MEDIUM EXPANSION FOAM GENERATOR

Frozenfire Medium Expansion Foam Generator

Product Description



The **Frozenfire MEFG (Medium Expansion Foam Generator)** is a high-performance foam discharge device designed to generate medium expansion foam for rapid suppression of Class B hydrocarbon fires and protection of large enclosed or semi-enclosed hazards. The generator efficiently mixes foam solution with air through an engineered air induction system, producing a stable foam blanket with an expansion ratio typically ranging from **1:35 to 1:50**, depending on the foam concentrate and operating conditions.

Designed for industrial fire protection, the Frozenfire MEFG provides rapid foam generation with excellent drainage characteristics, enabling effective cooling, vapor suppression, and oxygen exclusion. The unit is suitable for both fixed and semi-fixed fire protection systems and is commonly installed in warehouses , aircraft hangars, cable tunnels, pump rooms, LNG/LPG facilities, transformer rooms, chemical processing plants, marine applications, and industrial storage areas.

Constructed from corrosion-resistant materials with precision-engineered internal components, the Frozenfire MEFG Foam Generator offers reliable performance, low maintenance, and long service life even in harsh industrial environments.

Inline Inductor Integration with Frozenfire MEFG Foam Generator



The Frozenfire Matching Inline Inductor is specifically engineered to work in conjunction with the Frozenfire MEFG Foam Generator, ensuring the correct foam solution concentration is supplied for optimum medium-expansion foam production. When paired as a complete system, the inline inductor delivers accurate foam proportioning while the MEFG Foam Generator aspirates air and expands the foam solution into a stable, medium-expansion foam blanket. This integrated solution provides rapid fire suppression, effective vapor sealing, and superior cooling performance for high-risk industrial applications such as aircraft hangars, refineries, chemical plants, cable tunnels, pump rooms, and fuel storage facilities.

Working Principle

The Frozenfire MEFG Foam Generator operates on the principle of **air aspiration**. A premixed foam solution supplied from the foam proportioning system enters the generator under pressure and passes through a calibrated nozzle. The high-velocity stream creates a low-pressure zone that draws atmospheric air into the generator through strategically designed air inlet openings.

The foam solution and induced air pass through a specially designed foam-generating mesh or screen, where millions of fine air bubbles are formed. These bubbles combine to create a uniform medium expansion foam with excellent stability.

The generated foam is discharged through the outlet as a thick blanket that rapidly spreads over the protected area. The foam blanket suppresses flammable vapors, cools heated surfaces, separates the fuel from oxygen, and helps prevent re-ignition.

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Construction

The Frozenfire MEFG Foam Generator typically consists of:

- Corrosion-resistant Aluminum Alloy / Stainless Steel body
- Precision foam solution nozzle
- Air induction chamber
- Foam-generating mesh (Stainless Steel)
- Air inlet assembly
- Foam discharge outlet
- Flanged or threaded inlet connection
- Protective finish (Epoxy Red Coating or Natural Finish)

Advantages

- Rapid foam generation
- Excellent vapor suppression
- Efficient cooling of combustible surfaces
- Low water consumption compared to water-only systems
- High expansion foam coverage
- Reliable operation without moving parts
- Minimal maintenance requirements
- Uniform foam distribution
- Long service life
- Suitable for automatic fire protection systems

Features

- Produces high-quality medium expansion foam
- Expansion ratio from **1:40 to 1:200** (depending on foam concentrate)
- Excellent foam stability and drainage characteristics
- High air induction efficiency
- Uniform foam discharge pattern
- Suitable for AFFF, AR-AFFF, Fluoroprotein, and Protein foam concentrates
- Corrosion-resistant construction
- Low pressure loss
- Easy installation and maintenance
- Suitable for fixed and semi-fixed systems
- No moving mechanical parts
- Long operational life

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Applications

The Frozenfire MEFG Foam Generator is ideal for protecting:

- Aircraft Hangars
- Oil & Gas Installations
- Chemical Plants
- Refineries
- Warehouses
- Cable Tunnels
- Transformer Rooms
- Pump Houses
- Marine Engine Rooms
- Fuel Storage Facilities
- Loading Bays
- LPG/LNG Installations
- Paint Storage Areas
- Solvent Storage Facilities
- Industrial Process Areas

Typical Technical Specifications

Parameter	Specification
Product	Frozenfire MEFG Foam Generator
Type	Medium Expansion Foam Generator
Expansion Ratio	1:40 to 1:200
Foam Concentrate	AFFF / AR-AFFF / Protein / Fluoroprotein
Operating Pressure	3.5–7 bar (typical)
Body Material	Stainless Steel
Foam Generating Screen	Stainless Steel
Inlet connection	ANSI 150# Class Flanged end
Inline Inductor	Stainless Steel
Inline Inductor size	3” / 4”
Finish	Epoxy Red / Natural
Inlet Connection	Threaded or Flanged
Installation	Fixed / Semi-Fixed
Operating Medium	Foam Solution

Technical / Performance Data

Data / Model	MEFG 600	MEFG 1100	MEFG 1600
Nominal Flow (lpm)*	600	1100	1600
Range (Mtrs.)*	3	3	3
Expansion**	1:40	1:40	1:40
Length (mm)	635	920	950
Approx Wt.	9.3	18.0	22.0
*- at 3.5 kg/cm2 pressure at branch inlet ** - using standard AFFF compound			

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Installation Guidelines

- Install in accordance with the approved fire protection system layout.
- Ensure unrestricted air entry into the generator.
- Mount the unit in the recommended orientation.
- Connect to the foam solution pipeline using the specified inlet connection.
- Flush the piping before installation to remove debris.
- Verify the operating pressure and foam concentrate compatibility.
- Ensure adequate clearance for proper foam discharge.

Operation

Under normal conditions, the MEFG remains inactive until the foam system is activated.

During fire conditions:

1. Fire detection activates the foam system.
2. Foam concentrate is proportioned with water.
3. Foam solution flows to the MEFG Foam Generator.
4. Atmospheric air is inducted through the air inlet.
5. The foam solution passes through the foam-generating mesh.
6. Medium expansion foam is produced instantly.
7. Foam discharges uniformly over the hazard.
8. The foam blanket suppresses vapors, cools surfaces, and extinguishes the fire.
9. The system continues operating until manually shut down or the hazard is fully controlled.

Maintenance Procedure

To ensure dependable operation, regular inspection and maintenance should be performed.

Monthly Inspection

- Check the generator body for physical damage.
- Inspect for corrosion or paint deterioration.
- Verify that air inlet openings are clean and unobstructed.
- Check for leaks in pipe connections.

Quarterly Maintenance

- Inspect the foam-generating mesh for dirt, corrosion, or blockage.
- Clean the mesh with clean water and a soft brush.
- Verify inlet nozzle condition.
- Inspect mounting brackets and supports.

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Annual Maintenance

- Perform a complete operational discharge test (where permitted).
- Verify foam expansion ratio and discharge performance.
- Inspect all seals and connections.
- Replace damaged mesh or worn components.
- Confirm compatibility with the foam concentrate being used.

Precautions

- Do not paint or obstruct the air inlet openings.
- Always use compatible foam concentrates.
- Flush the system with clean water after testing when recommended by the foam concentrate manufacturer.
- Replace damaged or corroded components immediately.
- Do not use metal tools that may damage the foam-generating mesh.
- Ensure the generator remains free from dust, insects, and debris during storage and operation.

Performance Benefits

- Fast production of medium expansion foam
- Excellent coverage of large hazard areas
- Effective vapor suppression and fire control
- Superior cooling capability
- Reduced water damage compared to sprinkler systems
- Reliable operation with no moving mechanical parts
- Suitable for automatic and manual fire protection systems
- Low maintenance with long service life

Summary

The **Frozenfire MEFG Foam Generator** is engineered to deliver dependable medium expansion foam performance for industrial fire protection systems. Its efficient air-aspiration design, durable construction, and uniform foam generation make it an ideal solution for protecting high-risk facilities where rapid fire suppression, vapor control, and exposure protection are essential.

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