DOUBLE INTERLOCK PRE-ACTION SYSTEM ELECTRIC-ELECTRIC RELEASE WITH PRESSURE CONTROL

Model FP-400Y-7BC

The BERMAD Model FP 400Y 7BC utilizes an elastomeric deluge valve with unique Vulcanized Radial Seal Disk (VRSD) technology, 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 400Y-7BC 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.
The FP-400Y-7BC using the integral pressure control pilot will maintain a stable set downstream pressure.

Features & Benefits

- Safety and reliability
  - Time proven, simple design with a fail safe actuation
  - Single piece, rugged elastomeric diaphragm seal - VRSD technology
  - Intermediate anti-flooding chamber
  - Obstacle-free, uninterrupted flow path
  - Controls nozzle water pressure-flow - preventing overflow and flooding
  - 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)

Approvals

FM APPROVED	FM Approved for Preaction and Refrigerated Area Sprinkler Systems Sizes 1½" - 8"
DNV	Det Norske Veritas Type Approval
ABS TYPE APPROVED PRODUCT	ABS American Bureau of Shipping Type Approval
Lloyd's Register TA	Lloyd's Register Type Approval

Typical Applications

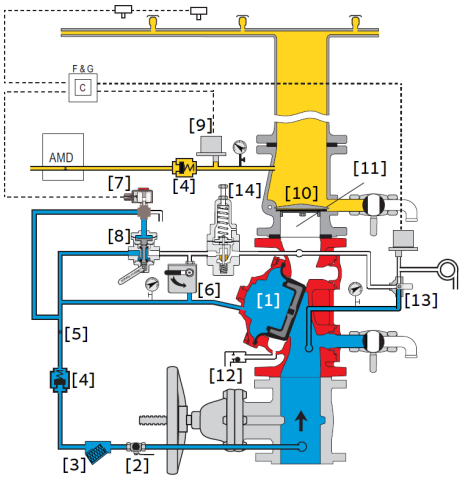
- Water sensitive material storage
- Freezing Environments
- Computer and electronics rooms
- Libraries museums and archives

Additional Features

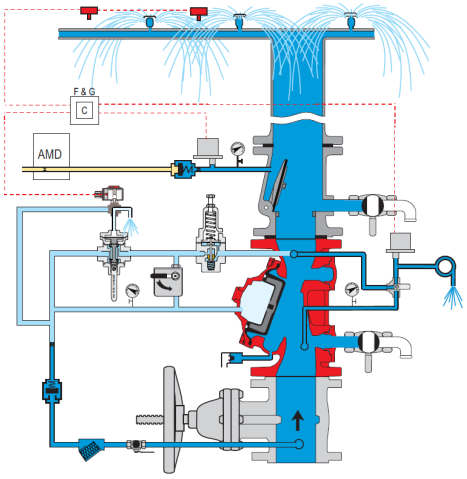
- Valve position limit switches
- Local valve position indicator
- Seawater compatibility
- Air Maintentenance Device
- Corrosion resistant zinc based high build epoxy coating

All images in this catalog are for illustration only

Operation



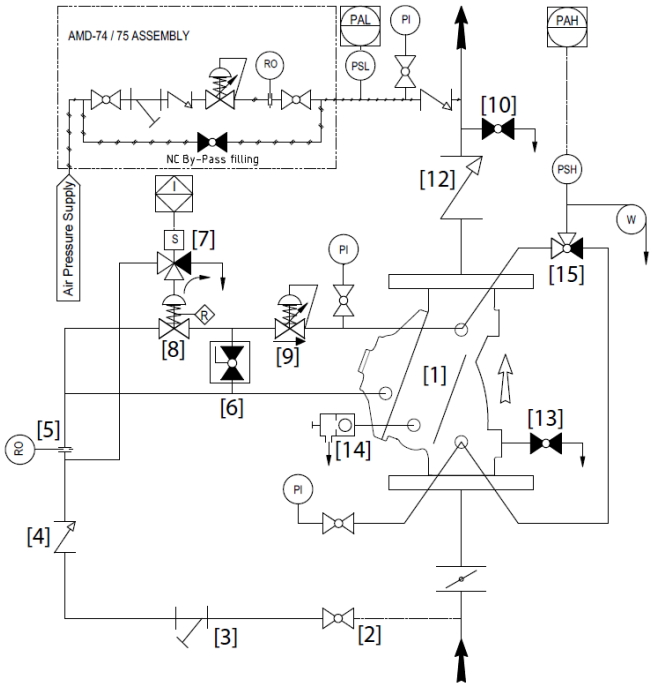
Valve Closed (normal conditions)



Valve Open (fire conditions)

Under NORMAL conditions, water pressure is supplied to the control chamber [1] via the priming line, keeping the main valve closed.
Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release [6], or by the solenoid valve opening in response to the cross-zone releasing control panel [C]. The control panel energizes the solenoid valve only when both of two conditions coexist: 1 - Activation of the electric heat-detection device and 2- triggering of the low pressure switch [9] as a result of a drop in pneumatic pressure in the system, 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 pressure in the valve control chamber, opening the 400Y-7BC. Once open the 400Y-7BC will maintain a stable downstream pressure at or below the set maximum, using the pressure control pilot valve integrated in the control trim.

System P&ID



	Components
1	BERMAD 400Y Deluge Valve
2	2-Way Priming Ball Valve
3	Priming Strainer
4	Check Valve
5	Restriction Orifice
6	Manual Emergency Release
7	3-Way Solenoid Valve
8	URV-2-Way Latching Relay Valve
9	Pressure Control Pilot
10	Drain Valve
11	Pressure Gauge
12	Line Check Valve
13	Drain valve
14	Automatic Drip Check Valve
15	3-Way Alarm Check Valve
16	3-Way Alarm Check Valve

	Optional System Items
PS	Pressure Switch
PI	Pressure Gauge
W	Water Motor Alarm
PAH	Pressure Switch - High
PAL	Pressure Switch - Low
AMD	Air Maintenance Device

See code designations and additional Factory Fitted Options on page 4

System Installation

A typical installation of the BERMAD model 400Y-7BC 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. Once open the 400Y-7BC maintains a stable downstream pressure, that will not exceed the predetermined set point.
When fitted with a limit switch, the valve can send a feedback signal to the remote valve position monitoring system.

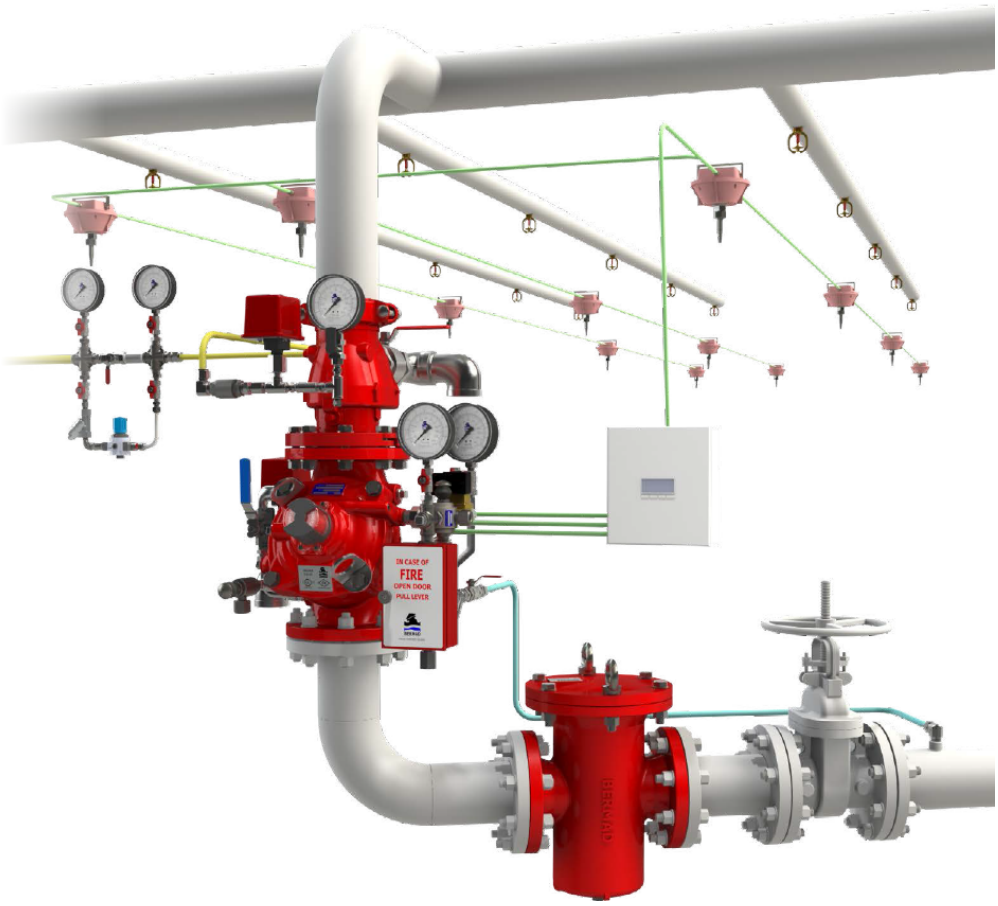
Optional System Items

Double Mechanical Linear Limit Switch

Visual Position Indicator, Linear

S.S Pressure Switch E xd

Basket Strainer - 60F



Suggested Specifications

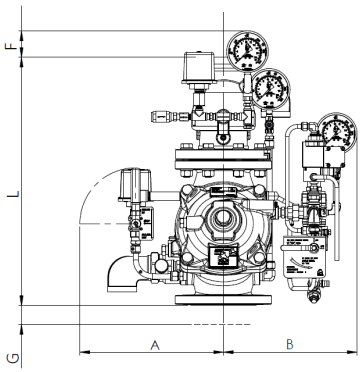
The pre-action valve shall be FM approved, 25 bar/365 psi rated, with a straight-through, Y type body.
The valve shall have an unobstructed flow path, with no stem guides or supporting ribs.
The valve shall have no mechanical moving parts, and the actuation shall utilize a single-piece diaphragm assembly using VRSD technology.
The valve shall be coated internally and externally with UV protection, with an option of C5-VH grade of ISO-12944 standard against corrosive conditions.
The control trim shall include a manual emergency release unit, a URV latching relay valve, a pressure control pilot, 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 3-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.

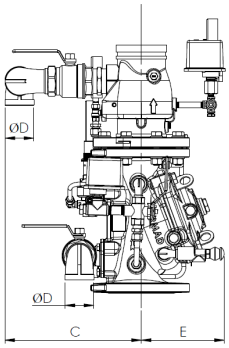
Technical Data

Available Sizes:
Flanged- 2, 3, 4, 6, 8 & 10"
Grooved- 2, 3, 4, 6 & 8"

Pressure Rating:
ANSI#150 - 17.2 bar | 250 psi
ANSI#300 - 1½" to 10" - 25 bar | 365 psi
Grooved - 25 bar | 365 psi
Setting range: 2 - 16 bar | 30 - 235 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	191 | 7.5	276 | 10.9	3/4"	140 | 5.5	-	101 | 4	31 | 68
DN80 | 3"	555 | 21.9	555 | 21.9	570 | 22.4	339 | 13.3	249 | 9.8	309 | 12.2	1½"	166 | 6.5	-	91 | 3.6	48 | 106
DN100 | 4"	595 | 23.4	595 | 23.4	612.5| 24.1	347 | 13.7	247 | 9.7	325 | 12.8	2"	178 | 7	-	78 | 3	60 | 131
DN150 | 6"	775 | 30.5	775 | 30.5	800.$31.6	400 | 15.7	314 | 12.4	340 | 13.4	2"	248 | 9.8	-	30 | 1.2	112 | 246
DN200 | 8"	965 | 38	965 | 38	990.$39	430 | 16.9	342 | 13.5	355 | 14	2"	315 | 12.4	-	-	179 | 394

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" | 400Y-7BC | V | C | A5 | ER | 4DC | NN | NP9

Category	Code
Standard	FP
Seawater	FS

Installation	Code
Vertical	V
Horizontal	H

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy (5)	ZR

Valve Size	
2"	50 mm
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm

Material Body & Cover (1)	Code
Ductile Iron A356 (2)	C
Steel ASTM A216 WCB (2)(5)	S
Nickel Al Bronze C95800(5)	U

Voltage - Main Valve N.O or N.C *	Code
24VDC - N.C.	4DC
110VDC - N.C.	5DC
110 - 120/AC - N.C.	5AC

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

Notes:
(1) Other materials available see engineering data
(2) Coated internally and externally
(3) Supplied loose
(4) Consult BERMAD for availability
(5) Main valve only

End Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
ISO PN16	16
Grooved Class 250psi/17.2bar	VI

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Factory Supplied Additional Items	Code
General Purpose NEMA-4 Pressure Switch	P
Ex Proof NEC, Div.1 Pressure Switch (3)	P7
Ex d ATEX Pressure Switch (3)	P9
Ex d Pressure Switch, SS316 Enclosure (3)	P9Jn
Ex d Pressure Switch, SS316 Enclosure, Monel Sensor (3)	P9mJn
Single Limit Switch, General Purpose	S
Double Limit Switch, General Purpose	SS
Single Ex d Proximity limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Pressure Gauge Assembly (3)	6
S.S Glycerin Pressure Gauge Assembly (3)	6n
Monel Pressure Gauge Assembly (3)	6m
Ex Proof NEC Class 1 Div 1 Solenoid	7
Ex. d Atex Solenoid	9
Stainless steel 316 Solenoid Valve	K
Drain Valve	DV
Water Motor Alarm Assembly (3)	W
Special Elastomer(4)	E
Large Control Filter	F
Valve Position Indicator	I
S.S 316 Trim Accessories	N
Pressure Transmitter (3)	Q

* More options available - contact BERMAD