated internally and externally

(3) Supplied loose

(4) Consult BERMAD for availability

(5) For valves up to and including 10"

*More options available – consult BERMAD