

PNEUMATICALLY CONTROLLED ON-OFF DELUGE VALVE

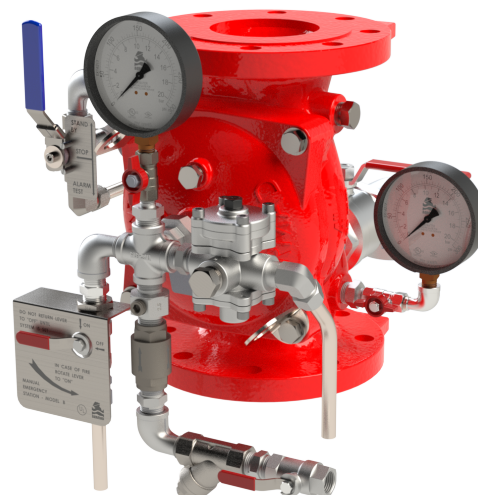
Model FP-400E-4D

The BERMAD model 400E-4D is an elastomeric, hydraulic line operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400E-4D is controlled by a pneumatic relay valve, typically activated by a decrease in the pressure of a pneumatic pilot line. The 400E-4D can also be operated remotely.

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

The Bermad 400E 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 elastomeric diaphragm seal - VRSD technology
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
 - Valve position limit switches (optional)
 - Meets the requirements of the industry standards
- Quick and easy maintenance
 - Designed for high reliability and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Typical Applications

- Remote Control Water Spray Systems
- Foam applications
- Freezing Environments

Approvals



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



Det Norske Veritas
Type Approval
Sizes 1½" to 12"



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

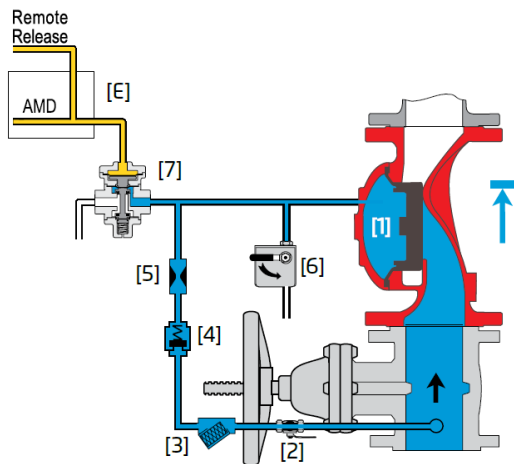


Lloyd's Register
Type Approval

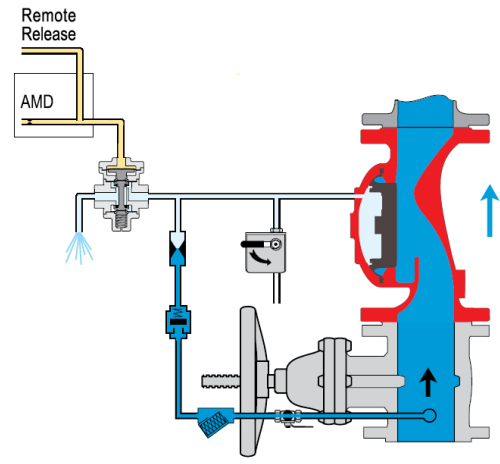
Additional Features

- Valve position limit switches
- Alarm pressure switch
- Seawater compatibility
- Air Maintenance Device
- Corrosion resistant zinc based high build epoxy coating

Operation



Valve Closed (normal conditions)

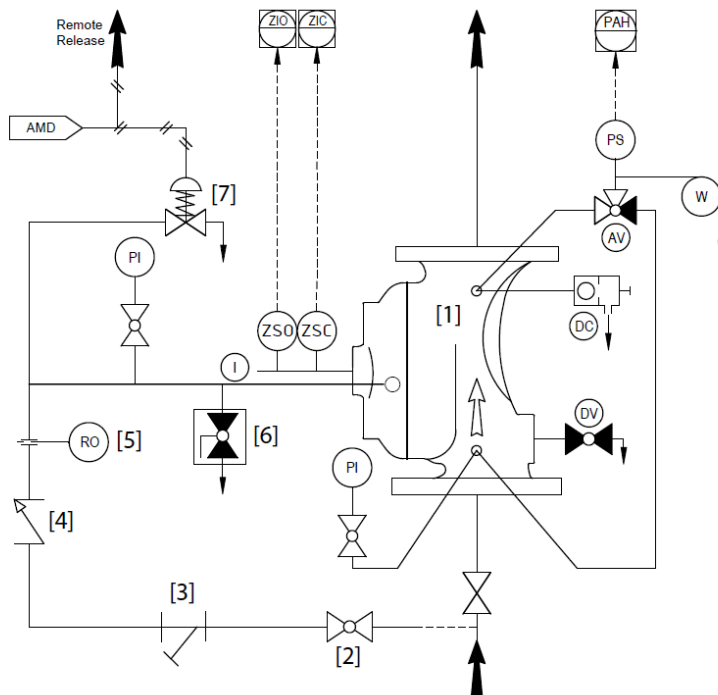


Valve Open (fire conditions)

The BERMAD model 400E-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 400E-4D deluge valve, allowing water to flow into the system piping and the alarm devices.

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	URV-2 Relay Valve

Optional System Items	
ZS	Limit Switch Assembly
W	Water Motor Alarm
PS	Pressure Switch
I	Visual Valve Position indicator
PI	Pressure Gauge*
DV	Drain Valve*
DC	Automatic Drip Check Valve*
AV	3-way Alarm Test Valve*
AMD	Air Maintenance Device

* 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-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



Water Motor Alarm



Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments



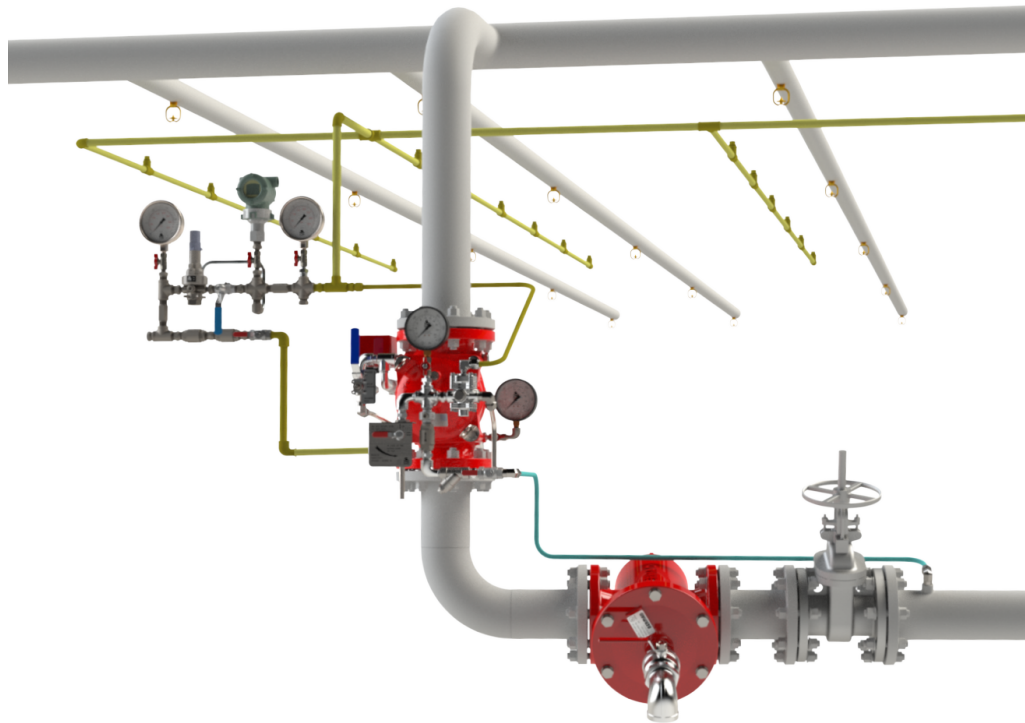
Single Ex d
Proximity S.S.316
Limit Switch



Pressure Gauge



Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed, 250 psi/17.2 bar rated.

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, and an automatic drip-check with manual override.

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.

Technical Data

Available Sizes:

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

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

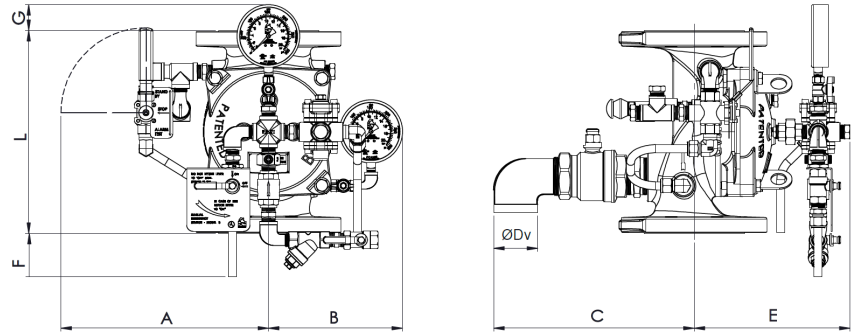
Pressure Rating:

ANSI#150 - 17.2 bar | 250 psi

Grooved - 17.2 bar | 250 psi

Elastomer:

HTNR with VRSD - Fabric Reinforced High Temperature, 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	191 7.5	199 7.8	¾"	203 8	126 5	100 3.9	13 29
DN50 2"	205 8.1	205 8.1	313 12.3	191 7.5	199 7.8	1½"	203 8.1	126 5	100 3.9	14 31
DN65 2½"	205 8.1	-	325 12.8	196 7.7	253 10	1½"	205 8.1	126 5	74 2.9	18 40
DN80 3"	257 10.1	250 9.8	345 13.6	205 8.1	266 10.5	1½"	238 9.4	100 3.9	43 1.7	27 60
DN100 4"	320 12.6	320 12.6	328 12.9	212 8.3	258 10.2	1½"	258 10.2	69 2.7	69 2.7	39 86
DN150 6"	415 16.3	415 16.3	349 13.7	204 8	347 13.7	2"	334 13.1	21 0.8	-	83 183
DN200 8"	500 19.7	-	383 15.1	270 10.6	364 14.3	2"	385 15.2	-	-	146 322
DN250 10"	605 23.8	-	383 15.1	270 10.6	364 14.3	2"	385 15.2	-	-	146 322
DN300 12"	725 28.5	-	438 17.2	333 13.1	422 16.6	2"	513 20.2	-	-	250 551

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

