

## RATIO FLOW CONTROLLERS (PROPORTIONERS)

### Features

- Proportioner Body and Inlet Nozzle are Cast brass ASTM 85-5-5-5 material. Machine faced to ANSI B16.1 Class 12.5
- 2" to 2½" threaded style
- 3" to 8" wafer style to fit between two 150# FF pipe flanges
- The Controller Body is clearly marked with a Flow Direction Arrow and Identification Label on Foam Concentrate Type and Percentage Ratio
- Suitable for use with all types of Protein, AFFF and AR-AFFF Foam Concentrates
- U.L. Listed



### Product Specification:

The Progard Ratio Flow Controller is a proportioning device designed to meter the correct quantity of foam concentrate into the water stream over a wide range of flows and pressures. These units are used in conjunction with either a bladder tank or a foam pump proportioning system.

The operating principle of the controller is based upon the use of a modified venturi. As the water passes through the inlet jet, a reduction in pressure in the annular area is created. This reduction allows the metering of the foam concentrate into the water stream through the foam concentrate metering orifice.

To ensure correct operation of the ratio flow controller when used with a bladder tank, the pressure of the foam concentrate at the controller must be within 2 psi (0.14 bar) of the incoming water pressure. To ensure accurate proportioning over the flow range of the controller, it is recommended that a minimum water inlet pressure of 30 psi (2.07 bar) must always be available during operation of the system.

### Ratio Controller Flow Range

Controller Model	Description	AFFF Flow Range		AR-AFFF Flow Range	
		GPM	Litre/min	GPM	Litre/min
02 RC 2.0	2" NPT Screwed	35 - 300	133 - 1,136	45 - 307	170 - 1,162
02 RC 2.5	2½" NPT Screwed	35 - 385	133 - 1,458	144 - 410	545 - 1,552
02 RC 3.0	3" Wafer Style	75 - 500	284 - 1,895	175 - 650	662 - 2,460
02 RC 4.0	4" Wafer Style	150 - 1,200	568 - 4,542	375 - 1,150	1,419 - 4,353
02 RC 6.0	6" Wafer Style	300 - 2,700	1,136 - 10,220	600 - 2,400	2,271 - 9,084
02 RC 8.0	8" Wafer Style	500 - 4,500	1,893 - 17,033	1,435 - 4,500	5,431 - 17,033



### Ordering Information

When ordering a Ratio Flow Controller from Progard, please specify the following details:

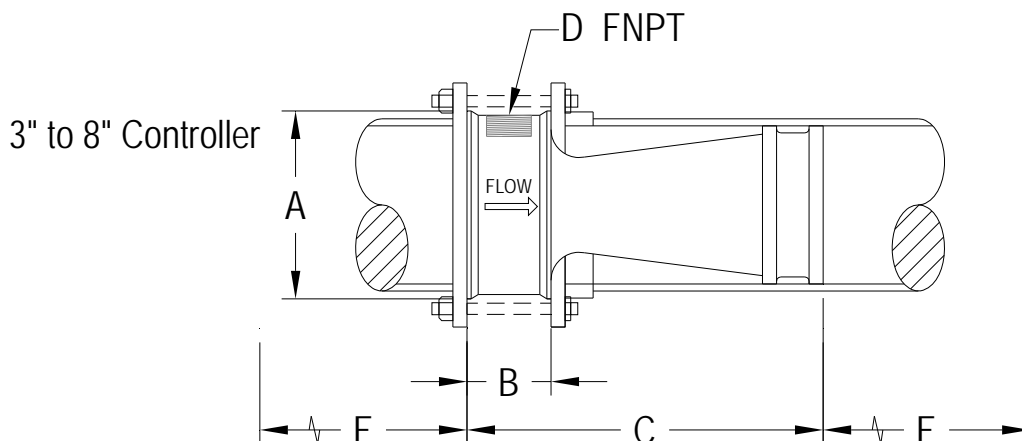
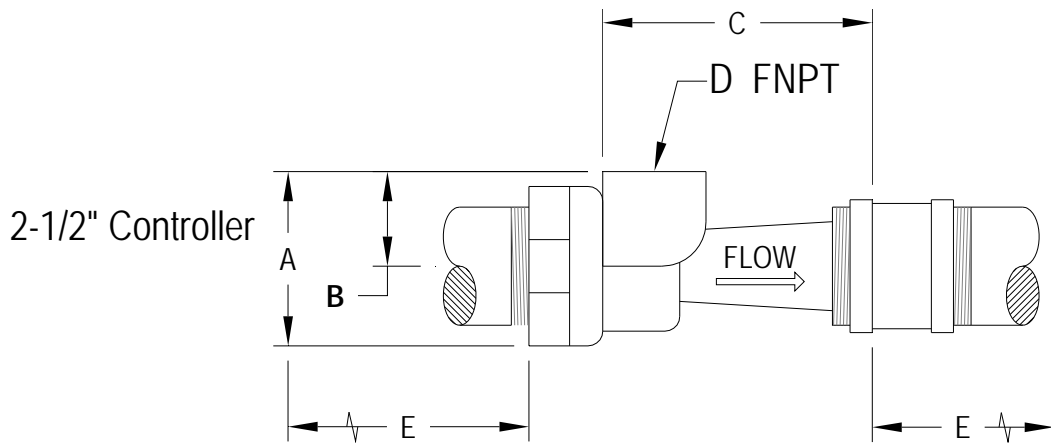
1. Type and Percentage of Foam Concentrate
2. Minimum and Maximum Water Inlet Pressure expected at the controller
3. Minimum and Maximum Foam Solution Flows rates expected

Please check the Controller dimension table for information on the minimum recommended length of straight pipe required upstream and downstream from the controller.

### Proportioner Dimensions inches (mm)

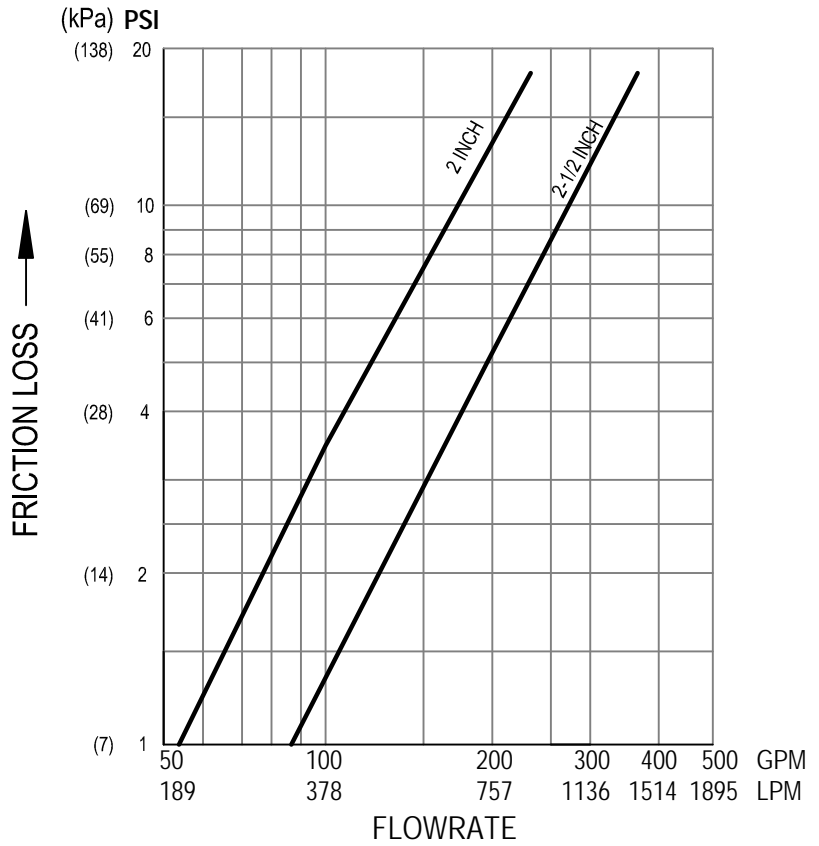
Size	2"		2½"		3"		4"		6"		8"	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
A	3.94	100	4.25	108	5.25	133	6.25	159	8.25	210	10.5	267
B	2.44	62	2.47	62.7	2.38	60	2½	64	¾	83	¾	89
C	9.1	231	6.9	175	6.125	156	8	64	12	305	12	305
D	1	25	1	25	1¼	32	1½	38	2	50	2½	64
E	10	250	12	305	15	381	20	508	30	762	40	1,016
F	2	50	2½	64	3	76	4	102	6	152	7.89	200
Weight	8 lbs	3.64 kg	8 lbs	3.64 kg	10 lbs	4.54 kg	16 lbs	7.26 kg	32 lbs	14.5 kg	53 lbs	24 kg

\* Straight pipe length required upstream and downstream \* Dimensions in parentheses are metric and may vary from actual

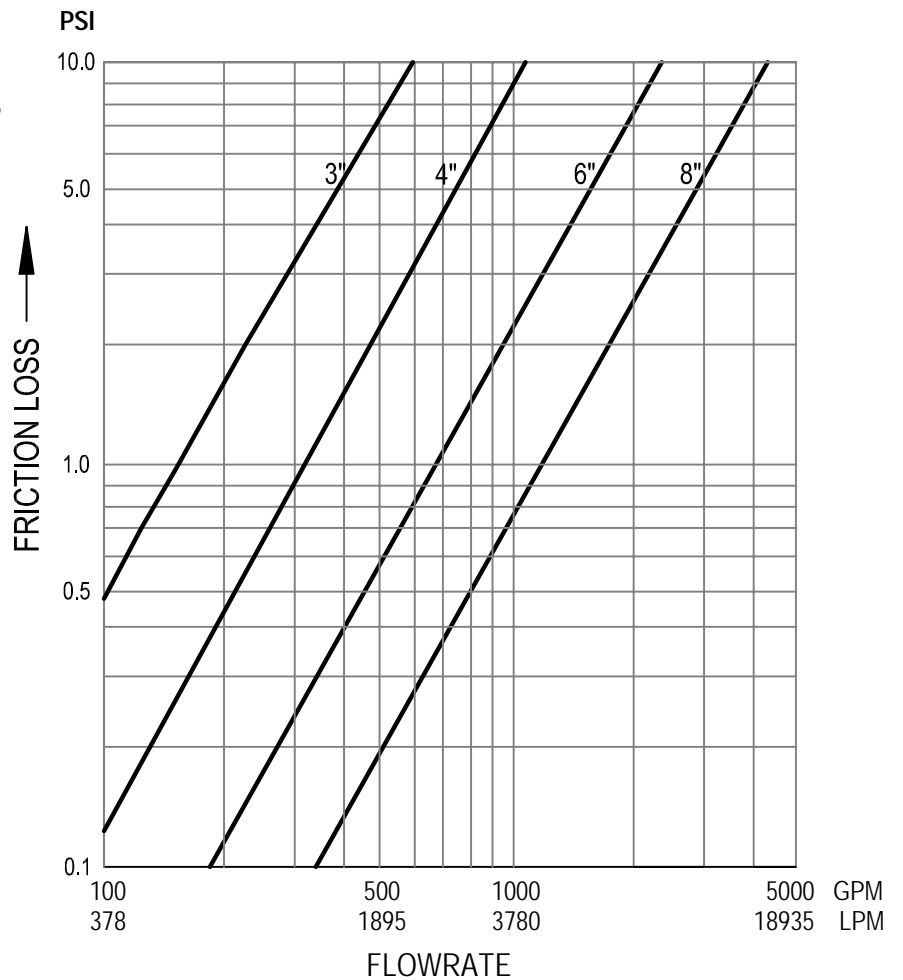




FRICION LOSS CURVE  
FOR 2" AND 2-1/2" CONTROLLERS



FRICION LOSS CURVE  
FOR 3", 4", 6" AND 8" CONTROLLERS



## FIXED STATION MONITOR 03 DEFENDER 30

### Features

- Corrosion Resistant Brass Construction
- Unobstructed 3" Single Waterway with Turning Vanes at each Elbow provides Flow Efficiency. Allows Flow up to 1,250 gpm
- Low Friction Loss at 0.69 bar (10 psi) for 800 gpm
- Double Row of Ball Bearings in all Swivels for Smooth Operation
- Brass Locking Mechanism for Vertical and Horizontal Movements
- Vertical Movement Controlled by Lever Handle
- 360° Horizontal Rotation
- 150° Vertical Travel (90° above to 60° below Horizontal)
- Excellent for Industrial and Marine Applications
- Red Paint Finish



### Technical Specification:

Model	Flow		Base Flange	Discharge Tip	Height	Width	Weight
	GPM	litre/min	inch	inch	mm	mm	kg
03 Defender 30	1,250	4,733	3 or 4 ANSI 150# FF	2.5 Male NST	432	292	24.6

## MOBILE FOAM TROLLEY 02 FM140



### Main Features

- 140 LITRES CAPACITY
- HIGHLY MOBILE
- ONE-MAN OPERATION
- SUITABLE FOR ALL TYPES OF FOAMS
- LARGE DIAMETER FILLER CAP
- ALTERNATIVE FITTINGS AVAILABLE

The Mobile Foam Trolley has been designed for one-man rapid deployment and is ideal for protection of oil storage and loading terminals, paint or solvent stores, boiler rooms, ships' engine room and other similar risk areas.

The unit only requires a pressurised water supply for operation.

Manufactured in high strength corrosion resistant materials.

### SPECIFICATION

#### Foam Concentrate Storage Tank

140 litres capacity chemically resistant, GRP tank suitable for storing all types of foam concentrates. Finish: yellow

#### Frame & Hose Rack

Steel construction. Finish: black enamel

#### Wheels

Steel with solid rubber wheels. 400 mm (15.7") diameter

### STANDARD ACCESSORIES

#### Inline Variable Eductor

Cast brass construction with 0-6% selector metering valve. Includes ¾" OD wire reinforced PVC foam pickup tubing.

Flow : 95 gpm (360 lpm) at 13.8 bar (200 psi)  
60 gpm (227 lpm) at 6.9 bar (100 psi)

Inlet: 2½" male instantaneous (BS336) or 1½" male NHT.

Outlet: 2½" female instantaneous (BS336) or 1½" female swivel NHT.

#### Fire Hoses

Synthetic polyamide/polyester woven textile reinforced with a unified nitrile-PVC cover. Red colour. Complies to BS6391. Working pressure: 16 bar.

Two lengths of 15m x 2 diameter BS6391 compliant Type 3 fire hoses and British instantaneous couplings. Options: American NHT threaded brass couplings.

Option: *UL listed single jacket polyester jacket with an internal EPDM rubber lining. White colour. Working pressure 200 psi (13.8 bar)*

#### Foam Branchpipe

Low expansion type. Stainless steel body with alloy insert and polyurethane handle grip.

Inlet connection: 2½" male instantaneous (or 1½" female NHT).

Flow : 60 gpm (227 lpm) at 5.0 bar.

Expansion ratio : 1 to 15

Throw : 26 metres

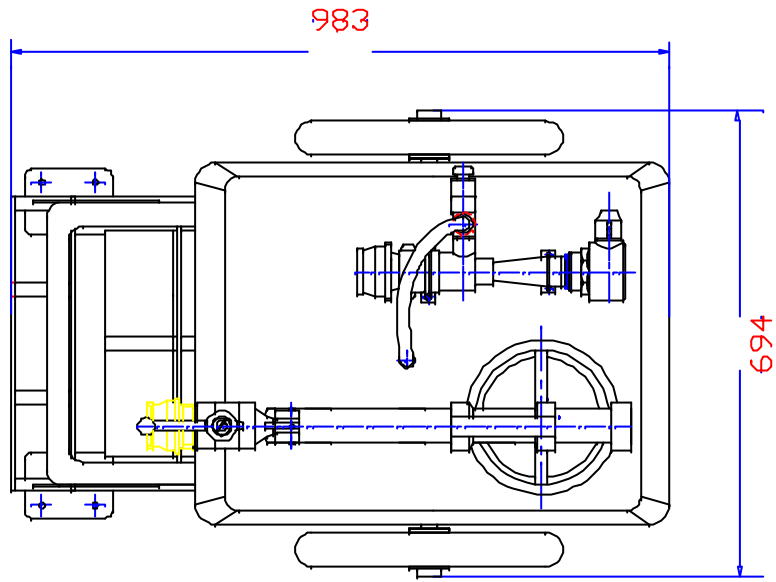
Other types of fittings to customer's requirements are available. For example, German storz, machino, etc.

*Option for large flows on eductors and foam branchpipes are also available upon request.*

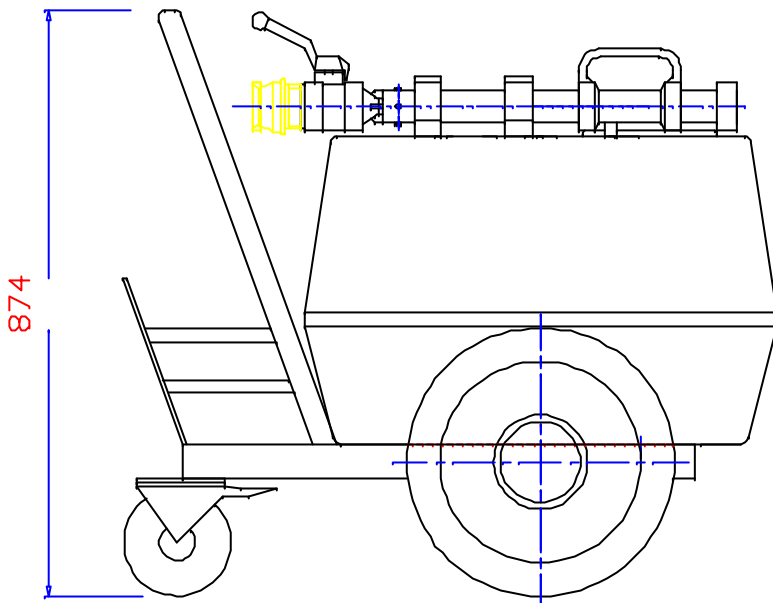
Complete Unit with standard accessories weighs about 49 kgs (no foam)

### Ordering Information

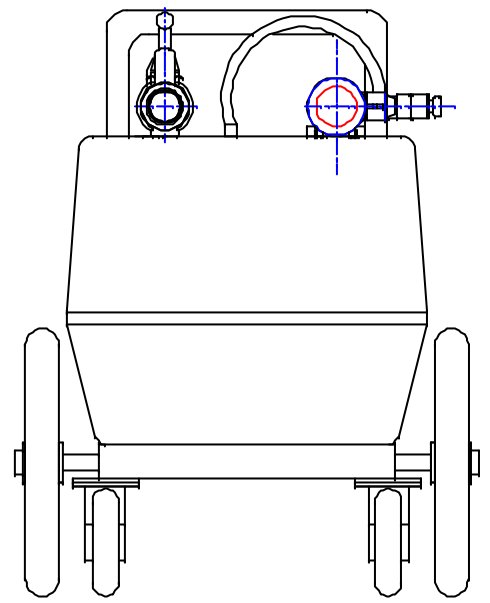
02 FM140-1	Mobile Foam Unit with eductor but less fire hoses and foam branchpipe
02 FM140-2	Mobile Foam Unit with eductor, two 15m x 2" fire hoses and foam branchpipe



PLAN VIEW



SIDE VIEW



FRONT VIEW

## LINE PROPORTIONERS 02 LPC SERIES

### Features

- Corrosion Resistant Brass construction
- Custom Flow and Pressure Options available
- Optional Threaded or Flanged connections
- Optional Metering Valve for Alternative Proportioning Percentages

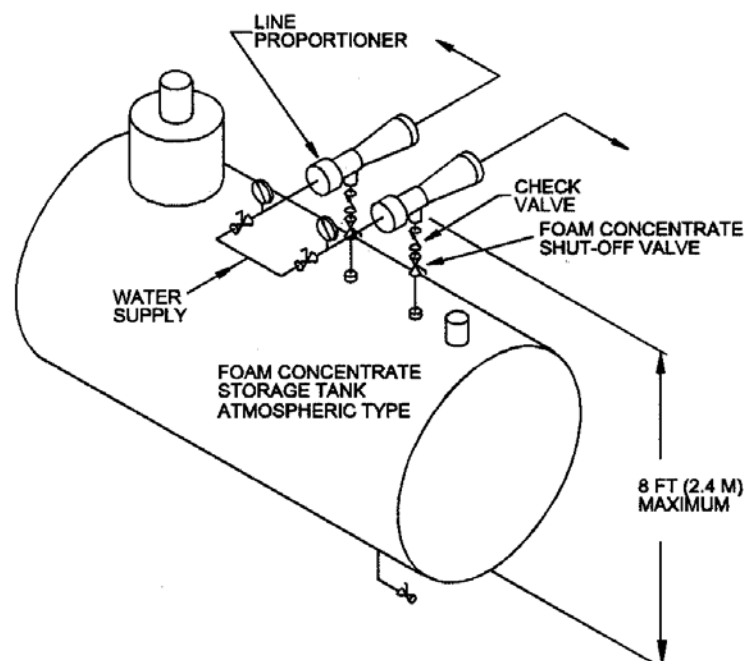


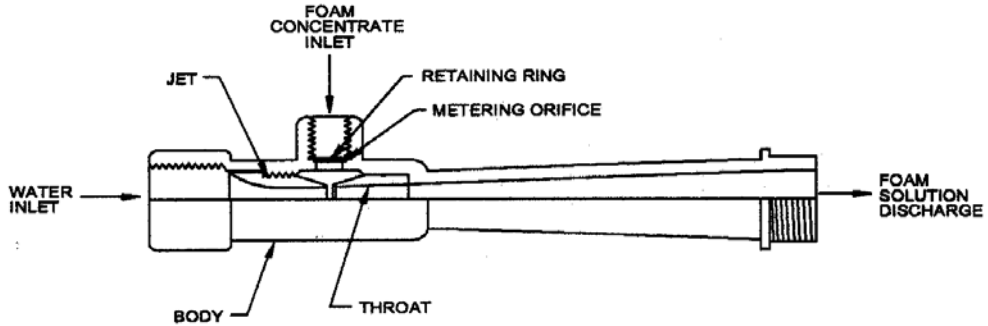
### Product Specification:

Line Proportioners (also called eductors) present a simple, cost-effective method of proportioning foam concentrate and water at the proper percentage. All proportioners are made of brass castings. Line proportioners are constant flow devices that produce an accurate proportioning of foam concentrate at a specific flow and pressure. It is therefore critical to match the line proportioner with all downstream devices, including all friction loss associated with delivering that flow to the particular nozzle(s) at the design pressure. Line proportioners are usually portable devices, however, with proper considerations they can be used in fixed system applications.

For proper operation and to achieve a respectable nozzle operating pressure, line proportioners require inlet pressures in the range of 80 - 200 psi (5.4 to 14 bar), since the friction loss through the device is approximately 35%. Care should be taken to ensure that the eductor is mounted at a maximum of 8 - 10 feet (2.4 to 3.0 metres) above the minimum expected foam liquid surface.

Line proportioners are typically used by municipal or airport fire departments where rapid, simple and cost effective deployment of a foam proportioning device is required. Other than flowing water, no external power supplies are required to operate line proportioners.





**LINE PROPORTIONER CROSS SECTION**

**Technical Specification**

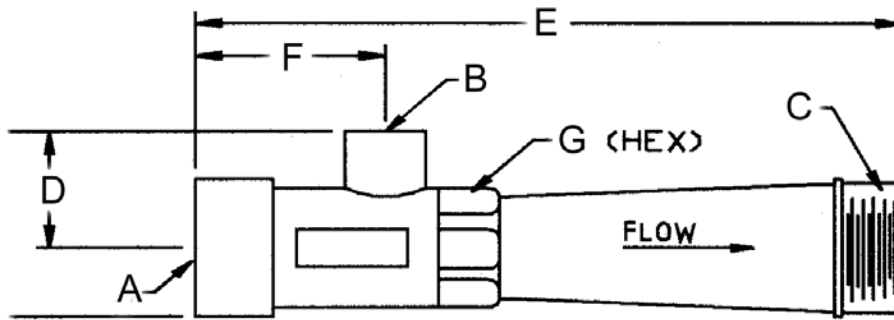
Model	K-Factor 3%	Flow GPM (Litre/min) K-Factor 3%		K-Factor 6%	Flow GPM (Litre/min) K-Factor 6%	
		100 PSI (6.9 bar)	150 psi (10 bar)		100 PSI (6.9 bar)	150 psi (10 bar)
02 LPC120	9.5	95 (360)	116 (439)	9.8	98 (371)	120 (454)
02 LPC210	16.6	166 (629)	203 (769)	17.1	171 (648)	209 (792)
02 LPC240	19	190 (720)	233 (882)	19.6	196 (742)	240 (909)
02 LPC280	22.2	222 (841)	272 (1030)	22.9	229 (867)	280 (1060)
02 LPC350	27.7	277 (1049)	339 (1284)	28.6	286 (1083)	350 (1325)
02 LPC420	33.2	332 (1257)	407 (1541)	34.3	343 (1299)	420 (1591)
02 LPC480	38	380 (1439)	465 (1761)	39.2	392 (1485)	480 (1818)
02 LPC550	43.5	437 (1655)	533 (2018)	44.9	449 (1700)	550 (2083)
02 LPC600	47.5	475 (1799)	582 (2204)	49	490 (1856)	600 (2272)
02 LPC660	52.2	522 (1977)	639 (2420)	53.9	539 (2041)	660 (2499)
02 LPC730	57.8	578 (2189)	708 (2681)	59.6	596 (2257)	730 (2765)

For other pressures, use the following:

Formula  $Q = (K \text{ divided by the square root of } P)$

Example: Find flow of model 350 @ 180 psi when use with a 3% foam concentrate  
 Model 350 3% K-Factor 27.7  
 Square Root of PSI X 13.41  
 FLOW RATE 372 GPM @ 180 PSI  
 (1,409 Litre/min @ 12.41 bar)





### Dimensions

Model	A	B	C	E	F	G	H
	inch FNPT	inch MNPT	inch NPT	inch (mm)	inch (mm)	inch (mm)	inch (mm)
02 LPC120	2½	1	2½	2.75 (69.9)	16.13 (40.95)	4.38 (111.3)	2.50 (63.5)
02 LPC210	2½	1	2½	2.75 (69.9)	16.13 (40.95)	4.38 (111.3)	2.50 (63.5)
02 LPC240	2½	1	2½	2.75 (69.9)	16.13 (40.95)	4.38 (111.3)	2.50 (63.5)
02 LPC280	2½	1	2½	2.75 (69.9)	16.13 (40.95)	4.38 (111.3)	2.50 (63.5)
02 LPC350	2½	1	2½	2.75 (69.9)	16.13 (40.95)	4.38 (111.3)	2.50 (63.5)
02 LPC420	2½	1	3	3.11 (79)	18.38 (40.64)	4.50 (114.3)	2.75 (69.9)
02 LPC480	2½	1	3	3.11 (79)	18.38 (40.64)	4.50 (114.3)	2.75 (69.9)
02 LPC550	2½	1	3	3.11 (79)	18.38 (40.64)	4.50 (114.3)	2.75 (69.9)
02 LPC600	3	1¼	4	2.72 (69.1)	20.50 (52.07)	4.50 (114.3)	2.75 (69.9)
02LPC660	3	1¼	4	2.72 (6.91)	20.50 (52.07)	4.50 (114.3)	2.75 (69.9)
02 LPC730	3	1¼	4	2.72 (69.1)	20.50 (52.07)	4.50 (114.3)	2.75 (69.9)



## **FOAMGARD 6% AQUEOUS FILM FORMING FOAM CONCENTRATE (6% AFFF)**

### **Features**

- Suitable for Use with Fresh or Salt Water
- Superior Knockdown Performance on Hydrocarbon fires
- Excellent wetting characteristics on Class A Fuel Fires
- Use with both Aspirating foam and standard Water Fog Nozzles and Inline Eductors
- Use with Fixed Foam Monitor Systems
- Suitable for Storage in Carbon Steel, Fibreglass, Polyethylene or Stainless Steel Tanks but is not compatible with galvanised pipe or fittings in an undiluted form.
- U.L. recommended Application Rate on Hydrocarbon type Fuels is 0.10 gpm/sq.ft (4.1 lpm/m<sup>2</sup>) for hoselines and monitor applications
- U.L. Listed
- Marine Approvals (predespatched) available on request

### **Product Specification:**

FOAMGARD 6% AFFF is a non-toxic, fluoro-chemical, totally synthetic aqueous film forming foam concentrate. It is formulated to provide a superior knockdown performance on all types of Class B hydrocarbon fires. The special surfactants in the concentrate allows a vapour sealing effect over the fuel surface so that any flammable vapour is fully suppressed with a thin foam cover. The inherent self-sealing property re-seals any disturbed surface of the burning liquid. It also has an excellent penetration quality as a wetting agent when used on Class A fires and is very effective in extinguishing deep seated fires in wood, coal, rubber and plastic materials.

It is intended for use at 6% proportioning rate (6 parts AFFF concentrate to 94 parts water) on Class B hydrocarbon based flammable liquids such as gasoline, kerosene and diesel. FOAMGARD 6% AFFF is NOT intended for use on fuels which are polar solvent/water miscible fuels such as alcohols, ketones and esters.

FOAMGARD 6% AFFF is suitable for use with a wide range of standard, conventional proportioning equipment such as inline eductors (fixed or portable), in-line balanced pressure and pump pressure proportioning skids, bladder tank balanced pressure proportioning systems, around-the-pump proportioners, handlines and air-aspirating branchpipes.

FOAMGARD 6% AFFF can be used with foam discharging devices such as foam chambers and foam makers for either cone or floating roof storage tanks and dike/bund protection systems, air-aspirating and non air-aspirating sprinklers for warehouses and tanker loading areas, standard hose reel handlines and monitors for spill fires and high back pressure foam makers for subsurface base injection systems (Class B hydrocarbon type fuels only).



FOAMGARD 6% AFFF will provide premier protection for a wide range of hazardous areas including crash fire rescue, storage tanks, truck/rail loading or unloading facilities, processing/storage facilities, docks/marine tankers, flammable liquid containment areas and mobile equipment.

As an additional assurance, FOAMGARD 6% AFFF also conforms to the fire fighting performance requirements by UK Defence Specification 42-40 Issue 1 and ICAO Document 9137-AN 898 Part 1.

### **Foaming Characteristics:**

Most aspirating type discharge devices will typically generate expansion ratios of 6-10 to 1 when FOAMGARD 6% AFFF is mixed with water at the correct ratio. Non-aspirating type devices will typically generate expansion ratio of 2-4 to 1. Expansion ratios are governed by the type of discharge device, flow rate and discharge pressure.

### **Typical Chemical and Physical Properties at 27° C**

Appearance	Clear Colourless
Specific Gravity	1.00 - 1.15
pH	6.5 - 8.5
Viscosity	3.0 - 10 cps
Spreading Coefficient	More than 3
Sludge Content (%V/V)	Less than 0.1%
Surface Tension (dyne/cm)	Less than 17

### **Environmental Impact:**

FOAMGARD 6% AFFF is biodegradable, low in toxicity and can be treated in sewage treatment plants.

### **Storage Condition:**

FOAMGARD 6% AFFF is supplied in plastic containers. For bulk storage, stainless steel or mild steel tanks with internal epoxy coating is recommended.

If stored in original manufacturer's supplied drums or pails within the temperature range of 2°C to 49°C, a shelf life of between 20 to 25 years can be expected.

For other storage conditions, please check with Progard for storage guidelines.

### **Ordering Information:**

FOAMGARD 6% AFFF is supplied in 20 litre or 30 litre plastic pails or 200 litre plastic drums.

<b><u>Part Number</u></b>	<b><u>Capacity</u></b>	<b><u>Packing</u></b>	<b><u>Shipping Weight</u></b>
FOAMGARD AF6-20	20 litre (5.28 gallon)	Pail	21.3 kg (47 lbs)
FOAMGARD AF6-30	30 litre (7.92 gallon)	Pail	31.5 kg (70 lbs)
FOAMGARD AF6-200	200 litre (52.8 gallon)	Drum	209 kg (466 lbs)



## **FOAMGARD 3%-6% ALCOHOL RESISTANT AQUEOUS FILM FORMING FOAM CONCENTRATE (3%-6% AR-AFFF)**

### **Features**

- 3% Proportioning Rate on Class B Hydrocarbon and 6% Proportioning Rate on Polar Solvent Fuels
- Suitable for Use with Fresh or Salt Water
- Superior Knockdown Performance on Hydrocarbon fires
- Excellent wetting characteristics on Class A Fuel Fires
- Compatible for Use with other similar Concentrate types and Dry Chemical Powders
- Use with both Aspirating foam Nozzles and Inline Eductors
- Use with Fixed Foam Discharge Outlets
- Suitable for Storage in Carbon Steel, Fibreglass, Polyethylene or Stainless Steel tanks but is not compatible with galvanised pipe or fittings in an undiluted form.
- U.L. Listed
- Predespatched Marine approvals available on request

### **Product Specification:**

FOAMGARD 3%-6% AR-AFFF is manufactured of fluoro-tensides, hydrocarbon-tensides, polysaccharides and other chemical ingredients to become a non-toxic foam concentrate that works well on both Class B hydrocarbon type fuels or polar solvent fuels. . It is formulated to provide a superior knockdown performance on generation of an aqueous film on Class B hydrocarbon type fuels or a polymeric membrane on polar solvent/water miscible type fuels. It also has an excellent penetration quality as a wetting agent when used on Class A fires and is very effective in extinguishing deep seated fires in wood, coal, rubber and plastic materials.

It is intended for use at 3% proportioning rate (3 parts AR-AFFF concentrate to 97 parts water) on Class B hydrocarbon based flammable liquids such as gasoline, kerosene and diesel and 6% proportioning rate (6 parts AR-AFFF concentrate to 94 parts water) on polar solvent/water miscible fuels such as isopropyl alcohols, ketones and esters.

FOAMGARD 3%-6% AR-AFFF is suitable for use with a wide range of standard, conventional proportioning equipment such as inline eductors (fixed or portable), in-line balanced pressure and pump pressure proportioning skids, bladder tank balanced pressure proportioning systems, around-the-pump proportioners, handlines and air-aspirating branchpipes.

FOAMGARD 3%-6% AR-AFFF can be used with foam discharging devices such as foam chambers and foam makers for either cone or floating roof storage tanks and dike/bund protection systems, air-aspirating and non air-aspirating sprinklers for warehouses and tanker loading areas, standard hose reel handlines and monitors for spill fires and high back pressure foam makers for subsurface base injection systems (Class B hydrocarbon type fuels only).



FOAMGARD 3%-6% AR-AFFF will provide premier protection for a wide range of hazardous areas including crash fire rescue, storage tanks, truck/rail loading or unloading facilities, processing/storage facilities, docks/marine tankers, flammable liquid containment areas and mobile equipment.

### **Foaming Characteristics:**

Most aspirating type discharge devices will typically generate expansion ratios of 6-10 to 1 when FOAMGARD 3%-6% AR-AFFF is mixed with water at the correct ratio. Non-aspirating type devices will typically generate expansion ratio of 2-4 to 1. Expansion ratios are governed by the type of discharge device, flow rate and discharge pressure.

### **Typical Chemical and Physical Properties at 27° C**

Appearance	Light Yellow
Specific Gravity	1.01 +/- 0.01
pH	7.5 +/- 0.5
Viscosity	Less than 1200 cps
Spreading Coefficient	More than 4.5
Sludge Content (%V/V)	Less than 0.1%
Surface Tension (dyn/cm)	Less than 17

### **Environmental Impact:**

FOAMGARD AR3%-6% AR-AFFF is biodegradable, low in toxicity and can be treated in sewage treatment plants.

### **Storage Condition:**

FOAMGARD 3% AR-AFFF can be stored in plastic/plastic lined containers. For bulk storage, stainless steel or mild steel tanks with internal epoxy coating is recommended. It is advisable to place a thin layer of mineral oil on the surface of the foam concentrate to minimise evaporation.

If stored in original manufacturer's supplied drums or pails within the temperature range of 2°C to 49°C, a shelf life of between 20 to 25 years can be expected.

For other storage conditions, please check with Progard for storage guidelines.

### **Ordering Information:**

FOAMGARD 3%-6% AR-AFFF is supplied in 20 litre or 30 litre plastic pails or 200 litre plastic drums.

<b><u>Part Number</u></b>	<b><u>Capacity</u></b>	<b><u>Packing</u></b>	<b><u>Shipping Weight</u></b>
FOAMGARD AR36-20	20 litre (5.28 gallon)	Pail	21.3 kg (47 lbs)
FOAMGARD AR36-30	30 litre (7.92 gallon)	Pail	31.5 kg (70 lbs)
FOAMGARD AR36-200	200 litre (52.8 gallon)	Drum	209 kg (466 lbs)



## **FOAMGARD 3% ALCOHOL RESISTANT AQUEOUS FILM FORMING FOAM CONCENTRATE (3% AR-AFFF)**

### **Features**

- Single 3% Proportioning Rate on both Class B Hydrocarbon and Polar Solvent Fuels
- Suitable for Use with Fresh or Salt Water
- Superior Knockdown Performance on Hydrocarbon fires
- Excellent wetting characteristics on Class A Fuel Fires
- Use with both Aspirating foam Nozzles and Inline Eductors
- Use with Fixed Foam Discharge Outlets
- Suitable for Storage in Carbon Steel, Fibreglass, Polyethylene or Stainless Steel tanks but is not compatible with galvanised pipe or fittings in an undiluted form.
- U.L. Listed
- Predespatched Marine approvals available on request

### **Product Specification:**

FOAMGARD 3% AR-AFFF is manufactured of fluoro-tensides, hydrocarbon-tensides, polysaccharides and other chemical ingredients to become a non-toxic foam concentrate that works well on both Class B hydrocarbon type fuels or polar solvent fuels. . It is formulated to provide a superior knockdown performance on generation of an aqueous film on Class B hydrocarbon type fuels or a polymeric membrane on polar solvent/water miscible type fuels. It also has an excellent penetration quality as a wetting agent when used on Class A fires and is very effective in extinguishing deep seated fires in wood, coal, rubber and plastic materials.

It is intended for use at 3% proportioning rate (3 parts AR-AFFF concentrate to 97 parts water) on Class B hydrocarbon based flammable liquids such as gasoline, kerosene and diesel as well as on polar solvent/water miscible fuels such as isopropyl alcohols, ketones and esters.

FOAMGARD 3% AR-AFFF is suitable for use with a wide range of standard, conventional proportioning equipment such as inline eductors (fixed or portable), in-line balanced pressure and pump pressure proportioning skids, bladder tank balanced pressure proportioning systems, around-the-pump proportioners, handlines and air-aspirating branchpipes.

FOAMGARD 3% AR-AFFF can be used with foam discharging devices such as foam chambers and foam makers for either cone or floating roof storage tanks and dike/bund protection systems, air-aspirating and non air-aspirating sprinklers for warehouses and tanker loading areas, standard hose reel handlines and monitors for spill fires and high back pressure foam makers for subsurface base injection systems (Class B hydrocarbon type fuels only).

FOAMGARD 3% AR-AFFF will provide premier protection for a wide range of hazardous areas including crash fire rescue, storage tanks, truck/rail loading or unloading facilities, processing/storage facilities, docks/marine tankers, flammable liquid containment areas and mobile equipment.



### **Foaming Characteristics:**

Most aspirating type discharge devices will typically generate expansion ratios of 6-10 to 1 when FOAMGARD 3% AR-AFFF is mixed with water at the correct ratio. Non-aspirating type devices will typically generate expansion ratio of 2-4 to 1. Expansion ratios are governed by the type of discharge device, flow rate and discharge pressure.

### **Typical Chemical and Physical Properties at 27° C**

Appearance	Clear Light Yellow
Specific Gravity	1.01 +/- 0.01
pH	7.5 +/- 0.5
Viscosity	Less than 1200 cps
Spreading Coefficient	More than 4.5
Sludge Content (%V/V)	Less than 0.1%
Surface Tension (dyn/cm)	Less than 17

### **Environmental Impact:**

FOAMGARD 3% AR-AFFF is biodegradable, low in toxicity and can be treated in sewage treatment plants.

### **Storage Condition:**

FOAMGARD 3% AR-AFFF can be stored in plastic/plastic lined containers. For bulk storage, stainless steel or mild steel tanks with internal epoxy coating is recommended. It is advisable to place a thin layer of mineral oil on the surface of the foam concentrate to minimise evaporation.

If stored in original manufacturer's supplied drums or pails within the temperature range of 2°C to 49°C, a shelf life of between 20 to 25 years can be expected.

For other storage conditions, please check with Progard for storage guidelines.

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## **FOAMGARD 3% AQUEOUS FILM FORMING FOAM CONCENTRATE (3% AFFF)**

### **Features**

- Suitable for Use with Fresh or Salt Water
- Superior Knockdown Performance on Hydrocarbon fires
- Excellent wetting characteristics on Class A Fuel Fires
- Use with both Aspirating foam and standard Water Fog Nozzles and Inline Eductors
- Use with Fixed Foam Monitor Systems
- Suitable for Storage in Carbon Steel, Fibreglass, Polyethylene or Stainless Steel Tanks but is not compatible with galvanised pipe or fittings in an undiluted form.
- U.L. recommended Application Rate on Hydrocarbon type Fuels is 0.10 gpm/sq.ft (4.1 lpm/m<sup>2</sup>) for hoselines and monitor applications
- U.L. Listed
- Marine Approvals (predespatched) available on request

### **Product Specification:**

FOAMGARD 3% AFFF is a non-toxic, fluoro-chemical, totally synthetic aqueous film forming foam concentrate. It is formulated to provide a superior knockdown performance on all types of Class B hydrocarbon fires. The special surfactants in the concentrate allows a vapour sealing effect over the fuel surface so that any flammable vapour is fully suppressed with a thin foam cover. The inherent self-sealing property re-seals any disturbed surface of the burning liquid. It also has an excellent penetration quality as a wetting agent when used on Class A fires and is very effective in extinguishing deep seated fires in wood, coal, rubber and plastic materials.

It is intended for use at 3% proportioning rate (3 parts AFFF concentrate to 97 parts water) on Class B hydrocarbon based flammable liquids such as gasoline, kerosene and diesel. FOAMGARD 3% AFFF is NOT intended for use on fuels which are polar solvent/water miscible fuels such as alcohols, ketones and esters.

FOAMGARD 3% AFFF is suitable for use with a wide range of standard, conventional proportioning equipment such as inline eductors (fixed or portable), in-line balanced pressure and pump pressure proportioning skids, bladder tank balanced pressure proportioning systems, around-the-pump proportioners, handlines and air-aspirating branchpipes.

FOAMGARD 3% AFFF can be used with foam discharging devices such as foam chambers and foam makers for either cone or floating roof storage tanks and dike/bund protection systems, air-aspirating and non air-aspirating sprinklers for warehouses and tanker loading areas, standard hose reel handlines and monitors for spill fires and high back pressure foam makers for subsurface base injection systems (Class B hydrocarbon type fuels only).





FOAMGARD 3% AFFF will provide premier protection for a wide range of hazardous areas including crash fire rescue, storage tanks, truck/rail loading or unloading facilities, processing/storage facilities, docks/marine tankers, flammable liquid containment areas and mobile equipment.

As an additional assurance, FOAMGARD 3% AFFF also conforms to the fire fighting performance requirements by UK Defence Specification 42-40 Issue 1 and ICAO Document 9137-AN 898 Part 1.

### **Foaming Characteristics:**

Most aspirating type discharge devices will typically generate expansion ratios of 6-10 to 1 when FOAMGARD 3% AFFF is mixed with water at the correct ratio. Non-aspirating type devices will typically generate expansion ratio of 2-4 to 1. Expansion ratios are governed by the type of discharge device, flow rate and discharge pressure.

### **Typical Chemical and Physical Properties at 27° C**

Appearance	Clear liquid
Colour	Light yellow
Specific Gravity	1.02 +/- 0.01
pH	7.5 +/- 0.5
Viscosity (cps), maximum	less than 3.0
Spreading Coefficient,	more than 4.5
Sludge Content (%V/V)	Less than 0.1%
Surface Tension (dyne/cm)	Less than 17

### **Environmental Impact:**

FOAMGARD 3% AFFF is biodegradable, low in toxicity and can be treated in sewage treatment plants.

### **Storage Condition:**

FOAMGARD 3% AFFF is supplied in plastic containers. For bulk storage, stainless steel or mild steel tanks with internal epoxy coating is recommended.

If stored in original manufacturer's supplied drums or pails within the temperature range of 2°C to 49°C, a shelf life of between 20 to 25 years can be expected.

For other storage conditions, please check with Progard for storage guidelines.

### **Ordering Information:**

FOAMGARD 3% AFFF is supplied in 20 litre or 30 litre plastic pails or 200 litre plastic drums.

<b><u>Part Number</u></b>	<b><u>Capacity</u></b>	<b><u>Packing</u></b>	<b><u>Shipping Weight</u></b>
FOAMGARD AF3-20	20 litre (5.28 gallon)	Pail	21.3 kg (47 lbs)
FOAMGARD AF3-30	30 litre (7.92 gallon)	Pail	31.5 kg (70 lbs)
FOAMGARD AF3-200	200 litre (52.8 gallon)	Drum	209 kg (466 lbs)

## FOAM WATER SPRINKLER 05 FS-B



The Progard Foam Sprinkler is designed to discharge mechanical foam in a pendent spray pattern. It is an open sprinkler used in overhead deluge systems where a foam blanket is required to extinguish the fire hazard at ground level.

When the foam supply has been exhausted, the sprinkler will continue to deliver cooling water to the hazard area.

The foam sprinkler is used for controlling, extinguishing or preventing flammable liquid fires and hazardous chemicals. These sprinklers form a part of a foam deluge sprinkler system specifically engineered as to nozzle type and piping to provide the required degree of protection.

The system is activated manually or by means of a separate actuation system sensing either the rate of temperature rise or the generation of products of combustion.

Typical applications include aircraft hangers, chemical plants, tanker loading gantries, pump rooms, flammable liquid stores and spray paint booths.

The recommended minimum pressure to achieve a reasonable spray pattern is 2.0 bar (30 psi).

The sprinkler has a ½" male pipe thread inlet connection.

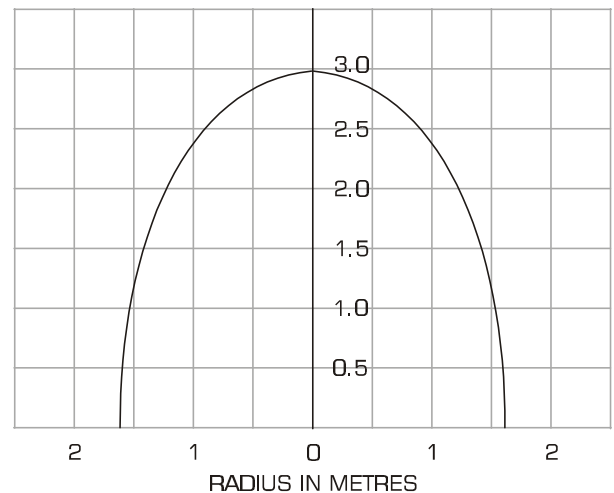
### Technical Data

Mounting	: Pendent
Material	: Brass
Working Pressure	: 12.3 bar (175 psi) max
Recommended	: 2.0 bar (30 psi)
Finish	: Brass
End connection	: ½" BSPT male (or ½" NPT male)
Dimensions	: 54 mm diameter x 157 mm

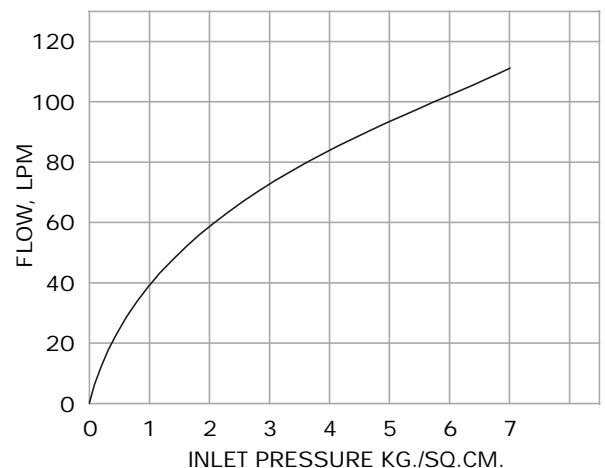
### Nozzle Selection

Product Code	Material	Nozzle K-Factor	Weight (kg)
05 FS-B	Brass	K-42	0.75

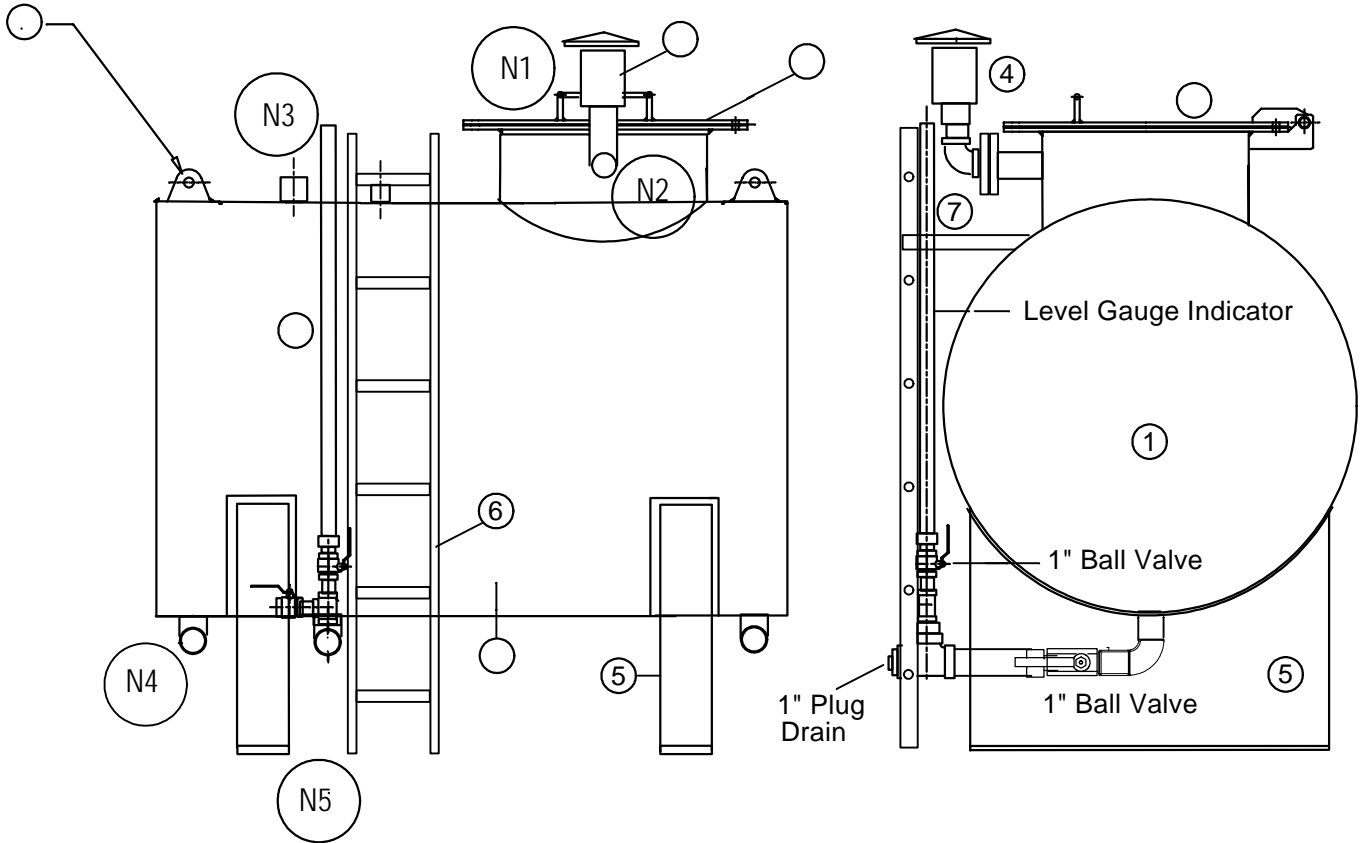
### DISCHARGE PATTERN



### PRESSURE VS FLOW PERFORMANCE CHARACTERISTIC



## FOAM CONCENTRATE STORAGE TANK PGE-AFT SERIES



### Technical Specifications:

- Design Pressure 0.3 bar
- Design Temperature +50° C
- Hydrostatic Test None
- Leakage Test Yes
- Joint Efficiency 0.7
- N.D.T. None

### Materials of Construction:

- |                     |                     |
|---------------------|---------------------|
| 1. Tank Shell       | 304SS or 316SS      |
| 2. Lifting Lug      | 304SS or 316SS      |
| 3. Inspection Hatch | 304SS or 316SS      |
| 4. Vent Valve       | PVC/Aluminium alloy |
| 5. Saddle           | 304SS               |
| 6. Access Ladder    | 304SS               |
| 7. Sight Gauge      | PVC                 |

### Nozzle Description:

- |                       |     |                      |
|-----------------------|-----|----------------------|
| N1 Manhole            | 18" | 304SS or 316SS       |
| N2 Vent Valve Inlet   | 3"  | BSPT                 |
| N3 Foam Filling (IN)  | 1"  | BSPT or ANSI 150# RF |
| N4 Foam Discharge     | 1"  | BSPT or ANSI 150# RF |
| N5 Level Gauge Outlet | 1"  | BSPT or ANSI 150# RF |

Model	Tank Capacity		Dimensions (mm)		
	Litres	Gallons	Length	Width	Height (excluding expansion dome)
02 AFT1000	1,000	265	1,700	850	1,375
02 AFT1200	1,200	317	2,000	850	1,375
02 AFT1500	1,500	396	1,850	1,000	1,525
02 AFT1900	1,900	500	2,300	1,000	1,525
02 AFT2000	2,000	528	2,450	1,000	1,525
02 AFT2300	2,300	600	2,100	1,150	1,700
02 AFT2500	2,500	660	2,250	1,150	1,700
02 AFT3000	3,000	792	2,150	1,250	1,850
02 AFT3500	3,500	924	2,450	1,250	1,850

Note: Other tank capacities are available on request. All dimensions indicated are estimates and shall be subject to change without prior notice.



## FOAM CHAMBER (NFPA Type II Application)

### Features

- Top of Chamber has Hinged Inspection Access to Interior of Chamber
- Frangible Glass Vapour Seal is provided. The glass is scored on one side and designed to break at a minimum of 10 psi but not greater than 20 psi.
- Chamber is manufactured in ASTM A366 Carbon Steel with a #304 Stainless Steel Screen covering the foam maker air intakes
- All Foam Chambers come with standard Flat Faced flanges and Gaskets
- Choice of Solid or Spilt Deflector
- Stainless Steel Orifice (size is hydraulically calculated for the foam solution flow requirement and inlet pressure requirement available at the flanged inlet of the chamber)
- Standard Primed finish. Option: Red Epoxy
- U.L. Listed



### Product Specification:

The Progard Foam Chamber consists of a foam expansion chamber and an integral foam maker. The chamber is installed on a flammable liquid storage tank just below the roof joint. The foam solution is piped to the chamber from the outside the hazard. Upon entering the chamber, the foam solution is expanded and then discharged against a deflector inside the storage tank. The deflector directs the foam against the inside wall of the storage tank. This reduces submergence of the foam and agitation of the fuel surface and agitation of the fuel surface (NFPA Type II Application). An operating pressure of 40 psi is required at the inlet of the chamber to meet the minimum design requirement of the system.

### Ordering Information

When Ordering a Foam Chamber from Progard, please specify the following:

1. Type of Paint Finish
2. Foam Solution Flow Rate required and Minimum Inlet Pressure (at the base of foam chamber)
3. Type of Deflector required - Solid or Spilt

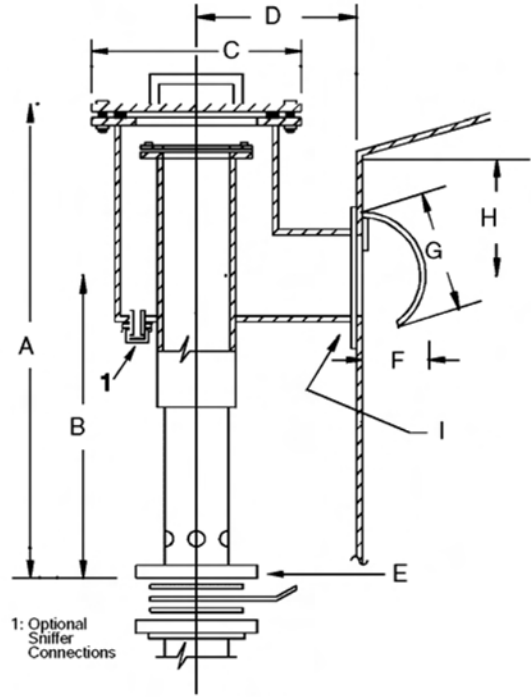


### Technical Specification

Model	Product Description	Flow		Shipping Weight	
		GPM	Litre/min	Lbs	Kgs
<b>02 FC 2.5</b>	Foam Chamber/Maker	58 - 177	220 - 670	60	27
02 FC 2.51	Solid Deflector	-	-	5	2.3
02 FC 2.52	Split Deflector	-	-	5	2.3
02 FC 2.53	Mounting Pad	-	-	15	6.8
<b>02 FC 3.0</b>	Foam Chamber/Maker	101 - 292	382 - 1,105	100	46
02 FC 3.01	Solid Deflector	-	-	10	4.5
02 FC 3.02	Split Deflector	-	-	10	4.5
02 FC 3.03	Mounting Pad	-	-	20	9
<b>02 FC 4.0</b>	Foam Chamber/Maker	180 - 642	681 - 2,431	145	66
02 FC 4.01	Solid Deflector	-	-	20	9
02 FC 4.02	Split Deflector	-	-	20	9
02 FC 4.03	Mounting PadSplit Deflector	-	-	35	16
<b>02 FC 6.0</b>	Foam Chamber/Maker	540 - 1,050	2,045 - 3,976	270	123
02 FC 6.01	Solid Deflector	-	-	30	14
02 FC 6.02	Split Deflector	-	-	30	14
02 FC 6.03	Mounting Pad	-	-	50	23

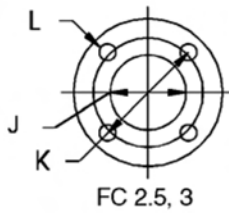
CHAMBER DIMENSIONS

	FC 2.5	FC 3	FC 4	FC 6
A	29 IN.	34 3/4 IN.	38 1/2 IN.	44 3/4 IN.
B	17 1/2 IN.	22 1/4 IN.	23 1/2 IN.	27 1/2 IN.
C	10 5/8 IN.	12 3/4 IN.	14 3/4 IN.	18 IN.
D	7 IN.	9 IN.	10 IN.	12 IN.
E	2 1/2 IN.	3 IN.	4 IN.	6 IN.
F	3 1/4 IN.	4 1/4 IN.	5 3/8 IN.	6 3/8 IN.
G	6 1/2 IN.	8 1/2 IN.	10 1/2 IN.	12 1/2 IN.
H	8 IN.	9 1/2 IN.	11 IN.	12 IN.
I	4 IN.	6 IN.	8 IN.	10 IN.
J	2 7/8 IN.	3 1/2 IN.	4 1/2 IN.	6 5/8 IN.
K	5 1/2 IN.	6 IN.	7 1/2 IN.	9 1/2 IN.
L	3/4 IN.	3/4 IN.	7/8 IN.	7/8 IN.
M	4 1/2 IN.	6 5/8 IN.	8 5/8 IN.	10 3/4 IN.
N	7 1/2 IN.	9 1/2 IN.	11 3/4 IN.	14 1/4 IN.
O	3/4 IN.	7/8 IN.	7/8 IN.	1 IN.
P	8 IN.	12 IN.	16 IN.	20 IN.
Q	12 IN.	18 IN.	24 IN.	30 IN.

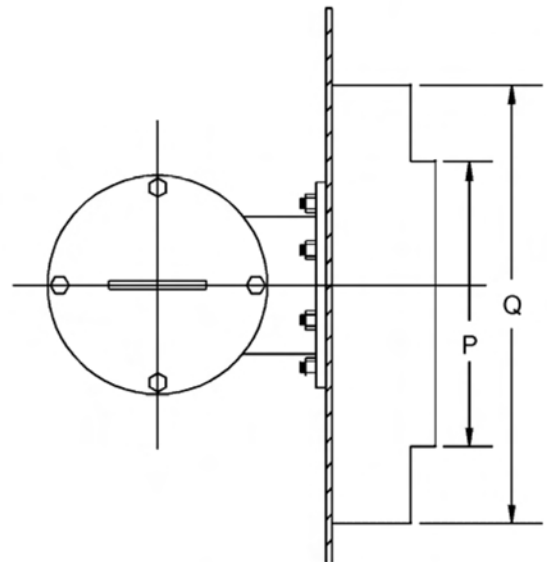
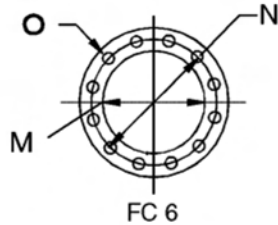
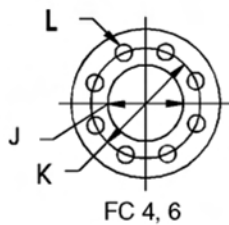
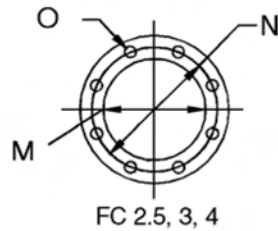


SIDE VIEW

INLET FLANGE  
(E DETAIL)

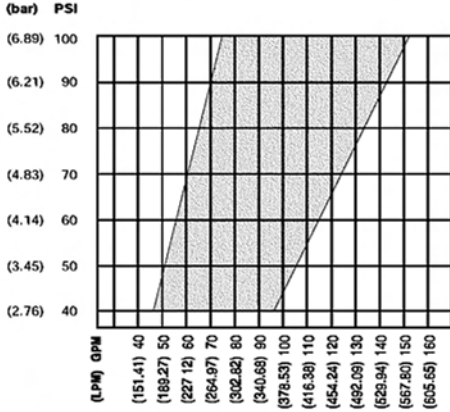


OUTLET FLANGE  
(I DETAIL)



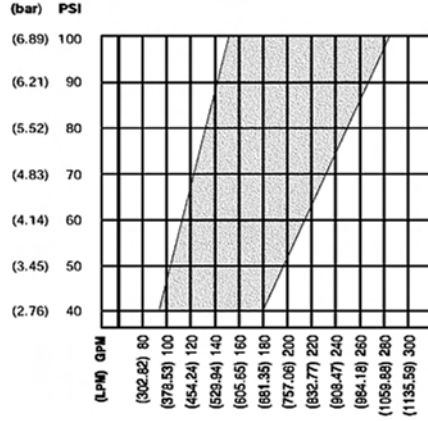
TOP VIEW

**FLOW RANGE CHARTS CHEMGUARD FOAM MAKERS & FOAM CHAMBERS**



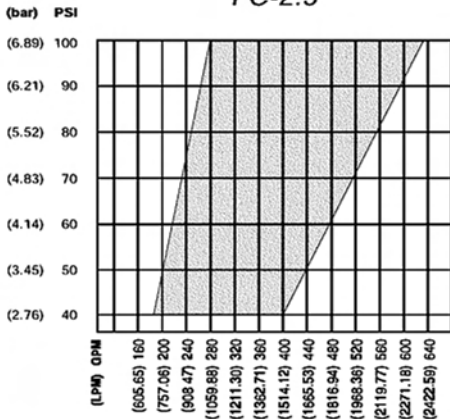
Flow @ 40 psi (2.8 bar) 47 - 97 gpm (178 - 367 lpm)  
 Flow @ 100 psi (6.9 bar) 75 - 153 gpm (284 - 579 lpm)

**FC-2.5**



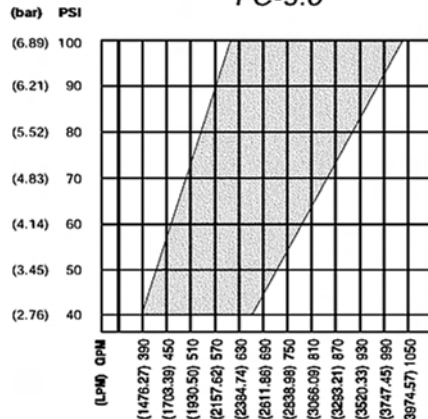
Flow @ 40 psi (2.8 bar) 96 - 179 gpm (363 - 678 lpm)  
 Flow @ 100 psi (6.9 bar) 152 - 283 gpm (575 - 1071 lpm)

**FC-3.0**



Flow @ 40 psi (2.8 bar) 179 - 397 gpm (678 - 1503 lpm)  
 Flow @ 100 psi (6.9 bar) 282 - 627 gpm (1067 - 2373 lpm)

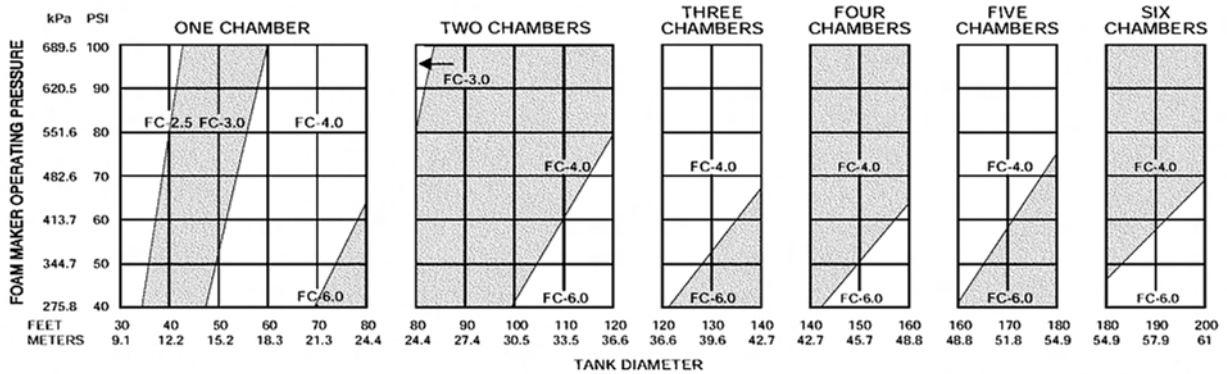
**FC-4.0**



Flow @ 40 psi (2.8 bar) 393 - 655 gpm (1488 - 2479 lpm)  
 Flow @ 100 psi (6.9 bar) 620 - 1035 gpm (2347 - 3719 lpm)

**FC-6.0**

NOTE: 1. Solution flow can be specified for any flow/pressure combination within the shaded area.  
 2. Flows noted at 40 and 100 psi (2.7 & 6.9 bar) are flows achieved through the smallest & largest orifice available for each device.



NOTE: SELECTION OF CHAMBER IS BASED UPON FOAM SOLUTION PRESSURE AT INLET TO FOAM MAKER. IF THIS PRESSURE IS MARGINAL, ALWAYS USE NEXT LARGEST CHAMBER SIZE.

## FOAM CHAMBER TOPSIDE APPLICATION

### Features

- Defined by NFPA 11 as Type II foam discharge outlet for delivering foam to the surface of a flammable liquid
- Unique Chamber design allows for Field Testing without removal of vapour seal assembly
- Bolted Inspection Access to Interior of Chamber
- Minimum working pressure is 2.8 bar (40 psi)  
Maximum working pressure is 7 bar (100 psi)
- Frangible Glass Vapour Seal breaks at pressures between 0.7 to 1.75 bar. Maximum permissible back pressure on seal is 0.06 bar
- Chamber is manufactured in Carbon Steel with a #304 StainlessSteel Screen covering the foam air intakes
- Tie-in connection are standard ANSI B16.5 Class 150# FF flanges
- Choice of Solid or Spilt Deflector
- Stainless Steel Orifice (calculated to flow predetermined foam solution at pressure available to the flanged inlet of chamber)
- Standard Primed finish. Option: Red Epoxy



### Product Specification:

The Progard Foam Chamber is an air-aspirating foam discharge device that is installed to protect vertical fixed roof liquid storage tanks. The chamber is designed to be located just below the roof joint. It consists of an internal vapour seal to prevent vapour entry into the chamber and foam solution piping. An orifice plate is installed at the chamber entry inlet to deliver a predetermined foam solution flow rate at a specific pressure. The orifice is field replaceable in the event of a change in design parameters.

Upon entering the chamber, the foam solution passes through a venturi passage that draws air to create aerated foam. Air is drawn in through the holes located on the chamber covered with a stainless steel screen. With increased volume and pressure within the expansion chamber section, the foam will break through the vapour seal and discharges against a deflector inside the storage tank. The deflector directs the foam against the inside wall of the storage tank and is gently applied on to the burning fuel. This reduces submergence of the foam and agitation of the fuel surface (NFPA Type II application). A minimum operating pressure at 40 psi is required at the chamber inlet to operate properly.

On removing the top cover plate, the foam chamber can be subject to testing without removing the vapour seal. In the event that a vapour seal needs to be replaced, simply remove this top cover to access to the damaged vapour seal which is held by screwed-down bolts.





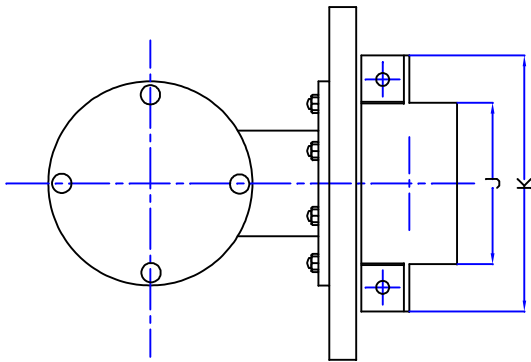
### Ordering Information

When Ordering a Progard Foam Chamber , please specify the following:

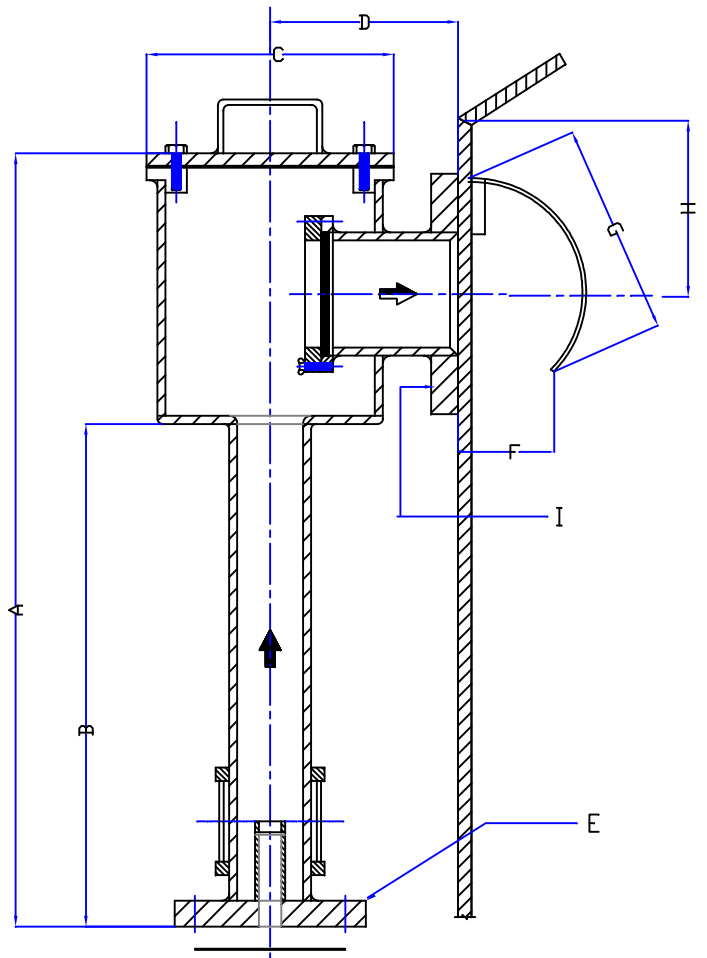
1. Chamber Model, inlet and outlet flange sizes
2. Foam Solution Flow Rate and Operating Inlet Pressure (chamber inlet)
3. Type of Deflector required - Solid or Spilt
4. Type of Paint Finish

### Technical Information

Model	Product Description	Flow		Shipping Weight	
		GPM	Litre/min	Lbs	Kgs
<b>01 AFC2.0</b>	Foam Chamber/Maker	19 -89	72 - 336	62	28
01 FC2.0S1	Solid Deflector	-	-	5	2.3
01 FC2.0S2	Split Deflector	-	-	5	2.3
01 FC2.0MP	Mounting Pad	-	-	15	6.8
<b>01 AFC2.5</b>	Foam Chamber/Maker	51 -178	193 - 672	77	35
01 FC2.5S1	Solid Deflector	-	-	5	2.3
01 FC2.5S2	Split Deflector	-	-	5	2.3
01 FC2.5MP	Mounting Pad	-	-	15	6.8
<b>01 AFC3.0</b>	Foam Chamber/Maker	102 - 356	386 - 1,344	115	52
01 FC3.0S1	Solid Deflector	-	-	10	4.5
01 FC3.0S2	Split Deflector	-	-	10	4.5
01 FC3.0MP	Mounting Pad	-	-	20	9
<b>01 AFC4.0</b>	Foam Chamber/Maker	204 - 711	773 - 2,687	172	78
01 FC4.0S1	Solid Deflector	-	-	20	9
01 FC4.0S2	Split Deflector	-	-	20	9
01 FC4.0MP	Mounting Pad	-	-	35	16
<b>01 AFC6.0</b>	Foam Chamber/Maker	409 - 1,067	1,545 - 4,032	237	108
01 FC6.0S1	Solid Deflector	-	-	30	14
01 FC6.0S2	Split Deflector	-	-	30	14
01 FC6.0MP	Mounting Pad	-	-	50	23



DEFLECTOR  
TOP VIEW



FOAM CHAMBER  
SIDE VIEW

**Chamber Dimensions (in millimetres)**

	01 FC2.0	01 FC2.5	01 FC3.0	01 FC4.0	01 FC6.0
A	630	723	1,055	1,175	1,250
B	518	463	745	815	820
C	205	230	285	360	406
D	160	127	203	216	229
E	50NB 2"	65NB 2-1/2"	80NB 3"	100NB 4"	150NB 6"
F	20	31	40	55	65
G	100	165	230	300	370
H	168	203	241	280	305
I	80NB 3"	100NB 4"	150NB 6"	200NB 8"	250NB 10"
J	71	120	175	220	280
K	175	223	276	325	400



## BALANCED PRESSURE PROPORTIONING BLADDER TANK SYSTEM

### Features

- Accurate Proportioning of Foam Concentrate into firewater stream to produce the Optimum extinguishing solution
- Tank Shell constructed of Steel complying to ASME specification
- Bladder is Manufactured of Reinforced Nylon over Buna-N and has a Mullen burst pressure in excess of 800 psi
- Brass Trim Valves with Teflon Seats are permanently mounted on the tank
- Extremely accurate Concentrate Proportioning over a Wide Range of Water Flow Rates.
- Very low Permanent Pressure Drop
- All Tanks are Approximately 10% Oversized to allow for Concentrate Thermal Expansion
- Standard Tanks are painted Red Enamel
- U.L. Listed



### Product Specification:

The Progard foam bladder tank stores foam concentrate and is a component in a balanced pressure proportioning foam system. A flexible concentrate bladder within the ASME pressure tank contains the foam concentrate. The concentrate bladder physically separates stored concentrate from the water supply. When the system is activated, firewater supply pressure transmits the force through the flexible concentrate bladder, which forces the concentrate to the ratio flow controller. These bladder tanks do not require an external power, other than a supply of water to ensure proper operation. The Vertical and Horizontal Bladder Tanks are designed and constructed in accordance with the latest revisions to ASME code, Section VIII for unfired pressure vessels. They have a working pressure of 175 psi (12 bar) and tested to 1.5 times the working pressure.

The tank shell is constructed of steel, complying with ASME specifications, possessing a tensile strength of not less than 70,000 psi. The circumferential, as well as the longitudinal body seam, is machine welded. The tank interior is sandblasted white and all welds and edges ground smooth. The tank shell water inlet is screened to prevent bladder blow out or the entrapment of debris between the tank shell and the bladder. All other openings greater than 1" are screened to prevent bladder blowout.

The vertical tank assembly is supported by four legs with access holes to the bladder drain/fill valve and the tank shell drain/fill valve. Four mounting holes are provided for anchoring the tank. The horizontal tank assembly is supported on two saddles, welded to the tank and fitted with anchoring holes.

Vessel Sizes Availability

01 VBT-xxxx Vertical Style : 36 to 2,000 gallons (136 to 7,575 litres)  
 01 HBT-xxxx Horizontal Style : 100 to 3,900 gallons (380 to 14,770 litres)

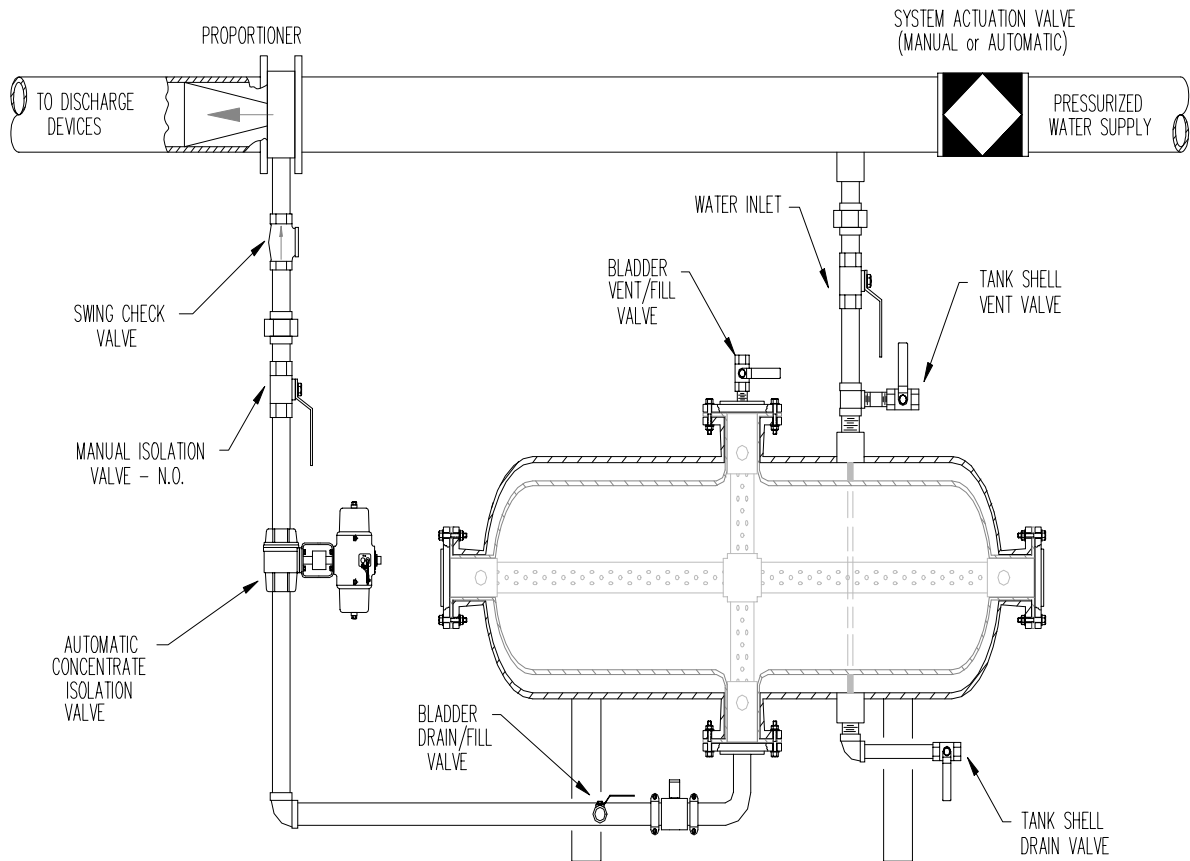
Options:

- Coal Tar Epoxy for coating the interior shell of the tank (for use in a seawater environment)
- Sight Glass
- Proportioner prepiped onto the tank assembly
- Actuated valves water/concentrate
- Primed Red Epoxy finish

When ordering a Foam Bladder Tank from Progard, please specify the following:

- 1) Type of Tank required - Vertical or Horizontal
- 2) Size of Tank
- 3) Exterior Finish of Tank
- 4) Whether required for salt water environment
- 5) Any other Options required

**GENERAL ASSEMBLY DRAWING SHOWING A TYPICAL BLADDER TANK WITH PREPIPED CONTROLLER**





VESSEL SIZE IN GALLON (LITRES)

GAL	LITRE	A		B		C		D		E		G		H		I		J		K		L		M		N		O		P		WEIGHT	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	Kgs
36	136	41	1,041	16	406	5.3	135	6	152	51	1,295	30	762	15.5	394	21	533	2.75	70	5/8	16	26.75	679	9/16	14	24	610	1.5	38	1.5	38	573	260
50	189	49	1,245	16	406	5.3	135	6	152	59	1,499	38	965	15.5	394	21	533	2.75	70	5/8	16	26.75	679	9/16	14	24	610	2	51	2	51	641	291
100	379	78	1,981	16	406	5.3	135	6	152	88	2,235	67	1,702	15.5	394	21	533	2.75	70	5/8	16	26.75	679	9/16	14	24	610	2	51	2	51	797	362
150	568	77	1,956	17	432	5.3	135	6	152	87	2,210	66	1,676	18.5	470	24	610	2.75	70	5/8	16	32.75	832	9/16	14	30	762	2	51	2	51	938	426
200	757	96	2,438	17	432	5.3	135	6	152	106	2,692	72	1,829	18.5	470	24	610	2.75	70	5/8	16	32.75	832	9/16	14	30	762	2	51	2	51	1,066	485
300	1136	101	2,565	18	457	5.3	135	6	152	111	2,819	72	1,829	21.5	546	27	686	2.75	70	5/8	16	38.75	984	9/16	14	36	914	2	51	2	51	1,473	670
400	1515	99	2,515	19	483	5.3	135	6	152	109	2,769	72	1,829	24.5	622	30	762	2.75	70	3/4	19	44.75	1,137	11/16	17	42	1,067	2	51	2	51	1,625	739
500	1894	118	2,997	19	483	6.13	156	6	152	128	3,251	72	1,829	24.5	622	30	762	2.75	70	5/8	19	44.75	1,137	11/16	17	42	1,067	2	51	2	51	1,846	839
600	2272	111	2,819	20	508	6.13	156	6	152	122	3,099	72	1,829	27.5	699	33	838	2.75	70	5/8	19	50.75	1,289	11/16	17	48	1,219	2.5	64	2.5	64	2,052	933
700	2651	131	3,327	20	508	6.13	156	7.5	191	143	3,632	72	1,829	27.5	699	33	838	8.75	222	5/8	19	50.75	1,289	13/16	21	48	1,219	2.5	64	2.5	64	2,252	1,024
800	3030	138	3,505	20	508	6.13	156	7.5	191	150	3,810	72	1,829	27.5	699	33	838	8.75	222	5/8	19	50.75	1,289	13/16	21	48	1,219	2.5	64	2.5	64	2,910	1,323
800	3030	105	2,667	24	610	6.13	156	7.5	191	117	2,972	72	1,829	33.5	851	39	991	8.75	222	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	2,798	1,272
900	3408	114	2,896	24	610	6.13	156	7.5	191	126	3,200	72	1,829	33.5	851	39	991	8.75	222	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	2,955	1,343
1000	3787	123	3,124	24	610	6.13	156	7.5	191	135	3,429	72	1,829	33.5	851	39	991	8.75	222	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	3,157	1,435

ALL DIMENSIONS GIVEN IN INCHES AND MILLIMETRES

ALL WEIGHTS IN LBS AND KGS

ACTUAL WEIGHTS & DIMENSIONS MAY VARY

WEIGHT DOES NOT INCLUDE FOAM CONCENTRATE

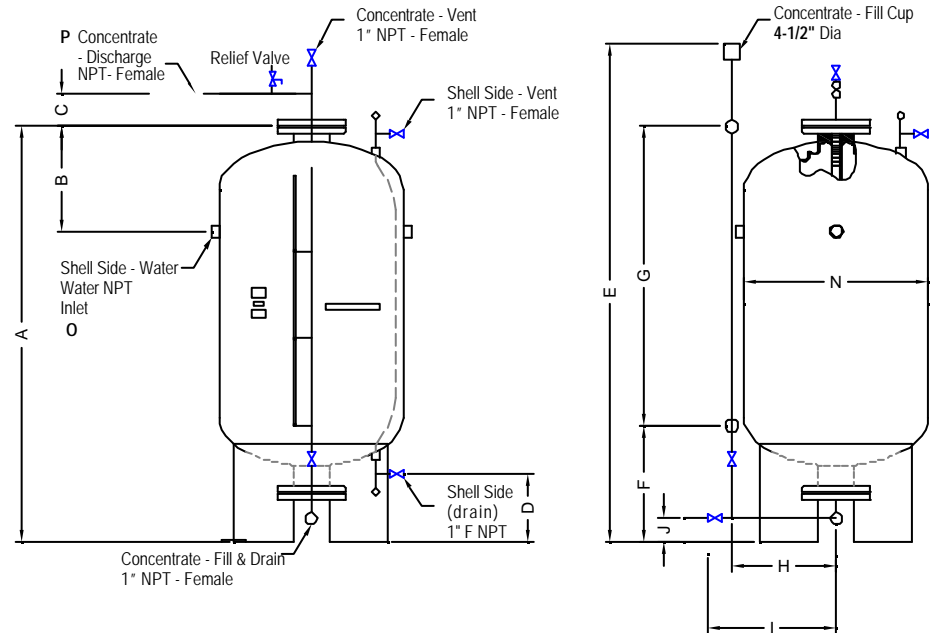
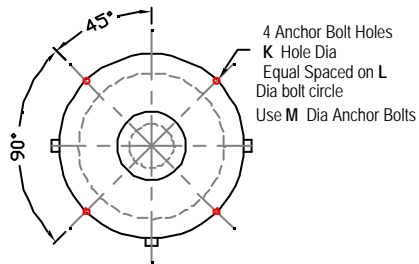
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**ASME CODE DESIGNED FOR 175 PSI (12 BAR)**

**MATERIALS OF CONSTRUCTION**

- Tank **SA 516-70 Carbon Steel**
- Flanges & Couplings **SA-105**
- Pipe **SA-53B, Schedule 40**
- Trim Piping & Fittings **SA-106, 304SS, M.I.**
- Trim Valves **Bronze**
- Bladder **Buna-N over Nylon**
- Internal Pipe **Schedule 40 PVC**
- Fill Cup **PVC**
- Sight Tube **Clear PVC**
- Exterior Finish **Rust Resistant Primer**
- Red Polyurethane**

Interic





VESSEL SIZE IN GALLON (LITRES)

GAL	LITRE	A		B		C		D		E		G		H		I		J		K		L		M		N		O		P		WEIGHT	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	Kgs		
1100	4166	133	3,378	24	610	6.13	156	7.5	191	145	3,683	72	1,829	33.5	851	39	991	33.5	851	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	3,356	1,525
1200	4544	143	3,632	24	610	6.13	156	7.5	191	155	3,937	72	1,829	33.5	851	39	991	33.5	851	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	3,555	1,616
1300	4923	150	3,810	24	610	6.13	156	7.5	191	162	4,115	72	1,829	33.5	851	39	991	33.5	851	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	3,695	1,680
1400	5302	160	4,064	24	610	6.13	156	7.5	191	172	4,369	72	1,829	33.5	851	39	991	33.5	851	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	3,894	1,770
1500	5681	170	4,318	24	610	6.13	156	7.5	191	182	4,623	72	1,829	33.5	851	39	991	33.5	851	7/8	22	63.25	1,607	13/16	21	60	1,524	2.5	64	2.5	64	4,092	1,860
1600	6059	133	3,378	27	686	6.5	165	7.5	191	145	3,683	72	1,829	39.5	1,003	45	1,143	39.5	1,003	7/8	22	75.25	1,911	13/16	21	72	1,829	3	76	2.5	64	5,520	2,509
1700	6438	139	3,531	27	686	6.5	165	7.5	191	151	3,835	72	1,829	39.5	1,003	45	1,143	39.5	1,003	7/8	22	75.25	1,911	13/16	21	72	1,829	3	76	2.5	64	5,710	2,595
1800	6817	145	3,683	27	686	6.5	165	7.5	191	157	3,988	72	1,829	39.5	1,003	45	1,143	39.5	1,003	7/8	22	75.25	1,911	13/16	21	72	1,829	3	76	2.5	64	5,900	2,682
1900	7195	151	3,835	27	686	6.5	165	7.5	191	163	4,140	72	1,829	39.5	1,003	45	1,143	39.5	1,003	7/8	22	75.25	1,911	13/16	21	72	1,829	3	76	2.5	64	6,090	2,768
2000	7574	157	3,988	27	686	6.5	165	7.5	191	169	4,293	72	1,829	39.5	1,003	45	1,143	39.5	1,003	7/8	22	75.25	1,911	13/16	21	72	1,829	3	76	2.5	64	6,280	2,855

ALL DIMENSIONS GIVEN IN INCHES AND MILLIMETRES

ALL WEIGHTS IN LBS AND KGS

ACTUAL WEIGHTS & DIMENSIONS MAY VARY

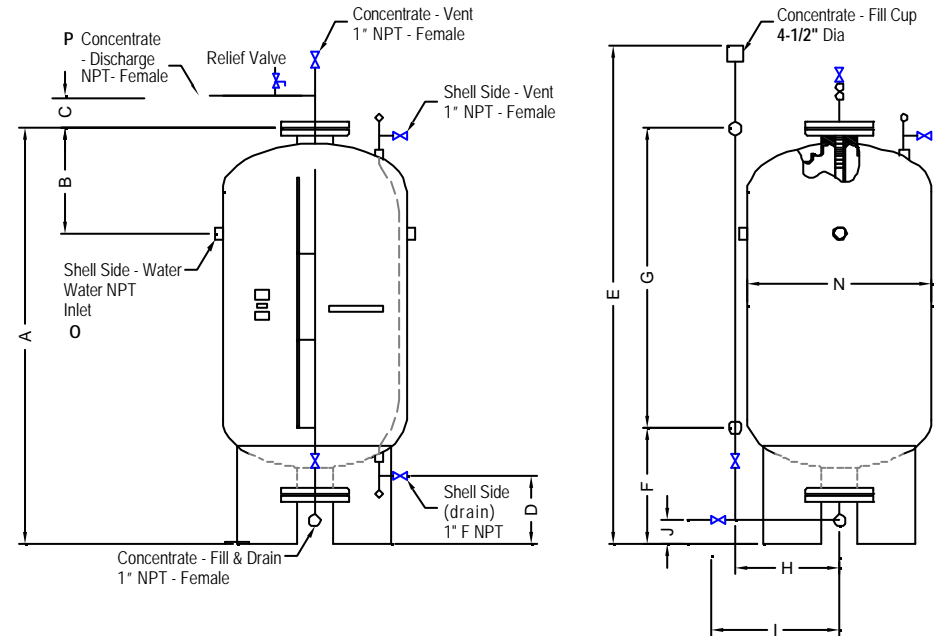
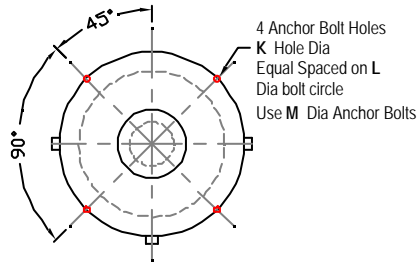
WEIGHT DOES NOT INCLUDE FOAM CONCENTRATE

**UL LISTED**

**ASME CODE DESIGNED FOR 175 PSI (12 BAR)**

**MATERIALS OF CONSTRUCTION**

Tank	<b>SA 516-70 Carbon Steel</b>
Flanges & Couplings	<b>SA-105</b>
Pipe	<b>SA-53B, Schedule 40</b>
Trim Piping & Fittings	<b>SA-106, 304SS, M.I.</b>
Trim Valves	<b>Bronze</b>
Bladder	<b>Buna-N over Nylon</b>
Internal Pipe	<b>Schedule 40 PVC</b>
Fill Cup	<b>PVC</b>
Sight Tube	<b>Clear PVC</b>
Exterior Finish	<b>Rust Resistant Primer</b>
	<b>Red Polyurethane</b>
Interior Finish	<b>None</b>





HORIZONTAL VESSEL SIZE IN GALLON (LITRES)

		A		B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		WEIGHT	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	Kgs		
100	379	18	457	31.75	806	2.25	57	5/8	15.9	9/16	14.3	71	1,803	21	533	35.5	902	12	305	24	16	4.75	121	50.87	14	45.38	1,153	26	660	2	51	2	51	880	400
150	568	24	610	29.75	756	2.25	57	5/8	15.9	9/16	14.3	70	1,778	20	508	35	889	12	305	30	16	4.75	121	56.5	14	51	1,295	32	813	2	51	2	51	1,135	516
200	757	24	610	39.75	1010	2.25	57	5/8	15.9	9/16	14.3	89	2,261	25	635	44.5	1,130	12	305	30	16	4.75	121	56.5	14	51	1,295	32	813	2	51	2	51	1,300	591
300	1136	26	660	43.75	1111	2.75	70	5/8	15.9	9/16	14.3	94	2,388	27	686	47	1,194	12	305	36	16	4.75	121	67.5	14	57	1,448	34	864	2	51	2	51	1,720	782
400	1515	30	762	39.25	997	2.75	70	3/4	19	11/16	17.5	92	2,337	25	635	46	1,168	12	305	42	16	4.75	121	68.5	14	63	1,600	40	1,016	2	51	2	51	1,960	891
500	1894	30	762	63.25	1607	2.75	70	3/4	19	11/16	17.5	111	2,819	37	940	55.5	1,410	12	305	42	16	4.75	121	67	14	63	1,600	40	1,016	2	51	2	51	2,220	1,009
600	2272	30	762	69.25	1759	2.75	70	3/4	19	11/16	17.5	130	3,302	42	1,067	65	1,651	12	305	42	19	4.75	121	67	17	63	1,600	40	1,016	2.5	64	2.5	64	2,480	1,127
700	2651	34	864	63.25	1607	2.75	70	3/4	19	11/16	17.5	119	3,023	39	991	59.5	1,511	12	305	48	19	4.75	121	76	17	70	1,778	44	1,118	2.5	64	2.5	64	3,160	1,436
800	3030	34	864	69.25	1759	2.75	70	3/4	19	11/16	17.5	133	3,378	45	1,143	66.5	1,689	12	305	48	19	4.75	121	76	17	70	1,778	44	1,118	2.5	64	2.5	64	3,450	1,568
900	3408	34	864	69.25	1759	2.75	70	3/4	19	11/16	17.5	149.5	3,797	50	1,270	74.75	1,899	12	305	48	19	4.75	121	76	21	70	1,778	44	1,118	2.5	64	2.5	64	3,800	1,727
1000	3787	34	864	93.25	2369	2.75	70	3/4	19	11/16	17.5	160	4,064	60	1,524	80	2,032	12	305	48	19	4.75	121	76	21	70	1,778	44	1,118	2.5	64	2.5	64	4,020	1,827
1100	4166	44	1,118	55.25	1403	3.5	89	3/4	19	11/16	17.5	120.31	3,056	37.87	962	60.25	1,530	12	305	60	22	4.75	121	88	21	82	2,083	54	1,372	2.5	64	2.5	64	3,833	1,742
1200	4544	44	1,118	64.25	1632	3.5	89	3/4	19	11/16	17.5	129.5	3,289	42.5	1,080	64.75	1,645	12	305	60	22	4.75	121	88	21	82	2,083	54	1,372	2.5	64	2.5	64	4,014	1,825
1300	4923	44	1,118	74	1880	3.5	89	3/4	19	11/16	17.5	139	3,531	47.25	1,200	69.5	1,765	12	305	60	22	4.75	121	88	21	82	2,083	54	1,372	3	76	2.5	76	4,202	1,910
1400	5302	44	1,118	83.25	2115	3.5	89	3/4	19	11/16	17.5	148.25	3,766	51.87	1,317	74.25	1,886	12	305	60	22	4.75	121	88	21	82	2,083	54	1,372	3	76	2.5	76	4,385	1,993
1500	5681	44	1,118	92.25	2343	3.5	89	3/4	19	11/16	17.5	157.5	4,001	56.5	1,435	78.75	2,000	12	305	60	19	4.75	121	88	21	82	2,083	54	1,372	3	76	2.5	76	4,570	2,077
1600	6059	44	1,118	92.25	2343	3.5	89	3/4	19	11/16	17.5	167	4,242	60	1,524	83.5	2,121	12	305	60	19	4.75	121	88	21	82	2,083	54	1,372	3	76	2.5	76	4,760	2,164
1700	6438	44	1,118	111	2819	3.5	89	3/4	19	11/16	17.5	176	4,470	65.75	1,670	88	2,235	12	305	60	22	4.75	121	88	21	82	2,083	54	1,372	3	76	2.5	76	4,935	2,243
1800	6817	44	1,118	116.5	2959	3.5	89	3/4	15.9	11/16	14.3	185.5	4,712	70.5	1,791	92.75	2,356	12	305	60	16	4.75	121	88	14	82	2,083	54	1,372	3	76	2.5	76	5,125	2,330
1900	7195	44	1,118	129.38	3286	3.5	89	3/4	15.9	11/16	14.3	194.38	4,937	74.94	1,903	97.125	2,467	12	305	60	16	4.75	121	88	14	82	2,083	54	1,372	3	76	2.5	76	5,300	2,409
2000	7574	44	1,118	140.5	3569	3.5	89	3/4	15.9	11/16	14.3	203.5	5,169	80	2,032	101.75	2,584	12	305	60	16	4.75	121	88	14	82	2,083	54	1,372	3	76	2.5	76	5,480	2,491

ALL DIMENSIONS GIVEN IN INCHES AND MILLIMETRES

ALL WEIGHTS IN LBS AND KGS

ACTUAL WEIGHTS & DIMENSIONS MAY VARY

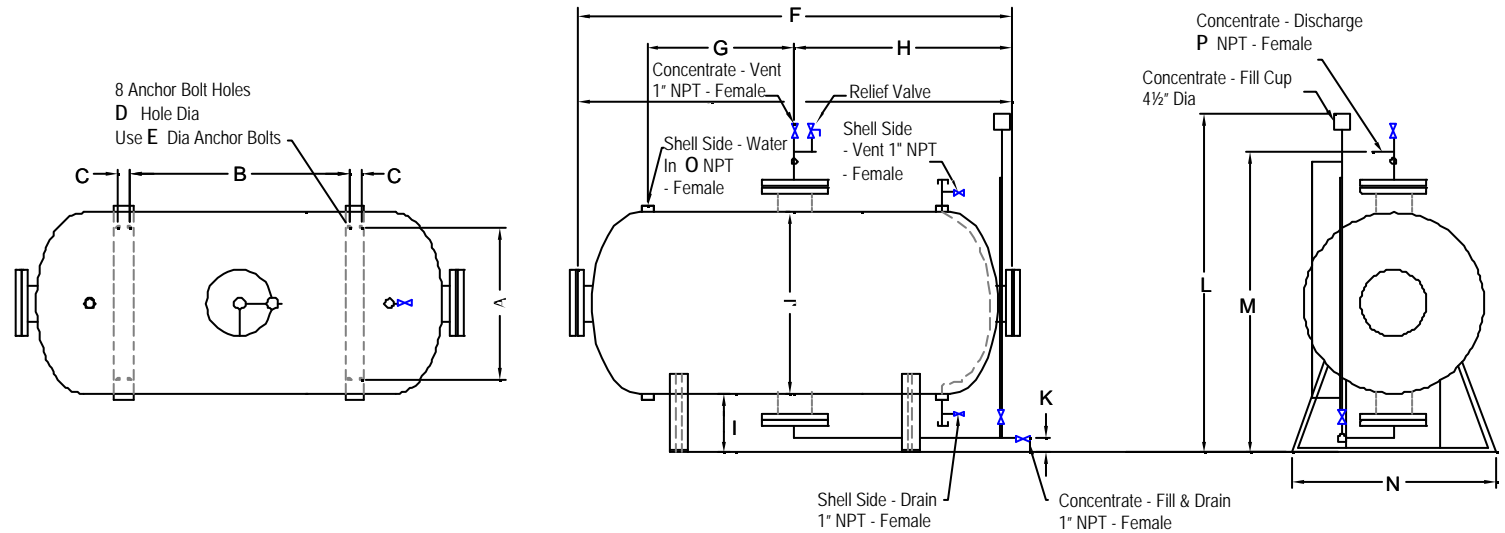
WEIGHT DOES NOT INCLUDE FOAM CONCENTRATE

UL LISTED

ASME CODE DESIGNED FOR 175 PSI (12 BAR)

MATERIALS OF CONSTRUCTION

- Tank **SA 516-70 Carbon Steel**
- Flanges & Couplings **SA-105**
- Pipe **SA-53B, Schedule 40**
- Trim Piping & Fittings **SA-106, 304SS, M.I.**
- Trim Valves **Bronze**
- Bladder **Buna-N over Nylon**
- Internal Pipe **Schedule 40 PVC**
- Fill Cup **PVC**
- Sight Tube **Clear PVC**
- Exterior Finish **Rust Resistant Primer**
- Interior Finish **Red Polyurethane**
- None

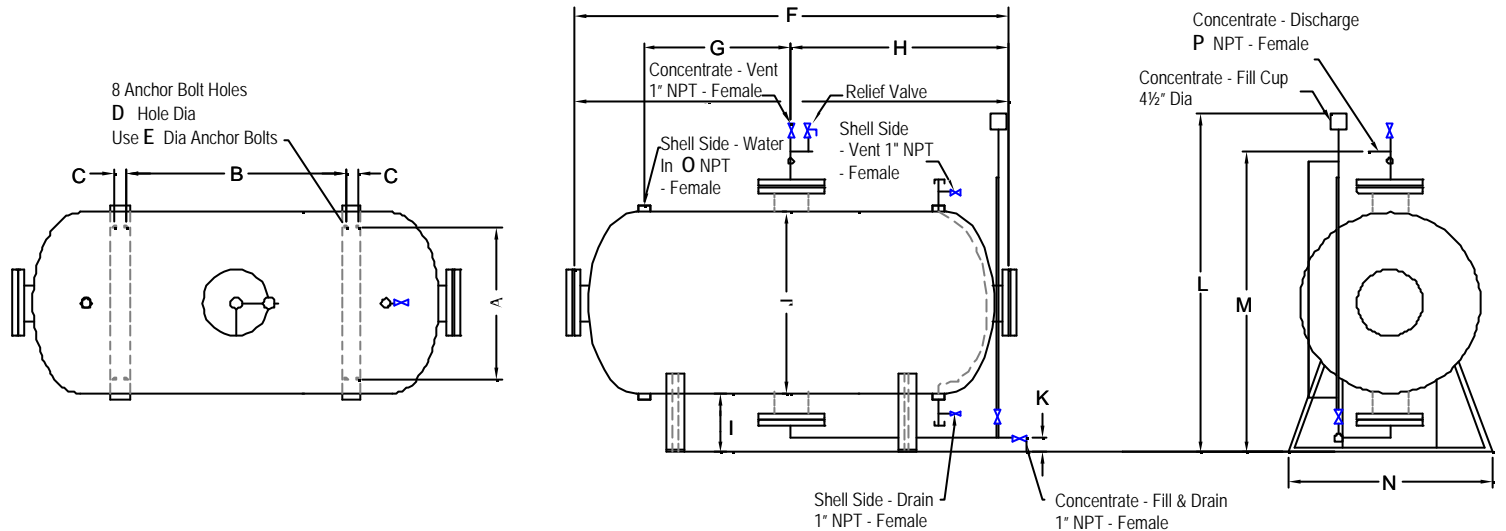


HORIZONTAL VESSEL SIZE IN GALLON (LITRES)

		A		B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		WEIGHT	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	Kgs
2100	7953	56	1,422	78.5	1994	3.5	89	3/4	15.9	11/16	14.3	149	3,785	48	1,219	74.5	1,892	12	305	72	16	4.75	121	100	14	94	2,388	66	1,676	3	76	2.5	64	5,765	2,620
2200	8331	56	1,422	84.5	2146	3.5	89	3/4	19	11/16	17.5	155	3,937	51	1,295	77.5	1,969	12	305	72	16	4.75	121	100	14	94	2,388	66	1,676	3	76	2.5	64	5,956	2,707
2300	8710	56	1,422	90.5	2299	3.5	89	3/4	19	11/16	17.5	162	4,115	54	1,372	81	2,057	12	305	72	16	4.75	121	100	14	94	2,388	66	1,676	3	76	2.5	64	6,179	2,809
2400	9089	56	1,422	96.5	2451	3.5	89	3/4	19	11/16	17.5	168	4,267	57	1,448	84	2,134	12	305	72	19	4.75	121	100	17	94	2,388	66	1,676	3	76	2.5	64	6,370	2,895
2500	9468	56	1,422	102.5	2604	3.5	89	3/4	19	11/16	17.5	155	3,937	60	1,524	87	2,210	12	305	72	19	4.75	121	100	17	94	2,388	66	1,676	3	76	2.5	64	6,561	2,982
2600	9846	56	1,422	108.5	2756	3.5	89	3/4	19	11/16	17.5	162	4,115	63	1,600	90	2,286	12	305	72	19	4.75	121	100	17	94	2,388	66	1,676	3	76	2.5	64	6,752	3,069
2700	10225	56	1,422	114.5	2908	3.5	89	3/4	19	11/16	17.5	168	4,267	66	1,676	92.5	2,350	12	305	72	19	4.75	121	100	21	94	2,388	66	1,676	3	76	2.5	64	6,911	3,141
2800	10604	56	1,422	120.5	3061	3.5	89	3/4	19	11/16	17.5	160	4,064	69	1,753	95.25	2,419	12	305	72	19	4.75	121	100	21	94	2,388	66	1,676	3	76	2.5	64	7,086	3,221
2900	10982	56	1,422	126.5	3213	3.5	89	3/4	19	11/16	17.5	120.31	3,056	72	1,829	98	2,489	12	305	72	22	4.75	121	100	21	94	2,388	66	1,676	3	76	2.5	64	7,261	3,300
3000	11361	56	1,422	132.5	3366	3.5	89	3/4	19	11/16	17.5	129.5	3,289	75	1,905	101	2,565	12	305	72	22	4.75	121	106	21	94	2,388	66	1,676	3	76	2.5	64	7,452	3,387
3100	11740	58	1,473	111.5	2832	3.5	89	3/4	19	11/16	17.5	139	3,531	65.5	1,664	90.5	2,299	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	7,940	3,609
3200	12118	58	1,473	116.5	2959	3.5	89	3/4	19	11/16	17.5	148.25	3,766	68	1,727	93	2,362	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	8,110	3,686
3300	12497	58	1,473	121.5	3086	3.5	89	3/4	19	11/16	17.5	157.5	4,001	70.5	1,791	95.5	2,426	12	305	78	19	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	8,280	3,764
3400	12876	58	1,473	126.5	3213	3.5	89	3/4	19	11/16	17.5	167	4,242	73	1,854	98	2,489	12	305	78	19	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	8,450	3,841
3500	13255	58	1,473	131.5	3340	3.5	89	3/4	19	11/16	17.5	176	4,470	75.5	1,918	100.5	2,553	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	8,620	3,918
3600	13633	58	1,473	136.5	3467	3.5	89	3/4	19	11/16	17.5	176	4,470	78	1,981	103	2,616	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	8,790	3,995
3700	14012	58	1,473	141.5	3594	3.5	89	3/4	19	11/16	17.5	176	4,470	80.5	2,045	105.5	2,680	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	8,960	4,073
3800	14391	58	1,473	146.5	3721	3.5	89	3/4	19	11/16	17.5	176	4,470	83	2,108	108	2,743	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	9,130	4,150
3900	14769	58	1,473	151.5	3848	3.5	89	3/4	19	11/16	17.5	176	4,470	85.5	2,172	110.5	2,807	12	305	78	22	4.75	121	106	21	100	2,540	72	1,829	3	76	2.5	64	9,300	4,227

ALL DIMENSIONS GIVEN IN INCHES AND MILLIMETRES  
 ALL WEIGHTS IN LBS AND KGS  
 ACTUAL WEIGHTS & DIMENSIONS MAY VARY  
 WEIGHT DOES NOT INCLUDE FOAM CONCENTRATE

- UL LISTED**
- ASME CODE DESIGNED FOR 175 PSI (12 BAR)**
- MATERIALS OF CONSTRUCTION**
- Tank **SA 516-70 Carbon Steel**
- Flanges & Couplings **SA-105**
- Pipe **SA-53B, Schedule 40**
- Trim Piping & Fittings **SA-106, 304SS, M.I.**
- Trim Valves **Bronze**
- Bladder **Buna-N over Nylon**
- Internal Pipe **Schedule 40 PVC**
- Fill Cup **PVC**
- Sight Tube **Clear PVC**
- Exterior Finish **Rust Resistant Primer**
- Red Polyurethane**
- Interior Finish **None**





## VARIABLE INLINE EDUCTOR

**02 PE60-B (60 GPM)**

**02 PE95-B (95 GPM)**

**02 PE250-B (250 GPM)**

### Features

- Attaches to Progard 1½ " or 2½" nozzles
- Rugged Brass Casting Construction
- Furnished with 0.76m (30") reinforced clear PVC wire reinforced hose to prevent kinking. Option: 316 stainless steel material
- Ball Check Valve to prevent Back Flow into the foam concentrate
- Detachable metering Device for Easy Cleaning. 0% (shutoff)
- Pressure Loss across the Eductor is approximately 35% of the inlet pressure
- Available in 60 or 95 gpm (227 or 360 LPM)
- Normal inlet pressure at Eductor is 13.8 bar (200 psi) but the eductor will work at lower inlet pressures with corresponding lower flow rates
- Works with most AFFF, AR-AFFF or Protein type foam concentrates



### Technical Specification:

Model	Flow		Inlet Size	Outlet Size	Weight
	PSI (BAR)	GPM (Litre/min)	inch	inch	kg (lbs)
02 PE60-B	100 (6.90)	40 (151)	1½ female NST	1½ male NST	2.4 (9)
	200 (13.8)	60 (227)			
02 PE95-B	100 (6.90)	62 (235)	1½ female NST	1½ male NST	2.4 (9)
	200 (13.8)	95 (360)			
02 PE250-B	100 (6.90)	177 (670)	2½ female NST	2½ male NST	7.27 (16)
	200 (13.8)	250 (950)			