Hydraulically Controlled On-Off Deluge Valve

Model: FP 400Y-5D

The BERMAD Model 400Y-5D is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.
The 400Y-5D is activated by a hydraulic relay valve, by which opening and closing of the valve can be controlled remotely.
The 400Y-5D is suited to systems with remote or elevated wet pilot lines.
The valve's position monitoring device features a visual position indicator and can interface with any fire & gas control system.

Benefits and Features

- **Safety and reliability**
  - Time-proven, simple, fail-safe opening mechanism
  - 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 PN25/365psi
- **Specifically-designed for fire protection**
  - Face-to-face length standardized to ISO 5752, EN 558-1
  - Meets the requirements of 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

Factory Fitted Options

- Valve position limit switches
- Local valve position indicator beacon
- Water motor alarm
- Alarm pressure switch
- 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

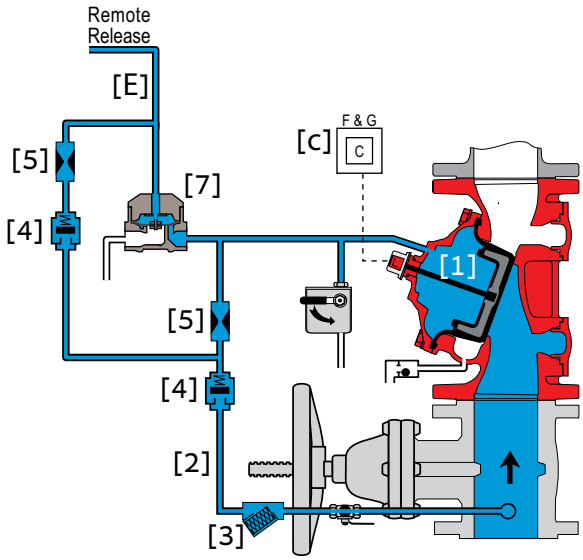
Lloyd's Register
Type Approval

Typical Applications

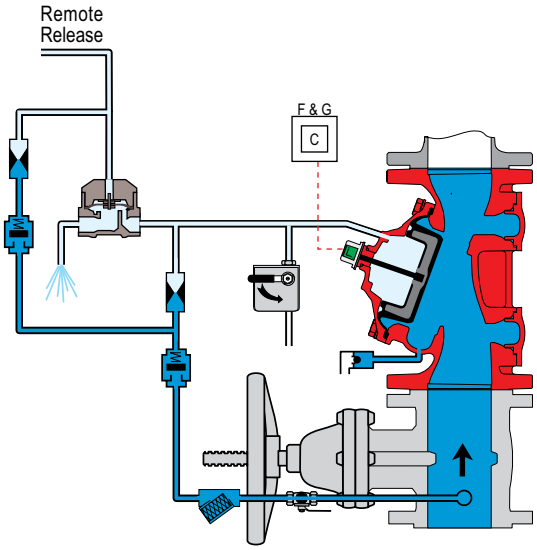
- Remote or elevated wet pilot lines
- Automatic water spray systems
- Flammable material storage
- Power plants and transformers
- Petrochemical facilities

Operation

(for illustration only)



Valve Closed (normal conditions)



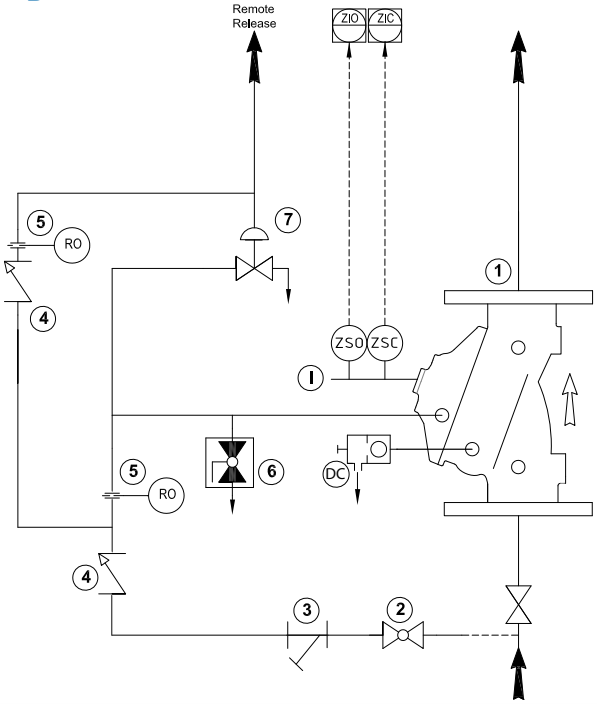
Valve Open (fire conditions)

The BERMAD model 400Y-5D 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]** restriction orifice **[5]** and strainer **[3]**, and is then trapped in the control chamber by a check valve **[4]**, manual emergency release **[6]**, and a relay valve (HRV) **[7]** that is held closed by hydraulic pilot line pressure **[E]**. The water pressure trapped in the main valve 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 HRV opening automatically in response to a decrease in hydraulic pilot line pressure **[E]**. This opens the 400Y-5D deluge valve, allowing water to flow into the system piping.

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

Factory Fitted Options

ZS	Limit Switch Assembly
I	Visual Indicator
DC	Automatic Drip Check Valve

System Installation

A typical installation of the BERMAD model 400Y-5D features automatic actuation via a hydraulic relay valve, triggered by a wet pilot line with closed fusible plugs. When open, and fitted with a limit switch, the valve sends a feedback signal to the remote valve position monitoring system.

Factory Fitted Options

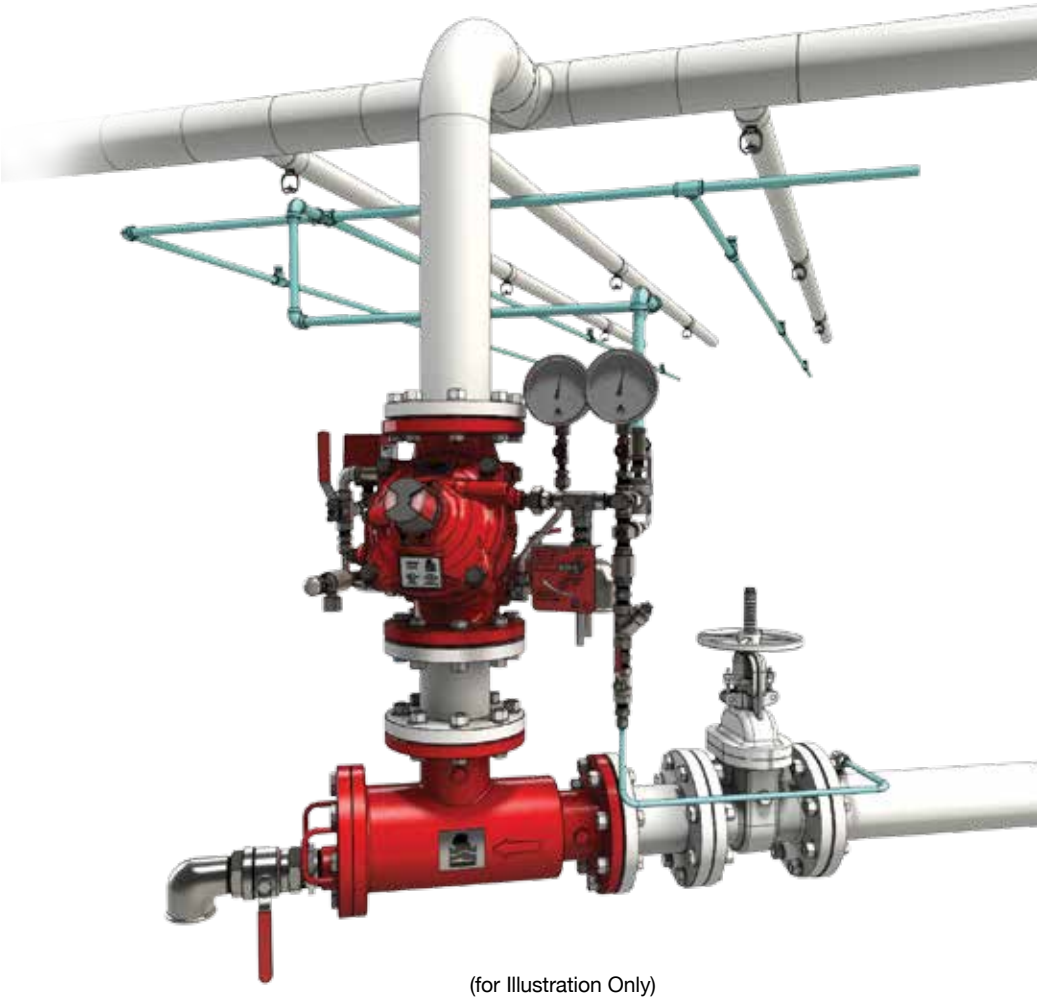

Water Motor Alarm


Limit Switch


Valve Position Indicator


Pressure Switch

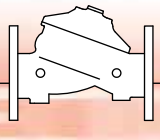

Strainer


(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 relay pilot valve, a Y-type strainer, a ball drain valve, 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 or 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 - 5D

400Y Series

Technical Data

Available Sizes (inch)

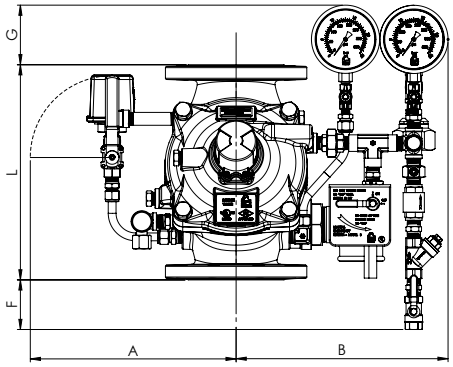
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16”
- Grooved - 2, 3, 4, 6 & 8”
- Threaded - 1½ & 2”

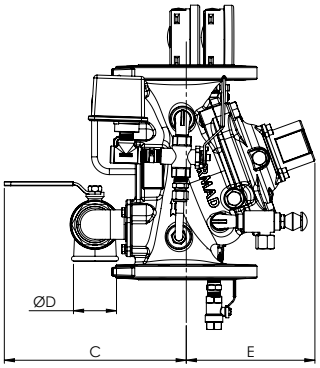
Pressure Rating

- 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) L¹ 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)
L² 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.)	279(11)	279(11)	337(13.3)	347(13.7)	402(15.9)	430(17)	430(17)	543(22)	543(22)	543(22)
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)	273(10.7)	338(13.3)	341(13.4)	490(19.3)	490(19.3)	465(18.3)
F mm (in.)	179(7)	179(7)	109(4.3)	82(3.3)	-	-	-	-	-	-
G mm (in.)	121(4.8)	121(4.8)	111(4.4)	98(3.9)	50(2)	25(1)	-	-	-	-
Kv m³/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)	19.3(43)	20.7(46)	35.4(78)	45.4(100)	88.7(195)	151.9(335)	181.9(400)	324.9(715)	357.9(788)	403.9(888)

Notes: (1) L1 Dimensions are for grooved, threaded and flanged valves.
(2) Leq: Equivalent pipe length for turbulent flow in clean commercial steel pipe (SCH 40)

Valve Code Designations

FP | 6” | 400Y 5D | V | C | A5 | PR | NN | PWN

Category	code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Valve Size	
1½"	40 mm
2"	50 mm
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 A356 (2)	C
Steel ASTM A216 WCB (2)	S
Stainless Steel 316	N
Nickel Al Bronze C95800	U
Super Duplex A890 Grade 5A	D

End Connections	code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ISO PN16	16
ISO PN25	25
Grooved ANSI C606	VI

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

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

Factory Fitted Options	Code
Ex Proof NEC, Div.1 Pressure Switch	P7
General Purpose NEMA-4 Pressure Switch	P
Ex d ATEX Pressure Switch	P9
Single Limit Switch, General Purpose	S
Double Ex d Proximity Limit Switch	SS9
S.S Glycerin Pressure Gauge Assembly	6n
Monel Pressure Gauge Assembly	6m
Water Motor Alarm Assembly (3)	W
Downstream Drain Valve	DV
Special Elastomer EPDM	E2
Special Elastomer NBR	E3
Large Control Filter	F
Valve Position Indicator	I
Stainless Steel 316 Trim Accessories	N
Stainless Steel 316 Seat	T
Pressure Transmitter	Q
Drain and Indicating Components	A

Notes:
(1) Other materials available see engineering data
(2) Coated internally and externally
(3) Supplied loose

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