



Double Interlock Pre-Action Valve Electric-Pneumatic Release System

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.



(for Illustration Only)

Benefits and Features

■ Safety and reliability

- Time proven, simple, fail-safe actuation
- Single piece, rugged elastomeric diaphragm seal - VRSD technology
- Obstacle-free, uninterrupted flow path
- No mechanical moving parts
- Latches open: remains open until reset locally
- Valve position limit switches (optional)
- Local valve position indicator beacon (optional)

■ High performance

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

■ 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

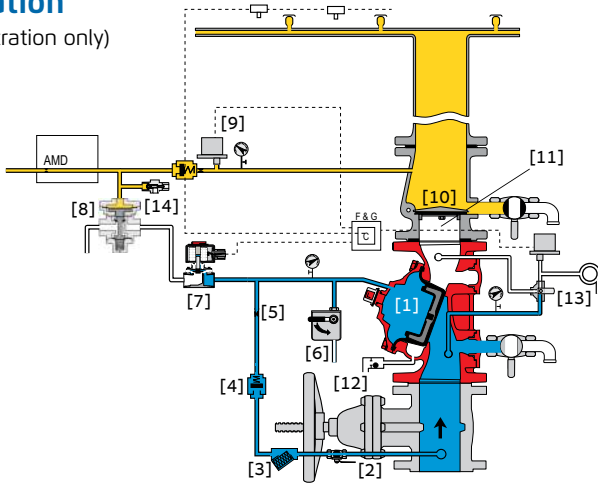
BERMAD Fire Protection

Model FP 400Y - 7DM

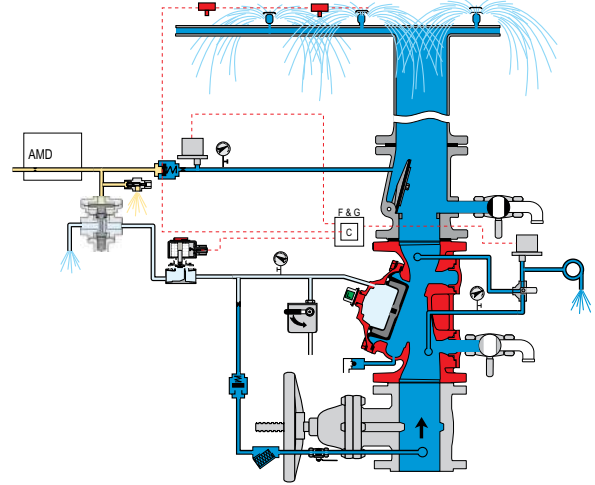
400Y Series

Operation

(for illustration only)



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.

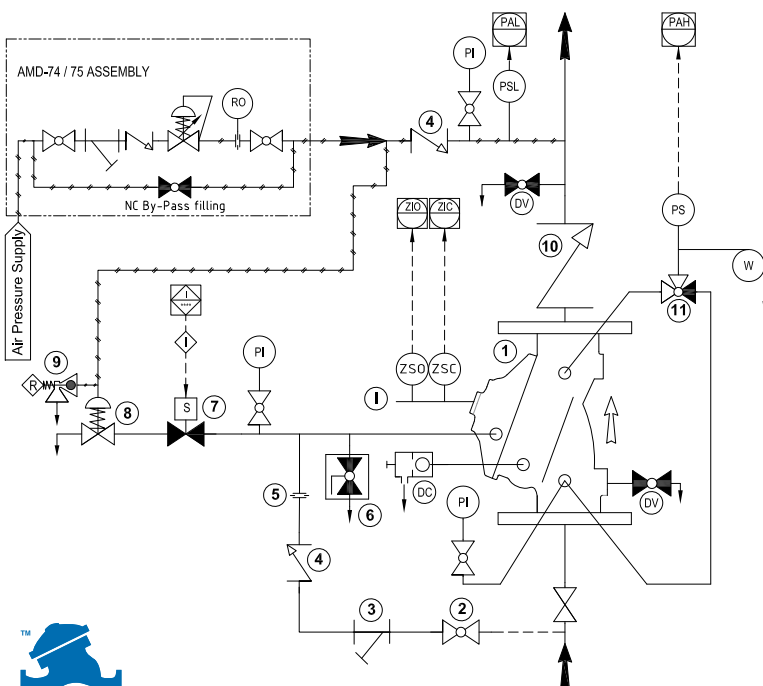
Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] strainer [3], and is then trapped in the control chamber by the closed manual emergency release [6] a check valve [4] a closed solenoid valve [7] and a URV relay valve [8] which is held closed by pneumatic pressure of 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 the event of fire the main valve may be opened either locally and manually using the manual emergency release valve [6] or by the URV relay valve opening simultaneously with the solenoid valve.

The activation of the automatic sprinkler/s will cause a drop in pneumatic pressure upon which 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 through 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 main valve and admitting water into the piping and to the alarm device [13].

Once open the main valve will latch open by way of the now open low pressure release valve [14], disabling any re-entry of water pressure into the main valve's control chamber. Closing the main valve can be done only manually and locally by resetting or reclosing the low pressure release valve 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 2-Way solenoid
- 8 URV-2-Way relay valve
- 9 Low pressure release valve
- 10 In-line check valve
- 11 3-Way alarm check valve
- DV Drain valve
- PI Pressure gauge
- DC Automatic drip check valve

Optional System Items

- ZS Limit switch assembly
- I Visual indicator
- PS Pressure Switch
- W Water motor alarm
- AMD Air Maintenance Device

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





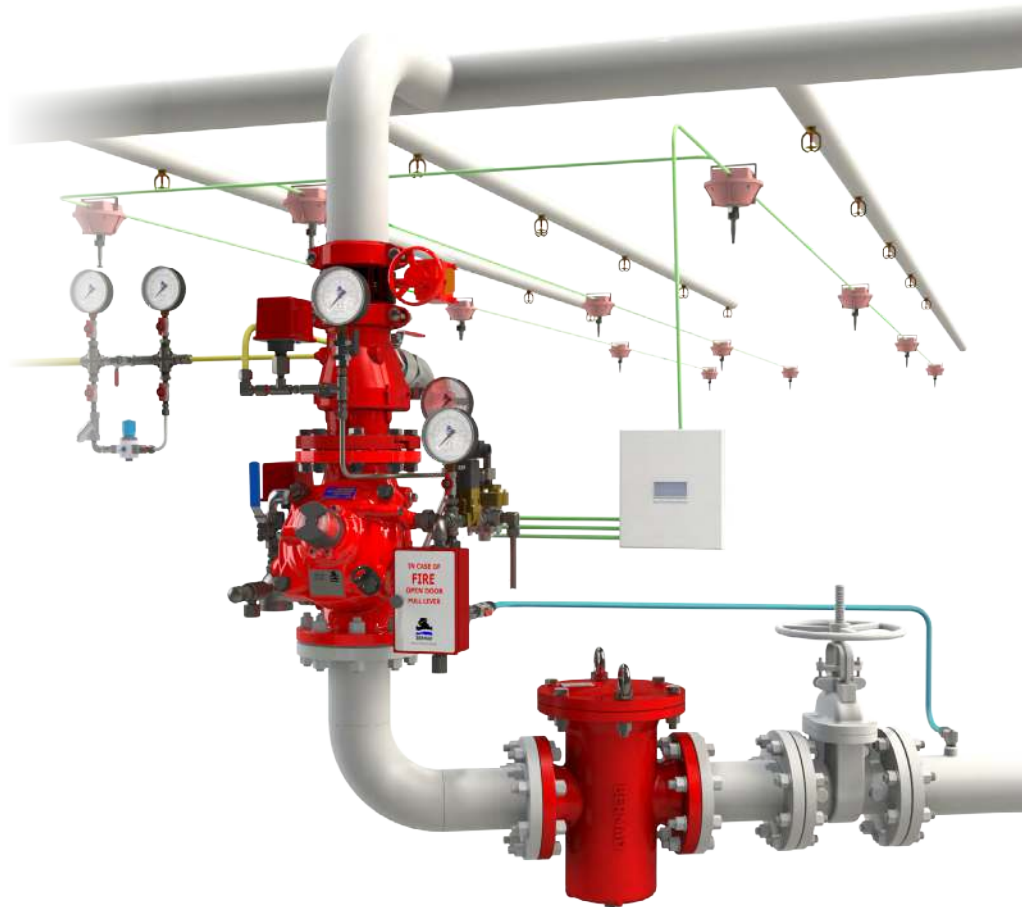
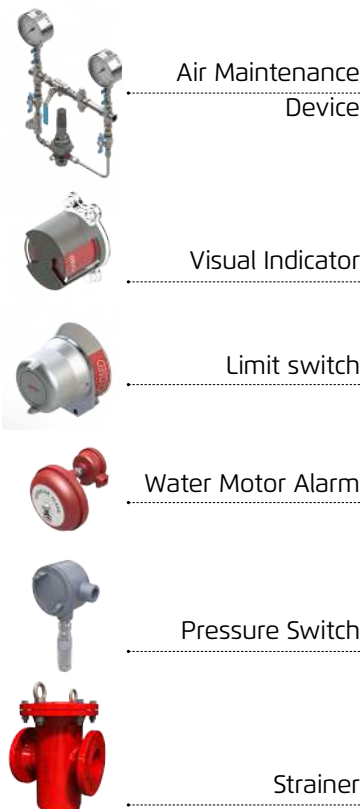
System Installation

A typical installation of the BERMAD model 400Y-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.

When fitted with a limit switch the valve can send a feedback signal to a remote valve status monitoring system.

Optional System Items



(for illustration only)

Engineering Specifications

The pre action 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.

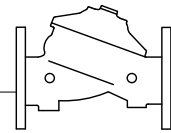
The pre-action valve shall include a relay pilot with a latching low pressure release valve, a 2-Way solenoid with a tolerance of 35% below the rated voltage, a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a stainless steel box.

The valve drain sockets 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 not require removing the control trim.

The deluge valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a factory certified to ISO 9000 and 9001 standards.



Technical Data

Available Sizes (inch)

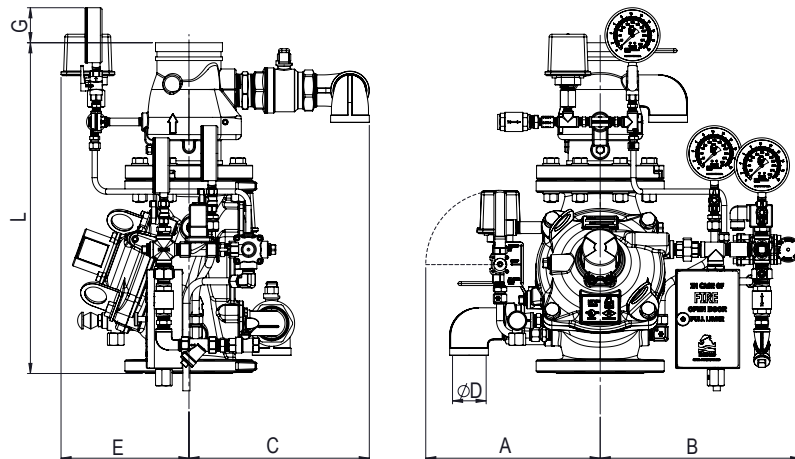
- Flanged - 2, 3, 4, 6 & 8"
- Grooved - 2, 3, 4, 6 & 8"

Pressure Rating

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

Elastomer

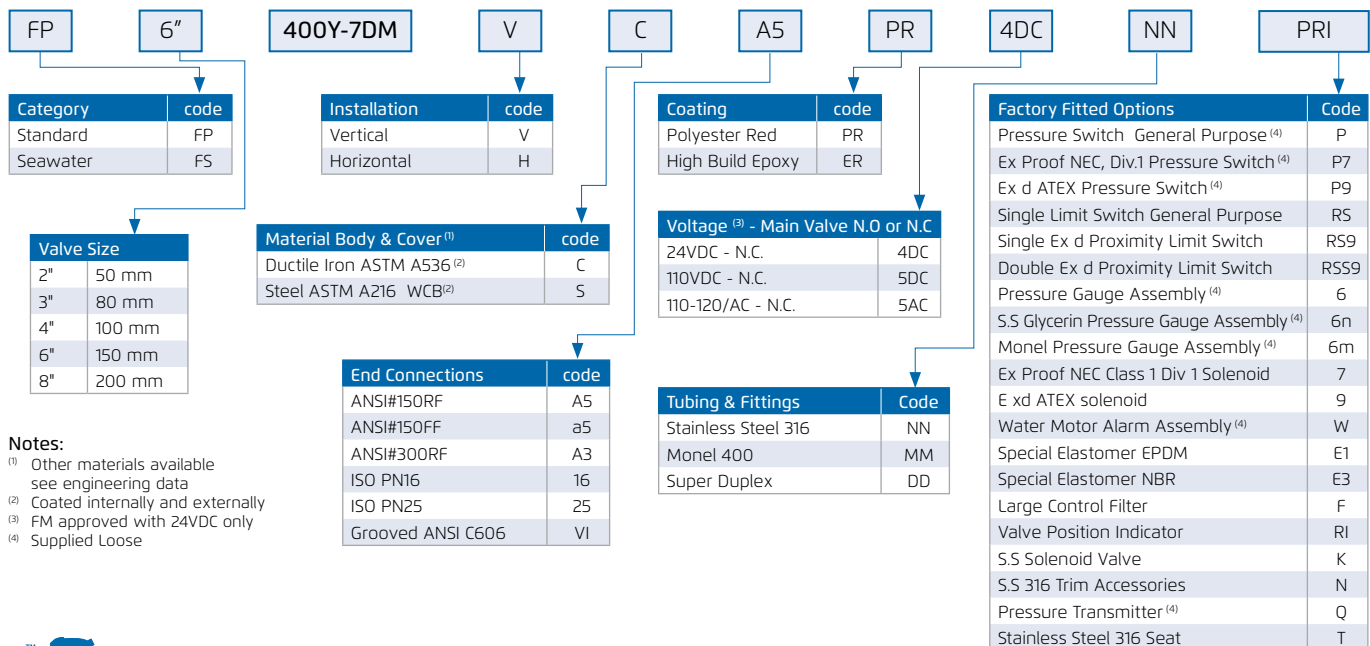
- HTNR - Fabric Reinforced High Temperature Compound - See engineering data



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	294	11.6	352	13.9	230	9.1	417	16.4	445	17.5
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	32	69	49	107	60	132	113	249	180	395

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



Notes: ⁽¹⁾ Other materials available see engineering data
⁽²⁾ Coated internally and externally
⁽³⁾ FM approved with 24VDC only
⁽⁴⁾ Supplied Loose

