

Electrically Controlled On-Off Deluge Valve

Model FP 400Y - 3D

The BERMAD model 400Y-3D is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards.

The 400Y-3D is activated by a 3-way solenoid valve, suitable for electric fire detection systems.

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

The 400Y-3D is ideal for systems with open nozzles for water or foam discharge.

Available with electric components to suit any hazardous location.



(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
 - ▢ Shuts off on remote command
- **High performance**
 - ▢ Very high flow efficiency
 - ▢ Approved for PN25 / 365 psi
 - ▢ Straight through flow Y-type body
- **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
 - ▢ Fast and easy cover removal
 - ▢ Swivel mounted drain valves*

* not including 1½" & 2" valves

Typical Applications

- Electric fire detection systems with control panels
- Remote control water spray systems
- Foam applications
- Corrosive water supplies

Approvals



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



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval



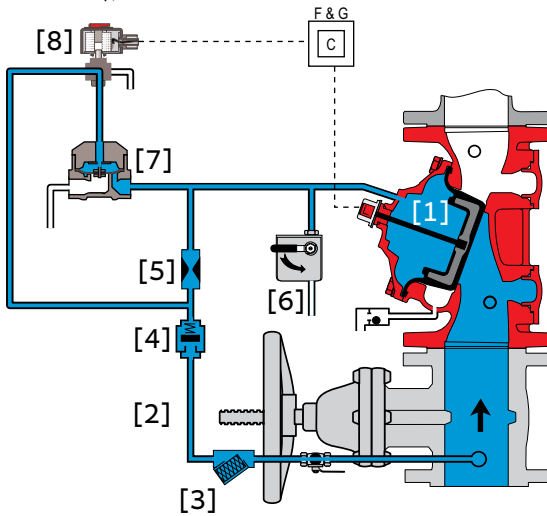
Lloyd's Register
Type Approval

Additional Features

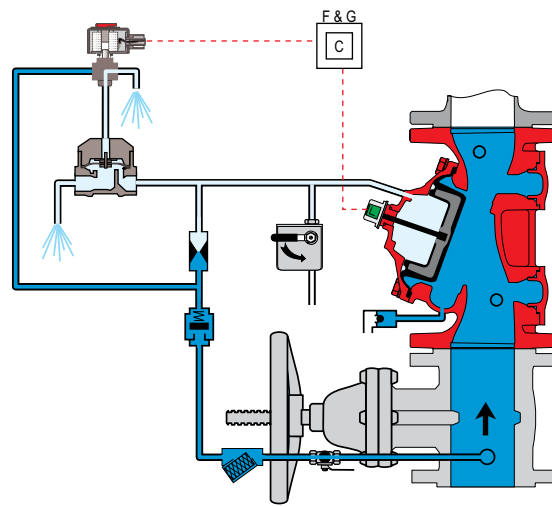
- Valve position limit switches
- Local valve position indicator beacon
- Sea water compatibility
- Alarm pressure switch
- Drain valve/s inlet/outlet
- For "automatic activation" select BERMAD local or remote reset model

Operation

(for illustration only)



Valve Closed (normal conditions)



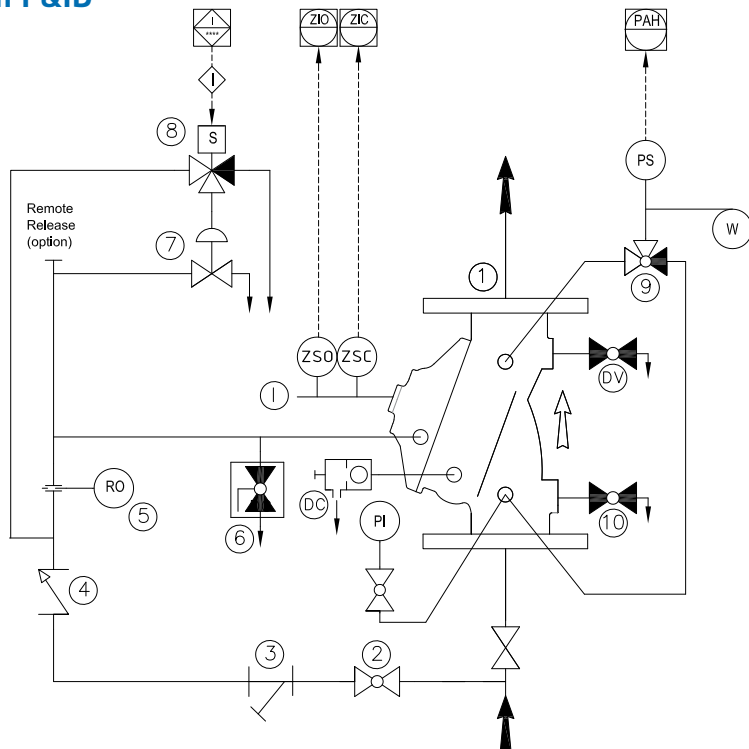
Valve Open (fire conditions)

The BERMAD model 400Y-3D 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 pressure supplied through a three-way solenoid valve [8]. 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 in response to the solenoid valve being activated by the fire & gas control system [C]. This opens the 400Y-3D deluge valve, allowing water to flow into the system piping.

System P&ID



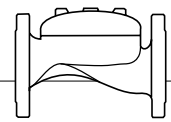
Components

- 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
- 8 3-Way NC Solenoid Valve

Optional System Items

- ZS Limit Switch Assembly
- I Visual Indicator
- DC Automatic Drip Check Valve*
- DV Additional Drain Valve
- PI Pressure Indicator*
- PS Pressure Switch
- W Water Motor Alarm
- 9 3-Way Alarm Valve*
- 10 Drain Valve*

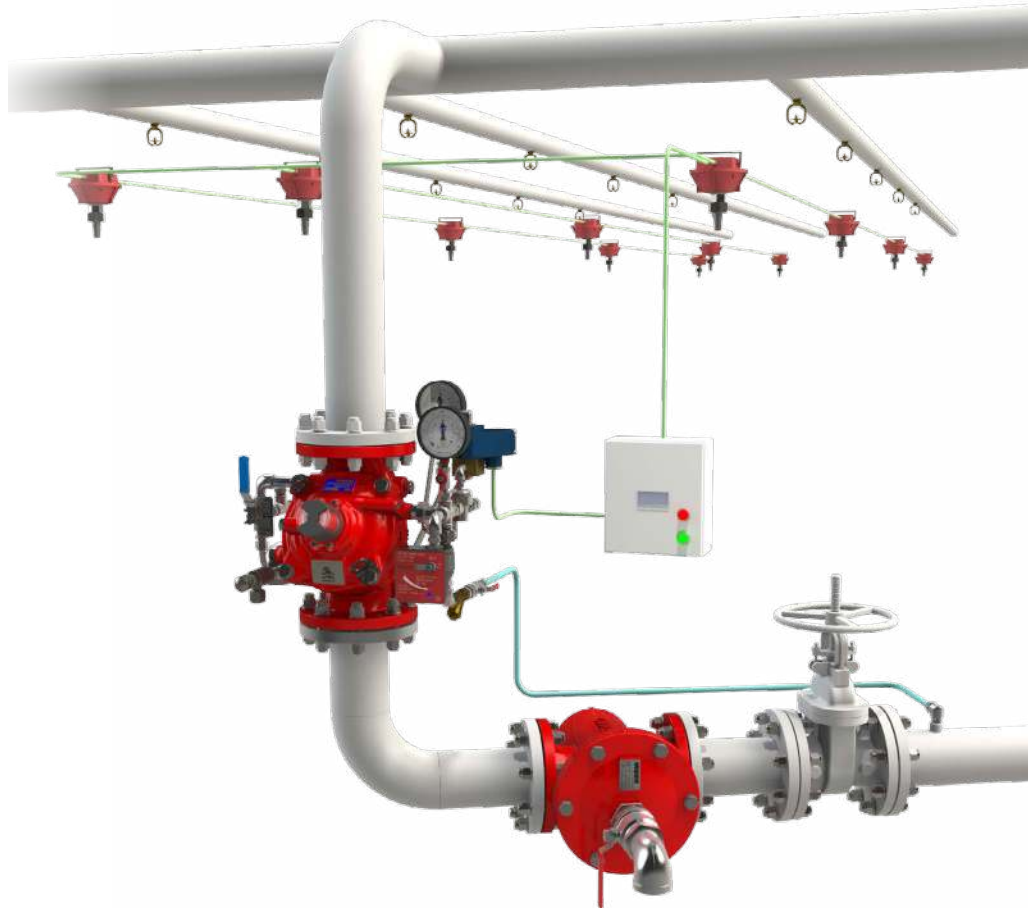
* Included in code suffix A "Drain and Indicating Components". See code designations and additional Factory Fitted Options on page 4



System Installation

A typical installation of the BERMAD model 400Y-3D features actuation via a hydraulic relay valve and three-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency pushbutton. When open and fitted with a limit switch the valve can send a feedback signal to a remote valve status monitoring system.

Optional System Items



(for Illustration Only)

Suggested Specifications

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

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

The valve shall be coated internally and externally creating a corrosion barrier with UV protection.

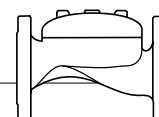
Valve actuation shall be accomplished by a single piece rolling diaphragm, bonded with a rugged radial seal disk.

The diaphragm assembly shall be the only moving part. The deluge valve shall include a relay pilot valve, a 3-Way solenoid valve with approval for 25 bar/365 psi and a tolerance of 35% below the rated voltage, 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-colour, 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 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)

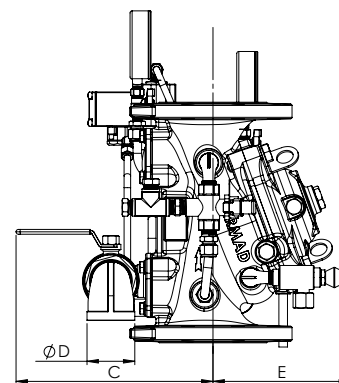
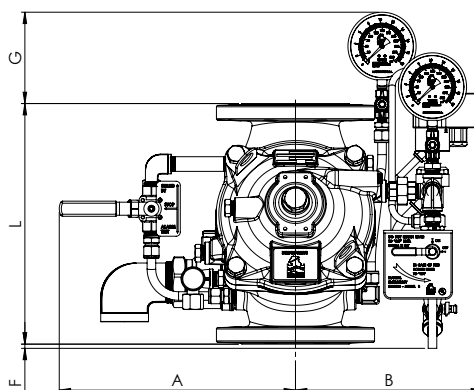
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

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

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	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
L ANSI #150 ⁽¹⁾	287	11.3	287	11.3	347	13.7	355	14.0	408	16.1	438	17.2	438	17.2	551	21.7	551	21.7	551	21.7
L ANSI #300 ⁽²⁾	199	7.8	199	7.8	257	10.1	267	10.5	322	12.7	350	13.8	350	13.8	463	18.2	463	18.2	463	18.2
A	241	9.5	241	9.5	274	10.8	290	11.4	305	12.0	320	12.6	320	12.6	383	15.1	383	15.1	408	16.1
B	287	11.3	287	11.3	347	13.7	355	14.0	408	16.1	438	17.2	438	17.2	551	21.7	551	21.7	551	21.7
C	199	7.8	199	7.8	257	10.1	267	10.5	322	12.7	350	13.8	350	13.8	463	18.2	463	18.2	463	18.2
ØD	¾"		¾"		1½"		2"		2"		2"		2"		2"		2"		2"	
E	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	98	3.9	98	3.9	28	1.1	1	0.0	-	-	-	-	-	-	-	-	-	-	-	-
G	192	7.6	192	7.6	182	7.2	169	6.7	21	0.8	-	-	-	-	-	-	-	-	-	-
Kv / Cv ⁽³⁾	68 / 79		80 / 92		190 / 219		345 / 398		790 / 912		1160 / 1340		1355 / 1652		2600 / 3040		2950 / 3450		3254 / 3801	
Leq ⁽⁴⁾ : m / ft	2 / 7		6 / 18		8 / 25		9 / 31		15 / 49		28 / 92		64 / 209		46 / 149		56 / 184		90 / 295	
Kg / lb (ANSI # 150)	18 / 40		20 / 43		34 / 76		44 / 98		88 / 193		151 / 332		181 / 398		324 / 713		357 / 785		403 / 887	
Kg / lb (ANSI # 300)	20 / 45		22 / 48		35 / 77		51 / 113		108 / 238		171 / 376		217 / 477		364 / 801		429 / 944		523 / 1151	

⁽¹⁾ Refers to the length dimensions for Raised Face ANSI #150, ISO 16 Flanged, Threaded and Grooved valves

⁽²⁾ Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves

⁽³⁾ Flow coefficients apply to a fully opened valve

⁽⁴⁾ Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40 for a fully opened valve, values given for general consideration only

⁽⁵⁾ **IMPORTANT:** Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning; - allow a tolerance of at least ±10%.

Valve Code Designations

FP

6"

400Y-3D

V

C

A5

PR

4DC

NN

P6Q

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 A536 ⁽²⁾	C
Steel ASTM A216 WCB ⁽²⁾	S
Stainless Steel 316	N
Nickel Al Bronze C95800	U
Super Duplex 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

Voltage - Main Valve N.O or N.C	
24VDC - N.C.	4DC
24VDC - N.O.	4DO
24VDC - Latch	4DS
110VDC - N.C.	5DC
110VDC - N.O.	5DO
110-120/AC - N.C.	5AC
110-120/AC - N.O.	5AO
220-240/AC - N.C.	2AC
220-240/AC - N.O.	2AO

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

Factory Fitted Options	Code
Pressure Switch General Purpose ⁽³⁾	P
Ex Proof NEC, Div.1 Pressure Switch ⁽³⁾	P7
Ex d ATEX Pressure Switch ⁽³⁾	P9
Single Limit Switch General Purpose	RS
Single Ex d Proximity Limit Switch	RS9
Double Ex d Proximity Limit Switch	RS59
Pressure Gauge Assembly ⁽³⁾	6
S.S Glycerin Pressure Gauge Assembly ⁽³⁾	6n
Monel Pressure Gauge Assembly ⁽³⁾	6m
Ex Proof NEC Class 1 Div 1 Solenoid	7
EX d ATEX Solenoid	9
Downstream Drain valve	DV
Water Motor Alarm Assembly ⁽³⁾	W
Special Elastomer EPDM	E1
Special Elastomer NBR	E3
Large Control Filter	F
Valve Position Indicator	RI
S.S Solenoid Valve	K
S.S 316 Trim Accessories	N
Stainless Steel 316 Seat	T
Pressure Transmitter ⁽³⁾	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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