

SUBHOT[®]

INDUSTRIAL HEATERS

RADIANT TUBE

Specialist In: Custom Built Heaters & Heater Assembly Unit Along-With Temperature Controller As Per Customer's Specification.



AN ISO 9001:2015 COMPANY



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SUBHOT ENTERPRISES PRIVATE LIMITED

Company Profile

"SUBHOT" the brand name of **Three Decades Rich**, quality oriented and completely indigenously manufactured IEC standard product since 1990, we are catering successfully to domestic and international Industries. We design develop and supply industrial heaters, heating elements, thermocouples and other high temperature Material Management equipments as per the customer's requirement. We have in house Design, Development & research facilities, follows by stringent quality control measures right from beginning to delivery of the material. Customer satisfaction is our first priority.

We manufacture various types of Tubular Electrical Heaters and heating systems, along with control accessories Cartridge Heaters, Mica Band Heaters, Ceramic Band Heaters, Casted Heaters, Furnace Heaters, Nozzle Heaters, Coil heaters, which are used in Hazardous and Non Hazardous area. In Tubular Electrical heater Heating element is Mineral filled sheathed tubular type. Heating element Insulation material used is Mgo (Magnesium oxide) and heating element wire material is Nichrome. Heating elements are manufactured and tested as per IS-4159 BIS Standards. Electrical heaters are suitable for application for Water, Oil, Chemical, Air, Fuel gas, Natural gases etc and Design as per requirement of customer based on the technical input provided by them. Heating unit consist of Heater vessel, Heater bundle, Terminal box, and U-Shaped heating element fitted on Tube sheet .The selection of heating element for a particular assembly depends on the uses & customers requirement total rating, surface loading, diameter of heating element tube, Operating temperature, space limitation, Type of electrical connection and number of bank etc. The heating element can be permanently fixed on tube sheet OR Can be removable type. Various Sheath material and sizes are available based on design requirement. The heating unit can be supplies Complete with Heater Vessel, Inlet-Outlet Nozzle/Flange, Lug Support and external insulation.

Heater vessels are generally designed as per ASME SecVIII Div-1. For Hazardous area flameproof terminal box are used which are duly certified by CMRI Dhanabad for Gas group IIA, IIB or IIC.

We are also manufacturing the following product at our works:

- Immersion heating elements for Water, Oil and Chemical heating.
- Air Heating element
- Fuel gas and Process gas heater.
- Regeneration heaters.
- Large heating unit upto 520KW with terminal box and control panel.
- Heater for ESP and Ash handling system.
- Cartridge Heaters
- Mica Band Heaters
- Ceramic Band Heaters
- Casted Heaters
- Furnace Heaters



Size of heating tube: 8.2mm, 9.5mm, 11.0mm, 12.0mm, 12.5mm, and 16.0mm,19.0 mm or as per customer requirement.

MOC of Heating Tube: Copper, Titanium, SS all grade, Incoloy 800,Inconel etc.

Sizing of Tube Sheet: As per design requirement.

Sizing of Heater Vessel: As per design requirement.

Thermocouple: J & K Type own make in SS all grade and Incoloy.

RADIANT TUBE



DESCRIPTION

Radiant Tubes Are Specialized Furnace Heating Elements Designed To Provide Indirect, High-Temperature Heating In Industrial Furnaces And Kilns.

They Operate By Housing Heating Elements (Such As Bundle Rod Heaters, Cartridge Heaters, Or Gas-Fired Burners) Inside A Sealed Alloy Or Ceramic Tube, Which Then Transfers Heat By Radiation And Convection To The Furnace Chamber.

This Design Isolates The Heating Element From The Process Atmosphere, Protecting It From Oxidation, Carburization, Or Chemical Attack, While Ensuring Long Life, High Thermal Efficiency, And Uniform Temperature Distribution.

Radiant Tubes Are Widely Used In Heat Treatment, Carburizing, Nitriding, And Aluminium Melting Applications, Where Clean, Controlled, And Efficient Heat Transfer Is Required.

COMPONENTS

Component	Material / Details
Tube Body	Seamless FeCrAl or NiCr alloy tube, OD 25–200 mm, wall thickness 1–5 mm.
End Caps & Flanges	Machined alloy end fittings or ceramic-to-metal seals for leak-tight mounting.
Support Plates	High-temperature alloy or ceramic brackets for structural stability inside the furnace.
Integration Ports	Precision ports for inserting bundle rod heaters, thermocouples, or gas flow tubes.
Insulating Seals	Ceramic fiber or compressed gasket seals to minimize heat loss and prevent gas leakage.

TECHNICAL SPECIFICATION

Parameter	Specification
Materials	SS310, Incoloy, Inconel, SiC, Si ₃ N ₄
Shapes	Straight, U-shaped, W-shaped, or custom profiles
Outer Diameter	25 mm – 200 mm (other sizes available on request)
Wall Thickness	1 mm – 5 mm
Maximum Temp.	Up to 1,400 °C (continuous)
Length	Up to 3,000 mm (straight tube)
Sealing Options	Ceramic-to-metal seals, gasket flange assemblies
Compatible Heating Elements	Bundle Rod Heater, Cartridge Heater, Gas-fired Burner

ADVANTAGES

- **Protection of Heating Elements** : Heating coils are completely isolated from the furnace atmosphere, minimizing scaling, oxidation, and chemical corrosion.
- **High Efficiency & Emissivity** : Radiant tube design ensures maximum infrared radiation transfer with reduced energy losses.
- **Extended Service Life** : Longer lifespan compared to exposed heating elements in aggressive furnace environments.
- **Flexibility in Design** : Available in straight, U-tube, or custom configurations to suit furnace design.
- **Reduced Downtime** : Radiant tubes can be replaced without shutting down the furnace.
- **Process Cleanliness** : Prevents contamination of sensitive furnace atmospheres such as carburizing, nitriding, and protective gas furnaces.

APPLICATIONS

- Carburizing, nitriding, and galvanizing furnaces
- Melting, holding, and dosing furnaces (aluminium & non-ferrous industries)
- Dental and laboratory ovens
- Diffusion and semiconductor furnaces
- Heat-treatment kilns & research furnaces

FEATURES

- High emissivity alloys and ceramics for superior radiant heat transfer.
- Minimal scaling and spalling at elevated temperatures.
- Customizable end caps, flanges, and seals for different furnace conditions.
- Compatible with bundle rod heaters, cartridge heaters, or burners.
- Leak-tight seals to prevent gas leakage and heat loss.
- Length up to 3 meters, available in straight or shaped profiles.
- Quick installation and easy maintenance without major furnace downtime.