

PNEUMATICALLY CONTROLLED DELUGE VALVE WITH LOCAL RESET

Model FP-400Y-4M

The BERMAD model 400Y-4M is an elastomeric, hydraulic line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards. The 400Y-4M is activated by a pneumatic relay valve which latches the main valve open until locally reset. The optional valve position indicator can include a limit switch ideal for Fire & Gas monitoring systems. The 400Y-4M is suitable for systems with open nozzles for water or foam solution discharge.



Features & Benefits

- Safety and reliability
 - Time proven, simple design with a 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
- High performance
 - Very high flow efficiency
 - Straight through Y type body
 - Approved for PN25 / 365 psi
- Specifically-designed for fire protection
 - Face-to-face length standardized to ISO 5752 EN 558-1
 - Suitable for corrosive fluids and freezing temperatures
 - Pneumatic relay valve
 - 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)

Typical Applications

- Fusible plug loops
- Automatic water spray systems
- Foam applications
- Corrosive water systems
- Freezing Environments

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
Sizes 1½" to 16"



ABS
American Bureau of Shipping
Type Approval
Sizes 1½" - 12"

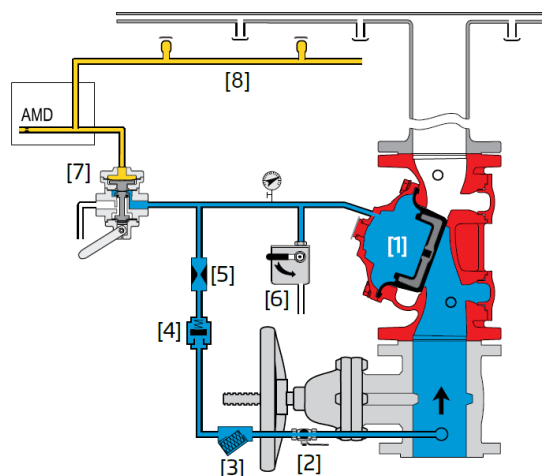


Lloyd's Register
Type Approval
Sizes 1½" - 10"

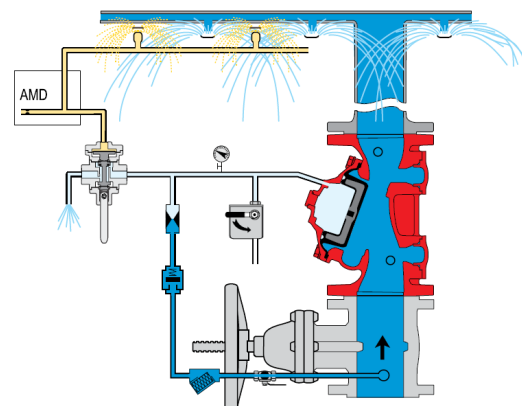
Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Alarm pressure switch
- Seawater compatibility
- Air Maintenance Device
- Drain valve/s inlet/outlet

Operation



Valve Closed (normal conditions)



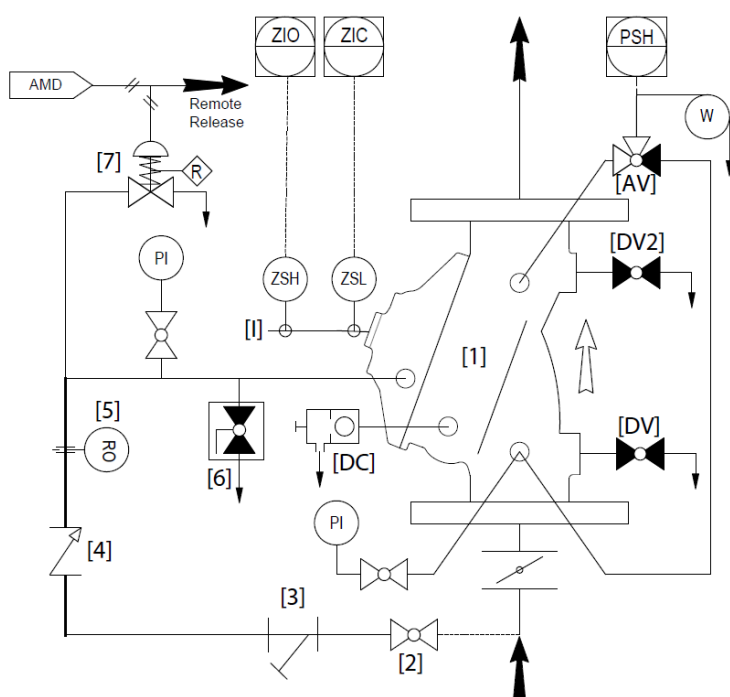
Valve Open (fire conditions)

The BERMAD model 400Y-4M 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] it 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 closed by pneumatic pressure in the dry pilot line [10]. 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 by the URV-M opening automatically in response to a decrease in pneumatic dry pilot-line pressure. This latches the 400Y-4M deluge valve open, allowing water to flow into the system piping and to the alarm device [9].

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-2-M Relay Valve

Optional System Items	
PS	Pressure Switch
ZS	Limit Switch Assembly
W	Water Motor Alarm
I	Visual Valve Position indicator
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 and mandatory for FM approval (drain and indicating components) See code designations on page 4 "Factory Supplied Additional Items"

System Installation

A typical installation of the BERMAD model 400Y-4M features automatic actuation via a pneumatic universal relay valve, triggered by a fusible plug loop. When fitted with a limit switch, the valve can send a feedback signal to a remote valve position monitoring system.

Optional System Items



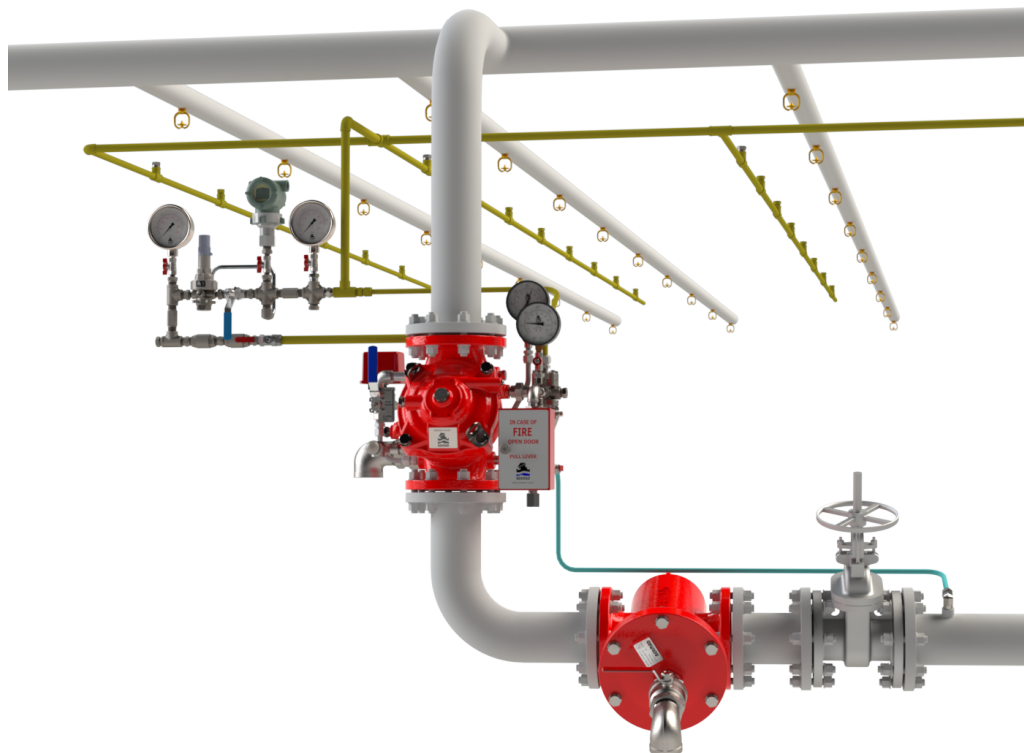
Pressure Gauge



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments
Rotating Limit
Switch Box



Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed and FM-approved, 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 an auxiliary latching 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.

Technical Data

Available Sizes:

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

Grooved- 1½, 2, 3, 4, 6, 8 & 10"

Pressure Rating:

ANSI#150 - 17.2 bar | 250 psi

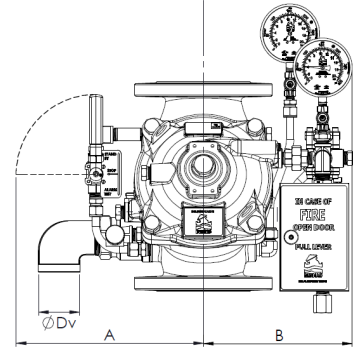
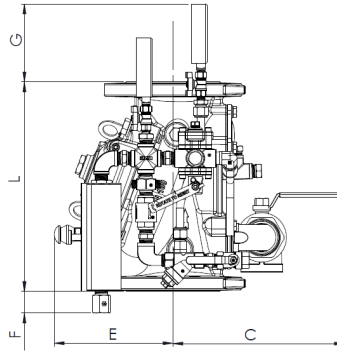
ANSI#300 - 1½" to 10" - 25 bar | 365 psi

ANSI#300 - 12" to 16" - 20 bar | 300 psi

Grooved - 17.2 / 25 bar | 250 / 365 psi

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	Weight #150 kg lb	Weight #300 kg lb
DN40 1½"	230 9.1	230 9.1	230 9.1	293 11.5	187 7.4	177 7	¾"	215 8.5	133 5.2	178 7	17 19	18 40
DN50 2"	230 9.1	230 9.1	238 9.3	293 11.5	187 7.4	177 7	¾"	215 8.5	133 5.2	178 7	17 37	18 40
DN65 2½"	235 9.3	235 9.3	241 9.5	296 11.6	187 7.4	183 7.2	1½"	215 8.5	131 5.2	157 6.2	22 48	24 53
DN80 3"	310 12.2	310 12.2	326 12.8	313 12.3	246 9.7	221 8.7	1½"	186 7.3	64 2.5	88 3.5	35 77	40 88
DN100 4"	350 13.8	320 12.6	368 14.5	343 13.5	255 10	287 11.3	2"	199 7.8	37 1.5	135 5.3	49 108	56 123
DN150 6"	480 18.9	480 18.9	506 19.9	358 14.1	310 12.2	302 11.9	2"	234 9.2	-	27 1	96 211	116 255
DN200 8"	600 23.6	600 23.6	626 24.6	392 15.4	385 15.2	317 12.5	2"	301 11.9	-	2 0.1	166 365	186 409
DN250 10"	730 28.7	730 28.7	730 28.7	406 25.4	384 15.1	317 12.5	2"	301 11.9	-	-	199 438	234 515
DN300 12"	850 33.5	-	888 35	478 18.8	451 17.8	380 15	2"	441 17.4	-	-	356 783	405 891
DN350 14"	980 38.6	-	980 38.6	478 18.8	451 17.8	379 14.9	2"	441 17.4	-	-	392 862	462 1016
DN400 16"	1100 43.3	-	1100 43.3	478 18.8	451 17.8	405 15.9	2"	417 16.4	-	-	443 2187	663 1459

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-4M	03	V	C	A5	ER	NN	N6nW																																																																																																																														
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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"

(6) Available in Ductile Iron only

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