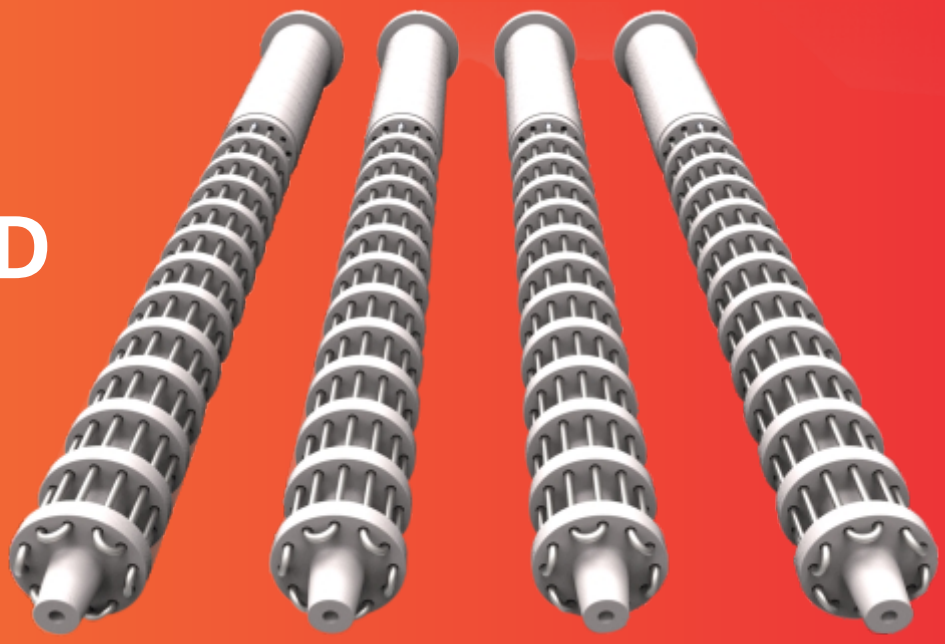
Marathon Tempwatt

Engineered Solution for Heating

BUNDLE ROD HEATERS



As the name suggests, bundle rod heater consists of circular ceramic beads that hold the heating elements. They are designed for long life and maintenance free operation. The elements can be provided in almost any length but the standard dimensions available are 68 to 170 mm (2.6 to 6.6 inch). These heaters can be used as standalone elements or inside radiant tubes. Because of the ingenious design, Bundle rod heating elements deliver a much higher power (up to 100kW) than conventional cartridge heaters. In combination with the radiant tubes, a system is created which delivers high power, is rugged, versatile and needs low maintenance. Designed & manufactured in low voltages for faster heating in order to achieve temperatures quickly, these heaters can be mounted horizontally or vertically. Either NiCr alloy or FeCrAl alloy can be used as heating element. For temperatures up to 2100°F (1150°C), Austenitic (NiCr) alloy (80/20 or 70/30) and for temperatures up to 2597°F (1425°C), Ferritic (FeCrAl) alloy can be used. A comparison between bundle rod and cartridge heaters shows their effectiveness:

Superior Power Output

Bundle rod elements, with a higher power output, leads to major saving in cost and maintenance. Also when combined with Kanthal radiant tubes, they give highest power rating (up to 100 kW) as compared to any other heater.

Easy installation

Due to its ruggedness and versatility, bundle rod elements are easy to install and replace. Compatibility with radiant tubes allows installation to be either horizontal or vertical depending on the application. Easy repair and high temperature performance gives it an edge over others. Custom designed for the voltage and wattage required, bundle rod heaters are used in heat treat furnaces and die casting machines to molten salt baths and incinerators. With radiant tubes they can be used in high velocity convection furnaces and sealed quenched furnaces. They are also useful in converting gas-fired furnaces to electric heating.

COMPONENTS OF BUNDLE ROD HEATERS

- Terminal Rod: Carries the power supply wiring. Usually made of SS 310 or INCOLOY. Number of rods depends upon the supply connection.
- Center Rod: Used to provide central support to the heater. Usually made of SS 310 or INCOLOY. Is longer than the terminal rods.
- Ceramic Disc: Used to encompass all the heating elements to form a bundle. Made of Alumina. Usually flower shape.
- Fiber Disc : Used to hold the terminal rods and central rod together. Inserted in the cold zone of the heater. Made of ceramic fiber.

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OPTIONS

Heating Element Material	NiCr / FeCrAl alloy
Wattage	45 kW / 100 kW
Max. Temperature	1200 ° C / 1425 ° C
Diameter	68 to 170 mm
Length	Customized
Voltage	240 or 480 V AC, Single phase or three phase

The surface load has some limitations depending upon the temperature. A table shown below gives a brief idea:

Temperature	**Max. Surface Load (W/cm²)**
Wattage	45 kW / 100 kW
Max. Temperature	1200 ° C / 1425 ° C
Diameter	68 to 170 mm
Length	Customized
Voltage	240 or 480 V AC, Single phase or three phase

If controlling of temperature is required in these heaters either Individual heating elements can be series connected for operating at voltages higher than supply, eliminating the need for transformers or On/ off supply control using slow or fast fired thyristors, SCR/SSR can be used to offer better control of furnace temperature.
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ADVANTAGES:

- Reduces CO2 emissions by eliminating flue gases.
- Minimized environmental impact
- Inside radiant tubes or as standalone elements
- Higher output with fewer assemblies
- Lower cost
- Reliable production
- Uninterrupted operation

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