PNEUMATICALLY CONTROLLED ON-OFF DELUGE VALVE

Model FP-400Y-4D

The BERMAD model 400Y-4D is an elastomeric, hydraulic line operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.
The 400Y-4D is controlled by a pneumatic relay valve, typically activated by a decrease in pressure of a pneumatic pilot line. The 400Y-4D can also be operated remotely.
The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.
The Bermad 400Y 4D is ideal for use in systems with open nozzles for water or foam discharge also well suited for use with corrosive media or where freezing temperatures might be experienced.



Features & Benefits

- Safety and reliability
  - Time proven, simple design with a fail safe actuation
  - Single piece rugged elastomer, VRSD technology
  - Obstacle-free, uninterrupted flow path
  - No mechanical moving parts
  - Shuts off on remote command
  - Valve position limit switches (optional)
  - Local valve position indicator beacon (optional)
- 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
  - 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)

Approvals

c UL us LISTED	UL-Listed Special System Water Control Valves, Deluge Type (VLFT) Sizes 1½" - 16"
DNV	Det Norske Veritas Type Approval Sizes 1½" to 16"
ABS TYPE APPROVED PRODUCT	ABS American Bureau of Shipping Type Approval Sizes 1½" - 12"
Lloyd's Register TA TYPE APPROVED	Lloyd's Register Type Approval Sizes 1½" - 10"

Typical Applications

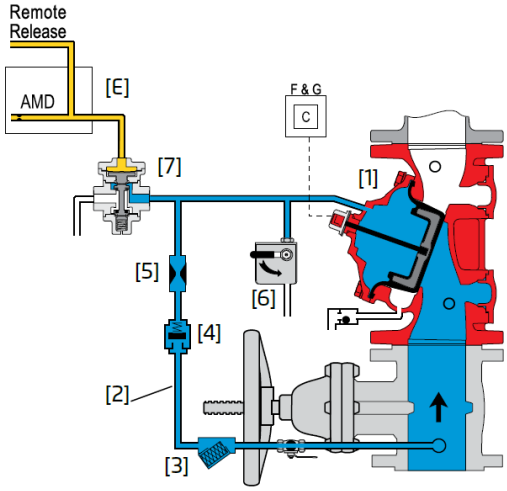
- Remote Control Water Spray Systems
- Foam applications
- Corrosive water systems
- Freezing Environments

Additional Features

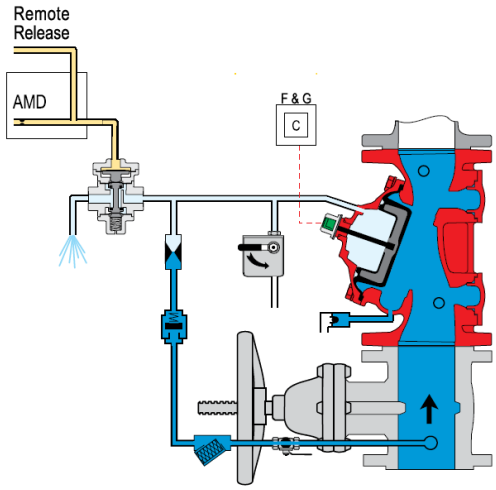
- Seawater compatibility
- Alarm pressure switch
- Drain valve/s inlet/outlet
- Air Maintentenance Device
- Local valve position indicator beacon
- Valve Position Indicator

All images in this catalog are for illustration only

Operation



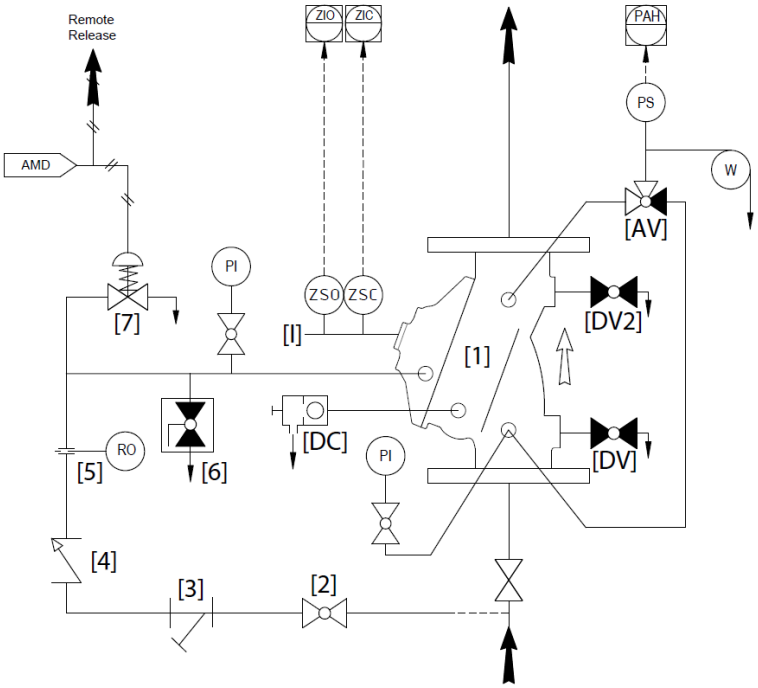
Valve Closed (normal conditions)



Valve Open (fire conditions)

The BERMAD model 400Y-4D 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) [7] that is held closed by pneumatic pressure in the dry pilot line [E]. 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 opening in response to a decrease in pneumatic pilot-line pressure. This opens the 400Y-4D deluge valve, allowing water to flow into the system.

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 Relay Valve

	Optional System Items
I	Visual Valve Position indicator
AMD	Air Maintenance Device
W	Water Motor Alarm
PS	Pressure Switch
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 (drain and indicating components)*
See code designations and "factory supplied additional items" on page 4

System Installation

A typical installation of the BERMAD model 400Y-4D features actuation via a pneumatic universal relay valve.
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



Pressure Gauge



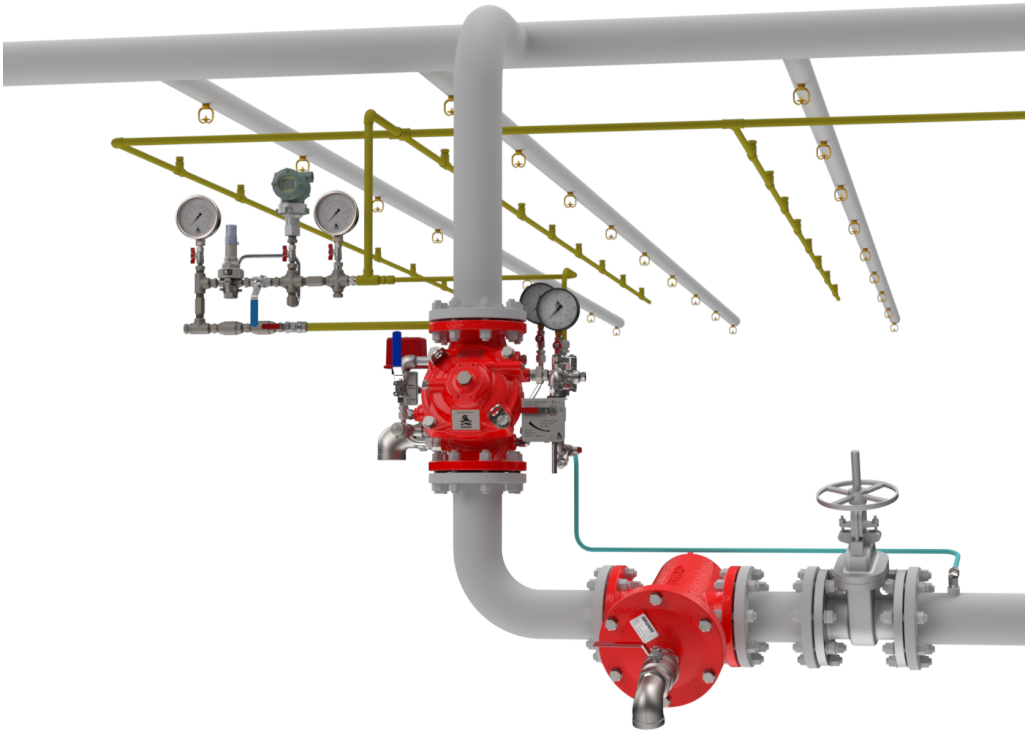
Visual Position Indicator



Rotating Limit Switch Box



Pressure Switch



Suggested Specifications

The deluge valve shall be UL-listed, 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 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.

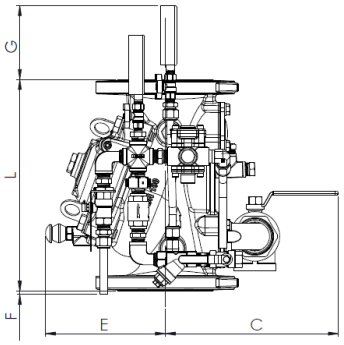
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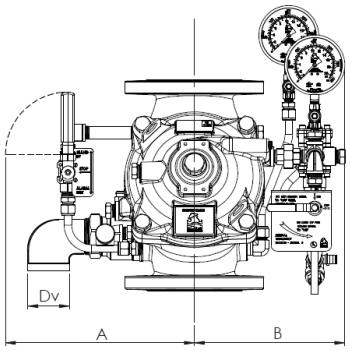
Technical Data

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
ANSI#300 - 1½" to 10" - 25 bar
ANSI#300 - 12" to 16" - 20 bar
Grooved - 17.2 / 25 bar

Elastomer:
HTNR - Fabric Reinforced High Temperature Compound - See engineering data





Valve Size	L #150 (mm)	L Grooved (mm)	L #300 (mm)	A (mm)	B (mm)	C (mm)	øD(in)	E (mm)	F (mm)	G (mm)	Weight #150 (Kg)	Weight #300 (Kg)
DN40 | 1½"	230	230	230	293	187	177	¾"	215	103	178	17	19
DN50 | 2"	230	230	238	293	187	177	¾"	215	103	178	18	21
DN65 | 2½"	235	235	241	296	187	183	1½"	215	100	157	22	24
DN80 | 3"	310	310	326	313	246	221	1½"	186	33	88	35	40
DN100 | 4"	350	320	368	343	255	287	2"	199	6	135	49	56
DN150 | 6"	480	480	506	358	310	302	2"	234	-	27	96	116
DN200 | 8"	600	600	626	392	385	317	2"	301	-	2	166	186
DN250 | 10"	730	730	730	406	384	317	2"	301	-	-	199	234
DN300 | 12"	850	-	888	478	451	380	2"	441	-	-	356	396
DN350 | 14"	980	-	980	478	451	379	2"	441	-	-	392	473
DN400 | 16"	1100	-	1100	478	451	405	2"	417	-	-	392	512

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-4D | 03 | V | C | A5 | ER | NN | N6nW

Category	Code
Standard	FP
Seawater	FS
Foam	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	65 mm (6)
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 Grade 5A	D

Additional Feature	Code
Closing Speed Control	01
Opening Speed Control	02
Opening & Closing Speed Control	03
None	-

End Connection	Code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ANSI#300FF	a3
ISO PN16	16
ISO PN25	25
Grooved 17.2bar/250psi(5)	VI
Grooved 25bar/365psi(5)	V2

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy (5)	ZR
Uncoated	UC

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

Factory Supplied Additional Items*	Code
General Purpose NEMA-4 Pressure Switch	P
Ex Proof NEC, Div.1 Pressure Switch (3)	P7
Ex d ATEX Pressure Switch (3)	P9
Ex d Pressure Switch, SS316 Enclosure (3)	P9Jn
Ex d Pressure Switch, SS316 Enclosure, Monel Sensor(3)	P9mJn
Single Limit Switch, General Purpose	S
Single Ex d Proximity limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Double Ex d Proximity Limit Switch with SS316 Junction Box	SS9Jn
Pressure Gauge Assembly (3)	6
S.S Glycerin Pressure Gauge Assembly (3)	6n
Monel Pressure Gauge Assembly (3)	6m
Drain Valve	DV
Water Motor Alarm Assembly (3)	W
Special Elastomer(4)	E
Large Control Filter	F
Valve Position Indicator	I
S.S 316 Trim Accessories	N
Pressure Transmitter (3)	Q
Drain and Indicating Components	A
Mechanical latch – Manual Reset	H

*More options available – consult BERMAD

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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