

Hydraulically Controlled Deluge Valve with Local Reset

Model FP 400Y - 1M

The BERMAD model 400Y-1M is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400Y-1M is activated by a pressure drop in a fusible plug wet pilot line. Once open the 400Y-1M latches open until locally reset.

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

The 400Y-1M is ideal for systems with open nozzles for water or foam discharge.



(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
 - Latches open until reset locally
 - Valve position limit switches (optional)
 - Local valve position indicator beacon (optional)
- **High performance**
 - Very high flow efficiency
 - Straight through flow Y- type body
 - Approved for PN25 / 365 psi
- **Designed for fire protection**
 - Face-to-face length standardized to ISO 5752 / EN558-1
 - Designed to meet the requirements of the industry standards
- **Quick and easy maintenance**
 - In-line serviceable
 - Fast and easy cover removal
 - Swivel mounted drain valves *

* for 3" valves and larger

Typical Applications

- Hydraulic remote controlled systems
- Automatic water spray
- Foam applications
- Corrosive water systems

Approvals



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



FM Approved
for Deluge Sprinkler Systems
Sizes 1½" - 8"



Det Norske Veritas
Type Approval



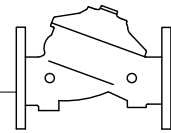
ABS
American Bureau of Shipping
Type Approval



Lloyd's Register
Type Approval

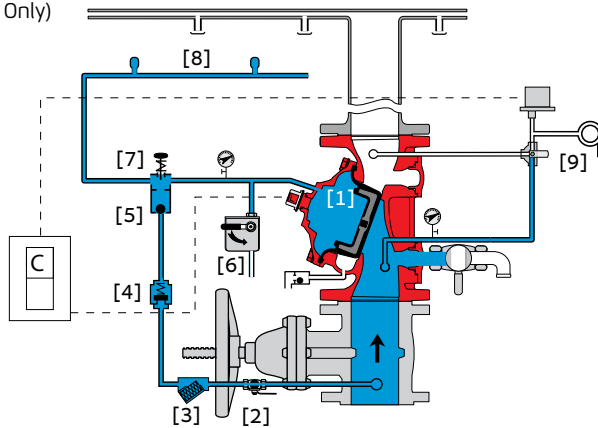
Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Sea water compatibility
- Drain valve/s inlet/outlet

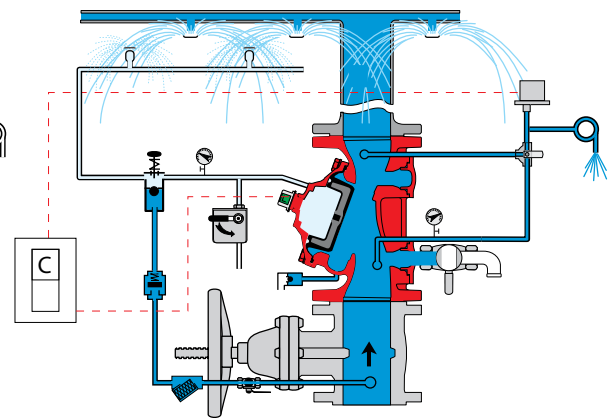


Operation

(for Illustration Only)



Valve Closed (normal conditions)



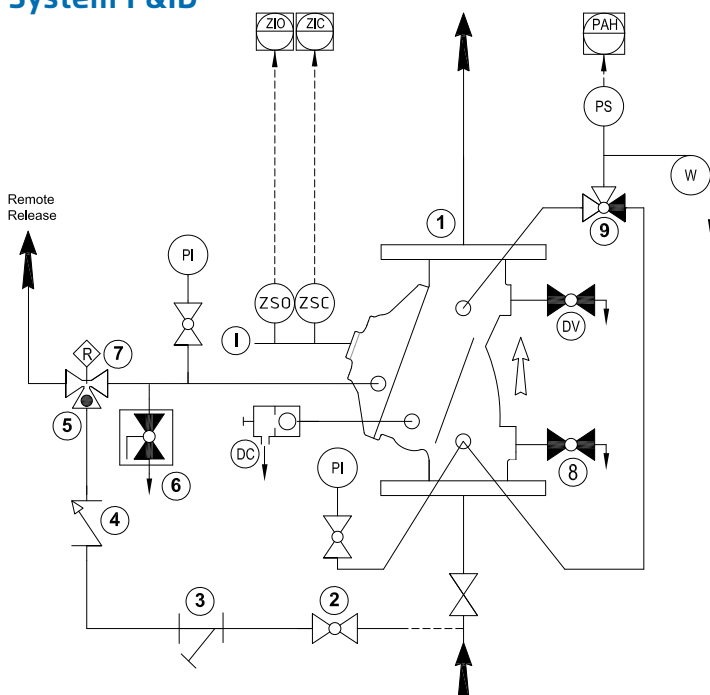
Valve Open (fire conditions)

The BERMAD model 400Y-1M 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 restriction orifice [5] and is then trapped in the control chamber by a check valve [4], manual emergency release [6] and the easy-lock manual reset valve [7]. The water pressure trapped in the control chamber of the deluge valve 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 a release of water pressure of the hydraulic fusible plug pilot line [8], this increase in flow switches the easy-lock to close releasing pressure from the valve control chamber and thereby opening the deluge valve, allowing water to flow into the system piping and to the alarm device [9]. Once open the 400Y-1M latches open and can only be closed locally by manually depressing the easy-lock reset button.

System P&ID



Components

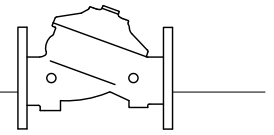
- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 Easy-Lock – Manual Reset

Optional System Items

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

See also Factory Fitted Options under the Valve Code Designations on the last page

* Items mandatory for FM approval and included by the addition of suffix A in the code designations on page 4

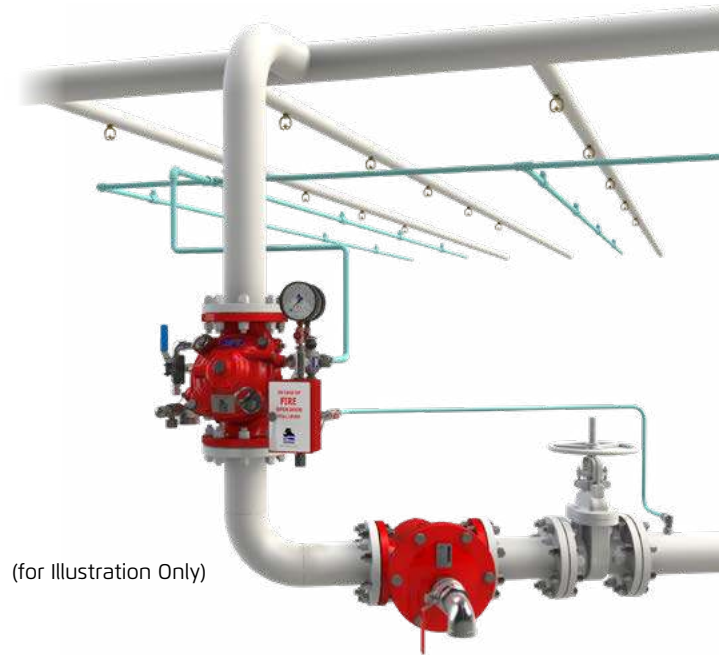
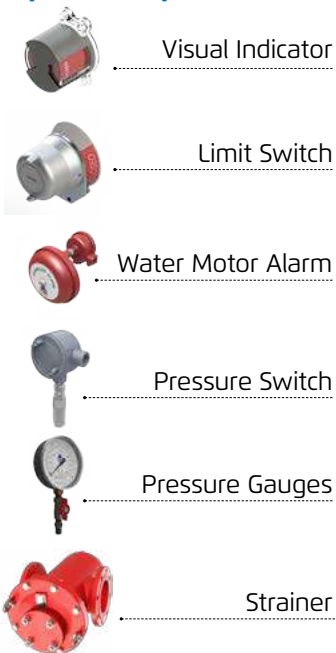


System Installation

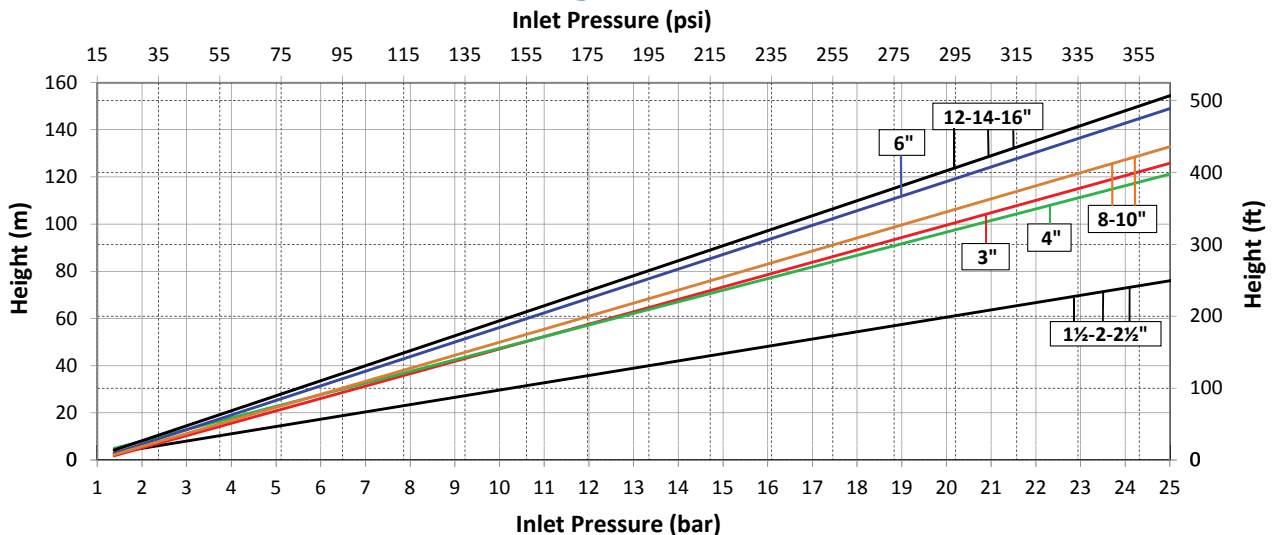
A typical installation of the BERMAD model 400Y-1M, features automatic actuation by way of a fall in pressure of a fusible plug wet pilot line. It can also be triggered manually using the local manual emergency release, or by using a remote hydraulic release.

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



Maximum Allowable Wet Pilot line Height Above Valve



Engineering Specifications

The deluge valve shall be UL-listed and FM-approved, 25-bar/365-psi rated, with a straight-through, Y-type-body. 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 an Easy-Lock latching 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.

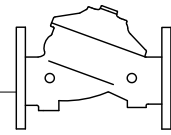
The valve shall be equipped with a protective-covered, dual-color, rotational position indicator, readable from 50 meters, and with two limit switches enclosed in a protective switch box.

Removing the valve cover for inspection or maintenance shall 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.



BERMAD Fire Protection



Model FP 400Y - 1M

400Y Series

Technical Data

Available Sizes (inch)

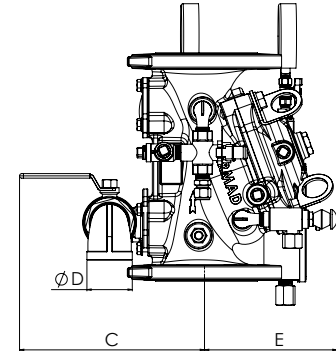
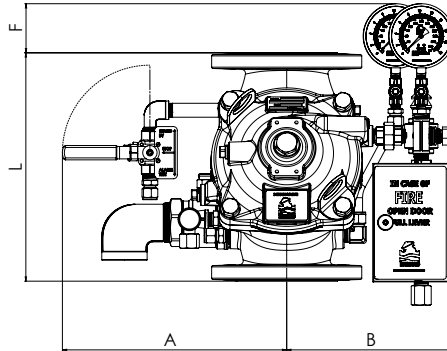
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

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⁾	230	9.1	230	9.1	310	12.2	350	13.8	480	18.9	600	23.6	730	28.7	850	33.5	980	38.6	1100	43.3
L ANSI #300 ⁽²⁾	230	9.1	235	9.3	326	12.8	368	14.5	506	19.9	626	24.7	730	28.8	850	33.5	980	38.6	1100	43.3
A	259	10.2	259	10.2	319	12.6	327	12.9	380	15.0	410	16.1	410	16.1	523	20.6	523	20.6	523	20.6
B	167	6.6	167	6.6	225	8.9	235	9.3	290	11.4	318	12.5	318	12.5	431	17.0	431	17.0	431	17.0
C	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
ØD	¾"		¾"		1½"		2"		2"		2"		2"		2"		2"		2"	
E	180	7.1	180	7.1	185	7.3	195	7.7	228	9.0	295	11.6	295	11.6	441	17.4	441	17.4	415	16.3
F	101	4.0	101	4.0	91	3.6	78	3.1	30	1.2	5	0.2	-	-	-	-	-	-	-	-
Kv / Cv ⁽³⁾	68 / 79		80 / 92		190 / 219		345 / 398		790 / 912		1160 / 1340		1355 / 1652		2600 / 3040		2950 / 3450		3254 / 3801	
Leq: m / ft ⁽⁴⁾	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	

Notes: ⁽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

Category	Code
Standard	FP
Seawater	FS
Foam Concentrate	FC

6"

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

400Y-1M

Speed Control	Code
Closing speed	01
Opening speed	02
Opening & Closing speed	03
None	-

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 Grade 5A	D

03

End Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ISO PN16	16
ISO PN25	25
Grooved 235psi/PN16, ANSI C606	VI
Grooved 365psi/PN25, ANSI C606	V2
Threaded 235psi/PN16, ISO-7-Rp	BP
Threaded 365psi/PN25, ISO-7-Rp	PH
Threaded 235psi/PN16, NPT	NP
Threaded 365psi/PN25, NPT	NH

Coating	Code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

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

V

C

A5

PR

NN

N6nW

Factory Fitted Options	Code
General Purpose Pressure Switch	P
Ex Proof NEC, Div.1 Pressure Switch	P7
Ex d ATEX Pressure Switch	P9
Single Limit Switch, General Purpose	S
Single Ex d Proximity Limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Pressure Gauge Assembly	6
S.S Glycerin Pressure Gauge Assembly	6n
Monel Pressure Gauge Assembly	6m
Water Motor Alarm Assembly	W
Drain Valve	DV
Special Elastomer EPDM	E1
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 [400Y Engineering](#)
⁽²⁾ Coated internally and externally

* For more Factory Fitted Options - see [400Y Ordering Guide](#) or Consult BERMAD



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