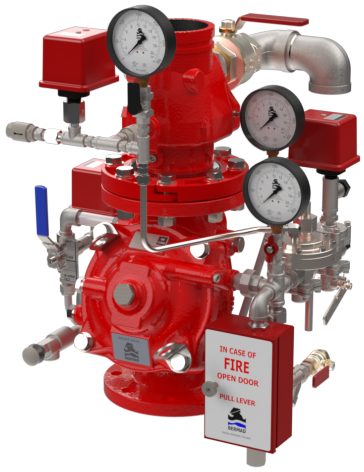
DOUBLE INTERLOCK PREACTION SYSTEM PNEUMATIC PNEUMATIC RELEASE

Model FP-400Y-7PM

The BERMAD model 400Y-7PM utilizes an elastomeric deluge valve with unique Vulcanized Radial Seal Disk (VRSD) technology, designed specifically for advanced fire protection systems and the latest industry standards.
The Double Interlock Preaction is suitable for use in systems requiring that water be kept out of the sprinkler piping until two fire detection devices have simultaneously reacted.
Pneumatic-Pneumatic Double interlock systems include automatic sprinklers attached to a supervised dry sprinkler piping system and a supplementary pneumatic pilot detection line.
The 400Y-7PM admits water into the sprinkler system piping only when there is a simultaneous loss of pneumatic pressure in both the pneumatic pilot detection line and the system piping pneumatic pressure.
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
  - No mechanical moving parts
- High performance
  - Very high flow efficiency
  - Efficient Straight through flow
  - Approved for PN25 / 365 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 TYPE APPROVED	Lloyd's Register Type Approval

Typical Applications

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

Optional Features

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

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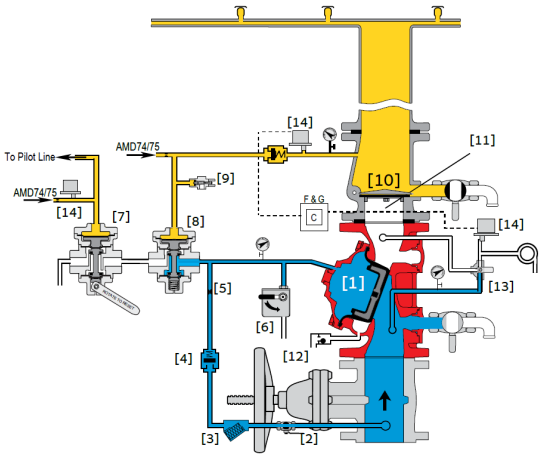
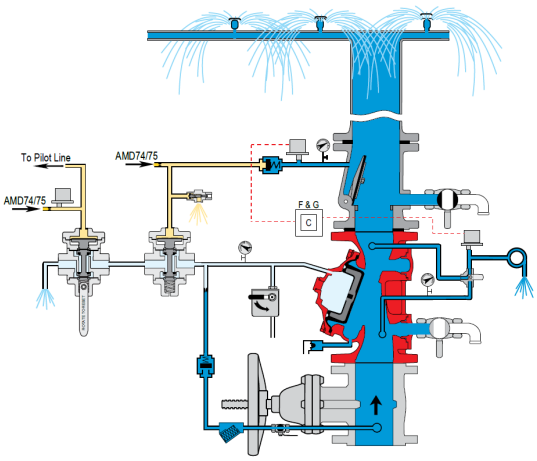
Operation



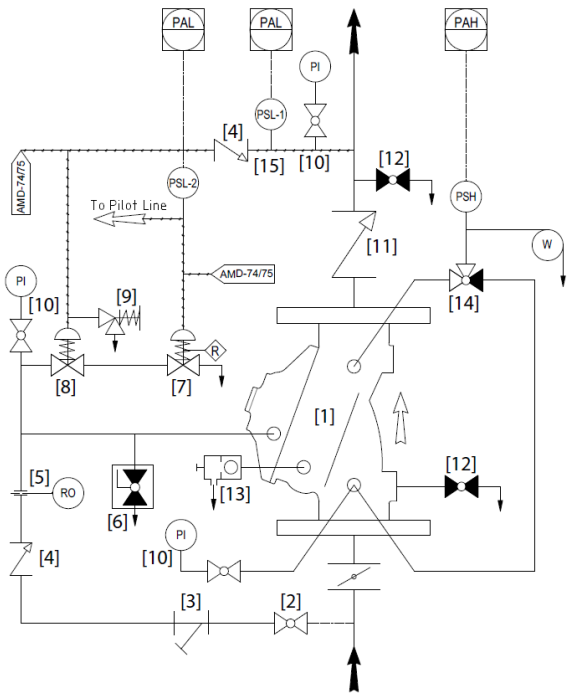
Valve Closed (normal conditions)



Valve Open (fire conditions)

Under NORMAL conditions, the 400Y-7PM is held closed by the water pressure supplied to the control chamber [1] 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] the URV-2-M relay valve with mechanical latch [7] and URV-2-L Low actuation pressure relay valve [8] that are held closed by pneumatic pressure of both the pilot line and dry sprinkler pipeline. Under FIRE conditions, the main valve may be opened either locally using the manual emergency release valve [6] or by the two URV relay valves opening simultaneously from a fall in pneumatic pressure in both the automatic sprinkler/s and the pilot line. Both URV valves will latch open, URV-2-L [8] by way of the low pressure release valve [9] and URV-2-M [7] by the mechanical latching device falling to a vertical position. When both these relay valves have opened 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 [13] Closing the main valve can be done only manually and locally by resetting the low pressure release valve and rotating the mechanical latch on URV-2-M [7] with the restored pipeline air pressure.

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	URV-2-M with mechanical Latch
8	URV-2-L Low actuation pressure relay valve
9	Low pressure accelerator
10	Pressure gauge
11	Inline check valve
12	Drain valve
13	Drip Check Vlave
14	Alarm test valve
15	PSL-1 Sprinkler Piping Pressure Switch Low

	Optional System Items
PSL-2	Pilot Line Pressure Switch Low
W	Water Motor Alarm
AMD-74/75	Air Maintenance Device

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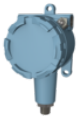
System Installation

A typical installation of the BERMAD model 400Y-7PM, features automatic actuation via two URV pilot control valves opening in response to a fall in pneumatic pressure of the dry sprinkler pipeline and the simultaneous fall in pneumatic pressure of the independant pilot line.
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

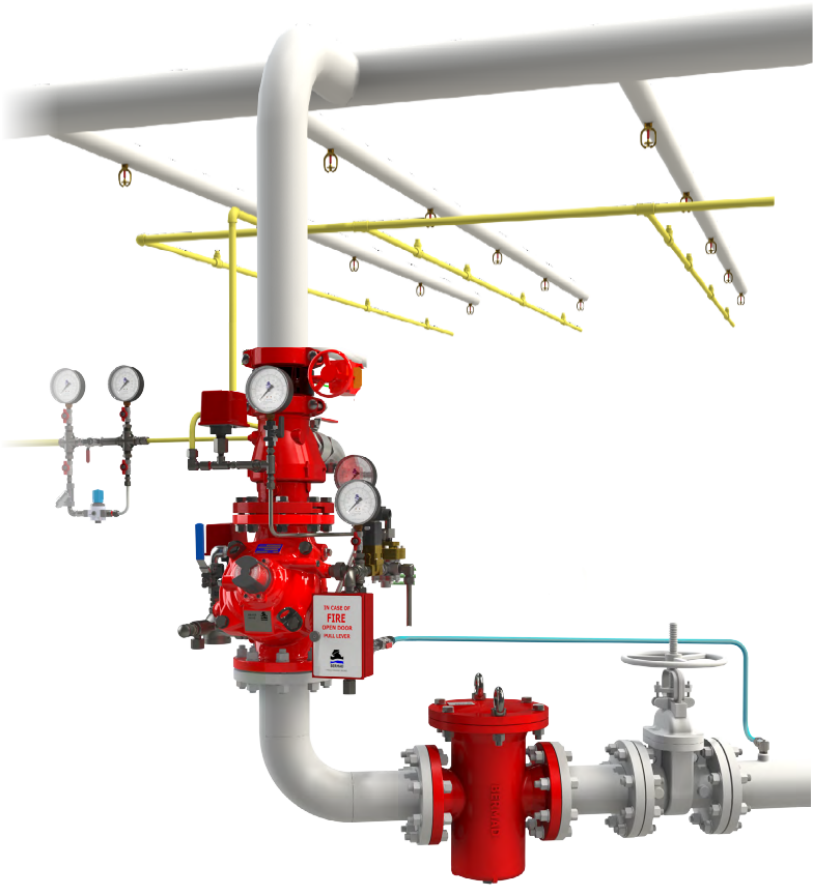
Air Maintenance Device

General Purpose Pressure Switch



Ex d Pressure Switch

Basket Strainer - 60F



Suggested Specifications

The preaction valve shall be FM-approved, 365-psi/25-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 valve shall include optional factory supplied Air maintenance devices for the sprinkler and pilot lines with alarm pressure switches.
The control trim shall include two latching relay valves with a 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.
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 preaction valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

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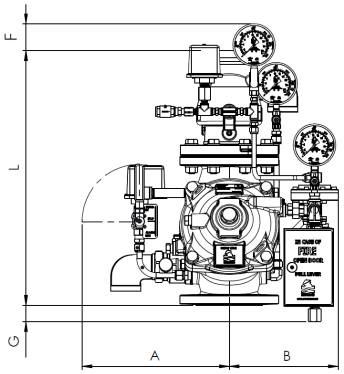
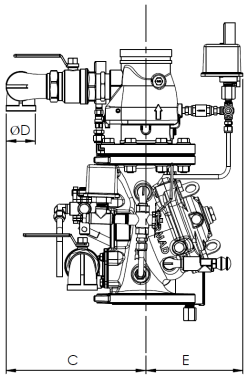
Technical Data

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 / 25 bar | 250 / 365 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	293 | 11.5	232 | 9.1	178 | 7	3/4"	249 | 9.8	78 | 3	166 | 6.5	31 | 68
DN80 | 3"	555 | 21.9	555 | 21.9	570 | 22.4	313 | 12.3	246 | 9.7	221 | 8.7	1½"	220 | 8.7	62 | 2.4	64 | 2.5	55 | 121
DN100 | 4"	594 | 23.4	594 | 23.4	613.5 | 24.2	343 | 13.5	255 | 10	287 | 11.3	2"	233 | 9.2	63 | 2.4	37 | 1.5	73 | 131
DN150 | 6"	775 | 30.5	775 | 30.5	801 | 31.5	358 | 14.1	310 | 12.2	302 | 11.9	2"	268 | 10.6	26 | 1	-	132 | 290
DN200 | 8"	956 | 37.6	956 | 37.6	991 | 39	391 | 15.4	385 | 15.2	317 | 12.5	2"	335 | 13.2	-	-	226 | 497

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-7PM | V | C | A5 | ER | NN | NP9

Category	Code
Standard	FP

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

Installation	Code
Vertical	V
Horizontal	H

Material Body & Cover (1)	Code
Ductile Iron A536 (2)	C
Steel ASTM A216 WCB (2)(5)	S
Nickel Al Bronze C95800(5)	NAB

End Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
Grooved 250psi / 17.2bar	VI
Grooved 365psi / 25bar	V2

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

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
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
Water Motor Alarm Assembly (3)	W
Large Control Filter	F
Valve Position Indicator	I
S.S 316 Trim Accessories	N
Pressure Transmitter (3)	Q

* More options available - contact BERMAD

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

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