BERMAD ZERO PRESSURE, Solenoid Activated, Remote Control Foam Concentrate Valve

Model: FC 700E-3X-BO

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 FC 700E-3X-BO Zero Pressure, Foam Concentrate Valve is a powered to opening, double chambered actuated. The valve is solenoid controlled and it is suitable for installation in atmospheric foam concentrate tank outlet. It opens and closes drip tight in response to an electric signal. The valve required external pressure supply for actuation, using water pressure supplied from the fire water main or compressed air.

The FC 700E-3X-BO Control Valve operates by an electric 3-Way Solenoid Valve (S), which operate the double chamber actuator to open and close the main control valve 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, pressure applied to its lower control chamber, powers the valve to fully open allow Foam Concentrate fluid enters the system piping. The FC 700E-3X-BO is reliably operates although when line pressure is zero.

3. Approval

BERMAD FC 700E-3X-BO Remote Control Valve is ABS and Lloyds approved when installed with specific components & accessories. Consult the manufacturer for any component 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 FC 700E-3X-BO 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.

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 Indicating valves should be installed upstream of the BERMAD FC 700E-3X-BO 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 Provide external control pressure supply for actuating the valve, using water pressure supplied from the fire water main or compressed air. Install this external pressure supply to the provided open priming line port.

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 (S) to the Electric Control System and the Control Panel according to the supplied Electrical Wiring Diagram.

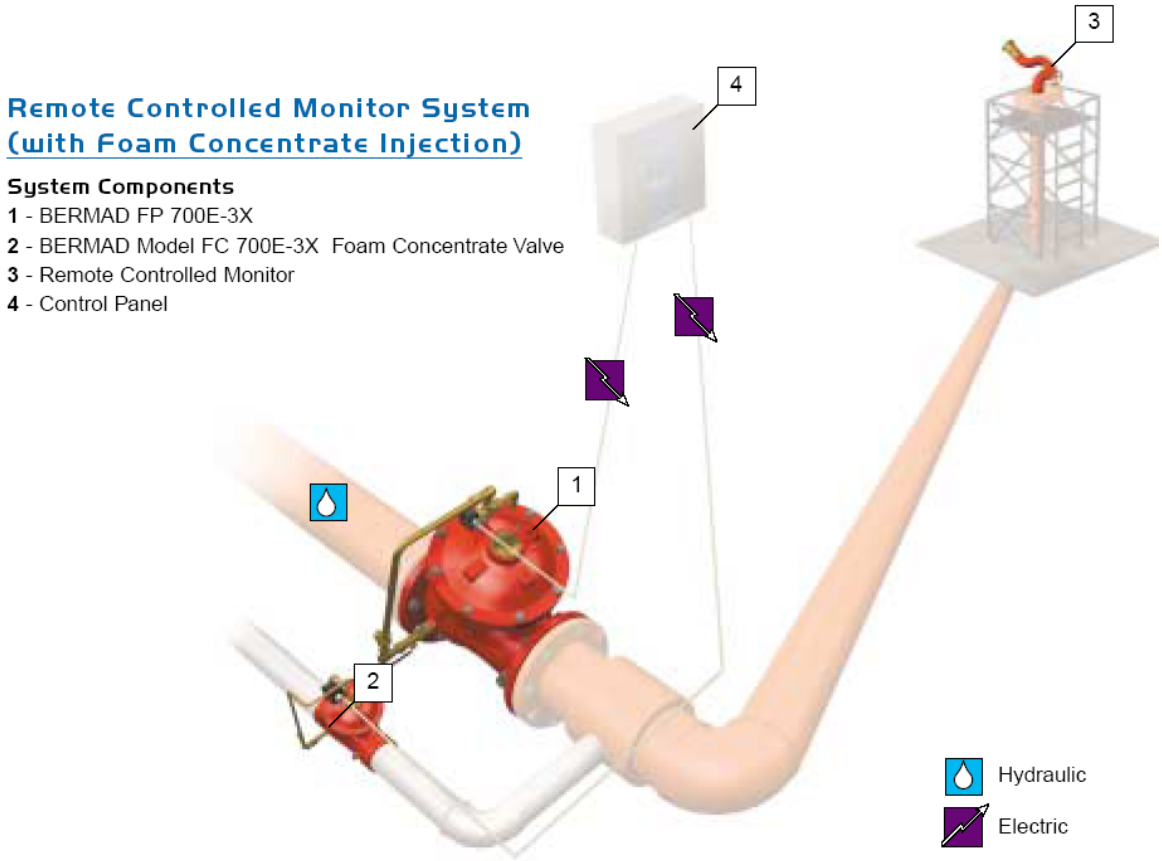
4.8 Connect the Valve Limit switch (if provided) to the Electric Control System and the Control Panel according to the designer Electrical Wiring Diagram

4.9 After installation, carefully inspect/correct any damaged accessories, piping, tubing, or fittings.

4.10 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. Refer also to NFPA applicable installation standards, codes or relevant authorities having jurisdiction.

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

Figure 1: Installation Drawing



5. Optional Equipment

It is recommended to order a valve limit switch to either activate an electric signal to the control room or/and activated a local alarm.

6. Placing in Service/Resetting the System

7.1 Place the Control/Panel Detector Circuit in service.
7.2 Energize the Solenoid Valve by resetting the Electric Control Panel.
7.3 Ensure that the Emergency Release Valve is closed.
7.4 Ensure that the Drain Valve is in a closed position.
7.5 Open the Priming-Line Cock Valve and admit pressure supply to the Control Chambers. No water should flow from Solenoid Valve (S) or from the Upper Control Chamber Venting Tubing. Allow pressurized water to fill the top chamber of the Control Valve.
7.6 Open the main supply valve slowly. The main valve will gradually close and seal. No water should flow to the system.
7.7 The system is now in service.

7. Removing the System from Service

When taking Control System 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.

Removing Instructions

7.1 Shut off the Main Isolating Supply Valve.
7.2 Priming Line Cock Valve to the Control Valve should be closed.
7.3 Open the Drain Valve to drain all the water from the system..
7.4 Release the water pressure from the top chamber of the Control Valve by pulling the Emergency Release, or by tripping the electrical circuit (de-energize the Solenoid Valve (S).
7.5 If auxiliary power is used, disconnect all power supply and batteries.
7.6 Place **"Fire Protection System Out of Service"** signs in the area protected by the system.

8. Operation

The BERMAD Control Valve prevents water from entering system piping until required.

The Control Valve is kept closed by pressure applied to the top chamber through the Priming Line.

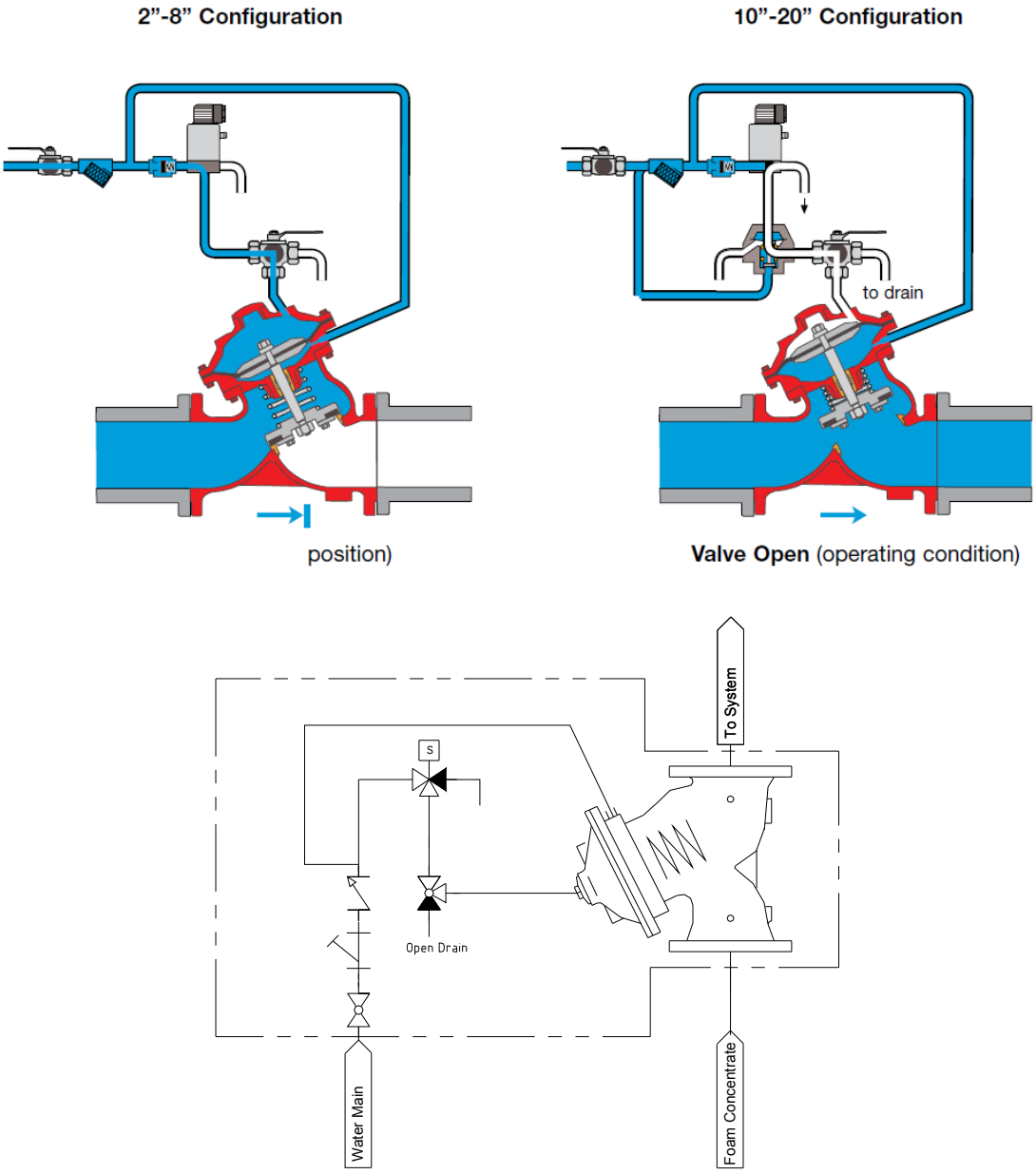
The FC 700E-3X-BO Control Valve operates by an electric 3-Way Solenoid Valve (S), which operate the double chamber actuator to open and close the main control valve by maintaining or releasing the pressure from the upper control chamber.

In fire or test conditions, the system’s control panel switches the opens the Solenoid valve, releasing pressure from the upper control chamber, pressure applied to its lower control chamber, powers the valve to fully open allow Foam Concentrate fluid enters the system piping. The FC 700E-3X-BO is reliably operates although when line pressure is zero.

9. Manual Operation

Whenever the handle of the Manual Emergency Release Valve is pulled, pressure is released from the top chamber, the Control Valve will open, and fulid will flow into system piping and alarm devices

Figure 2: Operation Drawings



10. Maintenance and Inspection Test

11.1 **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.

11.2 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.

11.3 In any of the following inspections or testing procedures, if an abnormal condition exists, see Abnormal Conditions for possible cause and corrective action.

11.4 See NFPA Pamphlet No. 25.

12. Normal Condition

12.1 All main Isolating Valves are OPEN.

12.2 All Cock Valves (6) are in the OPEN position.

12.3 The Upstream Pressure Gauge should reflect the upstream supply pressure to the Control Valve.

12.4 The Downstream Pressure Gauge should reflect the downstream pressure on the system side of from the Control Valve.

12.5 The Control Panel and Detectors are in service. The electric Solenoid Valve (S) is energized and the coil is slightly warm.

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 nozzles.

14. Monthly Inspection and Test

14.1 Complete Weekly Inspection (3.2).

14.2 Test the Control Valve’s operation by de-energizing the supply current to the Solenoid Valve (S).

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 (3.2 & 3.3).

15.2 Place the system out of service (See instructions in §1.3).

15.3 Trip the Release-Line System, clean all strainers and Priming-Line Restriction.

15.4 The interior of the Control Valve should be inspected and cleaned.

15.5 The interior of the hydraulic actuator, including its Diaphragm and Seal, should be inspected and cleaned

15.6 Place the system back in service. (See instructions "Placing the System in Service" see §1.2).

15.7 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

15.8 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.

15.9 The Manual Emergency Valve Release Handle is to be pulled and tested. The Control Valve should open and discharge water.

15.10 Observe pressure on upstream Pressure Gauge while full flow is on. Inspect all nozzles in the system. Take all additional measures as required by NFPA 25 "Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems."

16. 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.