

Double Interlock Pre-action Deluge Valves Electric- Electric

FP 400Y - 7BM

The BERMAD Model FP 400Y 7BM is an elastomeric, hydraulic, line pressure operated deluge valve, designed for advanced fire protection systems and the latest industry standards.

The Double Interlock Pre-action release system is suitable for use in systems requiring that water be kept out of the sprinkler piping until two detecting systems have been simultaneously activated.

Model FP 400Y-7BM pre action double interlock is activated by two simultaneous electric signals fed to a cross zone releasing panel. Once open the deluge valve latches open until locally reset.

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.



Benefits and Features

- **Safety and reliability**
 - Time-proven, simple, fail-safe actuation
 - Single-piece, rugged, elastomeric diaphragm seal - VRSD technology
 - Intermediate vented chamber against flooding
 - Opens only on simultaneous signals from two detection devices
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
 - Latches open: remains open until reset locally
- **High performance**
 - Very high flow efficiency
 - Straight through flow Y-type body
 - Approved for PN25/ 365 psi
- **Quick and easy maintenance**
 - In-line serviceable
 - Quick cover removal without detaching control trim*
 - Swivel mounted drain valves*

* not including 1½" & 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, Deluge Type (VLFT)



FM Approved
for Deluge Sprinkler Systems



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval

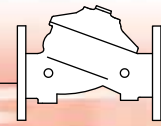


Lloyd's Register
Type Approval

Factory Fitted Options

- Valve position limit switches
- Local valve position indicator beacon
- Air maintenance device
- Water motor alarm
- Pressure alarm device
- Sea water compatibility
- Stainless steel seat ring

BERMAD Fire Protection

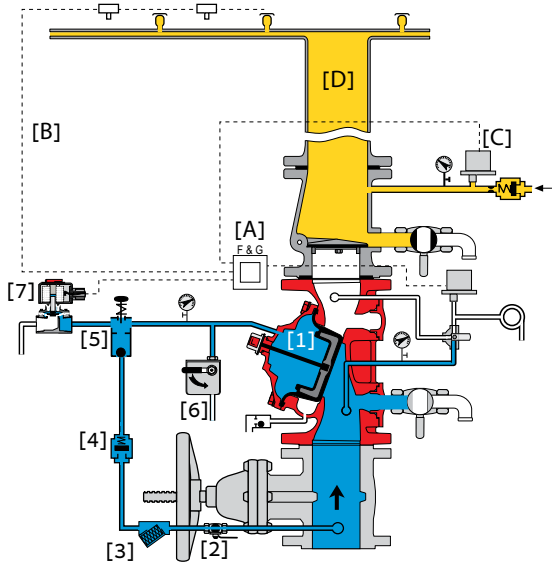


Model: FP 400Y - 7BM

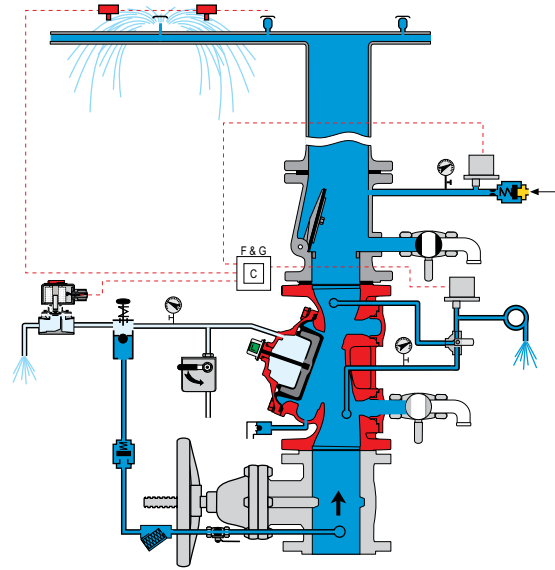
400Y Series

Operation

(for Illustration Only)



Valve Closed (normal conditions)



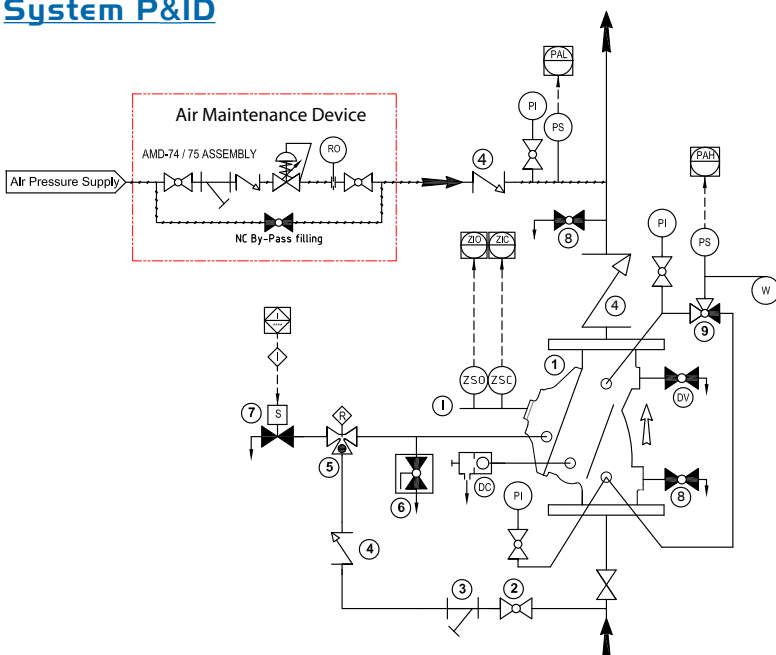
Valve Open (fire conditions)

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 valve [4], check feature 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: One - The electric heat-detection device [B] must be activated; Two - The low pressure switch [C] must make contact as a result of a drop in pneumatic pressure in the system [D] caused by heat opening one or more of the heat sensitive fusible plugs. When these two conditions occur simultaneously the solenoid vents 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



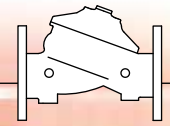
Components

- 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
- 8 Drain Valve
- 9 3-Way Alarm Test Ball Valve

Factory Fitted Options

- ZS Limit Switch Assembly
- I Visual Indicator
- DC Automatic Drip Check Valve
- DV Additional Drain Valve
- W Water Motor Alarm





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 open and 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.

Factory Fitted Options



Air Maintenance Device



Water Motor Alarm



Pressure Switch



Valve Position Indicator



Limit Switch



Strainer



(for Illustration Only)

Engineering Specifications

The pre action valve shall be a UL listed and FM approved, 25 bar/365 psi, straight-through, Y-type-body valve.

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.

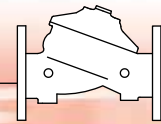
The preaction valve shall include an EasyLock latching check valve with manual reset, a 2-way solenoid valve with a voltage tolerance of 35% below the rated voltage, a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a stainless steel box. The valve drain socket shall be flanged and have 360-degree swivel.

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.

BERMAD Fire Protection



Model: FP 400Y - 7BM

400Y Series

Technical Data

Available Sizes (inch)

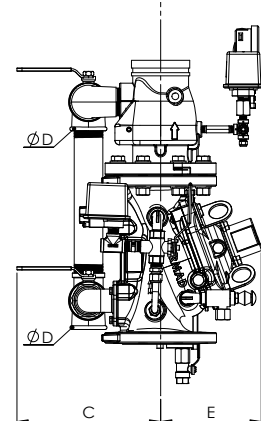
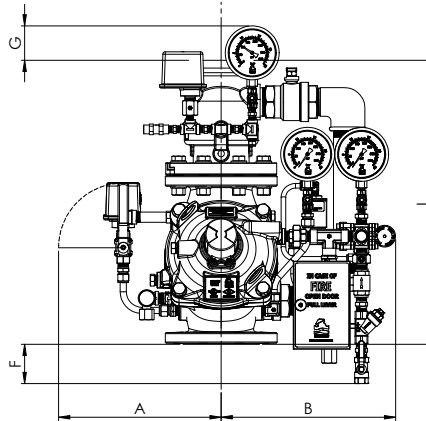
- Flanged - 2, 3, 4, 6 & 8"
- Grooved - 2, 3, 4, 6 & 8"
- Threaded - 2"

Pressure Rating

- ANSI#150 - 16 bar / 235 psi
- ANSI#300 - 25 bar / 365 psi
- Grooved/Threaded - 25 bar / 365 psi

Temperature Rating

- 60°C / 140°F with NR elastomers (standard)
- 90°C / 194°F with EPDM elastomers



Valve Size	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200
⁽¹⁾ L' ANSI #150 mm (in.)	450	555	595(23.4)	600(23.6)	956(37.6)
L ² ANSI #300 mm (in.)	455	571	612(24.1)	625(24.6)	981(38.6)
A mm (in.)	350	369	372(14.6)	425(16.7)	455(17.9)
B mm (in.)	320	352	362(14.3)	417(16.4)	445(17.5)
C mm (in.)	241	274	290(11.4)	304(12)	320(12.6)
D mm (in.)	¾"	¾"	2"	2"	2"
E mm (in.)	167	191	205(8.1)	273(10.7)	338(13.3)
F mm (in.)	230	310	350(13.8)	480(18.9)	600(23.6)
G mm (in.)	121	111	75(3)	-	-
⁽²⁾ Kv m ³ /h (Cv gpm)	80(92)	190(219)	345(398)	790(912)	1160(1340)
⁽³⁾ Leq m (ft)	4(14)	8(14)	8(25)	13(43)	27(89)
Weight, flanged kg (lbs)	20.1(44.2)	34.1(75)	51.2(112.6)	102.6(225.7)	177.6(390.7)

- Notes: ⁽¹⁾ L, Dimensions are for grooved threaded and raised face flanges
⁽²⁾ For valve only, not including check valve
⁽³⁾ Leq: Equivalent pipe length for turbulent flow in clean commercial steel pipe (SCH 40)

Valve Code Designations

FP 6" 400Y-7BM V C A5 PR 4DC NN P791

Category	code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Installation	code
Vertical	V
Horizontal	H

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Material Body & Cover ⁽¹⁾	code
Ductile Iron ASTM A356 ⁽²⁾	C
Steel ASTM A216 WCB ⁽²⁾	S
Stainless Steel 316 ASTM	N
Nickel Al Bronze C95800	U
Super Duplex ASTM A890 Grade 5A	D

End Connections	code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ISO PN16	16
ISO PN25	25
Grooved ANSI C606	VI

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

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Voltage ⁽³⁾ - Main Valve N.O or N.C	
24VDC - N.C.	4DC
24VDC - N.O.	4DO
24VDC - Latch	4DS
110VDC - N.C.	5DC
110VDC - N.O.	5DO
110-120/AC - N.C.	5AC
110-120/AC - N.O.	5AO

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

Factory Fitted Options	Code
General Purpose NEMA-4 Pressure Switch	P
Ex Proof NEC, Div.1 Pressure Switch	P7
Ex d ATEX Pressure Switch	P9
Double Ex d Proximity Limit Switch	SS9
Single Ex d Proximity Limit Switch	S9
S.S Glycerin Pressure Gauge Assembly	6n
Monel Pressure Gauge Assembly	6m
Ex Proof NEC Class 1 Div 1 Solenoid	7
Ex d ATEX solenoid	9
Downstream Drain valve	DV
Water Motor Alarm Assembly ⁽⁴⁾	W
Special Elastomer EPDM	E2
Special Elastomer NBR	E3
Large Control Filter	F
Valve Position Indicator	I
S.S Solenoid Valve	K
S.S 316 Trim Accessories	N
Stainless Steel 316 Seat	T
Pressure Transmitter	Q
Drain and Indicating Components ⁽⁵⁾	A

- Notes:
⁽¹⁾ Other materials available see Engineering Data
⁽²⁾ Coated internally and externally
⁽³⁾ FM approved with 24VDC only
⁽⁴⁾ Supplied loose
⁽⁵⁾ Mandatory for FM approved valves



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