

Double Interlock Pre-Action Valve Electric-Electric Release System

FP 400Y - 7BM

The BERMAD Model FP 400Y 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 400Y-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.

As an option the 400Y 7BM features a visual quarter turn valve position indicator, available with limit switches for remote valve position monitoring.



(for Illustration Only)

Benefits and Features

■ Safety and reliability

- ▢ Time-proven, simple, fail-safe actuation
- ▢ Single-piece, rugged, elastomeric diaphragm seal - VRSD technology
- ▢ Intermediate anti-flooding chamber
- ▢ Obstacle-free, uninterrupted flow path
- ▢ No mechanical moving parts

■ High performance

- ▢ Very high flow efficiency
- ▢ Straight through flow Y-type body
- ▢ Approved for PN20 / 300psi

■ Quick and easy maintenance

- ▢ In-line serviceable
- ▢ Quick and easy cover removal
- ▢ Swivel mounted drain valves*

* not including 2" valves

Typical Applications

- Water sensitive material storage
- Freezing conditions
- Computer and electronics rooms
- Libraries / museums & archives

Approvals



UL-Listed
Special System Water Control Valves
Sizes 3" - 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

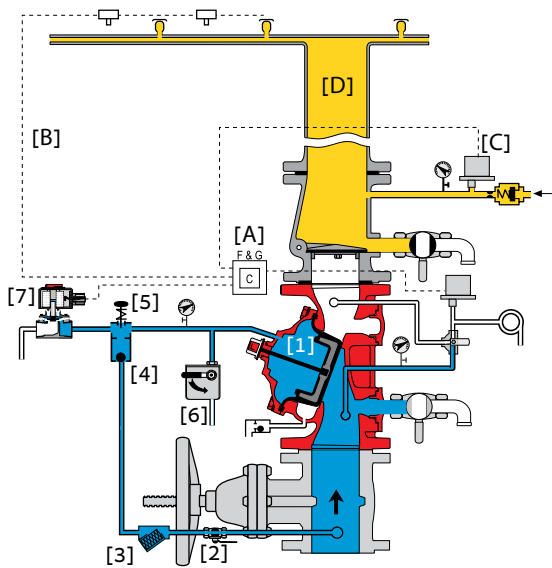
Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Sea water compatibility
- Air Maintenance Device

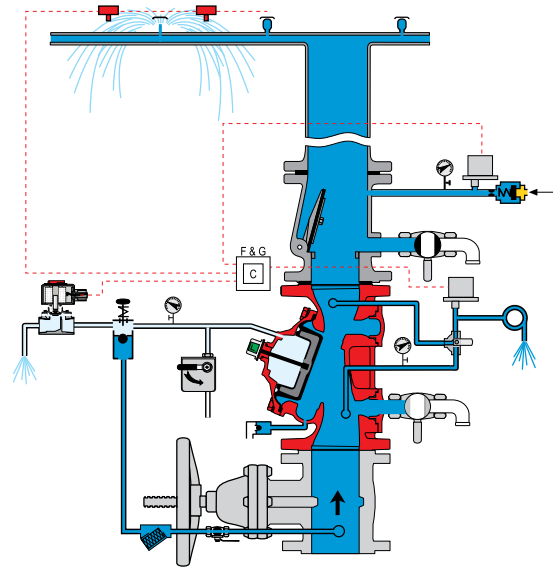


Operation

(for Illustration Only)



Valve Closed (normal conditions)



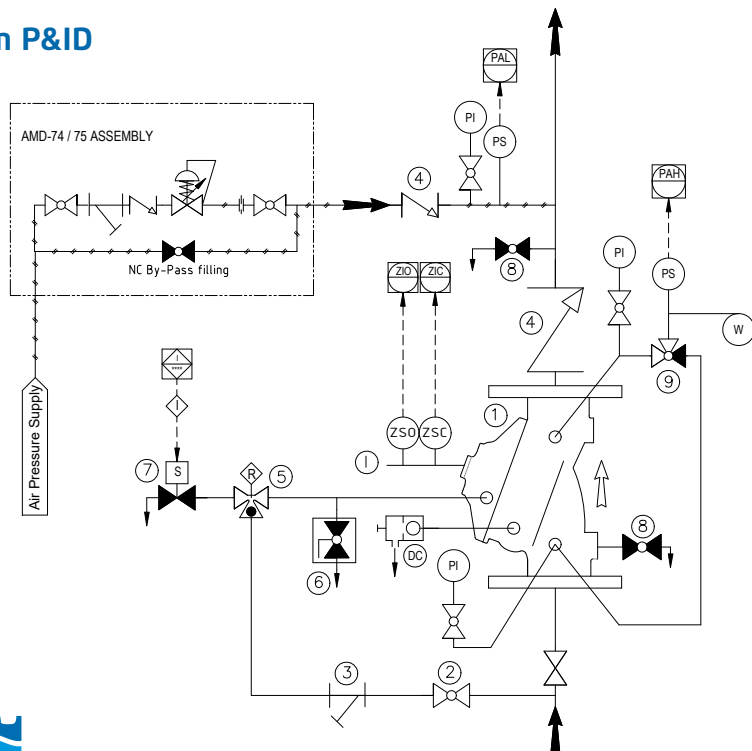
Valve Open (fire conditions)

The BERMAD model 400Y-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 400Y-7BM pre-action valve latches open, allowing water to flow into the system piping and to the alarm device [9].

System P&ID



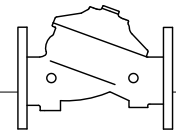
Components

- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check Valve
- 5 EasyLock Manual Reset
- 6 Manual Emergency Release
- 7 2-Way Solenoid Valve
- DC Automatic Drip Check Valve
- 8 Drain Valve
- 9 3-Way Alarm Test Ball Valve
- PI Pressure Gauge
- PS Pressure Switch (PAL)

Optional System Items

- PS Pressure Switch (PAH)
- ZS Limit Switch Assembly
- I Visual Indicator
- W Water Motor Alarm
- AMD Air Maintenance Device

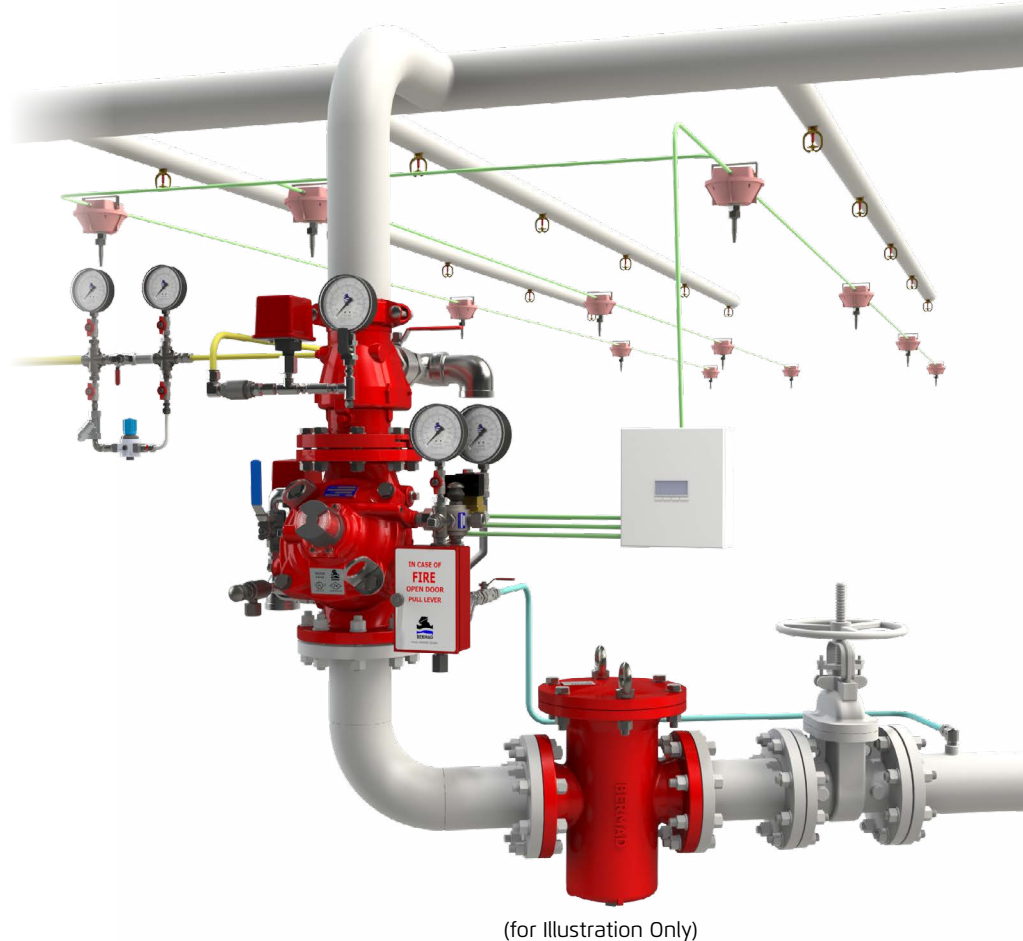
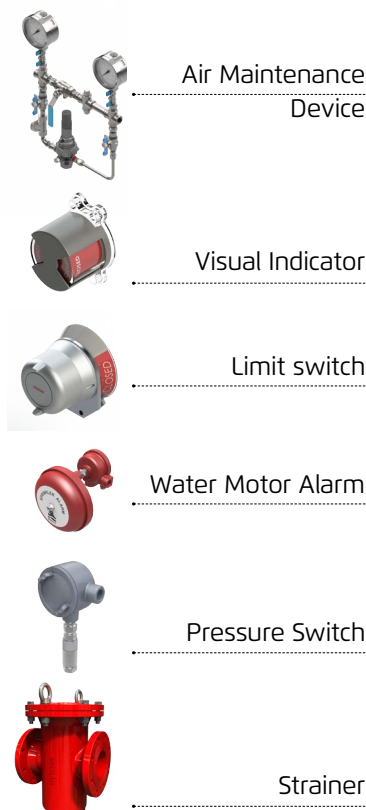
See also Factory Fitted Options under the Valve Code Designations on the last page



System Installation

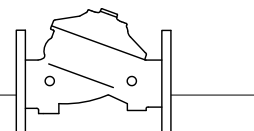
A typical installation of the BERMAD model 400Y-7BM features automatic actuation via a solenoid valve and cross-zone releasing control panel. Actuation occurs only when the control panel receives simultaneous electric signals from an electric fire-detection system and a low pressure sensing switch/relay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



Engineering Specifications

The preaction valve shall be UL listed and FM approved, 20 bar/300 psi rated, with a straight-through Y-type body. The valve shall have an unobstructed flow path, with no stem guide or supporting ribs. Valve actuation shall be accomplished by a single-piece, rolling diaphragm bonded with a rugged radial seal disk. The diaphragm assembly shall be the only moving part. The preaction valve shall include an EasyLock latching check valve with manual reset, a 2-way solenoid valve with a voltage tolerance of 35% below the rated voltage, a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a stainless steel box. The valve shall be equipped with a protective-covered, dual-color, rotational position indicator, readable from 50 meters, and with two limit switches enclosed in a protective switch box. Removing the valve cover for inspection or maintenance shall be in-line and not require removal of the control trim. The pre-action valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a test facility certified to ISO 9000 and 9001 standards.



Technical Data

Available Sizes (inch)

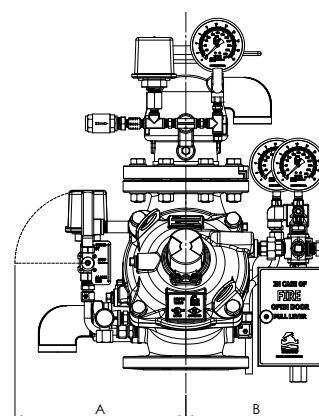
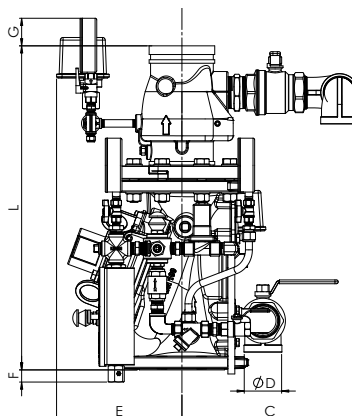
- Flanged - 2, 3, 4, 6 & 8"
- Grooved - 2, 3, 4, 6 & 8"

Pressure Rating

- ANSI#150 - 16 bar / 235 psi
- ANSI#300 - 20 bar / 300 psi
- Grooved - 20 bar / 300 psi

Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - See engineering data



Valve Size	2" DN50		3" DN80		4" DN100		6" DN150		8" DN200	
Unit	mm	in	mm	in	mm	in	mm	in	mm	in
L ⁽¹⁾	450	17.7	555	21.9	595	23.4	775	30.5	965	38.0
L ⁽²⁾	455	17.9	570	22.4	612.5	24.1	800.5	31.5	990.5	39.0
A	279	11.0	339	13.3	347	13.7	400	15.7	430	16.9
B	191	7.5	249	9.8	247	9.7	314	12.4	342	13.5
C	276	10.9	309	12.2	325	12.8	339.5	13.4	355	14.0
E	140	5.5	166	6.5	178	7.0	248	9.8	315	12.4
G	101	4.0	91	3.6	78	3.1	29.5	1.2	-	-
ØD	DN20	¾"	DN40	1½"	DN50	2"	DN50	2"	DN50	2"
Unit	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
Friction loss ⁽⁴⁾ at 5 m/s - 16.4 ft/s	0.3	4.2	0.51	7.3	0.34	4.8	0.32	4.6	0.37	5.3
Unit	m	ft	m	ft	m	ft	m	ft	m	ft
Leq ⁽³⁾	6	20	17	56	16	52	23	75	37	121
Unit	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Weight approx	31	68	48	106	60	131	112	247	179	394

Notes: ⁽¹⁾ Refers to the length dimensions for Raised Face ANSI #150, ISO 16 Flanged, Threaded and Grooved valves

⁽²⁾ Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves

⁽³⁾ Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40, values given for general consideration only

⁽⁴⁾ Friction Loss values include the downstream check valve

⁽⁵⁾ Exact dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations

FP	6"	400Y-7BM	V	C	A5	PR	4DC	NN	WFRI																																																																																																					
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