

ELECTRICALLY CONTROLLED, ON-OFF DELUGE VALVE, WITH REMOTE LATCH RESET

Model FP-400E-3D-RL

The BERMAD 400E-3D-RL Deluge Valve is suitable for use with remote controlled or/and automatic water spray or foam deluge systems that include electric detection and piping systems with open nozzles. This BERMAD Deluge Valve is equipped with two solenoid valves and Double-Acting Relay Valve (DRV) which trips the deluge valve into an open position during the Opening solenoid activation. The valve will then latch in its last position. The 400E-3D-RL will reset remotely via short pulse to activate the Closing solenoid coil.



Features & Benefits

- Safety and reliability
 - Time proven, simple design with a fail safe actuation
 - Single piece, rugged elastomeric diaphragm seal - VRSD technology
 - Latches open until reset locally
 - Obstacle-free, uninterrupted flow path
 - Main valve with no mechanical moving parts
 - Shuts off on remote command
- High performance
 - Low headloss design - Increased safety at reduced pressure supply
 - High discharge capacity
 - Cost Effective
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal
 - Designed for high reliability and easy maintenance

Typical Applications

- Automatic water spray systems
- Electric fire detection systems with control panels
- Hydraulic remote controlled systems
- Petrochemical facilities
- Power plants and transformers
- Flammable material storage

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 1½" - 10"



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



Det Norske Veritas
Type Approval
Sizes 1½" to 12"

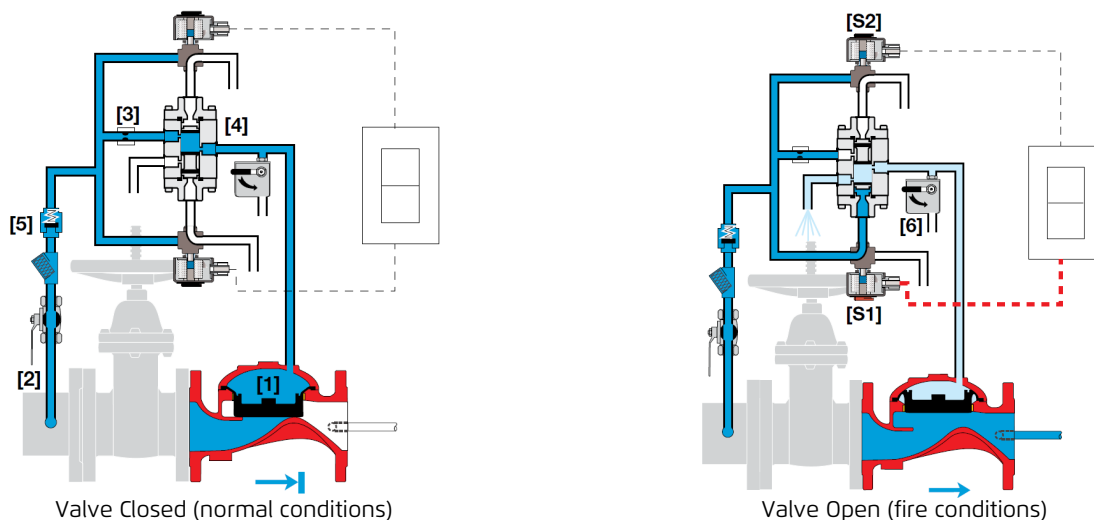


Lloyd's Register
Type Approval
Sizes 1½" - 10"

Additional Features

- Valve position limit switches
- Alarm pressure switch
- Valve Position Indicator
- Water motor alarm
- Large control filter
- Seawater compatibility
- 316 Stainless Steel control trim
- Corrosion resistant zinc based high build epoxy coating

Operation

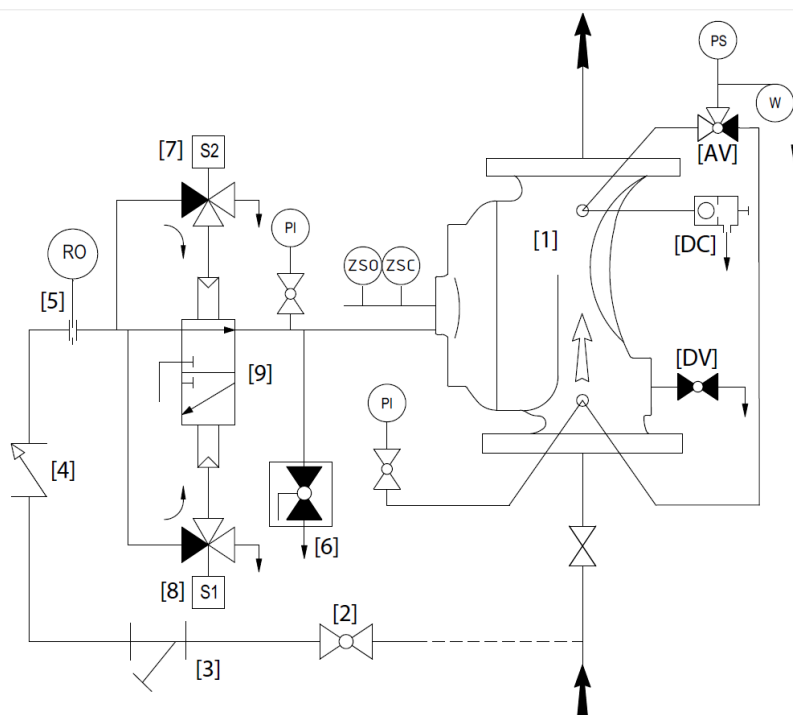


In the SET position, water pressure is supplied to the BERMAD Deluge Valve control chamber [1] via the priming line [2], Restriction Orifice [3] and through a DRV [4] Double-Acting Relay Valve. The Deluge Valve is trapped by the Check Valve [5]. The trapped water pressure holds the main valve's diaphragm and plug against the valve seat, creating a tight shutoff and keeping the system piping dry. The DRV remains in its last position supplying water pressure to the control chamber with both solenoid coils de-energized. This keeps the BERMAD Deluge Valve closed.

In fire or test conditions, the electric control system transmits an electric pulse that triggers the Opening Solenoid Coil [S1], which in turn activates the DRV to switch to the Release position. Pressure is then released from the Deluge Valve control chamber, allowing water to flow into the system piping and to the alarm device. The valve can also be operated via the Local Manual Emergency Release [6].

After operation, the DRV ensures that the BERMAD Deluge Valve will latch in its Open Position. The valve will reset remotely via short pulse which activates the Closing Solenoid Coil [S2] and causes the DRV to shift to the normal supply position.

System P&ID



Components	
1	BERMAD 400E Deluge Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check valve
5	Restriction Orifice
6	Manual Emergency Release
7	Resetting Solenoid Valve
8	Opening Solenoid Valve
9	Dry Pilot Valve

Optional System Items	
ZS	Limit Switch Assembly
W	Water Motor Alarm
PS	Pressure Switch
PI	Pressure Gauge*
I	Visual Valve Position indicator
DV	Drain Valve*
DC	Automatic Drip Check Valve*
AV	3-way Alarm Test 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 400E-3D-RL features actuation via a short pulse to the three-way opening solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency pushbutton. The 400E-3D-RL will remain open until signalled by a short pulse to close via the second 3-Way resetting solenoid. 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



Water Motor Alarm



Pressure Gauge



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments



Single Exd
Proximity S.S.316
Limit Switch



Basket Strainer -
60F



Suggested Specifications

The Deluge Valve shall be Electrically Controlled On-Off with Remote Reset Latch feature specifically UL-Listed as such.

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 valve operation will be On-Off Control type, using separate electric pulse to operate and close the Deluge Valve to enable Latched Opening With Electrical Remote Reset.

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 valve from the pipeline.

The deluge valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

The Deluge Valve will be locked (latched) in its last position and Reset Remotely in response to an electric signal activating the closing solenoid coil.

Technical Data

Available Sizes:

Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"

Grooved- 2, 3, 4, 6, & 8"

Pressure Rating:

ANSI#150 - 17.2 bar | 250 psi

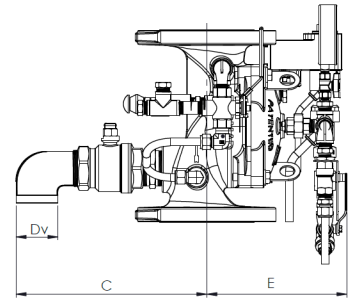
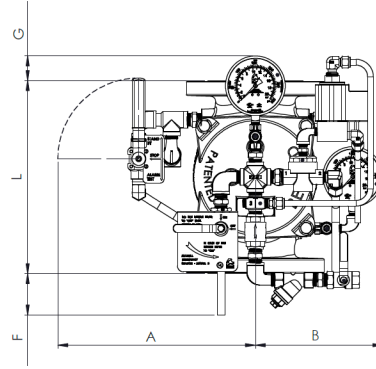
ANSI#300 - 1½" to 10" - 25 bar | 365 psi

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

Grooved - 17.2 bar | 250 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature Compound - See engineering data



Valve Size	L #150 mm in	L Grooved 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
DN40 1½"	205 8.1	-	313 12.3	196 7.7	199 7.8	¾"	177 7	126 4.5	100 3.9	17 37
DN50 2"	205 8.1	205 8.1	313 12.3	196 7.7	199 7.8	¾"	177 7	126 5	100 3.9	18 40
DN65 2½"	205 8.1	-	325 12.8	196 7.7	253 10	1½"	179 7	126 5	100 3.9	20 45
DN80 3"	257 10.1	250 9.8	345 13.6	205 8	266 10.5	1½"	232 9.1	100 3.9	74 2.9	29 68
DN100 4"	320 12.6	320 12.6	328 12.9	212 8.3	316 12.4	1½"	232 9.1	69 2.7	43 1.7	41 90
DN150 6"	415 16.3	415 16.3	349 13.7	204 8	347 13.7	2"	309 12.2	21 0.8	-	85 187
DN200 8"	500 19.7	500 19.7	383 15.1	270 10.6	364 14.3	2"	359 16.1	-	-	148 235
DN250 10"	605 23.8	-	396 15.6	280 11	384 15.1	2"	357 14	-	-	165 363
DN300 12"	725 28.5	-	438 17.2	333 13.1	422 16.6	2"	488 19.2	-	-	253 556

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"	400E-3D-RL	03	V	C	A5	ER	4DC	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"

* NO or NC refers to the main valve status when the Solenoid is de-energized

*More options available – consult BERMAD

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