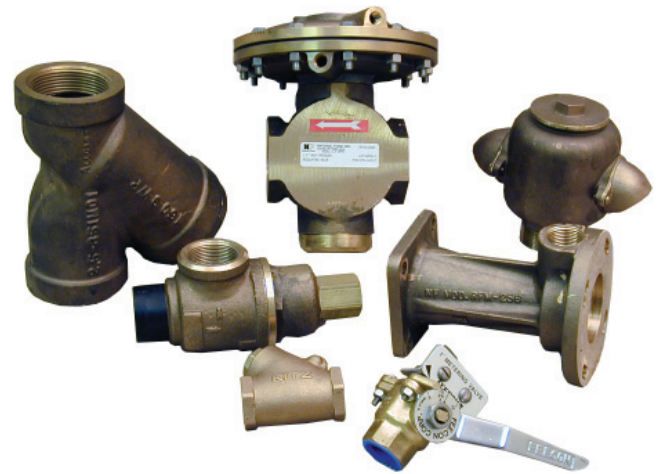


## BALANCED PRESSURE PROPORTIONING SYSTEMS

FPR020

- Proven Design
- No Electronics Or Flow Meters
- Each Discharge Can Be Independently Operated For Maximum Versatility



### Description

The Feecon Balanced Pressure Proportioning System is a foam concentrate proportioning system designed to be utilized on a fire fighting vehicle. In this system, a diaphragm type pressure control valve keeps the foam concentrate and the water pressures balanced by allowing excess foam concentrate to return to the foam concentrate storage tank. This proportioning is automatic for flows within the operating limits of the foam concentrate pump and the discharges.

The discharge connections from the water pump are equipped with individual proportioners. These proportioners work in conjunction with variable percentage metering valves. Selection and setting of the metering valves allows operation for foam solution application.

The Feecon balanced pressure system provides the option of foam and/or water at every discharge equipped with a proportioner. Once the percentage (foam concentration) is set, the system automatically maintains that percentage as the flows change. Each outlet is independently controlled so that any combination of water or different percentages of foam is possible for each discharge.

### Features

- Independent foam or water flow at any outlet
- Automatic control as flows change
- Foam percentage independently variable
- Positive displacement foam pump

### System Components

The following major components comprise Feecon's balance pressure system:

**Foam Concentrate Pump:** The Foam Concentrate Pump discharges foam concentrate to the pressure control valve and ratio controller. This pump must have a flow rate of at least 10 gallons more than the total foam flow required (all discharges combined), at a pressure higher than the maximum water pump pressure. This figure is arrived at by multiplying the maximum output of the water pump (GPM) by the highest percentage of foam concentration that will be used, then adding 10 gallons. The following is an example:

Water Pump Output ..... 1250 GPM  
Max. Foam % x .06 % ..... 75 GPM  
Added Balancing Valve Flow ..... 10 GPM  
Foam Pump Required ..... 85 GPM

Feecon does not manufacture the foam concentrate pump. To obtain the name of pump manufacturers recommended by Feecon, contact your Feecon sales representative or the Feecon Engineering Dept. The following are factors that will influence the type of foam pump required and should be discussed with the pump manufacturer.

- The primary type of foam to be used
- Discharge pressure
- The truck engine speed combined with the PTO ratio; these must produce sufficient RPMs to properly operate the foam pump.
- Pump Drive: Hydraulic, electric, gas or diesel engine, or PTO
- Shaft rotation and location on pump

**Feecon Pressure Control Valve:** The Pressure Control Valve is a balancing valve. It maintains equal foam concentrate and water pressures at the ratio controllers. Feecon ratio controllers are designed so that the foam solution percentage remains constant throughout the entire flow range, providing that the foam concentrate and water pressures remain equal. The Pressure Control Valve automatically maintains equal pressures. Since the balanced pressure proportioning system uses a positive displacement pump, there must be a return line for the excess foam to return to the foam concentrate tank. This valve allows unused foam concentrate pump output to return back to the foam concentrate storage tank.

The 1-1/2" pressure control valve has 1-1/2" FNPT pipe connections. The maximum flow allowed is 135 GPM of foam concentrate (total solution flow x maximum %).

If larger flows are required, a 2" pressure control valve, with a maximum flow rate of 250 GPM of foam concentrate is available. This valve has 2" FNPT pipe connections.

**Feecon Ratio Controllers/Metering Valves:** The Ratio Controller proportions the quantity of foam concentrate required into the water supply. A ratio controller is required for each foam outlet. The size of the ratio controller is determined by the pipe size and the flow required for each discharge.

Panel mounted Metering Valves are required to set the desired percentage of foam for each discharge.

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## System Components (cont.)

The Ordering Information will aid in determining what size, and how many ratio controllers, metering valves and check valves will be required for a specific truck.

**Duplex Gauge:** The Duplex Gauge indicates foam concentrate and water pressures, and is needed to adjust the foam pressure when operating in the manual override mode. Feecon recommends the use of a liquid filled gauge for truck installations, since the liquid filled gauge dampens vibration of the needle. This unit is flush mounted with lower back mounted gauge connections.

**Relief Valve:** A relief valve must be installed in the foam concentrate line

to relieve excess foam pump pressure, which could cause damage to the foam pump and piping. Feecon uses 1½", 2" & 2½" sizes at 275 PSI to correlate with the 50% water pump rating point of most Class A Pumpers. Other pressure ratings are available upon request.

**Wye Strainer:** Wye strainer selection is matched to the foam pump port size with adequate consideration given to the viscosity of the primary foam concentrate that will be used on the apparatus being considered. The perforated screen in the Wye strainer must have holes which are properly sized or the strainer will not function properly. It is generally recommended that the suction piping and strainer be increased one nominal pipe size when alcohol resistant foam concentrate is used.

**Check Valves:** Check Valves are required in each foam concentrate line upstream of the Metering Valves. Check valves prevent water from entering the foam line when the foam system is not being used.

**Pressure Vacuum Vent:** The Pressure Vacuum Vent is used with atmospheric type foam concentrate storage tanks, to minimize free air movement in the tank. The vent allows the tank to breathe as pressure in the tank increases or decreases due to temperature changes. It also allows the tank to vent during filling operations and as the tank is emptied during operation of the foam system. The pressure vacuum vent will minimize evaporation of the foam concentrate as well as reduce crusting and sedimentation of some foam concentrates.

## ORDERING INFORMATION

FLOW RANGE U.S. GPM (LPM)	PROPORTIONER PIPE SIZE	RATIO CONTROLLER	PART NUMBER METERING VALVE	CHECK VALVE
60 to 200 (227 to 985)	2 in. (50mm) NPT	1233-7959-0	3233-9129-5	1231-1102-2
60 to 200 (227 to 985)	2 in. (50mm) Grooved	3207-6003-5	3233-9129-5	1231-1102-2
100 to 320 (380 to 1200)	2-1/2 in. (63mm) NPT	1233-7959-5	3233-9130-0	1231-1102-2
100 to 320 (380 to 1200)	2-1/2 in. (63mm) Spec. Flg	1233-9504-2	3233-9130-0	1231-1102-2
170 to 625 (645 to 2365)	3 in. (75mm) Flg	1233-8091-1	3233-9136-0	1231-1112-2
170 to 625 (645 to 2365)	3 in. (75mm) Grooved	3207-6020-5	3233-9136-0	1231-1112-2
350 to 1200 (1325 to 4545)	4 in. (100mm) Flg	1233-8091-7	3233-9137-0	1231-1112-2
350 to 1200 (1325 to 4545)	4 in. (100mm) Grooved	1233-9524-2	3233-9137-0	1231-1112-2
680 to 2500 (2575 to 9465)	6 in. (150mm) Flg	1233-8092-3	3233-9142-0	1231-1114-2
<b>Relief Valves (Bronze):</b>				
1-1/2" NPT (38mm)	275 PSI (19 Bar)	Use up to 100 GPM (380 LPM)		1231-1306-6
2" NPT (50mm)	275 PSI (19 Bar)	Use up to 190 GPM (720 LPM)		1231-1308-6
2-1/2" NPT (63mm)	275 PSI (19 Bar)	Use up to 300 GPM (1135 LPM)		1231-1311-0
<b>Wye Strainers (Bronze):</b>				
2" FNPT (38mm) Both Ends	SS Screen w/1/4" Hole			1265-2130-1
2-1/2" FNPT (63mm) Both Ends	SS Screen w/1/4" Hole			1265-2141-4
3" FNPT (75mm) Both Ends	SS Screen w/1/4" Hole			1265-2151-4
<b>Pressure Control Valve:</b>		<b>Pressure Vacuum Vent (Bronze):</b>		
1-1/2" Valve	1231-1412-2	1-1/4" NPT (32mm)	1231-2101-5	
2" Valve	1231-1413-5	2" MNPT (50mm)	1231-2102-4	
<b>Duplex Gauge:</b>				
Duplex Gauge	1234-1606-1			

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