



ENGINEERED SOLUTIONS  
FOR HEATING & SENSING

ISO 9001-2015



# FINNED TUBULAR HEATER



**MARATHON HEATER (I) PVT. LTD.**

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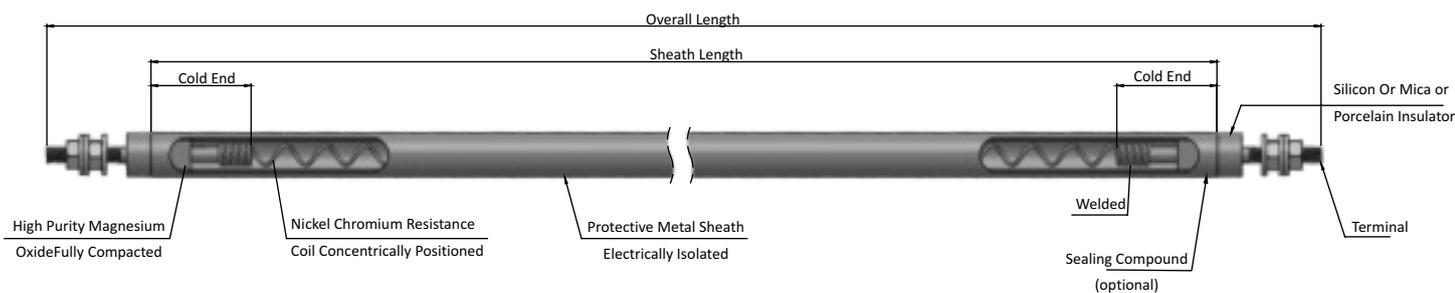
Finned tubular heaters are widely used in application which requires forced convective heating of air or gases at low to medium temperatures. Heaters are made up of tubular heating elements equipped with aluminized steel fins brazed, crimped or welded to the sheath. They are more efficient than tubular heaters since fins greatly increase surface area, permit faster rate of heat transfer to air, and thus higher wattage levels are achievable in the same flow area. Due to increased heat transfer rate, it maintains lower element surface temperatures resulting in increased heater life. Mechanically bonded continuous fins assure excellent heat transfer and help prevent fin vibration at high air velocities.

These industrial heating solutions are among the most common heaters and are best suited for a

large number of applications such as conduction, convection, and radiation for stoves, industrial ovens, drying cabinets, air conditioners, etc. They can be used in virtually every industrial environment up to about 750°C (1382°F) and be molded into many unique and complex shapes. Finned heaters are extremely rugged, have low capital costs, and require negligible maintenance.



## Construction



1. Nickel Chromium Resistance wire for high mechanical and creep strength for maximum heater life. Nickel Chromium resistance coil is fusion welded to the metallic terminal pins.
2. High Purity magnesium oxide fill selected for maximum dielectric strength and thermal conductivity highly compacted for maximum heat transfer.

3. Stainless steel sheath / Inconel sheath for oxidation and corrosion resistance in wide variety of environment and are suitable for high temperatures applications
4. Stainless Steel/ Aluminized Steel Fins are brazed, crimped or welded to the tubular element's cold section to increase surface area to maximize heat transfer and are resistant to corrosion and oxidation.

## Technical Data

- **Sheath Material** : Copper, Steel, Stainless Steel, Incoloy, Titanium
- **Watt Density** : Up to 120 W/in<sup>2</sup>
- **Fins Material** : Aluminum, Stainless Steel
- **Voltage** : Up to 480 VAC
- **Operating Temperature** : Up to 1200 °F
- **Diameter** : 0.375", 0.430", 0.475"
- **Wattage Tolerance** : +5%, -10%
- **Resistance Tolerance** : -5%, +10%

**Note:** For customized requirements, contact factory

## End Seal Options

### 1. Teflon Seal

Teflon seal is used where an effective sealing is required against moisture and oil contamination. Teflon lead wire is used in conjunction with teflon seal to provide an effective barrier.

### 2. Silicon Rubber Seal

High temperature silicon rubber seal in conjunction with silicon rubber lead wires provides an effective moisture seal up to 400°F (200°C). It is the most impervious seal of all the other moisture seals.

## Features and Benefits

- Variety of custom bends available
- Silicone seals to ensure moisture resistance in humid environments.
- Numerous types of terminations available
- Customized cold sections
- Increased surface area for faster heat transfer
- Stainless steel mounting bracket, welded to the terminal end.

## Termination Option

They are available in both single ended and double ended terminal configuration.

The single-ended design has both terminals at one end. The opposite end is sealed. Flexible lead wires are 12 in. (305 mm) crimp connected to the terminal pin and have silicone-impregnated fiberglass over-sleeves.

The double-ended design has rounds cross sectional geometry, is highly adaptable for bending—especially when bending is performed in the field. Double-ended tubular elements offer several assemblages of resistor coils and thermocouples inside one sheath. They have the ability to sense the heater's internal temperature accurately every time, or offer three-phase capability in one element.

### 3. Epoxy Seal

Epoxy potting forms a good moisture seal with more mechanical strength than a silicon rubber seal. Regular Epoxy is rated at 350°F (177°C) and epoxylite is rated at 600°F (316°C).

### 4. Cement

Provides protection against some thicker liquids and dust, however it is not waterproof. It is also somewhat brittle and subject to cracking in high impact or high vibration applications. Used for temperatures upto 2600°F (1425°C).

## Application

- Convective Air & Gas Heating
- Dehumidification
- Curing Ovens and Plastic Dryers
- Organic Resins & Paint Curing
- Autoclave
- Industrial Ovens
- Drying Cabinet and many more