

DOUBLE INTERLOCK PRE-ACTION VALVE, ELECTRIC-PNEUMATIC RELEASE SYSTEM

Model FP-400E-7DM

The BERMAD model 400E-7DM utilizes an elastomeric deluge valve, designed specifically for advanced fire protection systems and the latest industry standards. Electric-Pneumatic Double interlock systems include automatic sprinklers attached to a supervised dry sprinkler piping system and a supplementary electric detection system.

The 400E-7DM admits water into the sprinkler system piping only when both the electric detection device and the pneumatic supervised systems are simultaneously activated.

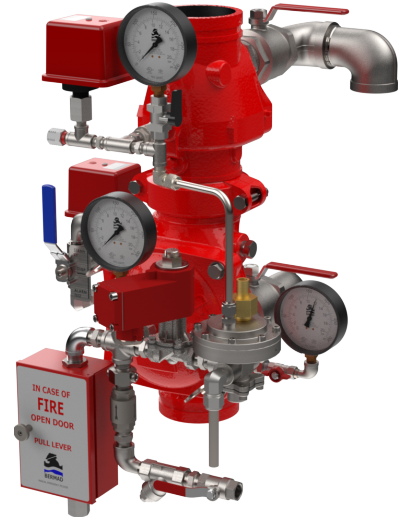
An anti-flooding feature is provided by using an in-line check valve, which creates an intermediate vented chamber using a Normally-Open drip check.

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
 - Meets the requirements of industry standards
 - Main valve with no mechanical moving parts
 - Compact space saving dimensions
 - Reduced valve opening time, enabling faster fire suppression
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Typical Applications

- Freezing Environments
- Water sensitive material storage
- Libraries museums and archives
- Computer and electronics rooms
- large volume preaction systems



Approvals



UL-Listed
Special System Water Control
Valves.
Sizes 1½ - 10"



Lloyd's Register
Type Approval



ABS
American Bureau of Shipping
Type Approval

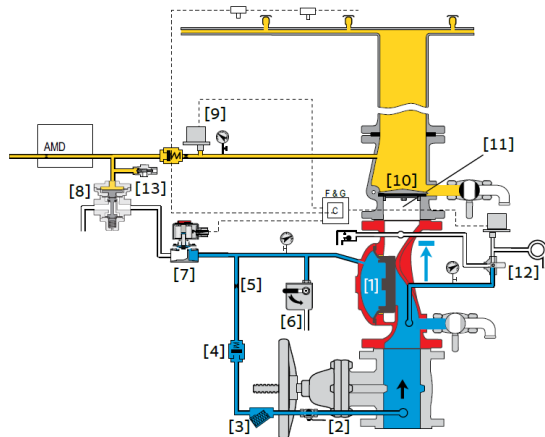


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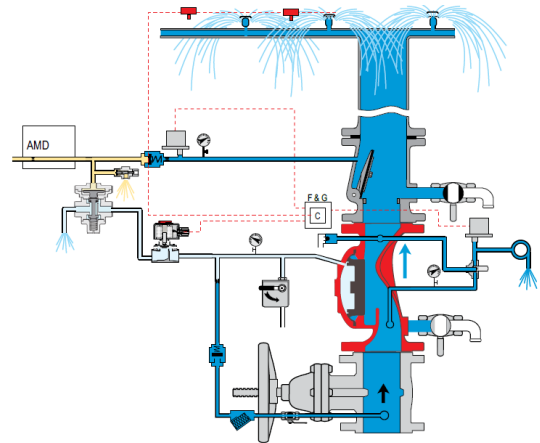
Additional Features

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

Operation



Valve Closed (normal conditions)



Valve Open (fire conditions)

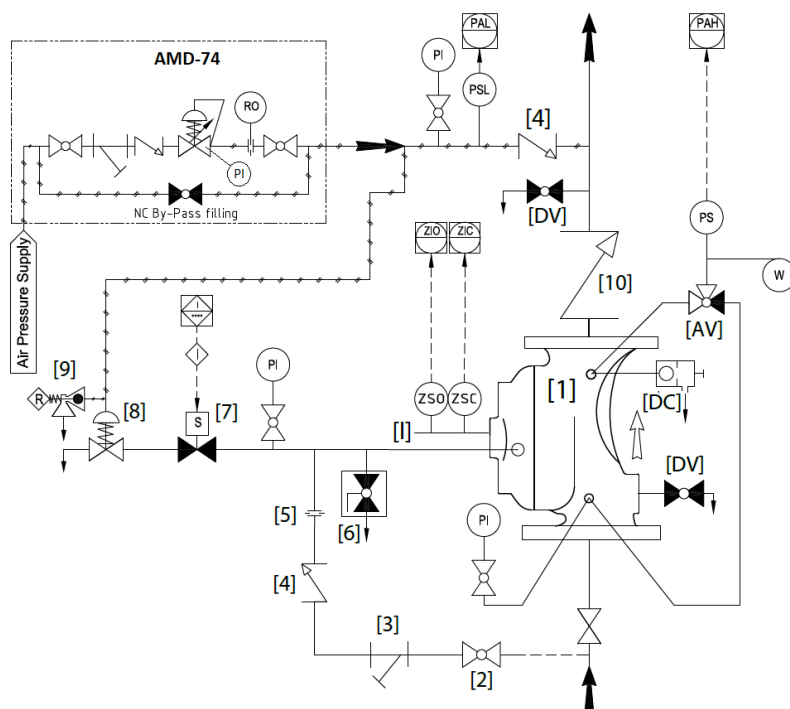
Under NORMAL conditions, water pressure is supplied to the control chamber [1] via the priming line [2] strainer [3], and held in the control chamber by the closed manual emergency release [6] a check valve [4] a closed solenoid valve [7] and a URV-2-V low pressure actuated relay valve [8] held closed by the pneumatic pressure of the dry sprinkler pipeline. An intermediate vented chamber [11] is created by an in-line swing check valve [10].

In the event of fire the main valve may be opened either locally and manually using the manual emergency release valve [6] or by the URV relay valve opening simultaneously with the solenoid valve.

The activation of the automatic sprinkler/s will cause a drop in pneumatic pressure causing the URV relay valve to open and the air pressure switch [9] will be activated. The main valve will remain closed, only when the solenoid also opens, triggered by the electric detection system, will the main valve open. The water pressure will be released from the main valve control chamber, opening the main valve and admitting water into the piping and to the alarm device [12].

Once open the main valve will latch open by way of the tripped low pressure release accelerator [13], disabling any re-entry of water pressure into the main valve's control chamber. Closing the main valve can be done only manually and locally by resetting or reclosing the low pressure release valve with the restored pipeline air pressure.

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	2-Way solenoid valve
8	URV-2-L Low actuation pressure relay valve
9	Pressure Release Accelerator (PRA)
10	In-line check valve

Optional System Items	
ZS	Limit Switch Assembly
I	Visual Valve Position indicator
PS	Pressure Switch
W	Water Motor Alarm
AMD	Air Maintenance Device

See code designations and additional Factory Fitted Options on page 4

System Installation

A typical installation of the BERMAD model 400E-7DM, features automatic actuation via a URV-2-L Low pressure actuator relay valve opening in response to a fall in pneumatic pressure of the dry sprinkler pipeline and the simultaneous opening of a 2-Way solenoid triggered electrically by a signal from a fire & gas control system.

An inline check valve and drip check valve create an intermediate vented chamber to ensure against flooding when the valve is closed.

Optional System Items



Water Motor Alarm



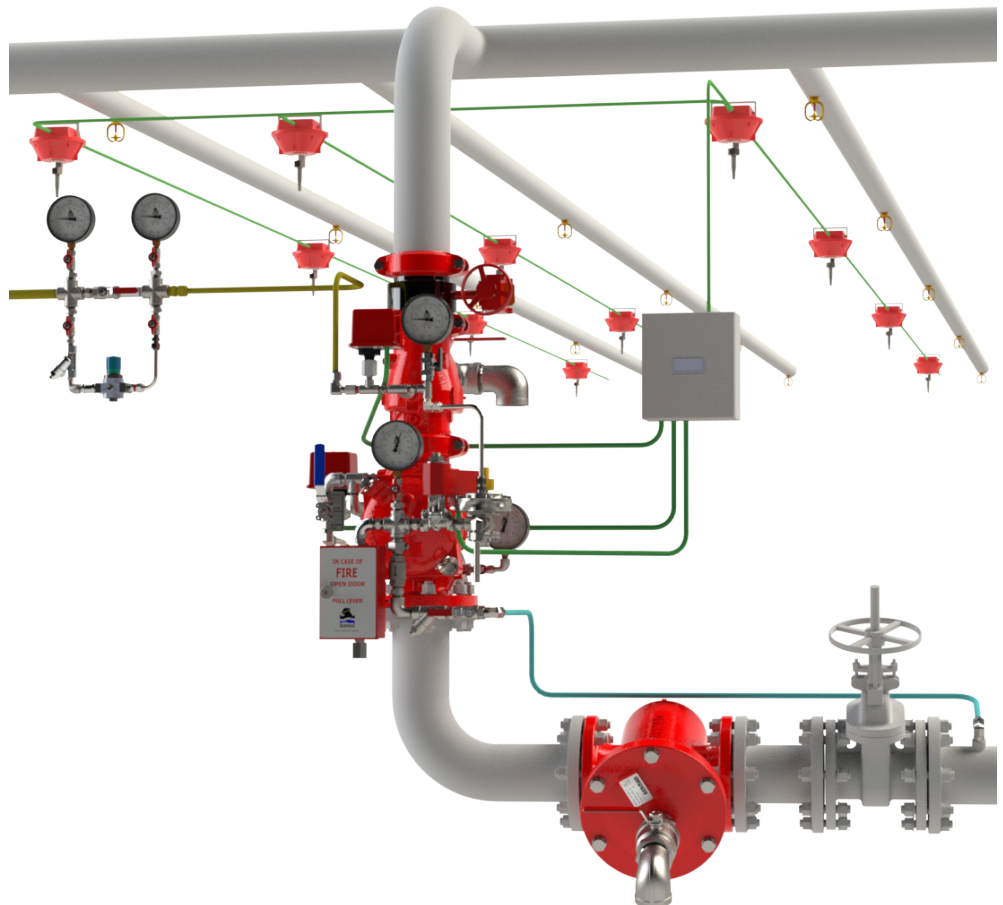
Pressure Gauge



Pressure Switch



Basket Strainer -
60F



Suggested Specifications

The pre-action valve shall be UL listed and 250 psi/17.2 bar rated.

The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

The 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 a relay valve with a latching low pressure release valve, a manual emergency release unit, a Y-type strainer, two 4-inch pressure gauges, and an automatic drip-check with manual override.

The solenoid valve shall be a 2-way FM and UL429A-listed for 365 psi/25 bar with 65% of the rated voltage.

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 pre-action 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"

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

Pressure Rating:

ANSI#150 - 17.2 bar | 250 psi

ANSI#300 - 1½" to 10" - 12 bar | 12 psi

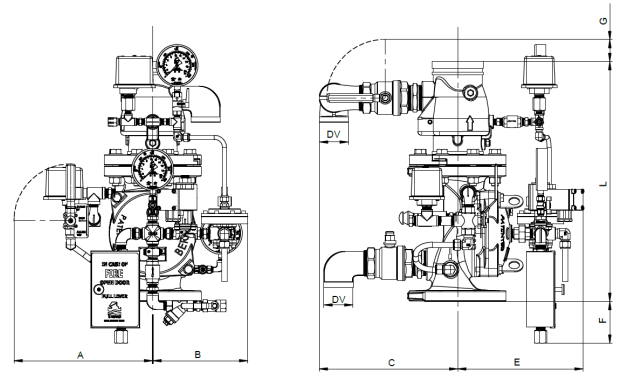
ANSI#300 - 12" to 16" - 12 bar | 12 psi

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
DN50 2"	427 16.8	427 8.1	313 12.3	238 9.4	218 8.6	¾"	242 9.5	156 6.1	53 2	28 62
DN80 3"	504 19.8	511 20.1	345 13.6	250 9.8	305 12	1½"	278 10.9	130 5.1	42 1.66	42 92
DN100 4"	566 22.3	566 22.3	327 12.9	255 10	327 12.9	1½"	296 11.7	99 3.9	52 2	58 128
DN150 6"	710 28	710 28	348 13.7	240 9.4	364 14.3	2"	374 14.7	51 2	39 1.5	112 246
DN200 8"	856 19.7	856 19.7	382 15	270 10.6	392 15.4	2"	424 16.7	9 0.4	-	183 403

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

