



FIRE FOAM SYSTEM & EQUIPMENT







FOAM SYSTEM & EQUIPMENT



SFFECO manufacture and supply Foam-Based Extinguishing Systems to meet the requirements of our customers in the fire fighting industry. Our systems have been certified by UL and will provide excellent protection. We provide mobile foam concentrates, proportioning devices, discharge devices, and mobile foam equipment.

- Foam Concentrates
- Proportioning Devices
- Discharge Devices
- Mobile Foam Equipment
- Fixed CAF System





FOAM LIQUID CONCENTRATE



SFFECO foam liquid concentrates include fluoroprotein, film-forming fluoroprotein (FFFP), aqueous-film-forming foam (AFFF), and other synthetic-based materials. Foam is generally produced by the addition of a foam liquid concentrate to water and mechanically mixing air into the foam solution. Sffeco foam is compatible to use with non-aspirating nozzles.

FEATURES:

- SFFECO UL listed foam liquid concentrates are certified as per UL162.
- Foam is suitable for use on fires involving Hydrocarbon fuels and Polar solvent fuels like (Alcohols, Ethyl Alcohol, Methyl Alcohol, Acetone, Methyl Ethyl Ketone)
- Wide range of premium performance foams specially formulated with C6 technology which represents a major advancement in foam industry for effective extinguishment of fires.
- The C6 foam concentrates does not contain any PFOS or PFOA.
- Eco-Friendly & Bio-degradable
- Conforming to NFPA11 & NFPA16



* Expansion values depend on the equipments & the application conditions.

SFFECO Product Model	Appearance	Specific Gravity	рН	Viscosity	Pour Point	Miscible in water	Expansion
SFD AFFF 1%-C6	Amber colour	1.04 ± 0.02 @20°C (68°F)	8.0 ± 1.0 @ 20°C (68°F)	< 10 cSt @ 20°C (68°F)	Flows at -8°C	100%	>7
SFD AR-AFFF 1x3%-C6	Viscous liquid	1.05 ± 0.02 @20°C (68°F)	8.0 ± 1.0 @ 20°C (68°F)	1400 + 200 cPs @ 20°C (68°F)	Flow at 0°C	100%	>7
SFD AFFF 3% F-C6	Clear liquid to Amber Colour liquid	1.02 ± 0.02 @ 25°C (77°F)	8.0 ± 1.0 @ 25°C (77°F)	<5cPs @ 25°C (77°F)	Flow at 0°C	100%	-
SFD AFFF 3%-C6	Clear liquid to Amber Colour liquid	1.02 ± 0.02 @20°C (68°F)	8.0 ± 1.0 @ 20°C (68°F)	<5cSt @ 20°C (68°F)	Flow at 0°C	100%	>7
SFD AFFF 6%-C6	Clear liquid to Amber Colour liquid	1.01 ± 0.02 @20°C (68°F)	8.0 ± 1.0 @ 20°C (68°F)	<5cSt @ 20°C (68°F)	Flow at 0°C	100%	>7
SFD AR-AFFF 3x3%-C6	Viscous liquid	1.02 ± 0.02 @20°C (68°F)	8.0 ± 1.0 @ 20°C (68°F)	1200 + 500 cPs @ 20°C (68°F)	Flow at 0°C	100%	>7
SFD AR-AFFF 3x6%-C6	Viscous liquid	1.02 ± 0.02 @20°C (68°F)	8.0 ± 1.0 @ 20°C (68°F)	<900 cSt + 200 cPs @ 20°C (68°F)	Flow at 0°C	100%	>7
SFD FP 3%-C6	Dark brown liquid	1.13 ± 0.02 @20°C (68°F)	7.0 ± 0.5 @ 20°C (68°F)	< 20 cSt @ 20°C (68°F)	Flows at -7°C	100%	>6
SFD FP 6%-C6	Dark brown liquid	1.09 ± 0.02 @20°C (68°F)	7.0 ± 0.5 @ 20°C (68°F)	< 20 cSt @ 20°C (68°F)	Flows at -7°C	100%	>6
SF-FS-PP AFFF 3%-C6-D	Amber Colour Liquid	1.00 to 1.04 gm/ml @20°C	7.0 - 8.0 @20°C	Less than 10 cst	Flows at -5°C	100%	>8
SF-FS-PP AFFF 6%-C6-D	Amber Colour Liquid	1.00 to 1.04 gm/ml @20°C	7.0 - 8.0 @20°C	Less than 10 cst	Flows at -2°C	100%	>8
SF-FS-PP FP 3%-C6-D	Deep Brown Liquid	1.12 - 1.16 gm/ml @20°C	6.0 - 8.0 @20°C	Less than 20 cst	Flows at -8°C	100%	-
SF-FS-PP FP 6%-C6-D	Deep Brown Liquid	1.09 - 1.12 gm/ml @20°C	6.0 - 8.0 @20°C	Less than 20 cst	Flows at -6°C	100%	-
SF-FS-PP AR-AFFF 3x3%-C6-D	Light Orange Viscous Liquid	1.00 to 1.03 gm/ml @20°C	7.0 - 8.0 @20°C	Less than 800 cps	Flows at -2°C	100%	>7
SF-FS-PP AR-AFFF 3x6%-C6-D	Light Orange Viscous Liquid	1.00 to 1.03 gm/ml @20°C	7.0 - 8.0 @20°C	Less than 1000 cps	Flows at -2°C	100%	>7

FOAM MONITORS



SFFECO UL Listed foam monitors are certified as per UL162 with fixed / variable flow. Monitors are intended to produce and discharge low-expansion foam. Foam Monitors are used for protection of flammable liquid hazards and produce superior, long reaching foams streams.

Monitor Model	Nozzle Model	Туре	Monitor Inlet Pressure PSI	Solution Discharge Flow Rate GPM
SF-FS-FM-500FF-D	500 GPM	В, С	100	500
SF-FS-FM-675FF-D	675 GPM	В, С	100	675
SF-FS-FM-750FF-D	750 GPM	В, С	100	730
SF-FS-FM-1000FF-D	1000 GPM	В, С	100	975
SF-FS-FM-2000FF-D	2000 GPM	В, С	100	2000
SF-FS-FM-750FF-D	750 GPM	В, С	100	750
SF-FS-FM-1000FF-D	1000 GPM	в, с	100	1000
SF-FS-FM-2000FF-D	2000 GPM	в, с	100	2000
SF-FS-FM-500-750VF-D	500-750 GPM at 500	В, С	100	500
SF-FS-FM-500-750VF-D	500-750 GPM at 750	в, с	100	750
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 500	в, с	100	500
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 750	в, с	100	750
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 1000	В, С	100	1000
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 500	в, с	100	500
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 750	в, с	100	750
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 1000	В, С	100	1000
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 500	в, с	100	500
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 750	в, с	100	750
SF-FS-FM-500-750-1000VF-D	500-750-1000 GPM at 1000	в, с	100	1000
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 1000	В, С	100	1000
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 1500	в, с	100	1500
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 2000	в, с	100	2000
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 1000	в, с	100	1000
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 1500	в, с	100	1500
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 2000	В, С	100	2000
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 1000	В, С	100	1000
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 1500	В, С	100	1500
SF-FS-FM-1000-1500-2000VF-D	1000-1500-2000 GPM at 2000	В, С	100	2000
SF-FS-FM-2000-3000-4000VF-D	SF-FS WFMV 2000-3000-4000 set at 200	В, С	100	2000
SF-FS-FM-2000-3000-4000VF-D	SF-FS WFMV 2000-3000-4000 set at 300	В, С	100	3000
SF-FS-FM-2000-3000-4000VF-D	SF-FS WFMV 2000-3000-4000 set at 4000	в, с	100	4000

FEATURES:

- Hydraulically Efficient Design.
- Minimal Friction Loss.
- Easy operation.
- Corrosion Resistant Stainless Steel Construction.
- Fully Enclosed Worm Gear Bearing.
- Excellent Foam and Water Throws.
- Safe and Reliable Operation.
- Conforming to NFPA11



500-4000 GPM



IN LINE INDUCTORS



Proportioners are intended to provide continuous introduction of foam liquid concentrates, in adequate ratio, into a water stream flowing under pressure in pipe or hose lines. Foam concentrate is inducted through single or multiple inductors located in the water line to the foam maker. Inductors shall be for portable or fixed installation. They may have an adjustable or fixed orifice for induction.

IN LINE INDUCTORS INVESTIGATED TO UL 162

Model SF-FS-AFP-40P-D for portable use. Inductors have adjustable orifice for 3, 3 AR and 6 percent proportioning.

Model SF-FS-AFP-40F-D. Inductors have fixed orifice of dia 0.331 in. for 6 AR percent proportioning.

Following are discharge rates for the inductor inlet pressures:

Model	Inlet Pressure PSI	Solution Flow GPM
OF FO AFD 40D D	192	90
SF-FS-AFP-40P-D	221	95
SF-FS-AFP-40F-D	221	95

Model SF-FS-PIP-59-D, Model SF-FS-PIP-119-D for portable installation & has fixed orifice for 3 % percent proportioning.

Model SF-FS-FIP-159-D for fixed installation & has fixed orifice for 3 % percent proportioning. Following are discharge rates for the inductor inlet pressures:

Model	Inlet Pressure PSI	Solution Flow GPM
SF-FS-PIP-59-D	100	59
SF-FS-PIP-119-D	100	119
SF-FS-PIP-159-D	100	159

FEATURES:

- SFFECO UL listed in line inductors are certified as per UL162.
- Designed to minimum pressure loss across the inductor
- Simple to operate
- Corrosion resistant
- Simple & robust construction
- Nominal Flow capacity upto 159 GPM
- Variable proportioning at 3% & 6%
- Fixed Proportioning at 3% or 6 %
- Conforming to NFPA11.



FOAM HOSE STREAM NOZZLES



Foam Branch Pipe

SFFECO low expansion Foam hose stream nozzles (foam branches) are air aspiring type portable devices. They are handheld equipment, used to project mechanical foam from a distance onto fires which involve flammable liquids. Self-Inducting Foam branches are provided with pick-up tubes to allow induction of foam concentrate into the branch and mixing with the water stream.

Model SF-FS-HN-40JSLX-D air aspirated for application of foam solution. The following are discharge rates for the nozzle

inlet pressures:

Model	Inlet Pressure PSI	Solution Flow GPM
	57	93
SF-FS-HN-40JSLX-D	64	102
	71	106

Model SF-FS-HN-59LX-D of 2-1/2 in. size & Model SF-FS-HN-119LX-D of 2-1/2 in. size air aspirated nozzles for application of foam solution.

The following are the discharge rates for the nozzle inlet pressures:

	Inlet Pressure PSI	Solution Flow GPM
SF-FS-HN-59LX-D	65	59
SF-FS-HN-119LX-D	65	119

FEATURES:

- SFFECO UL listed foam hose stream nozzles certified as per UL162.
- Superior range of Foam Solution flow capacity 59 to 119 GPM.
- Effective Throw
- Produces most effective long lasting foam blanket.
- Light weight and nozzle pressure within the control of an operator.
- Conforming to NFPA11



FOAM MAKER



SFFECO Foam Maker is an UL Listed air-aspirating foam discharge device designed to produce low expansion foam employed for fire extinguishment and / or vapour suppression in open top floating roof flammable liquid storage tanks. It is a fixed discharge outlet classified as Type II in accordance with NFPA-11 used in above surface application systems for top of seal application. Low expansion foam is directed onto the seal area by the foam pourers fitted on the foam nozzle.

PERFORMANCE & DIMENSIONAL DETAILS

MODEL Carbon Steel / Stainless Steel	INLET (NB)	OUTLET (NB)	INLET PRESSURE RANGE (PSI)	FLOW RANGE (GPM)	Α
SFD-FS-FM1 / SFD-FS-FM1SS	50	80	30-100	18-96	300±10
SFD-FS-FM2 / SFD-FS-FM2SS	65	100	30-100	51-190	400±10
SFD-FS-FM3 / SFD-FS-FM3SS	80	150	30-100	100-390	500±10

PERFORMANCE & DIMENSIONAL DETAILS

MODEL (FOAM MAKER)	MODEL (FOAM POURER)	INLET (NB)	SPOOL (NB)	А	В	С	D
SFD-FS-FM1 / SFD-FS-FM1SS	FPA1	50	80	300	675	600	75
SFD-FS-FM2 / SFD-FS-FM2SS	FPA2	65	100	400	700	600	100
SFD-FS-FM3 / SFD-FS-FM3SS	FPA3	80	150	500	685	565	160

- UL Listed as per UL-162
- Lowest operating pressure of 30 PSI
- Widest flow range from 18 GPM to 390 GPM
- Carbon Steel and Stainless Steel construction
- Meets foam system requirement as per NFPA-11
- Suitable for use with all types of Low expansion foam concentrates i.e. Protein, Fluro-protein,
 FFFP, AR-FFF, AFFF, AR-AFFF



FOAM CHAMBER



SFFECO Foam Chamber is an UL Listed air aspirating foam discharge device designed to produce low expansion foam employed for fire extinguishments and / or vapour suppression in fixed (cone) roof flammable liquid storage tanks with or without internal floating roof. It is fixed discharge device classified as Type II in accordance with NFPA-11 used in surface application system for application of low expansion foam over the fuel surface.

PERFORMANCE & DIMENSIONAL DETAILS

MODEL Carbon Steel / Stainless Steel	INLET (NB)	OUTLET (NB)	INLET PRESSURE RANGE (PSI)	FLOW RANGE (GPM)	А	В	С	D
SFD-FS-FC1 / SFD-FS-FC1SS	50	80	30-40	18-34	640	405±10	295±10	175±10
SFD-FS-FC2 / SFD-FS-FC2SS	50	80	40-100	19-96	640	405±10	295±10	175±10
SFD-FS-FC3/SFD-FS-FC3SS	65	100	30-100	51-190	740	505±10	295±10	200±10
SFD-FS-FC4 / SFD-FS-FC4SS	80	150	30-100	100-390	930	650±10	390±10	260±10
SFD-FS-FC5 / SFD-FS-FC5SS	100	200	30-100	190-750	1030	750±10	390±10	290±10

DIMENSIONS OF FOAM CHAMBER WITH FOAM DEFLECTOR

MODEL Carbon Steel / Stainless Steel	MODEL (FOAM DEFLECTOR)	INLET (NB)	A	В	С	D	E
SFD-FS-FC1 / SFD-FS-FC1SS	FDA1	50	405±10	295±10	175±10	300	102
SFD-FS-FC2 / SFD-FS-FC2SS	FDA2	50	405±10	295±10	175±10	300	102
SFD-FS-FC3/SFD-FS-FC3SS	FDA3	65	505±10	295±10	200±10	300	114
SFD-FS-FC4 / SFD-FS-FC4SS	FDA4	80	650±10	390±10	260±10	300	125
SFD-FS-FC5 / SFD-FS-FC5SS	FDA5	100	750±10	390±10	290±10	300	175

FEATURES:

- UL Listed as per UL-162
- Lowest operating pressure of 30 PSI
- Widest flow range from 18 GPM to 390 GPM
- Carbon Steel and Stainless Steel construction
- Meets foam system requirement as per NFPA-11
- Suitable for use with all types of Low expansion foam concentrates i.e. Protein, Fluro-protein,
 FFFP, AR-FFF, AFFF, AR-AFFF



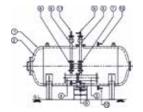
FOAM BLADDER TANKS

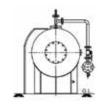


20 to 4000 gal capacity ASME for vertical and horizontal installation.

Following are equivalent length valves for the controllers (Models SFD-U2-BTRFC, SFD-U3-BTRFC, SFD-U4-BTRFC, SFD-U6-BTRFC, SFD-U8-BTRFC) based on a roughness factor of 130 and schedule 40 steel pipes:

(Models SFD-BTRC-2, SFD-BTRC-3, SFD-BTRC-4) based on a roughness factor of 130 and schedule 40 steel pipes:





Horizontal Mounting

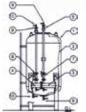
Material Of Construction

Srno .	Description	Material
1	Foam Vessel	Carbon Steel
2	Foam Bladder	Nylon Reinforced Nitrile Rubber
3	Foam Proportioner	Carbon Steel With Stainless Steel Intls
4	Spool Piece	Carbon Steel
5	Foam Piping	Stainless Steel
6	Water Piping	Carbon Steel
7	Foam Supply Valve	Stainless Steel
8	Water Charging Valve	Stainless Steel
9	Bladder Vent I Bladder Drain	Stainless Teel
10	Vessel Vent I Vessel Drain	Stainless Steel
11	Thermal Expansion Relief Valve	Stainless Steel Copper Alloy

Technical Data

Srno.	Detail	Description
1	Model	HBT-# (Indicates Capacity of Foam Vessel in liters)
2	Capacity	20 Gallons to 4000 Gallons
3	Design Code	ASME SEC.VIII DIV.I Latest Edition
4	Maximum Working Pressure	12.06 Bar (175 PSI)
5	Hydrostatic Test Pressure	18.09 Bar (263 PSI)
6	Finish Internal	Coal Tar Epoxy
7	Finish External	Painted Epoxy Fire-Red to Shade No. RAL3000









Vertical Mounting

Material of Construction

SR.N	DESCRIPTION	MATERIAL
1	Foam Vessel	Carbon Steel
2	Foam Bladder	Nylon Reinforced Nitrile Rubber (BUNA-N)
3	Foam Proportioner	Carbon Steel With Stainless Steel INTLS/ Stainless Steel
4	Spool Piece	Carbon Steel
5	Foam Piping	Stainless Steel
6	Water Piping	Carbon Steel
7	Foam Supply Valve	Stainless Steel
8	Water Charging Valve	Stainless Steel
9	Bladder Vent / Bladder Drain	Stainless Steel
10	Vessel Vent / Vessel Drain	Stainless Steel
11	Thermal Expansion Relief Valve	Stainless Steel

Technical Data

Srno.	Detail	Description	
1	Model	VBT-# (#-Indicates Capacity of Foam Vessel in liters)	
2	Capacity	20 Gallons to 4000 Gallons	
3	Design Code	ASME SEC.VIII DIV.I Latest Edition	
4	Maximum Working Pressure	12.06 Bar (175 PSI)	
5	Hydrostatic Test Pressure	18.09 Bar (263 PSI)	
6	Finish Internal	Coal Tar Epoxy	
7	Finish External	Painted Epoxy Fire-Red to Shade No. RAL3000	



AIR FOAM WATER SPRINKLER







AIR FOAM CHAMBER

Working Pressure : Min. 3 Bar / Max 7 Bar Finishing : Red Epoxy Paint Connection Flange : ANSI B16.5 Class 150#

Model	K-Factor	Si	ze
		Inlet	Outlet
50/80	43.4-127	2"	3"
65/100	115.4-254	2 ^{1/2} "	4"
80/150	230.9-508	3"	6"
100/200	461.8-1016	4"	8"
150/250	928.6-1524.2	6"	10"

INLINE • PROPORTIONER



Test Pressure : 25 Bar

Finishing : Red Epoxy Coated
Connection Flange : ANSI B16.5 Class 150#
Flow Rate Range : 75 LPM@ 7 Bar 2750 LPM @ 7 Bar

Model	Flow Rate Outlet (LPM@14 Bar)	Size Inlet/ Outlet
50*	72-225	2"
65*	200-450	2 ^{1/2} "
80*	400-900	3"
100*	750-1750	4"
150*	1600-2750	6"

FOAM BRANCH PIPE





HYDRAULIC CONCENTRATE VALVE

Rated Pressure : 200 PSI (14kg/sq.cm.)
End Connection : Flanged end to
ANSI B 16.5 Class 150#

Pressure Sensing Hose: Teflon tube with stainless

steel bralded cover

Factory Hydro Tested : 365 PSI(24 kg/sq.cm.)
Trim Connection : Brass / Stainless Steel

Model	Size	
SF-CV/40	40 NB	
SF-CV/50	50 NB	
SF-CV/65	65 NB	



PRESSURE • PROPORTIONER



Test Pressure : 25 Bar

Finishing : Red Epoxy Coated
Connection Flange : ANSI B16.5 Class 150#
Flow Rate Range : 270 LPM@ 14 Bar 18500 Lpm @ 14 Bar

Model	Flow Rate Outlet (LPM@14 Bar)	Size Inlet/ Outlet
80*	270-3000	3"
100*	650-5700	4"
150*	1200-9500	6"
200*	3200-18500	8"

LOW EXPANSION •— FOAMBRANCH PIPES



SFFECO low expansion branchpipes are air aspirating type mode of aluminum tube and cast bronze. it is ideal for use with all foam types on deck gun or fixedmonitor with foam pick up hose. Foamexpansion rate up to 14.

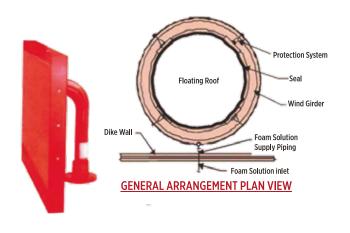
Models	SF-17	17 SF-19 MB SF-19GM SF-19GMA SF-19 GME		GME		
Size	1.5" NH Female Swivel	2.5" NH Female Swivel	2.5" NH Female Swivel	2.5" NH Female Swivel	2.5" NH Female Swivel	3" NH Female Swivel
Flow Rate @ 7bar	305 LPM	560 LPM	500 GPM	750 GPM	350/500 GPM	750/1000 GPM
Material	Aluminium with Pick up Tube*					
Shooting Range	25 m	38 m	50 m	58 m	<50 m	<60 m
Remarks		Available with Quick coupling (SF-19MQ)		Optional 1000 GPM (3"NH) available	To be used with remote controlled monitor;	
Pick up tube maybe optional for some models						

RIM SEAL POURER

Finishing : Red Epoxy Paint Materials : Carbon Steel

Capacity: Approx.53 to 566 LPM

Model	Size	
SF-RSP80	1050 mm x 650 mm	
SF-RSP 100	1100 mm x 650 mm	



FOAM • — GENERATOR



Mobile Type : SF 31-3M Fixed Type : SF31-3F

Water	Water	Foam
Pressure	Discharge	Discharge
4 Bar	210 LPM	3300 CFM
7 Bar	300 LPM	6000 CFM
10 Bar	385 LPM	7800 CFM

PRE ENGINEERED **SYSTEMS**





FOAM SYSTEM

SFFECO Foam system unit is constructed with a heavy duty tank with corrosion proof coating. Two External nitrogen cylinders are provided for pressurizing the tank.

One unit of skid mounted hose reel also availale with 30meter hose.

Features:

Various selection of eductor, hoses or nozzles are available.

Custom size design available with tank capacities and hose reels.

pressure guage is available to indicate the system pressure.

FOAM MASTER •



SFFECO Foam Master are ideal for rapid deployment of foam to flammable liquid fires and chemical spills, it can be operated by one person.

Components:

Foam Tank: Carbon Steel

Stainless Steel Also Available

Foam Eductor: 2", 1%-6% adjustable proportioning

Foam branch pipe

Fire Hose: 1 3/4" dia or 1 1/2" 15M (2 nos.)

Foam Branch Pipe with ball valve

Options: Special foam nozzles and branch pipes

available as per request.





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