

# DOUBLE INTERLOCK PRE-ACTION VALVE ELECTRIC-ELECTRIC RELEASE SYSTEM

## Model FP-400E-7BM

The BERMAD Model FP 400E 7BM utilizes an elastomeric deluge valve, designed for advanced fire protection systems and the latest industry standards. The Double Interlock Pre-Action is suitable for use in systems requiring that water be kept out of the sprinkler piping until an electric detecting device and a sprinkler have both been activated. Electric-Electric double interlock systems include automatic sprinklers attached to a dry sprinkler piping system with a low air pressure switch, along with a supplementary electric detection system which are both wired to a Cross-Zone releasing control panel. Model FP 400E-7BM Pre-Action System admits water into the sprinkler piping only when both the detection device and the supervised systems simultaneously signal the control panel to trigger the solenoid valve. 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

### Approvals



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



Lloyd's Register  
Type Approval



ABS  
American Bureau of Shipping  
Type Approval

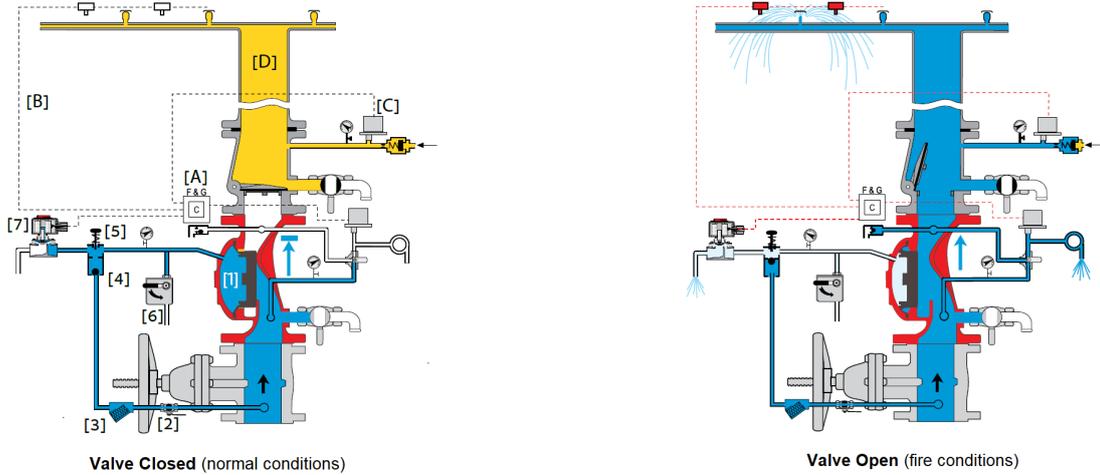


Det Norske Veritas  
Type Approval

### 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



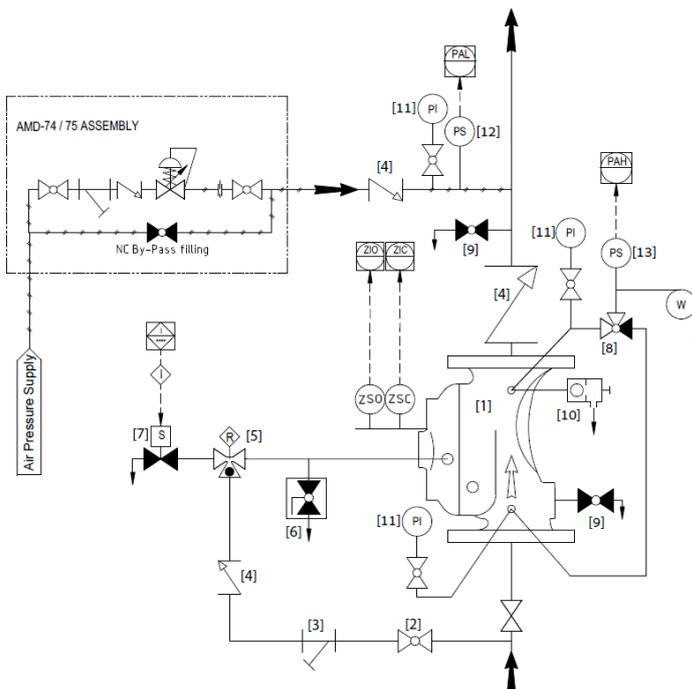
The BERMAD model 400E-7BM is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] and strainer [3], and is then trapped in the control chamber by the manual emergency release [6], check feature [4], of the EasyLock Manual Reset [5], and a closed solenoid valve [7]. 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 solenoid valve opening in response to the cross-zone releasing control panel [A]. The control panel energizes the solenoid valve only when both of two conditions coexist: The electric heat-detection device [B] must be activated and the low pressure switch [C] triggered as a result of a drop in pneumatic pressure in the system [D], caused by heat opening at least one of the automatic sprinkler heads installed in the covered area.

When these two conditions occur simultaneously the solenoid releases the valve control chamber, whilst the Easylock Manual Reset prevents water pressure from re-entering the control chamber. The 400E-7BM pre-action valve latches open, allowing water to flow into the system piping and to the alarm device [9].

### 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	3-Way alarm valve
9	Drain valve
10	Automatic drip check valve
11	Pressure Gauge (PI)
12	Pressure Switch Low (PAL)
13	Pressure switch High (PAH)

See code designations and additional Factory Fitted Options on page 4

## System Installation

A typical installation of the BERMAD model 400E-7BM features automatic actuation via a solenoid valve and cross-zone releasing control panel. Actuation occurs only when the control panel receives simultaneous electric signals from an electric fire-detection system and a low pressure sensing switch/relay valve.

When fitted with a limit switch, the valve can send a feedback signal to the remote valve position monitoring 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



Pressure Switch



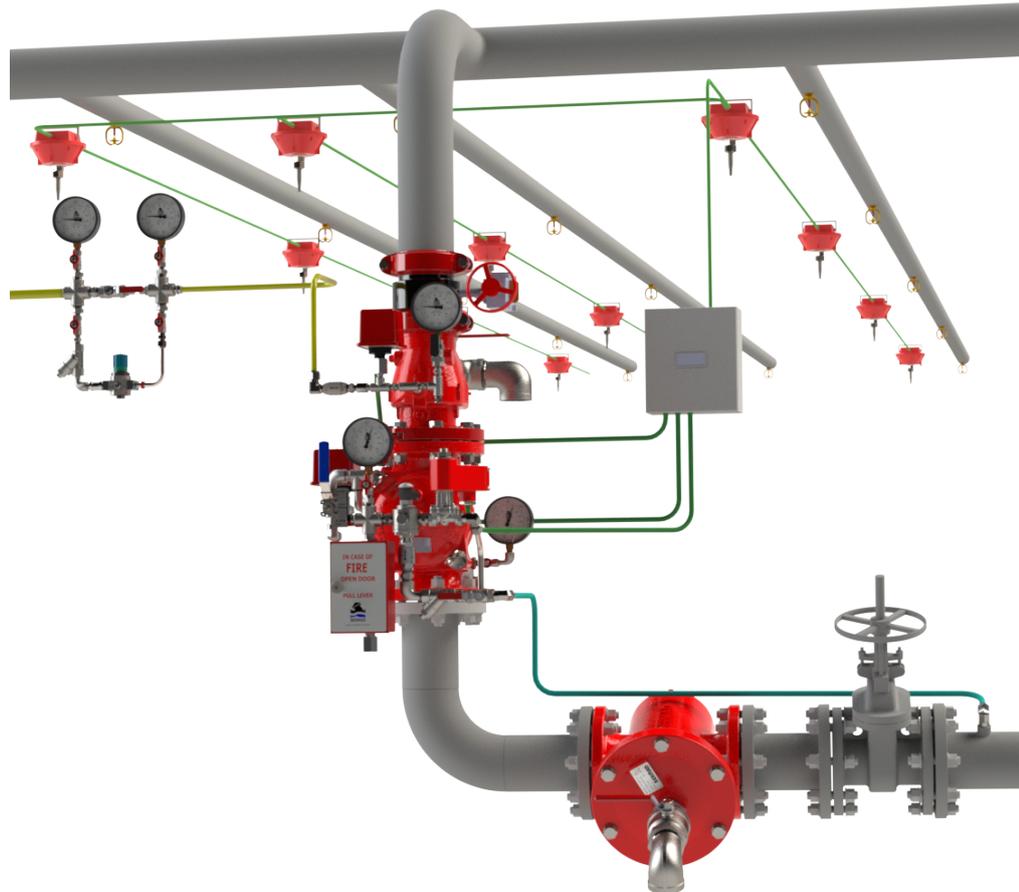
Water Motor Alarm



Pressure Gauge



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 manual emergency release unit, an Easy-Lock latching valve, 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:**

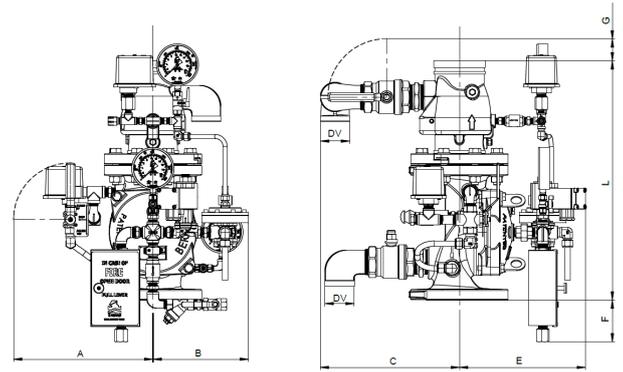
Flanged- 2, 3, 4, 6 & 8"  
Grooved- 2, 3, 4, 6 & 8"

**Pressure Rating:**

ANSI#150 - 17.2 bar | 250 psi  
Grooved - 17.2 bar | 250 psi

**Elastomer:**

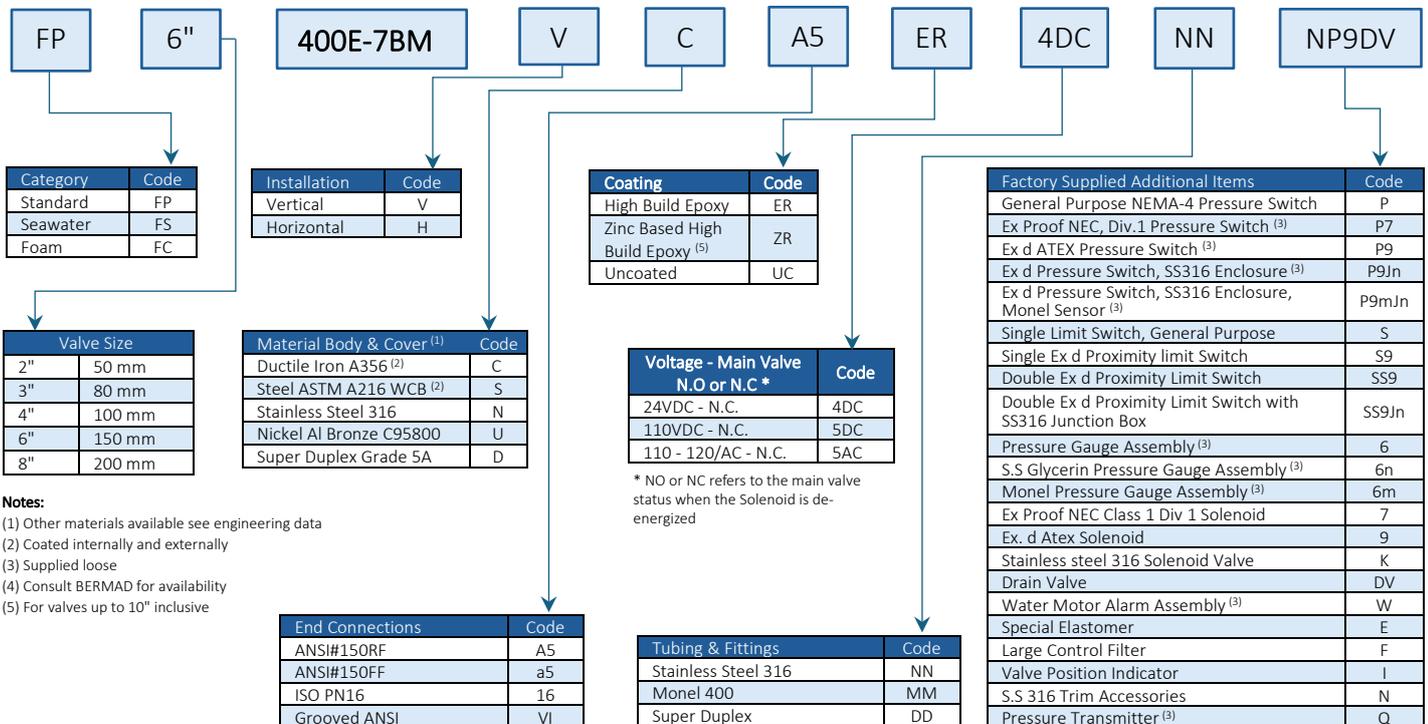
HTNR - Fabric Reinforced High Temperature Compound - See engineering data



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



\* More options available - contact BERMAD