

DOUBLE INTERLOCK PRE-ACTION SYSTEM ELECTRIC-PNEUMATIC RELEASE

Model FP-400Y-7DM

The BERMAD model 400Y-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 400Y-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. As an option the 400Y-7DM features a quarter turn valve position indicator available with limit switches for remote valve position monitoring.

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)
- High performance
 - Very high flow efficiency
 - Straight through Y type body
 - Approved for PN20 - 300 psi
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal
 - Swivel mounted drain valves (for valves 3" and larger)

Typical Applications

- Water sensitive material storage
- Freezing Environments
- Computer and electronics rooms
- Libraries museums and archives



Approvals



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



FM Approved
for Preaction and Refrigerated
Area Sprinkler Systems
Sizes 1½" - 8"



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval

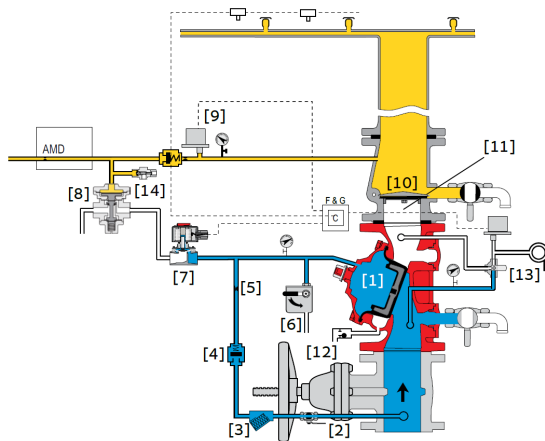


Lloyd's Register
Type Approval

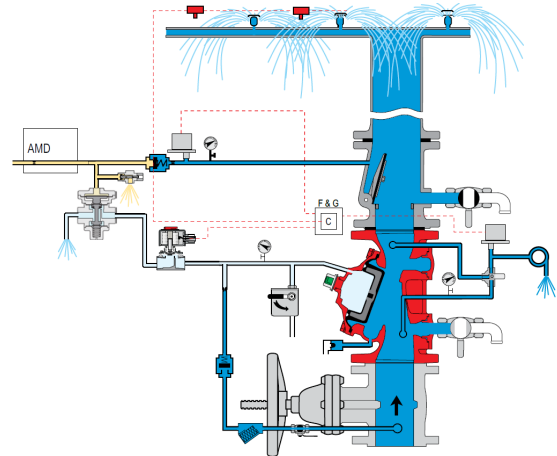
Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Air Maintenance Device
- Corrosion resistant zinc based high build epoxy coating

Operation



Valve Closed (normal conditions)



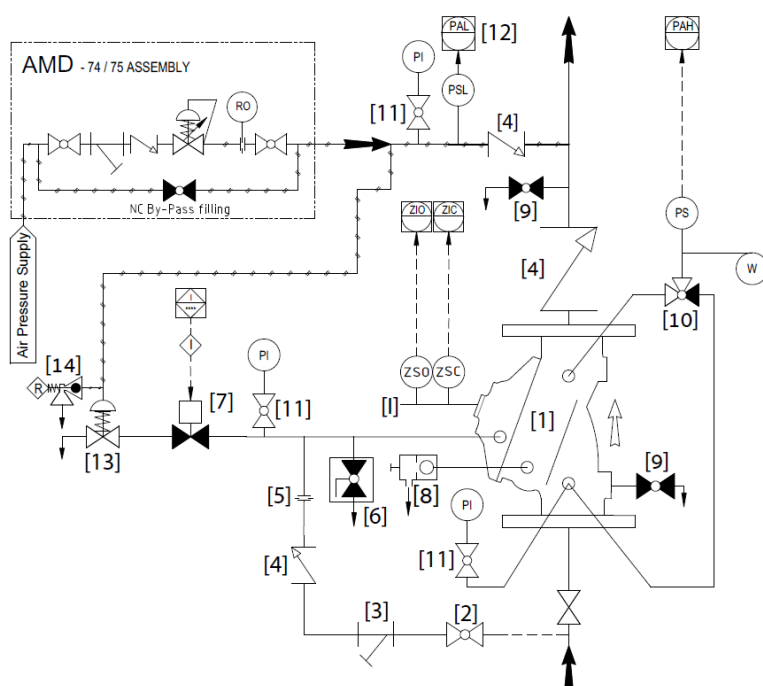
Valve Open (fire conditions)

The BERMAD model 400Y-7DM 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 is then trapped in the control chamber by the closed manual emergency release [6] a check valve [4] a closed solenoid valve [7] and a URV relay valve [8] held closed by pneumatic pressure in the dry sprinkler pipeline. An intermediate vented chamber [11] is created by an in-line swing check valve [10] and a Normally Open drip check valve [12].

In FIRE conditions the valve can be opened either manually using the manual emergency release valve [6] or by the URV relay valve opening simultaneously with the solenoid valve. The opening of the automatic sprinkler/s will cause a drop in pneumatic pressure and the URV relay valve will open and the air pressure switch [9] will be activated. The main valve will remain closed, only when also the solenoid opens, triggered by the electric detection system via a control panel [C] will the main valve open. When both these conditions exist the water pressure will be released from the main valve control chamber, opening the 400Y-7DM, releasing water into the piping system and alarm devices.

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	2-Way solenoid
8	Automatic drip check valve
9	Drain valve
10	3-Way alarm check valve
11	Pressure gauge
12	Pressure switch low (PAL)
13	URV-2-Way relay valve
14	Low pressure release valve

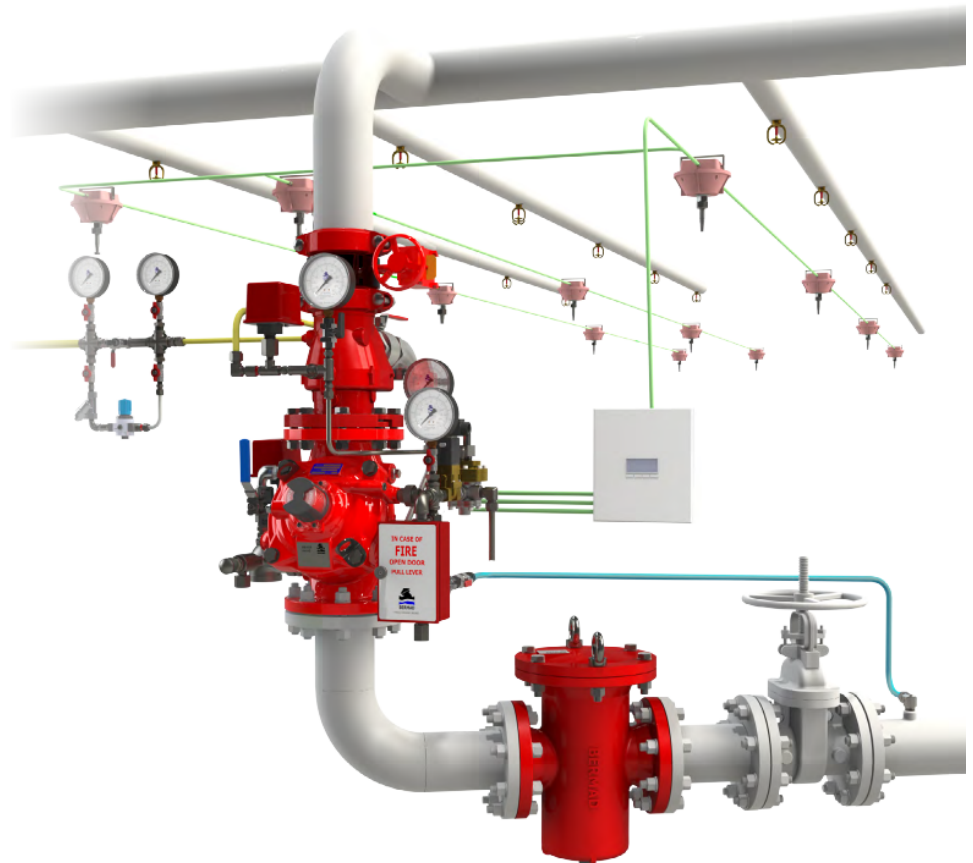
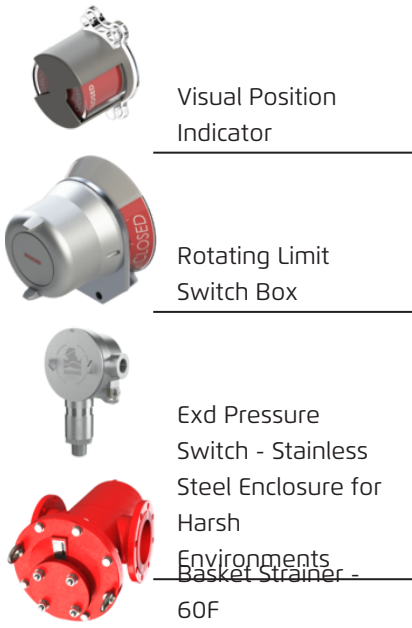
Optional System Items	
ZS	Limit Switch Assembly
PS	Pressure Switch
W	Water Motor Alarm
AMD	Air Maintenance Device
I	Visual Valve Position indicator

System Installation

A typical installation of the BERMAD model 400Y-7DM, features automatic actuation via a URV pilot control 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



Suggested Specifications

The pre-action valve shall be UL-listed and FM-approved, 300-psi/20-bar rated, with a straight-through Y type body.

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, an automatic drip-check with manual override, and a ball drain valve with a 360 degree swivel.

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:

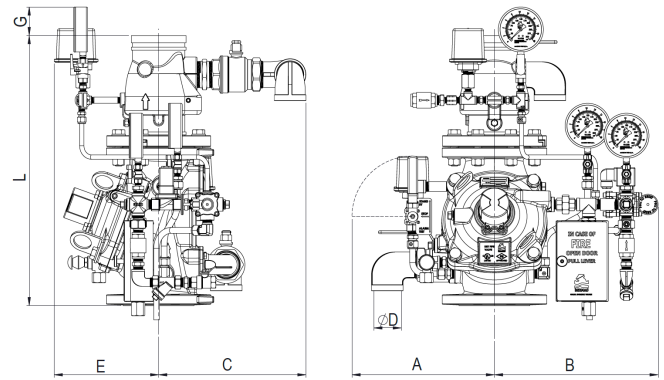
ANSI#150 - 17.2 bar | 250 psi

ANSI#300 - 1½" to 10" - 20 bar | 300 psi

Grooved - 20 bar | 300 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature Compound - See engineering data



Valve Size	L #150 mm in	L Grooved mm in	L #300 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"	450 17.7	450 17.7	455 17.9	279 11	294 11.6	276 10.9	3/4"	140 5.5	-	101 4	32 70
DN80 3"	555 21.9	555 21.9	570 22.4	339 13.3	352 13.9	309 12.2	1½"	166 6.5	-	91 3.6	49 108
DN100 4"	595 23.4	595 23.4	612.5 24.1	347 13.7	230 9	325 12.8	2"	178 7	-	78 3	60 131
DN150 6"	775 30.5	775 30.5	800.5 31.6	400 15.7	417 16.4	340 13.4	2"	248 9.8	-	30 1.2	113 249
DN200 8"	965 38	965 38	990.5 39	430 16.9	445 17.5	355 14	2"	315 12.4	-	-	180 396

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

