MEDIUM EXPANSION FOAM BRANCH (MX-450)

Frozenfire Medium Expansion Foam Generator (MEFG) Foam Branch-450LPM

Product Description



The Frozenfire Medium Expansion Foam Generator (MEFG) Foam Branch is a portable firefighting appliance specifically engineered for the rapid generation and application of medium expansion foam in combating Class B hydrocarbon liquid fires. Designed for industrial fire protection, petrochemical facilities, aviation fuel storage, refineries, marine terminals, chemical plants, and fuel loading areas, the MEFG Foam Branch provides high-performance foam generation with excellent foam quality, expansion ratio, and discharge distance.

The unit operates in conjunction with a matching Inline Foam Inductor, which accurately proportioners foam concentrate into the water supply before it enters the foam branch. The foam solution then passes through the foam generator where atmospheric air is induced through specially designed air inlets and mixed with the foam solution over a stainless-steel foam-generating screen. This process produces a dense, stable blanket of medium expansion foam capable of rapidly suppressing flammable liquid fires by cooling the fuel surface, separating oxygen from the fuel, suppressing vapours, and preventing re-ignition.

The Frozenfire MEFG Foam Branch features a lightweight yet rugged aluminum alloy body, corrosion-resistant internal components, an ergonomic carrying handle, pressure gauge for monitoring operating pressure, and a durable powder-coated finish suitable for harsh industrial environments.

Key Features

- Portable, lightweight and easy to operate
- High-efficiency medium expansion foam generation
- Rugged aluminium alloy / Stainless Steel construction
- Stainless steel foam generating screen
- Integrated pressure gauge for operating pressure monitoring
- Excellent foam expansion with uniform bubble formation
- Corrosion and weather-resistant construction
- Ergonomic carrying handle
- Compatible with all standard foam concentrates
- Long discharge distance
- Suitable for continuous emergency firefighting service
- Low maintenance design
- Available with Instantaneous inlet connections

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Construction

The Frozenfire MEFG Foam Branch consists of:

- Heavy-duty aluminium alloy body
- Powder-coated corrosion-resistant finish
- Stainless steel foam generation mesh
- Air induction chamber
- Integrated carrying handle
- Pressure gauge
- Quick coupling inlet
- Internal foam expansion chamber
- Stainless steel fasteners
- Protective end cover

Technical Specifications

Parameter	Specification
Model	Frozenfire MEFG Foam Branch
Foam Type	Medium Expansion
Capacity	450 LPM
Operating Pressure	7 kg/cm² (7 Bar)
Expansion Ratio	1: 30 to 1: 40
Foam Concentrate	3% or 6%
Compatible Foam	AFFF, AR-AFFF, Protein, Fluoroprotein, Synthetic
Body Material	Aluminium Alloy /Stainless Steel
Foam Mesh	Stainless Steel
Finish	Powder Coated
Pressure Gauge	Glycerin Filled (Optional Standard)
Inlet Connection	2½" Instantaneous
Operating Temperature	-10°C to +55°C

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Working Principle

The Frozenfire MEFG Foam Branch operates using the principle of foam solution aeration.

1. Water is supplied from the fire pump to the Inline Foam Inductor.
2. The Inline Inductor proportionally mixes foam concentrate with water at the selected percentage (3% or 6%).
3. The prepared foam solution flows into the MEFG Foam Branch.
4. As the solution enters the expansion chamber, atmospheric air is drawn through multiple air induction ports.
5. The air and foam solution pass through a stainless steel foam-generating mesh.
6. Millions of fine air bubbles are created, producing medium expansion foam.
7. The generated foam is discharged through the outlet as a dense, uniform foam blanket.
8. The foam covers the burning liquid surface, suppresses flammable vapours, cools the fuel, and prevents re-ignition.

Matching Inline Foam Inductor

The Frozenfire Inline Foam Inductor is a portable Venturi-type foam proportioning device designed to accurately introduce foam concentrate into the water stream before the solution reaches the MEFG Foam Branch.



The inductor works on the Venturi principle. As pressurized water flows through the Venturi nozzle, a pressure drop is created inside the inductor body. This vacuum draws foam concentrate from the foam container through a suction hose fitted with a strainer. The concentrate mixes uniformly with the water stream to produce a foam solution at the desired proportion (typically 3% or 6%), ensuring consistent foam quality and efficient firefighting performance.

Features of the Inline Foam Inductor

- Accurate Venturi proportioning system
- 3% and 6% foam induction options
- 450Lpm Flow
- Lightweight aluminium alloy body / Stainless Steel
- Stainless steel metering orifice
- Corrosion-resistant construction
- Foam concentrate pickup hose with dip tube
- Low pressure loss
- Easy installation and operation
- Suitable for AFFF, AR-AFFF, Protein, Fluoroprotein and Synthetic foams
- Designed to match the flow capacity of the MEFG Foam Branch

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Applications

The Frozenfire MEFG Foam Branch is ideal for protecting:

- Oil and petroleum storage terminals
- Refineries
- Petrochemical plants
- Chemical processing industries
- Aviation fuel depots
- Aircraft hangars
- LPG and LNG facilities
- Marine ports and offshore platforms
- Fuel loading and unloading stations
- Tank farms
- Warehouses storing flammable liquids
- Industrial fire brigades

Operation Manual

Before Operation

1. Inspect the Foam Branch for any visible damage.
2. Check that the pressure gauge is functioning properly.
3. Ensure the foam generating mesh is clean.
4. Inspect the Inline Foam Inductor and suction hose.
5. Verify that the foam concentrate is compatible with the application.
6. Ensure all couplings and connections are secure.

Installation

Step 1

Connect the fire pump discharge hose to the Inline Foam Inductor inlet**.**

Step 2

Connect the outlet of the Inline Foam Inductor to the MEFG Foam Branch**.**

Step 3

Place the suction hose with dip tube into the foam concentrate container.

Step 4

Ensure the flow direction arrow on the Inline Foam Inductor matches the direction of water flow.

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Operation

Step 1

Start the fire pump.

Step 2

Gradually increase pressure until the recommended operating pressure of 7 kg/cm² is achieved.

Step 3

Verify that foam concentrate is being inducted properly through the suction hose.

Step 4

Hold the Foam Branch firmly using the carrying handle**.**

Step 5

Aim the discharge towards the edge or front of the burning liquid.

Step 6

Apply foam using one of the following techniques:

- Roll-on Method
- Bank-down Method
- Rain-down Method

Avoid directing the foam stream forcefully into the burning liquid, as this may disturb the fuel surface.

Step 7

Continue foam application until the entire fuel surface is covered with a stable foam blanket.

Step 8

Maintain the foam blanket for several minutes after extinguishment to prevent re-ignition**.**

Maintenance

After Every Use

- Flush the Foam Branch thoroughly with clean water.
- Flush the Inline Foam Inductor with clean water to remove all foam concentrate residue.
- Clean the stainless steel foam-generating mesh.
- Wash the suction hose and strainer.
- Drain all residual water.
- Dry the equipment before storage.
- Inspect the pressure gauge and couplings.

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Monthly Inspection

- Check the foam generating mesh for blockage or damage.
- Inspect the pressure gauge for proper operation.
- Verify the foam induction rate of the Inline Foam Inductor.
- Examine all seals, O-rings, and couplings.
- Ensure the suction hose is free from cracks or leaks.
- Tighten all fasteners.

Annual Service

- Conduct a full flow and foam performance test.
- Verify foam induction percentage (3% or 6%).
- Replace worn seals, O-rings, and damaged components.
- Inspect internal corrosion.
- Recalibrate or replace the pressure gauge if required.
- Clean and service the complete unit.

Storage

- Store the equipment in a clean, dry, and well-ventilated location.
- Protect from direct sunlight and corrosive environments.
- Ensure the foam branch and inline inductor are completely drained and dry before storage.
- Keep the suction hose and strainer clean and free from contamination.
- Cover the unit to prevent dust accumulation during long-term storage.

Advantages

- Rapid deployment for emergency response
- Accurate foam proportioning with matching inline inductor
- Excellent foam expansion and blanket stability
- Effective suppression of hydrocarbon liquid fires
- Lightweight, durable, and corrosion-resistant construction
- Reliable operation under demanding industrial conditions
- Minimal maintenance requirements
- Compatible with a wide range of foam concentrates
- Suitable for municipal, industrial, marine, aviation, and petrochemical firefighting applications
- Manufactured to deliver dependable performance and long service life in critical fire protection environments.

Summary

The Frozenfire MEFG Foam Branch is engineered to deliver reliable medium expansion foam application for industrial fire protection systems. Its efficient air-induction design, lightweight construction, and uniform foam discharge make it an ideal solution for rapid suppression of Class B flammable liquid fires, vapour control, and exposure protection in high-risk industrial facilities

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