MANUAL FOAM SYSTEM
MODELS:
MFA200 CLASS A FOAM
MFA201 CLASS B FOAM
MFA220 CLASS A and B FOAM

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Overview

The Manual Foam System consists of a metering valve and eductor. The Class A and B dual system has two independent metering valves utilizing a common eductor. This Around-the-pump proportioning system operates with an eductor installed between the water pump intake and pump discharge. A small flow of water from the pump discharge passes through the eductor and creates a vacuum at the inlet port that draws foam concentrate into the eductor. The metering valve regulates the amount of foam concentrate being pulled into the system. The operator monitors the water flow from the discharge and adjusts the metering valve for the required foam solution.

Manual Foam System Components

MFA200 Class A Foam System
   Eductor
   Panel Mounted Metering Valve
   Operator Control Panel
   System Plumbing and Instruction Placards
MFA201 Class B Foam System
   Eductor
   Panel Mounted Metering Valve
   Operator Control Panel
   System Plumbing and Instruction Placards
MFA220 Class A and B Foam System
   Eductor
   Two Panel Mounted Metering Valves
   Two Operator Control Panels
   System Plumbing and Instruction Placards
Specifications

Operator Control Panel

Controls:  Selector Knob to Control the Metering Valve
Size:  4 by 6 Inches

Metering Valve

Panel Mounted Variable Orifice Type
Material:  Stainless Steel
Inlet/Outlet:  Victaulic Type or NPT

Eductor

Around-the-Pump Mounted
Maximum Pump Intake Pressure:  12 PSI
Minimum Pump Discharge Pressure:  130 PSI

Capacities

MFA200 System Capacity (Class A Concentrate):  5 GPM
MFA201 System Capacity (Class B Concentrate):  30 GPM
System Range:  Refer to Table 1

Note:  If the foam tank pressure/vacuum relief valve is not operating properly, foam concentrate flow rates could be impacted.

<table>
<thead>
<tr>
<th>Model</th>
<th>Foam Type</th>
<th>Foam %</th>
<th>Discharge Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFA200</td>
<td>Class A</td>
<td>1/4%, 1/2%, 1%</td>
<td>50 - 1000 gpm</td>
</tr>
<tr>
<td>MFA201</td>
<td>Class B</td>
<td>3%, 6%</td>
<td>50 - 1000 gpm</td>
</tr>
</tbody>
</table>
General Description

The standard Manual Foam kit includes the panel mounted metering valve with the selector knob and operator panel, an eductor, and an instruction panel. Plumbing and plumbing components are not supplied by FRC. It is recommended that a check valve, tank and water shutoff valves, and a flush valve with associated plumbing are installed. (Refer to Figure 1, System Components, for typical layout.)

*These components are included in the Manual Foam Kit.

Figure 1. System Components
INSTALLATION

Note: Installation procedures for the MF200 and MF201 Manual Foam Systems are the same.

Install Metering Valve and Control Panel

Note: The panel mounted metering valve is located behind the operator control panel. Check for panel space and plumbing connection alignment before drilling holes.

1. Drill one 9/16 inch center hole and four through-holes for 1/4-28 screws to mount metering valve. (Refer to Figure 2.)

2. Hold metering valve in position.

3. Line up control panel with mounting holes and install four mounting screws.

4. Close the metering valve by turning the valve shaft fully clockwise.

5. Install the selector knob on the valve shaft with the position indicating line at the OFF position and tighten two set screws.

6. Connect to plumbing.

Install System Placards

Two placards are provided for mounting on the pump panel. They are made of a plate with a decal label. One shows the system basic plumbing diagram and one outlines the basic operating instructions. The mounting plates are the same size (4 1/4" by 4 1/4") and use the same mounting hole pattern. The mounting holes are clearance or tapped for 10-32 screws. It is easy to use one of the plates as a template.

Installing Eductor

Install eductor with plumbing as recommended in the plumbing diagrams. (Refer to Figure 4 or 5 depending on the system being installed.)
Placard Plate

Holes have clearance for 10-32 screws.

Control Panel

Four Through-Holes for 1/4-28 Mounting Screws

One 9/16" Centered Hole for Selector Knob Shaft

1 1/2" NPT

3/4" NPT for MFA200
1 1/2" NPT for MFA201

2 5/8 " Diameter Selector Knob

Figure 2. Placard Plate, Control Panel and Metering Valve Dimensions
OPERATION

Foam flow is controlled by the foam metering valve. This valve is operated by turning the control panel selector knob. Setting the proper valve position is dependent on discharge water flow and the desired foam percentage. The table on the operator control panel is used to determine the proper selector knob position to match water flow at a desired foam percentage. (See Figure 3.)

Note: Operate the valves through entire range monthly to ensure readiness.

Operate Foam System

Note: For MFA220 dual foam system, never have Class A and Class B foam metering valves open at the same time.

Start Foam Flow

1. Determine current pump discharge water flow in GPM.
2. Make sure pump intake pressure is less than 12 PSI.
3. Make sure pump discharge pressure is over 130 PSI.
4. Make sure Tank Fill Valve is shut.
5. Open Eductor Water Shutoff Valve.
6. Open the foam Tank Shutoff Valve.

Note: If the foam tank pressure/vacuum relief valve is not operating properly, foam flow rates could be impacted.
7. Select the proper valve position. Refer to the table located on the control panel.
8. Rotate selector knob to selected valve position to open the Foam Metering Valve.

Result: Metered foam concentrate flows into pump intake.

Note: If discharge flow stops rotate the selector knob to OFF position immediately.

Stop Foam Flow

1. Rotate selector knob to OFF.
2. Close foam Tank Shutoff Valve.

Note: The system must be flushed after use.
4. Flush the foam system.
Flush Foam System

Note: The foam system must be flushed on the same day it has been used.

1. Flow water at discharge.
2. Open Eductor Water Shutoff Valve.
3. Open Flush out Valve.
4. Rotate Selector Knob to position 10 to fully open Foam Metering Valve.
5. Allow water to flow with valves open for one minute.
6. Rotate Selector knob to OFF.
7. Close Flush out Valve.

Use these tables to select the proper valve position to match water flow when injecting foam concentrate. Rotate the Selector Knob to the position.

<table>
<thead>
<tr>
<th>WATER FLOW</th>
<th>VALVE POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPM</td>
<td>1/4%</td>
</tr>
<tr>
<td>60</td>
<td>0.5</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>150</td>
<td>1.5</td>
</tr>
<tr>
<td>200</td>
<td>2</td>
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<tr>
<td>250</td>
<td>2.5</td>
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<td>3.5</td>
</tr>
<tr>
<td>500</td>
<td>5</td>
</tr>
<tr>
<td>750</td>
<td>6.5</td>
</tr>
<tr>
<td>1000</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WATER FLOW</th>
<th>VALVE POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPM</td>
<td>3%</td>
</tr>
<tr>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
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<td>350</td>
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<tr>
<td>500</td>
<td>8</td>
</tr>
<tr>
<td>750</td>
<td>9</td>
</tr>
<tr>
<td>1000</td>
<td>10</td>
</tr>
</tbody>
</table>

CLASS A FOAM MFA200  CLASS B FOAM MFA201
PLUMBING SCHEMATICS

Plumbing specifics (pipe sizes, valves, etc.) are recommendations only.

Figure 4. Typical Plumbing MFA200 or MFA201
Figure 5. Typical Plumbing MFA220
DANGER

PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.

2. It is your responsibility to read and understand any user’s instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.

3. It is your responsibility to know that you have been properly trained in Firefighting and/or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.

4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.

5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer’s instructions.

6. Failure to follow these guidelines may result in death, burns or other severe injury.

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