

# HIGH EXPANSION GENERATOR

MODEL: NF-HEFG-100P, NF-HEFG-FRP-300P, NF-HEFG-SS-300P, NF-HEFG-SSI-300P

## SPECIAL FEATURES:

- Highly reliable design, does not require a strainer at the foam solution inlet
- Very high output of foam
- Portable & Fixed
- Easy installation with units capable of being mounted in the horizontal or vertical position
- No outside source of power required- only the pressurized foam solution
- By pass arrangement for specific models
- In-built foam induction for portable
- Units will operate with foam solution pressures as low as 2.1 kg/cm<sup>2</sup> (30 psi).
- Smoke extraction



## DESCRIPTION

The NF-HEFG, High Expansion Foam Generators are powered by a water turbine. These are designed to expand the foam solution with Expansion ratios up to 1000:1, depending upon the solution flow rate and the water pressure. However, the optimum expansion ratio is in the range of 500:1 up to 700:1. The High Expansion Foam Generator requires no other source of power such as electricity or gasoline engines. They are powered by the foam solution driving a hydraulic (water) motor or turbine. The expansion of foam solution is achieved by spraying the solution onto a nylon net/stainless steel screen, then an air stream created by the fan attached to the motor blows air through the screen to produce a mass of foam bubbles. The continuous flow of the foam solution plus the movement of air through the screen will produce large volumes of finished foam. Portable systems are having its own proportioning system whereas the fixed systems are to be used with the fixed proportioning system.

A pressure gauge is provided at the foam solution inlet. The design of the NF-HEFG-500L is such that a single nozzle with a large diameter orifice sprays foam solution across the aeration screen. The incorporation of this nozzle prevents clogging, thereby ensuring an uninterrupted foam discharge, almost irrespective of the water quality.



## APPLICATIONS:

- Oil Refineries & Oil Installations
- Chemical Stores.
- Control of Vapour release from toxic/ flammable liquid spills.
- Petrochemical Plants
- Tyre & Rubber Stores.
- Shipheds & Engine Rooms.
- Flammable Liquid including Paint Stores
- Aircraft Hangars
- Cable Ducts & Transformer Rooms
- Fertilizer Plant
- Basements & Substations.
- Mining

## FOAM CLEANING

After the area has been secured, the foam can be cleared by simply hand sweeping or blowing off by compressed air minimizing eventual water damage.

## MATERIAL OF CONSTRUCTION

Material			
Model	NF-HEFG-100P*	NF-HEFG-FRP-300P	NF-HEFG-SS-300P & NF-HEFG-SSI-300P
Body/Shell	SS304	FRP	SS304
Nozzle	GM	GM	GM
Foam Screen	KF	KF	SS304
Coupling	GM/Al.Alloy/SS	GM/Al.Alloy/SS	GM/Al.Alloy/SS
Flange**	Optional	Optional	Optional
Piping	SS 304	SS 304	SS 304
Inductor	GM	GM	GM
Fan	Al. Alloy	Al. Alloy	Al. Alloy
Turbine Assembly	Gun Metal	Gun Metal	Gun Metal

### \*OPTIONAL

- i) These models have the smoke extraction facility with smoke duct of 7.5 meter, MOC-synthetic leather.
- ii) Foam duct of length 10 meter made of polythene (disposable)

\*\*Flange is provided on request

## PERFORMANCE DATA

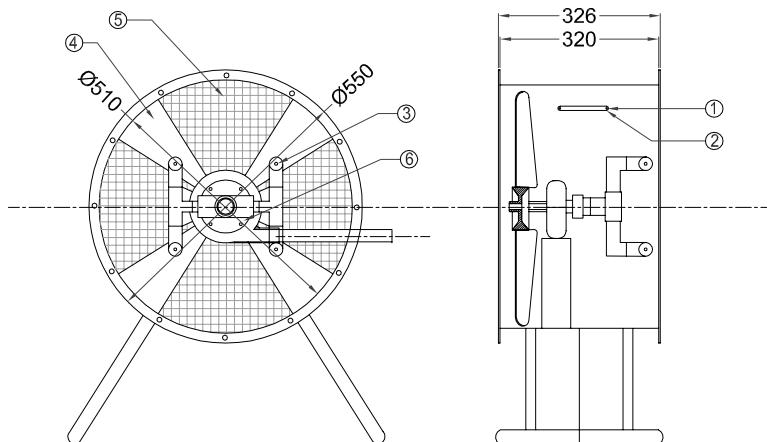
Model	Type	Inlet Pressure, bar	Water Flow, LPM	Foam Production cmm	Foam Expansion Ratio
Standard Performance Data (with 3% Concentrate)					
NF-HEFG-100P	Portable	3.5	135	34	250
		5.0	165	83	500
		7.0	200	120	600
NF-HEFG-FRP-300P	Portable with System Induction				
By-Pass System CLOSED		4.0	180	77	425
		5.5	210	121	575
		7.0	235	165	700
		10.0	280	224	800
By-Pass System OPEN		Total	By-pass		
		4.0	200	50	450
		5.5	220	55	675
		7.0	255	65	850
		10.0	290	80	1000
NF-HEFG-SSI-300P	Portable with System Induction				
By-Pass System CLOSED		4.0	195	78	400
		5.5	225	124	550
		7.0	250	168	670
		10.0	290	226	780
By-Pass System OPEN		Total	By-pass		
		4.0	215	53	430
		5.5	235	58	670
		7.0	268	69	800
		10.0	305	85	960
NF-HEFG-SS-300P	Portable without System Induction	5.0	260	169	650
		6.0	290	206	710
		7.0	320	256	800

NF-HEFG-FRP-300P & NF-HEFG-SSI-300P with system induction comes with by-pass facility, normally used for smoke extraction purpose and control over foam production with varying pressure.

## ORDERING INFORMATION

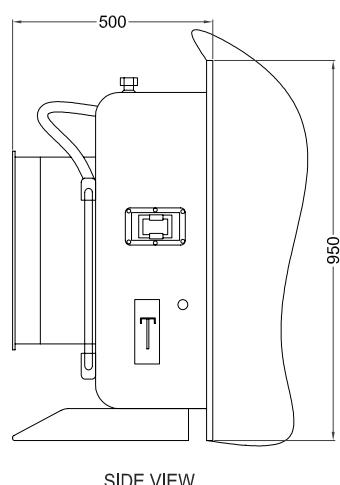
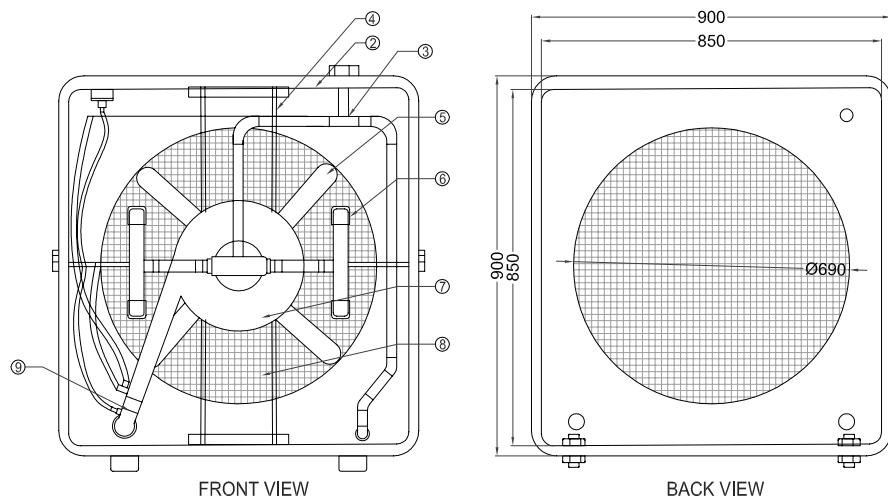
Generator Model	Description	Color	Weight (kg)
NF-HEFG-100P	Portable with system induction	Red	35
NF-HEFG-FRP-300P	Portable with system induction	Red/Yellow	65
NF-HEFG-SSI-300P	Portable with system induction	Red	95
NF-HEFG-SS-300P	Portable without induction	Red	90

## NF-HEFG-100P



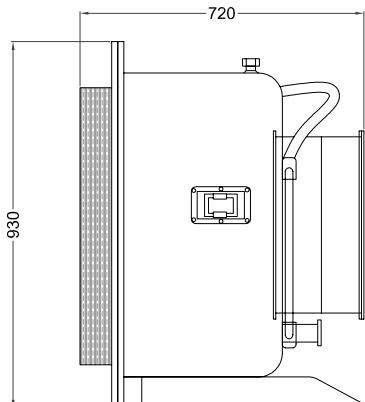
Part No.	Part Name
1	Body/Shell
2	Lifting Handle
3	Nozzle
4	Fan
5	Back Net
6	Turbine

## NF-HEFG-FRP-300P

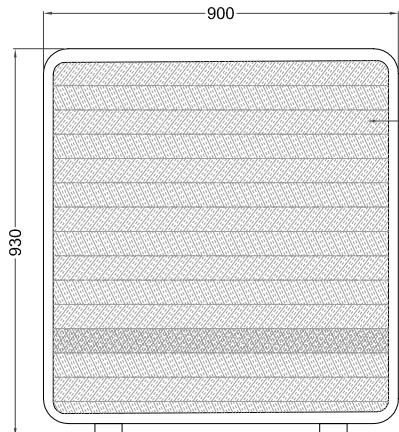


Part No.	Part Name
1	Knitted fabrics foam screen
2	Body
3	Pickup tube
4	Frame
5	Fan
6	Nozzle
7	Turbine
8	Back net
9	Pipe line assembly with inductor

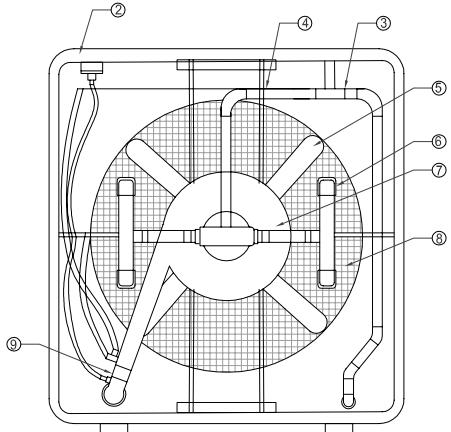
### NF-HEFG-SSI-300P WITH SYSTEM INDUCTION



SIDE VIEW

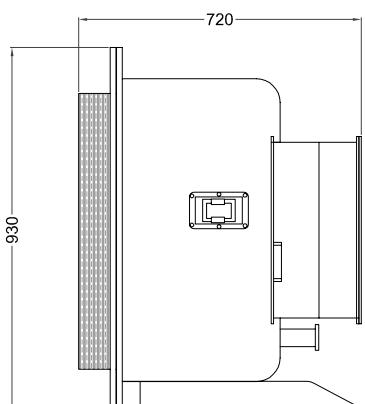


FRONT VIEW

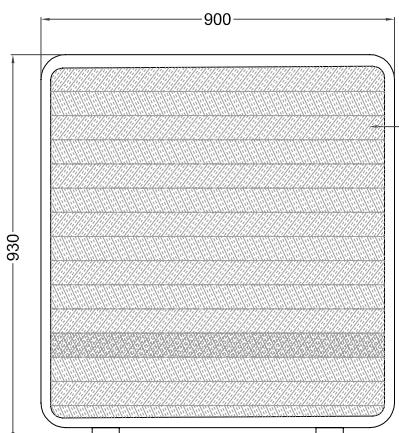


- |                |                                    |
|----------------|------------------------------------|
| 1. Foam screen | 6. Nozzle                          |
| 2. Body        | 7. Turbine                         |
| 3. Pickup tube | 8. Back net                        |
| 4. Frame       | 9. Pipeline assembly with inductor |
| 5. Fan         |                                    |

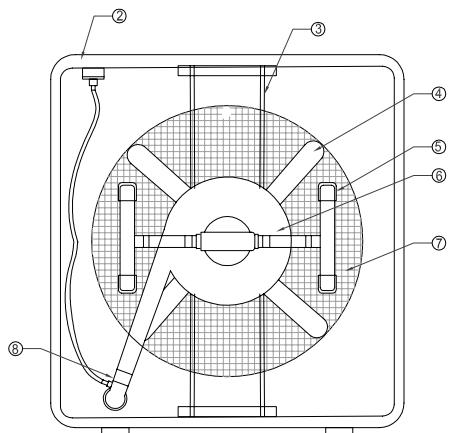
### NF-HEFG-SS-300P WITHOUT INDUCTION



SIDE VIEW



FRONT VIEW



- |                |                                    |
|----------------|------------------------------------|
| 1. Foam screen | 5. Nozzle                          |
| 2. Body        | 6. Turbine                         |
| 3. Frame       | 7. Back net                        |
| 4. Fan         | 8. Pipeline assembly with inductor |

# HIGH EXPANSION FOAM GENERATOR

MODEL: NF-6000F

## DESCRIPTION

NAFFCO Foam Generator is a high expansion foam generator designed to expand foam solution more than 700 times. It is a reliable high expansion discharge device powered by water turbine. No other source of power such as electricity or gasoline engine is needed.

The expansion of the foam solution is achieved by spraying the solution and forcing the air stream generated by the fan through the foam making net. This produces a mass of foam bubbles as it gets out through the mesh. The forced air fed by the fan of water turbine and the continuous flow of foam solution sprayed by highly efficient spray nozzles results in the generation of large volumes of foam.

## APPLICATION

NAFFCO Foam Generators can be used to protect the following typical hazards.

- Flammable liquid storage areas
- Liquefied natural gas storage and handling areas
- Paper products ware houses
- Hazardous waste storage areas and incineration plants
- Chemical storage areas
- Tire ware houses
- Mining and power stations
- Cable tunnels
- Air craft hangars
- Flammable liquid bottling areas
- Ships' engine rooms and holds
- Cellars, basements and enclosed spaces

## FEATURES

- Can produce well-formed and high quality foam
- No external source of power is required
- More than 700 times foam expansion rate can be achieved
- Covers 3300 CFM at 4 bar inlet pressure
- Foam generator housing constructed of FRP material
- Corrosion resistant pipe work and fittings



## PROPORTIONING

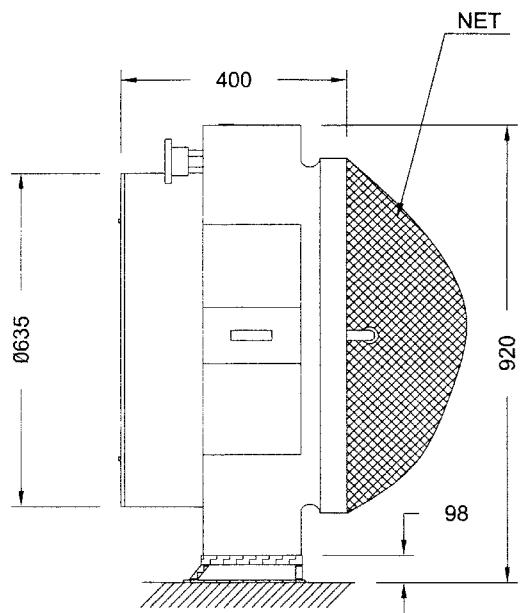
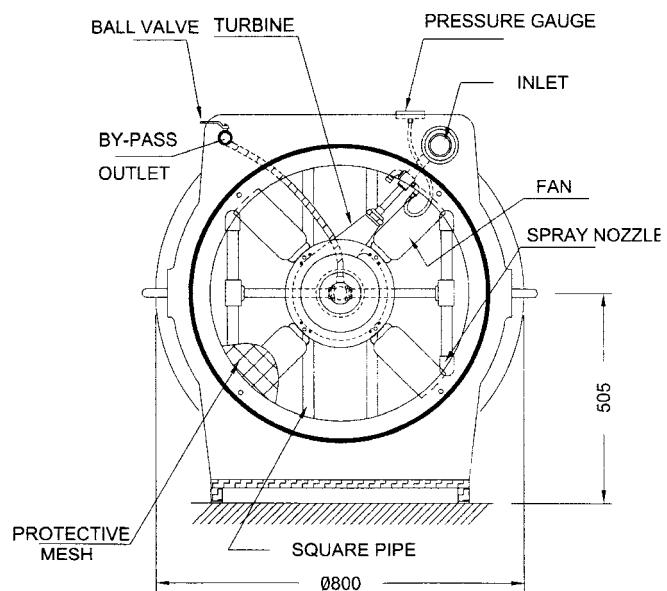
NAFFCO Foam Generators can be used along with the following proportioning equipment.

- Fixed or Portable Inductors
- Bladder tank proportioning system
- Foam pump proportioning system

## TECHNICAL DATA

Water Pressure, bar	Discharge Water, LPM	Discharge Foam, CFM	Foam Expansion
4	210	3300	444
7	300	6000	564
10	385	7800	572
Material of Cabinet		FRP	
Inlet Connection		2½" BS Instantaneous	

## DIMENSIONS



# HIGH EXPANSION FOAM GENERATOR

MODEL: NF-31-3

## DESCRIPTION

NAFFCO Foam Generator is a high expansion foam generator designed to expand foam solution more than 1000 times. It is a reliable high expansion discharge device powered by water turbine. No other source of power such as electricity or gasoline engine is needed.

Supplied foam by a water turbine all that is needed for operation of foam liquid concentrate and a water supply. A unique by-pass system is installed which allows performance to be maintained when working into high back pressure. By control of the inlet pressure and the by-pass, the type of foam bubble can be varied as shown in the performance data. High Expansion Foam Generator is designed to produce a large capacities of foam bubble up to 100 m<sup>3</sup>/min at pressure 4 bars. It is also capable of smoke extracting via Polythene bellows type of smoke extracting duct, which is also used for ventilation and removal of foam just after the fire is extinguished.

## APPLICATION

NAFFCO Foam Generators can be used to protect the following typical hazards.

- Flammable liquid storage areas
- Liquefied natural gas storage and handling areas
- Paper products ware houses
- Hazardous waste storage areas and incineration plants
- Chemical storage areas
- Tire ware houses
- Mining and power stations
- Cable tunnels
- Air craft hangars
- Flammable liquid bottling areas
- Ships' engine rooms and holds
- Cellars, basements and enclosed spaces

## TECHNICAL DATA

Inlet	2½" NH Female (BS336 Optional)
Flow	180 LPM @ 4 bar
Foam Liquid	AFFF 3% and 6%
Material	Yellow chemically FRP resin
Foam Expansion Ratio	500 ~ 700 times
Induction Rate	4.5 LPM
Smoke Extraction Rate	280 CFM
Measurement	885(W) x 1015(H) x 435 (D)mm



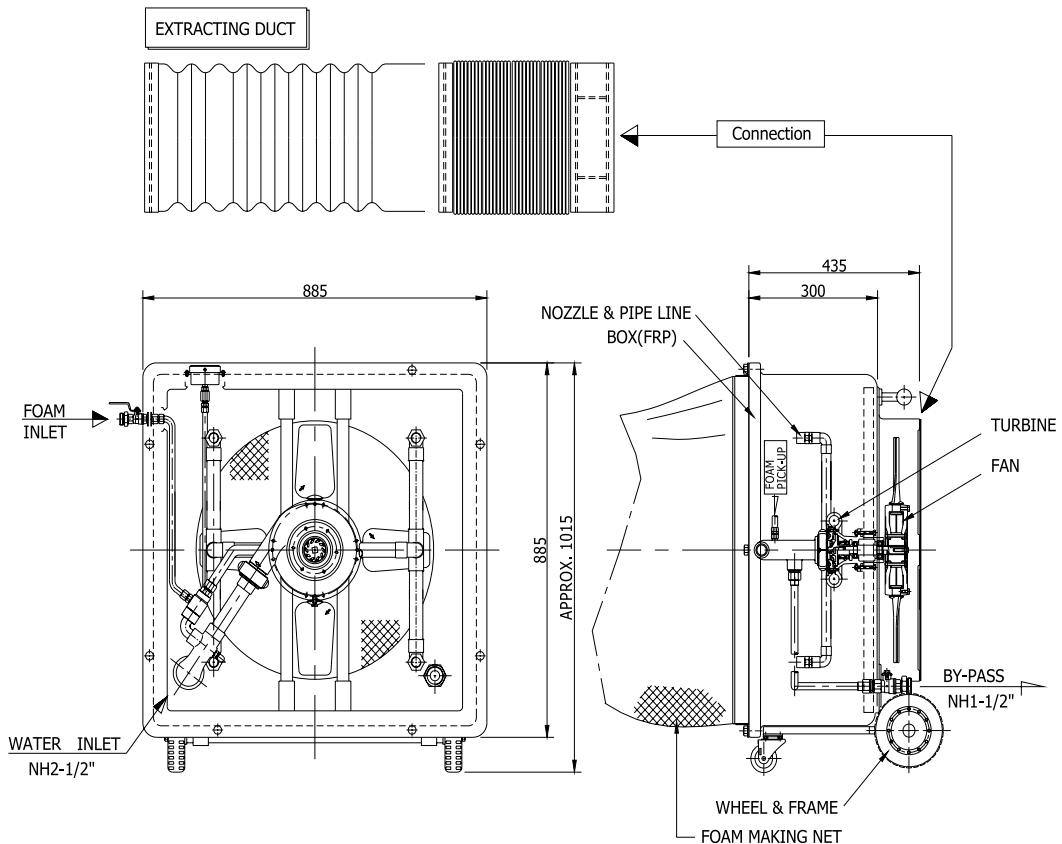
## SMOKE VENTILATION

- Connect the smoke duct to the fan side (opposite of foam bubble outlet)
- Close the two (2) of 1" ball valve which are placed at inside of foam bubble net
- Open the by-pass
- Start smoke extracting

## MATERIAL OF CONSTRUCTION

Water Turbine	Cast Bronze (ASTM C83600)
Pipe Work	Bronze & Copper, Black Epoxy Painted
Foam Spray	Cast Bronze Spray Nozzle, Plated
Carrying Handle	Stainless Steel
Foam Bubble Net	Nylon Woven Mesh
Smoke Extracting Duct	Polythene Bellows (7M. Length)

## DIMENSIONS



## PERFORMANCE CHARACTERISTICS

	Inlet Pressure (bar)	Foam Output (m³/min)	Expansion Ratio
By-Pass CLOSED	4	65	500 ~ 700:1
	6	88	
	7	100	
	8	113	
	10	145	
By-Pass OPEN	4	72	800 ~ 1000:1
	6	100	
	7	115	
	8	135	
	10	255	

\*NOTE: Flow will depend on ambient temperature and quality of foam concentrate used.

# MINI FOAM GENERATOR

MODEL: NMG500

## DESCRIPTION

NAFFCO Mobile Foam Generator is a fast response medium expansion foam generator designed to expand foam solution into many millions of tiny stable bubbles of foam. No other source of power such as electricity or gasoline engine is needed.

The expansion of the foam solution is achieved by spraying the solution and the air stream created by the fan produce a mass of foam bubbles as it gets out through a mesh. The continuous flow of the foam solution and the movement of the air through the mesh will generate large volumes of foam.

Mobile Foam Generator is suitable for total flooding application in basements, mines, tunnels, cable ducts and warehouses. It is ideally suitable for rapid smoke extraction and positive pressure ventilation.

## APPLICATION

NAFFCO Foam Generators can be used to protect the following typical hazards.

- Flammable liquid storage areas
- Liquefied natural gas storage and handling areas
- Paper products ware houses
- Hazardous waste storage areas and incineration plants
- Chemical storage areas
- Tire ware houses
- Mining and power stations
- Cable tunnels
- Air craft hangars
- Flammable liquid bottling areas
- Ships' engine rooms and holds
- Cellars, basements and enclosed spaces



## TECHNICAL DATA

Inlet	2½" BS336 Male
Material of Cabinet	Stainless Steel
Expansion Ratio	260-360
Foam Output	40-94 m³/min
Inlet Pressure	2.8-8.4 bar