

Electrically Controlled Deluge Valve with Local Reset

Model FP 400Y - 3UM

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

The 400Y-3UM is activated by a 3-way solenoid valve, which actuates a latching relay valve, to open the main valve. Once open the main valve will not close until locally reset.

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

The 400Y-3UM 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
 - Latches open: remains 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
- **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 for quick and efficient installation*

* not including 1½" & 2" valves

Typical Applications

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



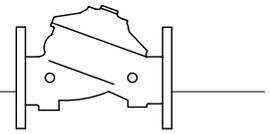
ABS
American Bureau of Shipping
Type Approval



Lloyd's Register
Type Approval

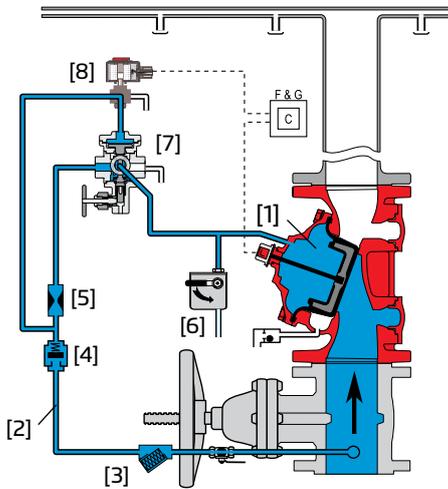
Additional Features

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

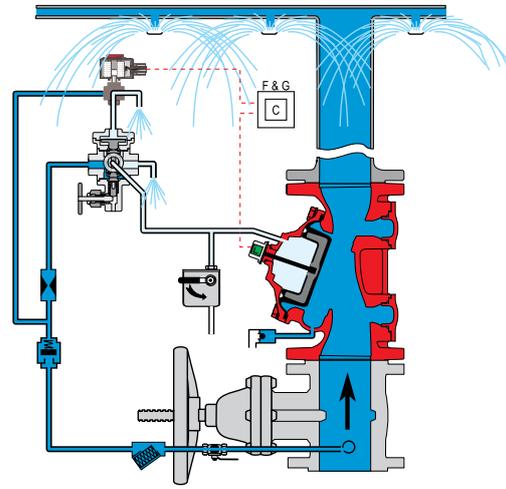


Operation

(for Illustration Only)



Valve Closed (normal conditions)



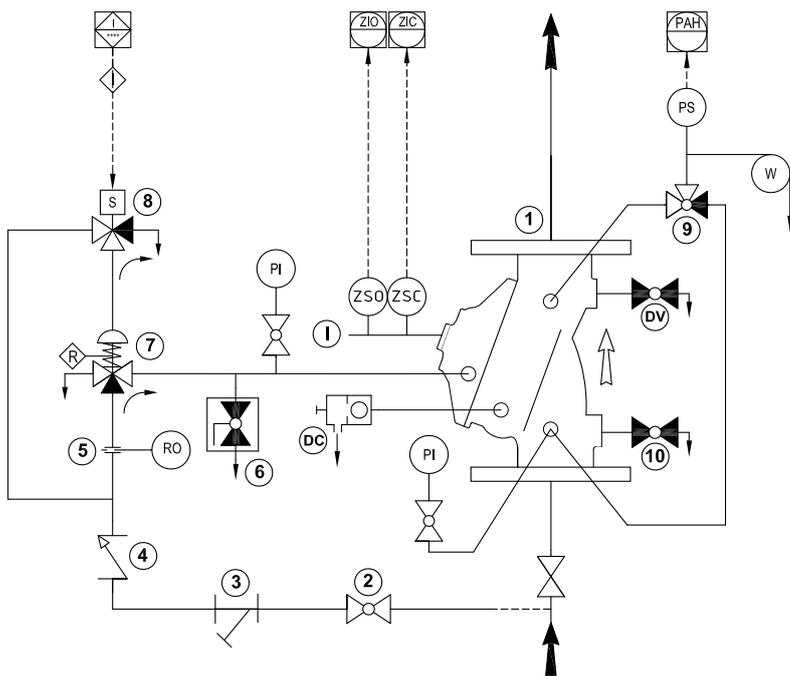
Valve Open (fire conditions)

The BERMAD model 400Y-3UM 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 a relay valve (URV-M) [7] that is held in the supply position by hydraulic pressure supplied through a three-way solenoid valve [8]. The water pressure trapped in the 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 URV-M switching to the release position in response to the solenoid valve being activated by the fire & gas control system [C]. This latches the 400Y-3UM deluge valve open, allowing water to flow into the system piping and the alarm device.

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 URV-3-M Relay Valve
- 8 3-Way NO Solenoid Valve

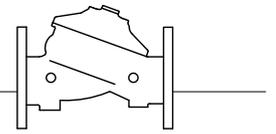
Optional System Items

- 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*

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

*Mandatory for FM approval
(suffix A in code designations on page 4)





System Installation

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

Optional System Items



Water Motor Alarm



Pressure Switch



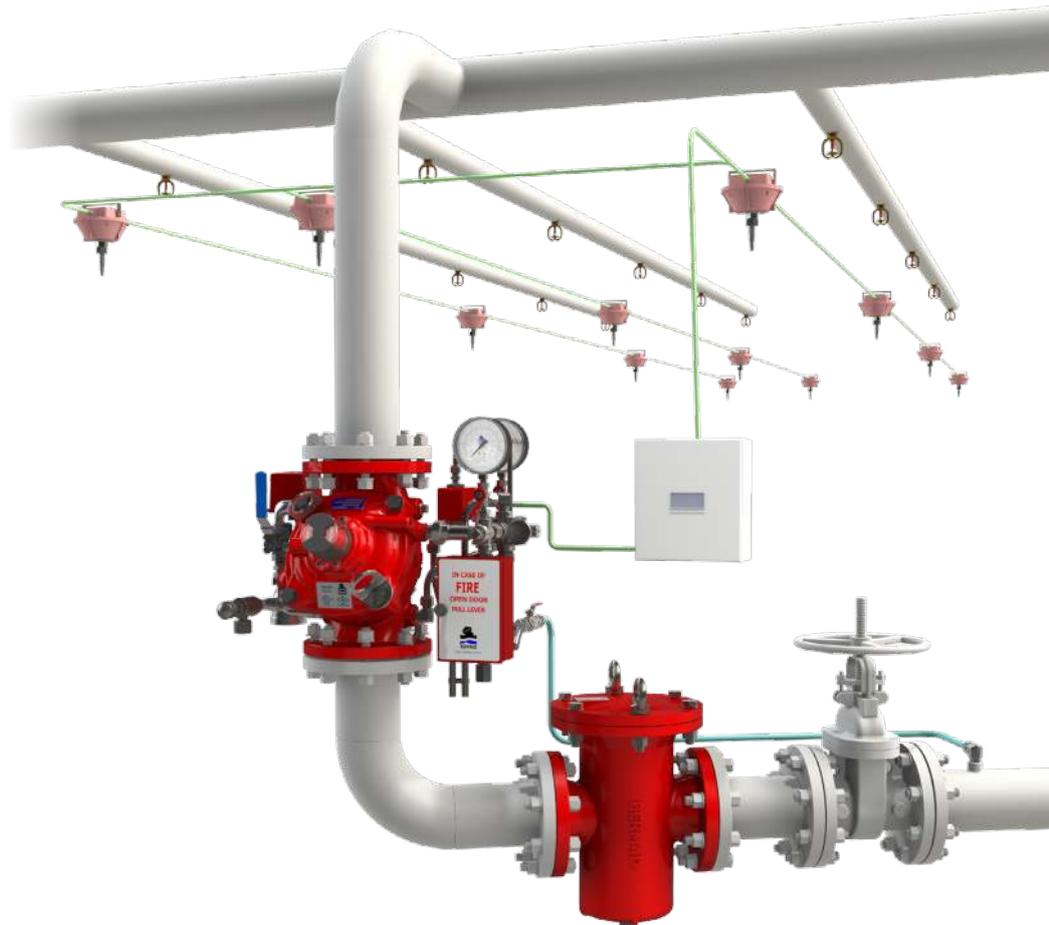
Valve Position Indicator



Limit Switch



Strainer



(for Illustration Only)

Suggested 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.

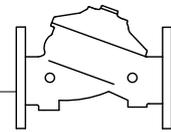
The deluge valve shall include a latching relay pilot valve, a 3-Way solenoid valve FM approved for 25 bar/365 psi working pressure with a tolerance of 35% below of the rated voltage, a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a stainless steel box.

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

Removing the valve cover for inspection and 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 quality assurance standards.

BERMAD Fire Protection



Model FP 400Y-3UM

400Y Series

Technical Data

Available Sizes (inch)

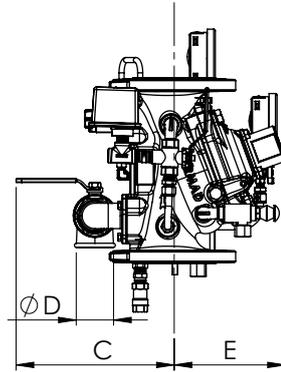
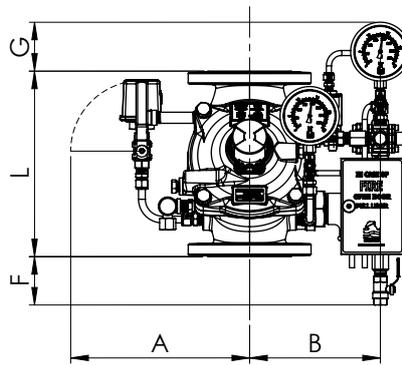
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

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 - 25 bar / 365 psi
- 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
⁽¹⁾ L' 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)
L ² ANSI #300 mm (in.)	230(9.06)	238(9.37)	326(12.84)	368(14.50)	506(19.94)	626(24.66)	730(28.76)	888(34.96)	980(38.61)	1100(43.34)
A mm (in.)	330(13.0)	330(13.0)	390(15.4)	398(15.7)	451(17.8)	481(18.9)	481(18.9)	594(23.4)	594(23.4)	594(23.4)
B mm (in.)	249(9.8)	249(9.8)	307(12)	317(12.5)	372(14.64)	400(15.7)	400(15.7)	513(20.2)	513(20.2)	513(20.2)
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)
ØD	¾"	¾"	1½"	2"	2"	2"	2"	2"	2"	2"
E mm (in.)	167(6.6)	167(6.6)	191(7.5)	205(8.1)	273(10.7)	338(13.3)	338(13.3)	490(19.3)	490(19.3)	465(18.3)
F mm (in.)	189(7.4)	189(7.4)	119(4.7)	92(3.6)	10(0.4)	-	-	-	-	-
G mm (in.)	121(4.8)	121(4.8)	111(4.4)	98(3.8)	49.5(1.9)	25(1)	-	-	-	-
Kv m ³ /h (Cv gpm)	68(79)	80(92)	190(219)	345(398)	790(912)	1160(1340)	1355(1565)	2370(2737)	2850(3292)	3254(3758)
⁽²⁾ Leq m (ft)	2(7)	5(16)	7(23)	9(30)	15(49)	27(89)	62(203)	52(171)	59(194)	88(289)
Weight, flanged kg (lbs)	15.26(33.5)	16.66(36.6)	31.36(69.0)	41.36(91.0)	84.66(186.3)	147.86(325.3)	177.86(391.3)	320.86(705.9)	353.86(778.5)	399.86(879.7)

Notes: ⁽¹⁾ L1 Dimensions are for grooved, threaded and raised face flanged valves

⁽²⁾ Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40, values given for general consideration only

⁽³⁾ Dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations

FP 6" 400Y-3UM V C A5 PR 4DC NN P77RI

Category	code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Installation	code
Vertical	V
Horizontal	H

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Factory Fitted Options	Code
General Purpose NEMA-4 Pressure Switch ⁽⁴⁾	P
Ex Proof NEC, Div.1 Pressure Switch ⁽⁴⁾	P7
Ex d ATEX Pressure Switch ⁽⁴⁾	P9
Single Limit Switch, General Purpose	RS
Single Ex d Proximity limit Switch	RS9
Double Ex d Proximity Limit Switch	RSS9
Pressure Gauge Assembly ⁽⁴⁾	6
S.S Glycerin Pressure Gauge Assembly ⁽⁴⁾	6n
Monel Pressure Gauge Assembly	6m
Ex Proof NEC Class 1 Div 1 Solenoid	7
Ex. d Atex Solenoid	9
Drain Valve	DV
Water Motor Alarm Assembly ⁽⁴⁾	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
Pressure Transmitter ⁽⁴⁾	Q
316 Stainless Steel Seat	T
Drain and Indicating Components ⁽⁵⁾	A

Valve Size	code
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

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

End Connections	code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ISO PN16	16
ISO PN25	25
Grooved ANSI C606 16 bar / 235 psi	VI

Voltage ⁽³⁾ - Main Valve N.O or N.C	code
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

Notes:

- ⁽¹⁾ Other materials available see engineering data
- ⁽²⁾ Coated internally and externally
- ⁽³⁾ Fm approved with 24VDC only
- ⁽⁴⁾ Supplied loose
- ⁽⁵⁾ Mandatory for FM approved valves



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