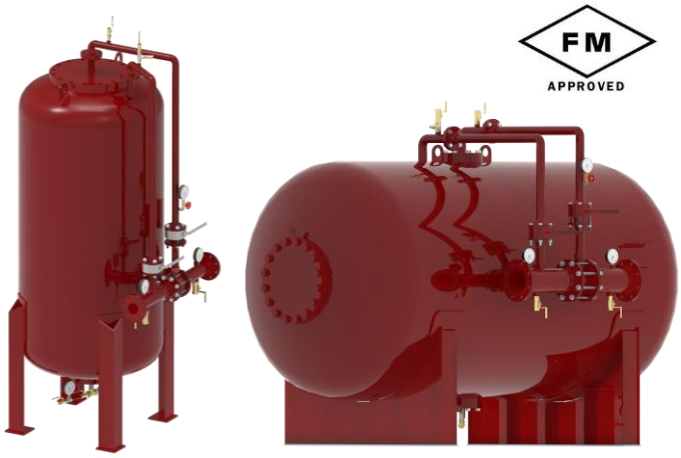
BLADDER TANK

Model AG-TMIF
Proportioning Bladder tank system pre-piped
Horizontal or Vertical



PRODUCT DESCRIPTION

The Bladder Tank Foam Proportioning System model AG-TMIF is available in vertical or horizontal mounting. It uses water pressure to inject foam concentrate into water supply and automatically proportions foam concentrate over wide range of flow and pressure, with very low pressure drop. This system does not require a foam concentrate supply pump.

The system is supplied with pressure vessel, bladder, fill and drain valve for water and foam concentrate, ratio controller and vent valve. Optionally it can be supplied with foam concentrate control valve. The valve allows concentrate flow only when minimum of 2,1 bar (30 psi) water pressure is established in the system.

TECHNICAL DATA

Model	AG-TMIF
Concentrate Storage Capacity	For Vertical Tank 140 to 7500 lt (36 to 2000 Gallon (US)). For Horizontal Tank 140 to 15000 lt (36 to 4000 Gallon (US)).
Maximum Working Pressure	12 bar (175 psi)
Test Pressure	18 bar (260 psi)
Design Temperature	-10ºC to 50ºC (14ºF to 122ºF)
Tank Mounting Type	Vertical or Horizontal
Materials	External piping water side: Carbon Steel External piping foam concentrate side: Stainless Steel Ratio controller: Wafer type with Stainless Steel Vessel: Carbon Steel as per ASME Code Section VII Div 1, for unfired pressure vessels Bladder: Buna-N Centre tube: Perforated PVC
Finish	Red RAL 3000
Approvals	FM

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OPERATION

When the main water flow is established and water inlet and foam outlet valves are opened, the water enters the area between vessel wall and bladder, applying pressure to the bladder. The foam concentrate is forced out of the bladder through the foam concentrate outlet pipe and into the ratio controller through metering orifice. The concentrate pressure and water inlet pressure at ratio controller will be same, as the main water supply pressure is utilized to expel the foam from the bladder. The water flowing through the ratio controller jet creates a low pressure area common both to downstream water and foam concentrate. This injects the concentrate in to the ratio controller through an accurate sized orifice proportioned to water venturi. This ensures correct proportioning over a wide range of flow condition.

In bladder system, the bladder is used as diaphragm to separate the water and foam concentrate within the tank. The foam concentrate is injected into the ratio controller utilizing water pressure.

INSTALLATION, TESTING AND MAINTENANCE

An installation, testing and maintenance manual is provided with the equipment.

The bladder tank must be installed, inspected and tested by a qualified and trained person. An installation, testing and maintenance manual is provided with each unit. The instruction manual must be read and followed during installation and commissioning of the system.

After few initial successful tests an authorized person must be trained to perform inspection and testing of the system.

It must be inspected regularly to verify that no damages have taken place to any component and all the valves are in their proper position as per the system requirement.

The system should be tested at least once a year in accordance with applicable NFPA code or the guidelines of the organization having local jurisdiction.

CAUTION

1. Foam concentrate filling procedure must be followed, if not the bladder can be damaged. During the filling procedure an air supply with regulator (0 to 1.0 kg/sq.cm) is required during filling procedure, to be arranged by installer / user. Water supply at 0-1.5 kg/sq.cm required for tank filling during commissioning, to be arranged by installer / user.
2. Concentrate fill pump need to be arranged by installer / user.
3. While designing a foam system, step shall be taken to allow for removal of the internal centre tube(s). The centre tubes are full length and/or height of the bladder tank.
4. Direct sunlight on the bladder tank must be avoided.
5. Do not weld on the tank as it may damage the bladder of tank.
6. Do not act on the bladder tank before relieving the pressure of the system.
7. Sight gauge is not pressure tight, so before taking concentrate level reading, tank pressure must be released.
8. A minimum length of 5 (five) times the pipe diameter of unobstructed straight pipeline should be provided at the inlet and outlet of the ratio controller, where pipe diameter is the nominal size of the ratio controller.
9. For FM approval of Bladder Tank is applicable only if FM Approved Bladder tank, Ratio Controller, Foam Concentrate and Discharge Device are installed.
10. Concentrate control valve is requirement for FM Approval and is not permitted by UL.
11. FM Approved Bladder tank permits maximum two Ratio Controllers.
12. Each tank is designed & tested for specific type of foam concentrate, hence specify in order the concentrate type to be used.

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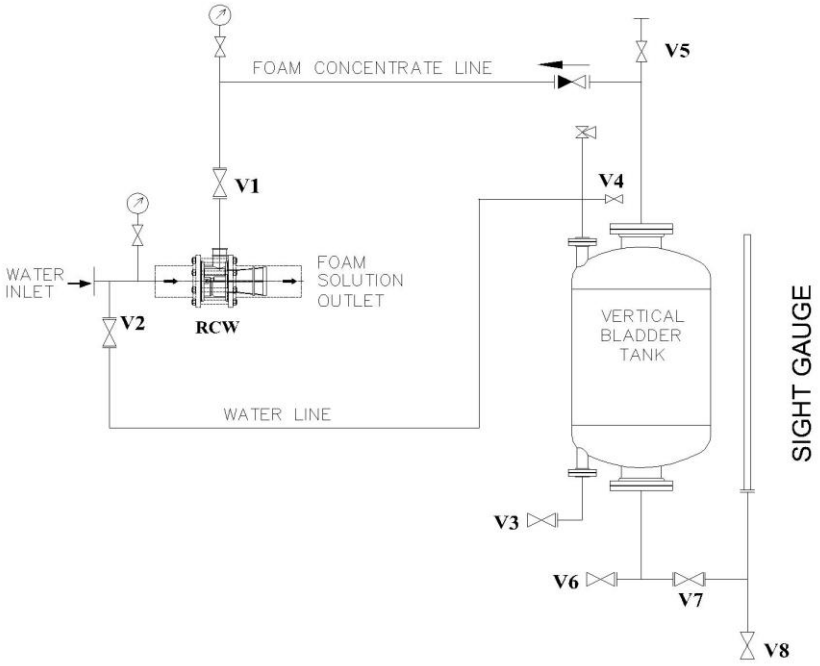
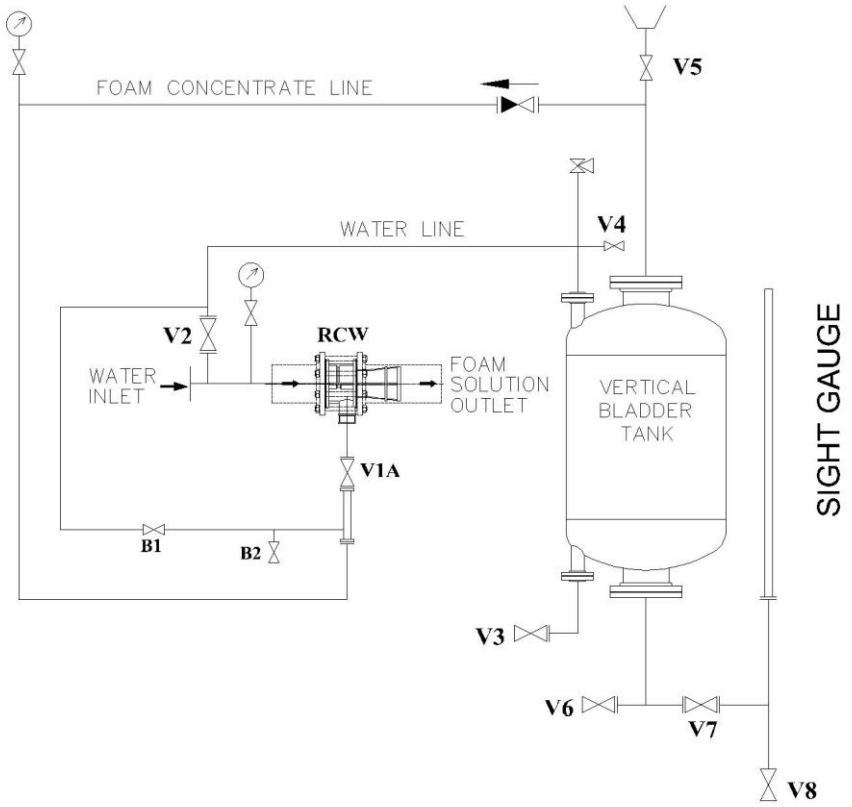
VERTICAL BLADDER TANK PROPORTIONING MANUAL SYSTEM



VERTICAL BLADDER TANK PROPORTIONING AUTO SYSTEM



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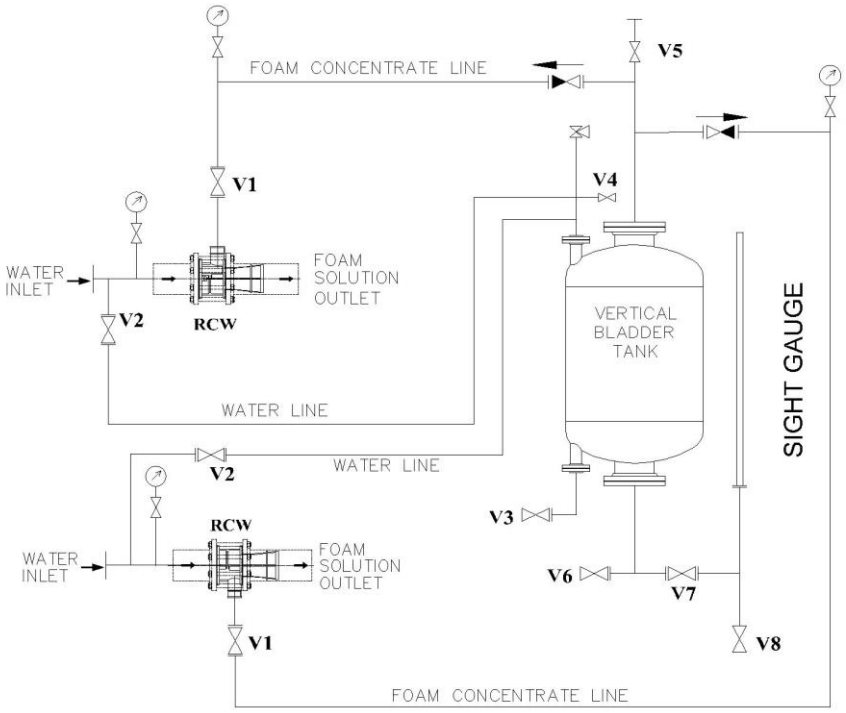
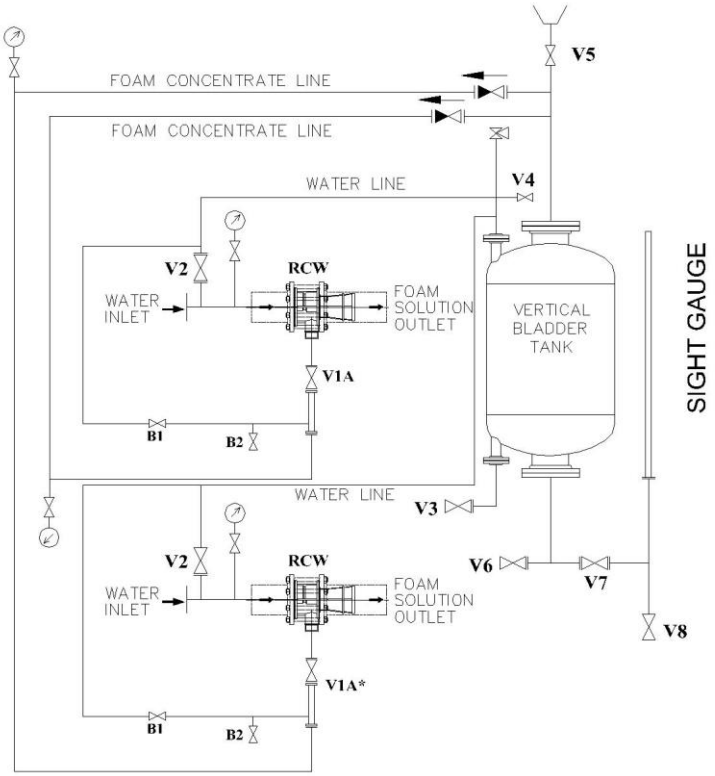
VERTICAL BLADDER TANK PROPORTIONING MANUAL SYSTEM WITH TWO RATIO CONTROLLER



VERTICAL BLADDER TANK PROPORTIONING AUTO SYSTEM WIT TWO RATIO CONTROLLER



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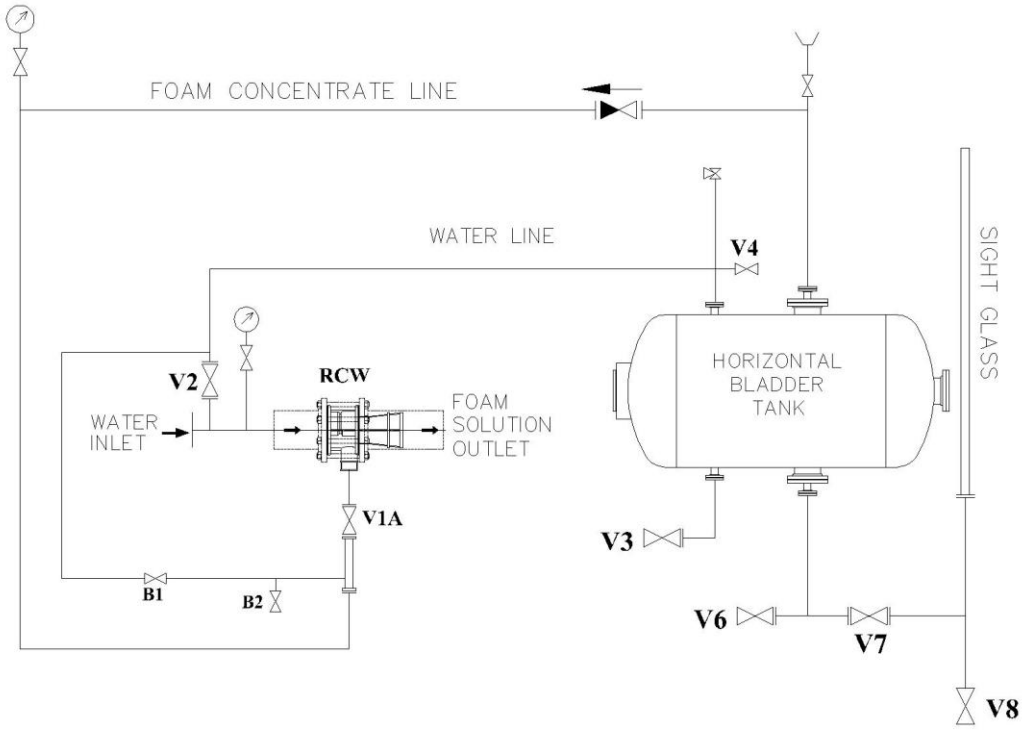
VALVE NO.	DESCRIPTION	NORMAL POSITION	
		MANUAL SYSTEM	AUTO SYSTEM
V1	FOAM CONCENTRATE SHUT OFF VALVE	CLOSED	----
V1A	AUTO FOAM CONCENTRATE SHUT OFF VALVE	----	CLOSED
V2	WATER PRESSURE SHUT OFF VALVE	OPEN	OPEN
V3	TANK WATER DRAIN VALVE	CLOSED	CLOSED
V4	TANK WATER VENT VALVE	CLOSED	CLOSED
V5	CONCENTRATE VENT	CLOSED	CLOSED
V6	CONCENTRATE FILL / DRAIN VALVE	CLOSED	CLOSED
V7	SIGHT GAUGE FILL VALVE	CLOSED	CLOSED
V8	SIGHT GAUGE DRAIN VALVE	CLOSED	CLOSED
B1	MANUAL OVER RIDE VALVE	----	OPEN
B2	RESTING VALVE	----	CLOSED

SYMBOLS & ABBREVIATION

▶⋈	NON RETURN VALVE	⊘	PRESSURE GAUGE
⋈	VALVE	Y	FUNNEL
⋈	SAFETY VALVE		RATIO CONTROLLER

HORIZONTAL BLADDER TANK PROPORTIONING MANUAL SYSTEM



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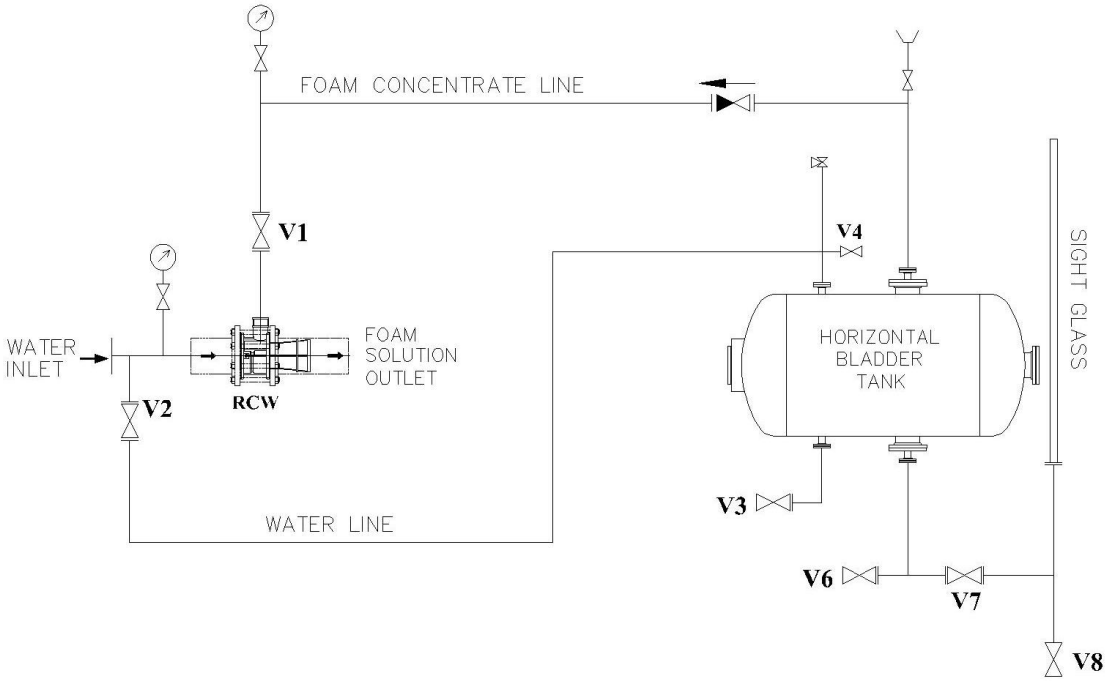
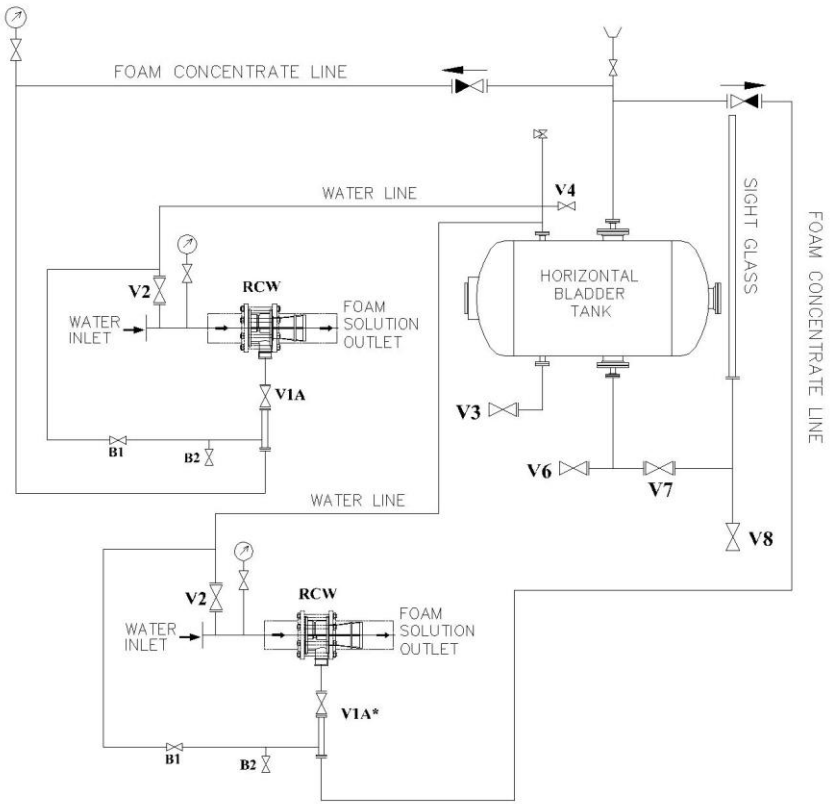


VERTICAL BLADDER TANK PROPORTIONING MANUAL SYSTEM WITH TWO RATIO CONTROLLER



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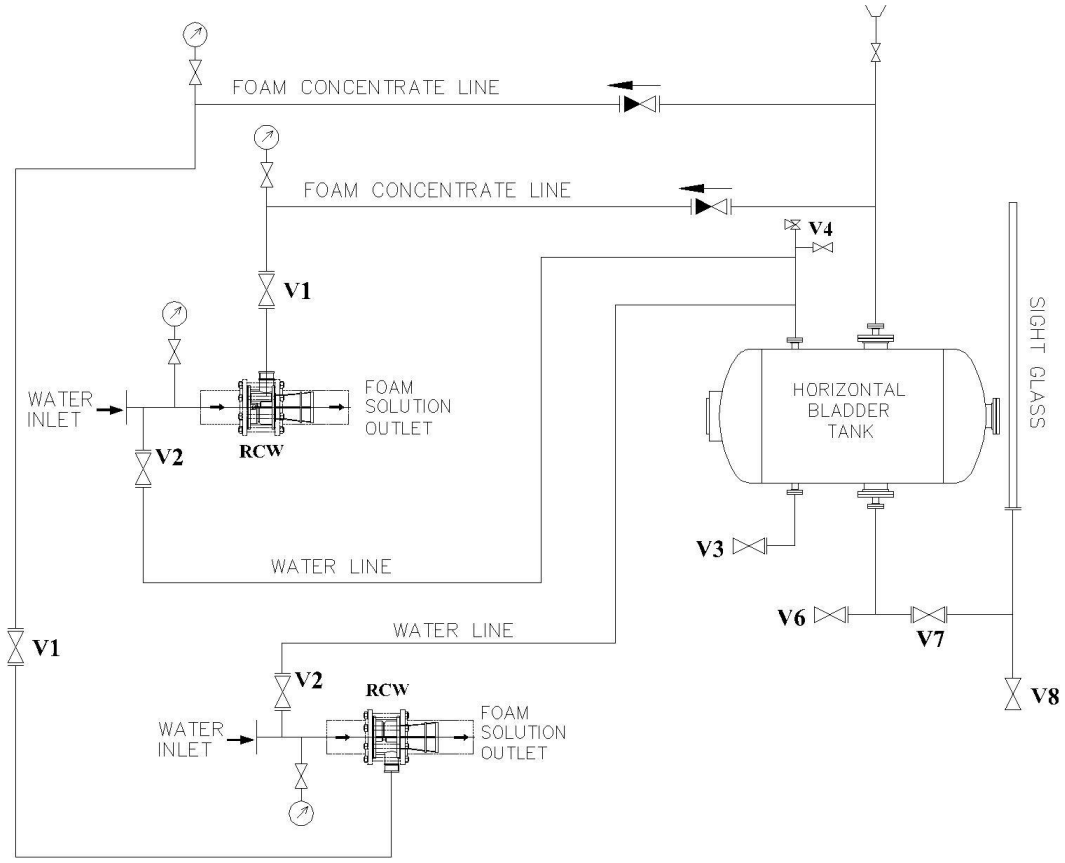
VERTICAL BLADDER TANK PROPORTIONING AUTO SYSTEM WIT TWO RATIO CONTROLLER



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ORDERING INFORMATION

Specify:

Model	
Mounting type	
Storage capacity	
Quantity	
Size of ratio controller with flow and pressure	
Type of foam concentrate	
Percentage of induction required	
FM approval requirement	

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  - Dry
  - Accessories
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  - Wet
  - Dry
  - Preaction Equipment
  - Accessories
- Spray System Open Nozzles
  - High Velocity Nozzles
  - Medium Velocity Nozzles
  - Window Nozzles
  - Hydroshield Nozzles
  - Mushroom Type Nozzles
- Foam equipment
  - Tanks
  - Proportioners
  - Foam Discharge Equipment
  - Foam Concentrates
- Deluge equipment for Water Spray and Foam
  - Clapper Deluge Valves
  - Diaphragm Deluge Valves
- Monitors
  - Manual Monitors
  - Remote Monitors
  - Monitor Nozzles
  - Towers and Trolleys
- Valves
  - Butterfly Valves
  - Gate Valves
  - Check Valves
  - Pressure Control Valves
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  - Fire Department Connections

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