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
  - Efficient Straight through flow
  - 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)

Approvals

c UL us LISTED	UL-Listed Special System Water Control Valves, Deluge Type (VLFT) Sizes 1½" - 16"
DNV	Det Norske Veritas Type Approval Sizes 1½" to 16"
ABS TYPE APPROVED PRODUCT	American Bureau of Shipping Type Approval Sizes 1½" - 12" Fire Test
Lloyd's Register TA TYPE APPROVED	Lloyd's Register Type Approval Sizes 1½" - 10"

Typical Applications

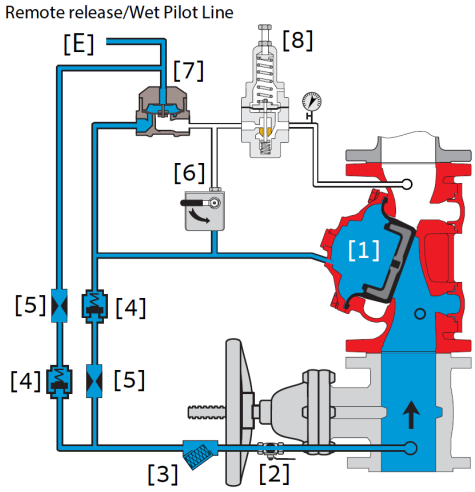
- Remote Control Water Spray Systems
- Remote hydraulic control
- Foam applications
- High Pressure Water Supply

Optional Features

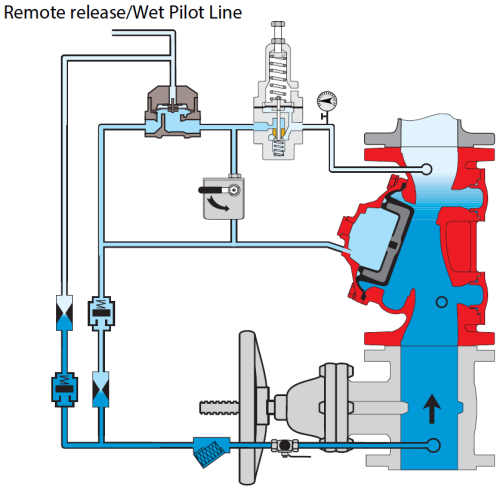
- Valve position limit switches
- Alarm pressure switch
- Seawater compatibility
- Drain valve/s inlet/outlet
- For "automatic activation" select BERMAD local or remote reset model

All images in this catalog are for illustration only

Operation



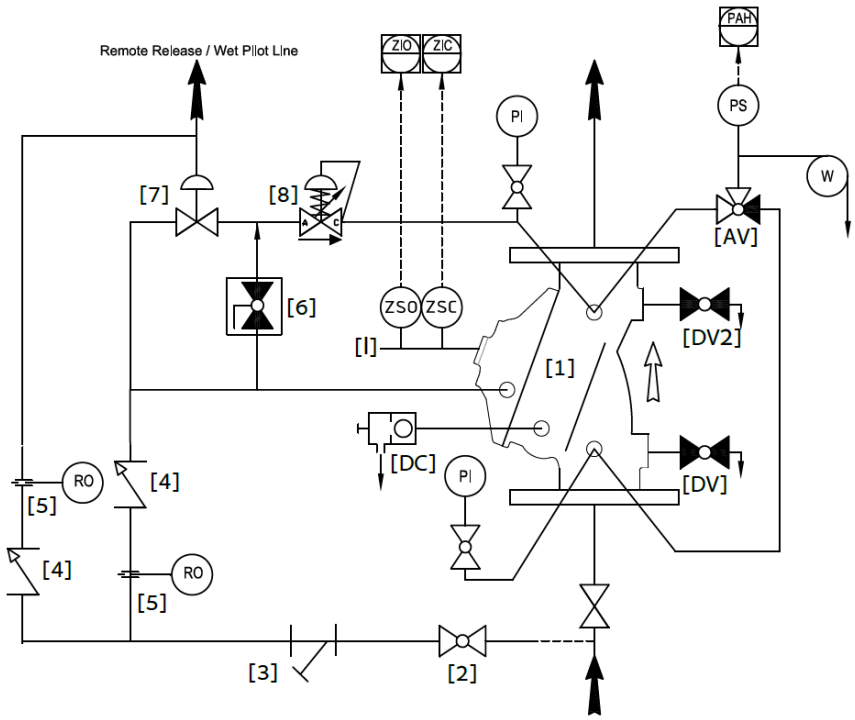
Valve Closed (normal conditions)



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 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 pressurereducing 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 vave 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.

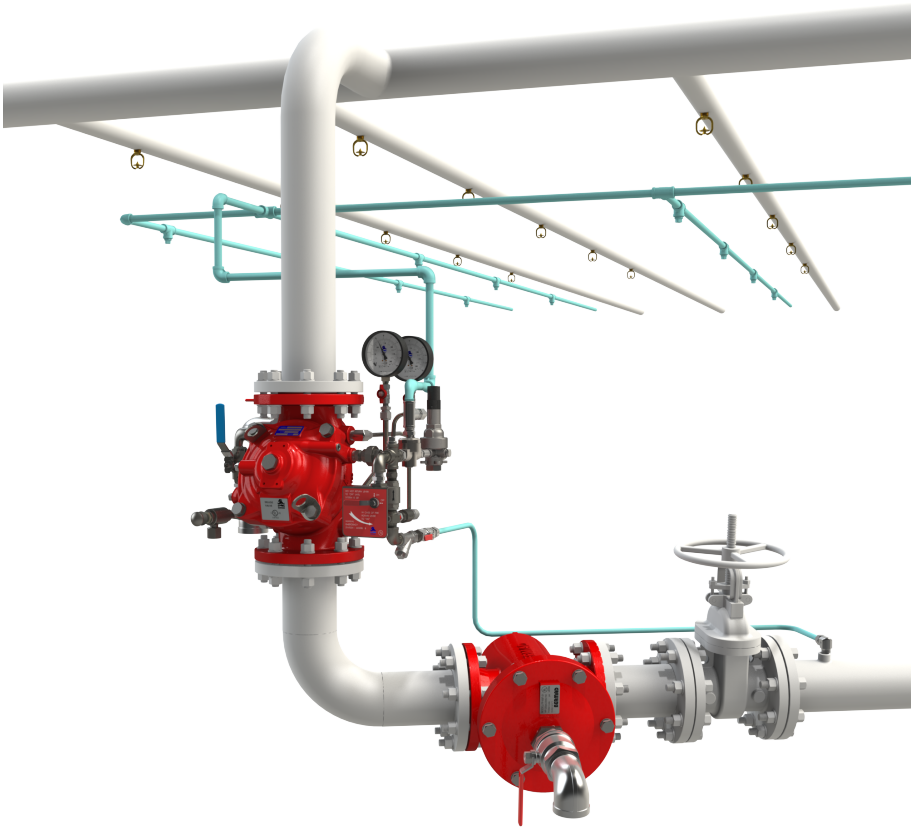
Optional System Items

S.S. Glycerin Filled Pressure Gauge

S.S Pressure Switch E xd

Linear Visual Position Indicator

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.

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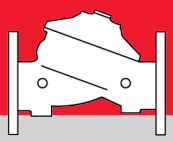
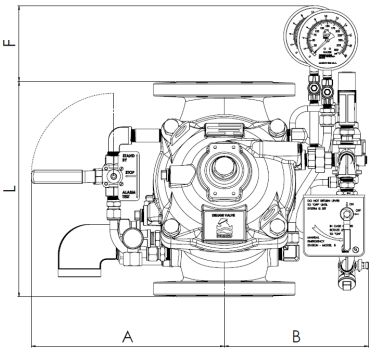


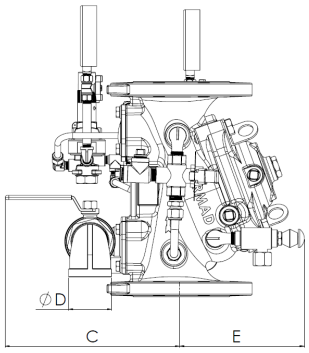
Technical Data

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
Setting range: 4 - 12 bar | 60 - 175 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

Category	Code
Standard	FP
Seawater	FS
Foam	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	65 mm (6)
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm
14"	350 mm
16"	400 mm

Installation	Code
Vertical	V
Horizontal	H

Material Body & Cover (1)	Code
Ductile Iron A536 (2)	C
Steel ASTM A216 WCB (2)	S
Stainless Steel 316	N
Nickel Al Bronze C95800	U
Super Duplex Grade 5A	D

Additional Feature	Code
Closing Speed Control	01
Opening Speed Control	02
Opening & Closing Speed Control	03
None	-

End Connection	Code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ANSI#300FF	a3
ISO PN16	16
ISO PN25	25
Grooved 17.2bar/250psi(5)	VI
Grooved 25 bar / 365 psi(5)	V2

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy (5)	ZR
Uncoated	UC

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Factory Supplied Additional Items*	Code
General Purpose NEMA-4 Pressure Switch	P
Ex Proof NEC, Div.1 Pressure Switch (3)	P7
Ex d ATEX Pressure Switch (3)	P9
Ex d Pressure Switch, SS316 Enclosure (3)	P9Jn
Ex d Pressure Switch, SS316 Enclosure, Monel Sensor (3)	P9mJn
Single Limit Switch, General Purpose	S
Single Ex d Proximity limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Double Ex d Proximity Limit Switch with SS316 Junction Box	SS9Jn
Pressure Gauge Assembly (3)	6
S.S Glycerin Pressure Gauge Assembly (3)	6n
Monel Pressure Gauge Assembly (3)	6m
Stainless steel 316 Solenoid Valve	K
Drain Valve	DV
Water Motor Alarm Assembly (3)	W
Special Elastomer(4)	E
Large Control Filter	F
Valve Position Indicator	I
S.S 316 Trim Accessories	N
Pressure Transmitter (3)	Q
Drain and Indicating Components	A
Mechanical latch – Manual Reset	H

*More options available – consult BERMAD

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"

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