

Bermad Solenoid Activated, Remote Controlled Monitor Valve

Model: 400E-3X

INSTALLATION OPERATION MAINTENANCE



1. Safety First

BERMAD believes that the safety of personnel working with and around our equipment is the most important consideration. Please read all safety information below and from any other relevant source before attempting to perform any maintenance function.

Comply with all approved and established precautions for working with your type of equipment and/or environment.

Authorized personnel should perform all maintenance tasks.

Prior to performing a procedure, read it through to the end and understand it. If anything is not clear, ask the appropriate authority.

When performing a procedure, follow the steps in succession without omission.

2. Description

The BERMAD 400E-3X Remote Control Valve is a hydraulic control valve, which is operated by an electric 3-way Solenoid Valve (3 fig.2).

The specific control trim of the 400E-3X includes a 3/2 manual opening pilot valve, the 3/2 valve is normally open to allow water pressure into the upper control chamber of the Main Valve (4 fig.2).

In fire conditions, when the remote control system is operated to open the Solenoid valve (3 fig.2), releasing pressure from the valve upper control chamber allowing the Main Valve to open and water to enter the system piping.

3. Approvals

BERMAD 400E-3X Remote Control Valve is Lloyd's Register type approved and ABS certified, for sizes 1½" through 12" according to NFPA code and standards for water and Foam fire protection systems.

Consult the manufacturer for any component approved when approval recently to appear in the fire protection equipment directory.

4. Installation

Subject to all other instructions, drawings and technical specifications which describe the BERMAD Control Valve, install in their proper positions the components comprising the Control Trim Package, according to the drawing relevant to the specific type, hereby enclosed.

WARNING: The Control Valve and trim must be installed only in areas where they will not be subjected to freezing temperatures.

Installation Instructions

- 4.1 Allow enough room around the valve assembly for any adjustments and future maintenance/disassembly work.
- 4.2 Before the valve is installed, flush the pipeline to remove any dirt, scale, debris, etc. Failure to do this might result in the valve being inoperable.
- 4.3 It is recommended to install an Isolating valves upstream of the BERMAD 400E-3X Control Valve to allow future maintenance.
- 4.4 Install the valve in the pipeline with the valve flow arrow on the body casting in the proper direction. Use the lifting eye provided on the main valve cover for lifting and lowering the valve.
- 4.5 BERMAD 400E-3X Control Valve is intended for horizontal or vertical installation. Ensure that the valve is positioned so that the valve cover can be easily removed for future maintenance

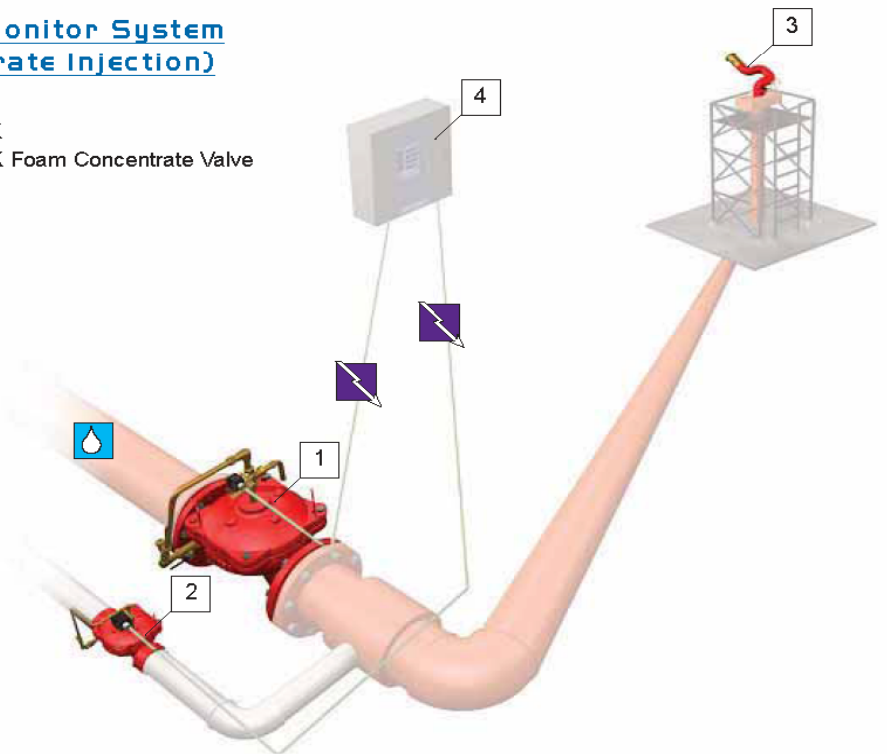
- 4.6 Install also the additional accessories, which appear in the drawing and which must be installed as shown in the schematic drawing.
- 4.7 Connect the electric wiring of the Solenoid Valve (3 fig.2) to the Electric Control System according to the System Electrical Wiring Diagram.
- 4.8 Connect the Limit Switches and/or the Pressure Switch (if utilized) to the Electric Control System according to the System Electrical Wiring Diagram After installation, carefully inspect/correct any damaged accessories, piping, tubing, or fittings.
- 4.9 Any deviation in trim size or arrangement, that is not performed by a representative of BERMAD, may adversely affect the proper operation of the Control Valve.

Figure 1: Installation Drawing

**Remote Controlled Monitor System
(with Foam Concentrate Injection)**

System Components

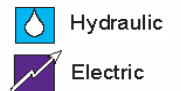
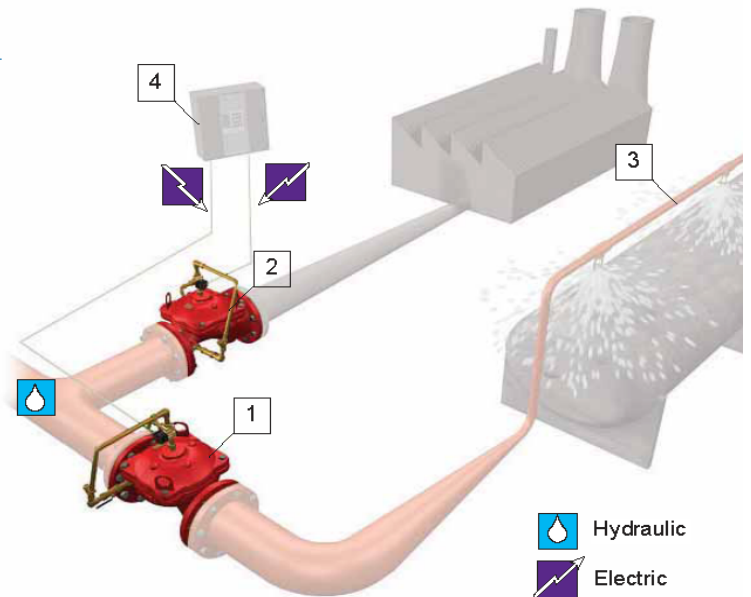
- 1 - BERMAD Model FP 400E-3X
- 2 - BERMAD Model FC 400E-3X Foam Concentrate Valve
- 3 - Remote Controlled Monitor
- 4 - Control Panel



Emergency Zone Isolation System

System Components

- 1 - BERMAD 400E Deluge Valve
- 2 - BERMAD Model FP 400E-3X Remote Controlled Shut-off Valve
- 3 - Deluge Spray System
- 4 - Control Panel



5. Optional Equipment

Valve Position Limit switch(s) and/or water flow alarm pressure switch are available to enable either activate an electric alarm, or shut down desired equipment.

6. Placing in Service/Resetting the System

- 6.1 Place the Control/Panel Detector Circuit in service.
- 6.2 Energize the Solenoid Valve (3 fig.2) by resetting the Electric Control Panel.
- 6.3 Ensure that the manual Release Valve (2 fig.2) is closed.
- 6.4 Open the Priming-Line Cock Valve (1 fig.2)
- 6.5 Open the main supply valve slowly. The main valve will gradually close and seal. No water should flow to the system.
- 6.6 The system is now in service.

7. Removing the System from Service

When taking the Remote Control valve out of service, a fire patrol should be established in the system area. If automatic fire-alarm signaling equipment is utilized, the proper authority should be notified that the system is being removed from service. The insuring body and owner representative should also be notified when the system is being taken out of service.

8. Removing Instructions

- 8.1 Shut off the Main Isolating Supply Valve.
- 8.2 Priming Line Cock Valve (1 fig.2) to the Control Valve should be closed.
- 8.3 Release the water pressure from the top chamber of the Control Valve by opening the manual release valve (2 fig.2), or by tripping the electrical circuit (de-energize the Solenoid Valve (3 fig.2).
- 8.4 If auxiliary power is used, disconnect all power supply and batteries.
- 8.5 Place "**Fire Protection System Out of Service**" signs in the area protected by the system.

9. Operation

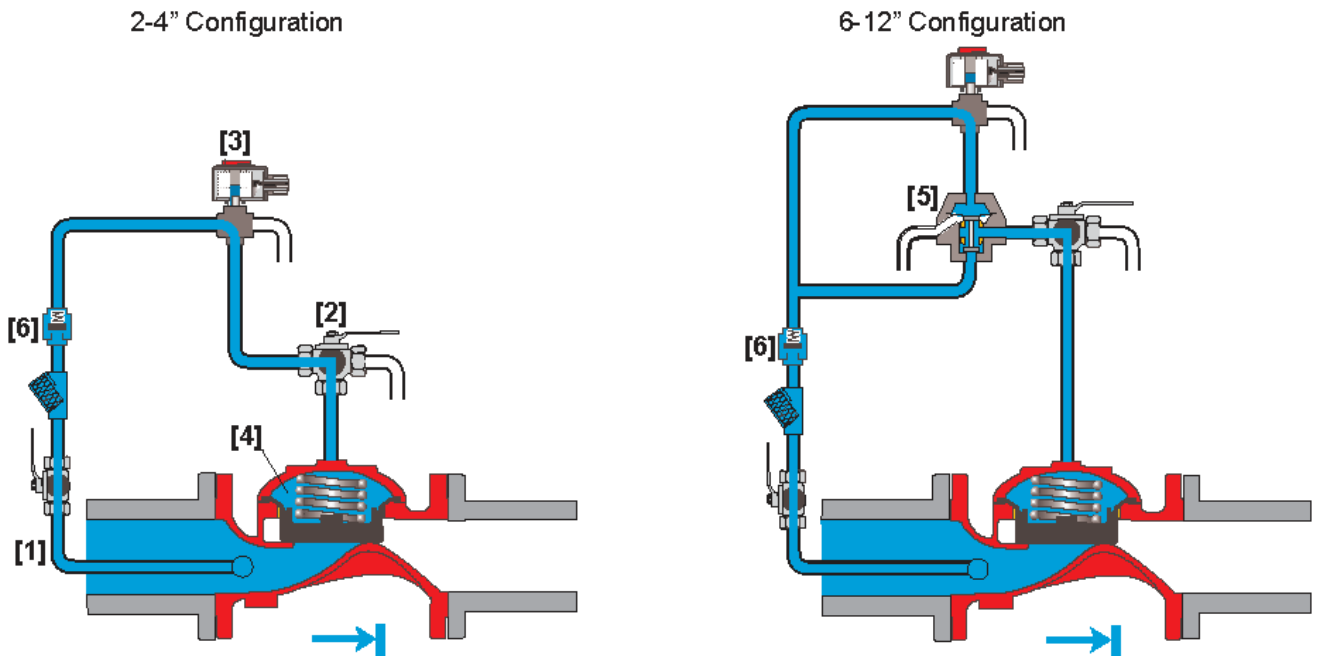
The BERMAD Remote Control Valve prevents water from entering system piping until required. The Main Valve is kept closed by pressure applied to the top chamber through the Priming Line. The 400E-3X Remote Control Valve operates by an electric 3-Way Solenoid Valve (3 fig.2), which operate the main valve diaphragm to open and close by maintaining or releasing the pressure from the upper control chamber.

In fire or test conditions, the system's control panel switches the opens the Solenoid valve, releasing pressure from the upper control chamber, allow the valve open fully and water to flow to the system piping.

10. Manual Operation

Whenever the handle of the Manual Release Valve (2 fig.2) is pulled, pressure is released from the top chamber, the Control Valve will open, and water will flow into system piping and alarm devices

Figure 2: Operation Drawing



11. Maintenance and Inspection Test

WARNING: Do not turn off the water supply to make repairs without placing a roving fire patrol in the area covered by the system. The patrol should continue until the system is back in service.

- 11.1 Prior to turning off any valves or activating any alarms, notify local security guards and the central alarm station, if used, so that a false alarm will not be signaled.
- 11.2 In any of the following inspections or testing procedures, if an abnormal condition exists, see Abnormal Conditions for possible cause and corrective action.
- 11.3 See NFPA Pamphlet No. 25.

12. Normal Condition

- 12.1 All main Isolating Valves are OPEN.
- 12.2 All Cock Valves (1 fig.2) are in the OPEN position.
- 12.3 The Control Panel and Detectors are in service. The electric Solenoid Valve (3 fig.2) is de-energized

13. Weekly Inspection

- 13.1 The system should be checked for normal condition.
- 13.2 Observe the Upstream Pressure Gauge, it should indicate that the normal supply of water pressure to the Control Valve is maintained.
- 13.3 Observe that there is no leaking from the Control Valve to the monitor.

14. Monthly Inspection and Test

- 14.1 Complete Weekly Inspection (13).

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- 14.2 Test the Control Valve's operation by energizing the supply current to the Solenoid Valve (3 fig.2).
- 14.3 The Control Valve, Trim, Auxiliary Devices and Manual Release must be activated at full flow.
Note: The system will be flooded! Take all necessary precautions to drain water and prevent damage in the area protected by the Control system.

15. Annual Inspection and Test

- 15.1 Complete Weekly and Monthly inspections (13,14).
- 15.2 Place the system out of service (See instructions in §8).
- 15.3 Trip the Release-Line System, clean all strainers
- 15.4 The interior of the Control Valve should be inspected and cleaned.
- 15.5 Place the system back in service. (See instructions "Placing the System in Service" see §7).
- 15.6 The Control Valve, Trim, Auxiliary Devices and Manual Release must be activated at full flow.

Note: The system will be flooded! Take all necessary precautions to drain water and prevent damage in the area protected by the Control system

- 15.7 Trip test the Control System with an Electric Release Control Panel. The release may be tripped by the method suggested by the Release Control Panel manufacturer. Reset the system.
- 15.8 The Manual Release Handle (2 fig.2) is to be pulled and tested. The Control Valve should open and discharge water.
- 15.9 Observe pressure on upstream Pressure Gauge while full flow is on. Inspect all nozzles in the system.

16. Abnormal Conditions

16.1 False Trip

Check for any of the following possible causes:

- A. Electrical malfunctioning of the Control System or Electric Panel.
- B. Solenoid Valve (3 fig.2) is out of order.

16.2 Leakage through the Water Control Valve

Check for any of the following possible causes:

- A. Plugged Priming Strainer.
- B. Leaking Release System.
- C. Damaged Control Valve seat or a foreign object is caught inside the seat.
- D. Solenoid Valve (3 fig.2) out of order.

16.3 Water Control Valve Will Not Reset

Check for any of the following possible causes:

- A. Closed Priming Cock Valve (1 fig.2).
- B. Damaged Control Valve seat a foreign object is caught inside the seat.

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- C. Foreign object lodged between seal disc and valve seat.
- D. Solenoid Valve (3 fig.2) out of order.

16.4 Electric Release System will Not Reset

- A. Faulty Detector Circuit
- B. Faulty circuit to the Solenoid Valve (S) or Release Control Panel.

16.5 Difficulty in Performance

Where difficulty in performance is experienced, the manufacturer or his authorized representative should be contacted if any field adjustment is to be made.

