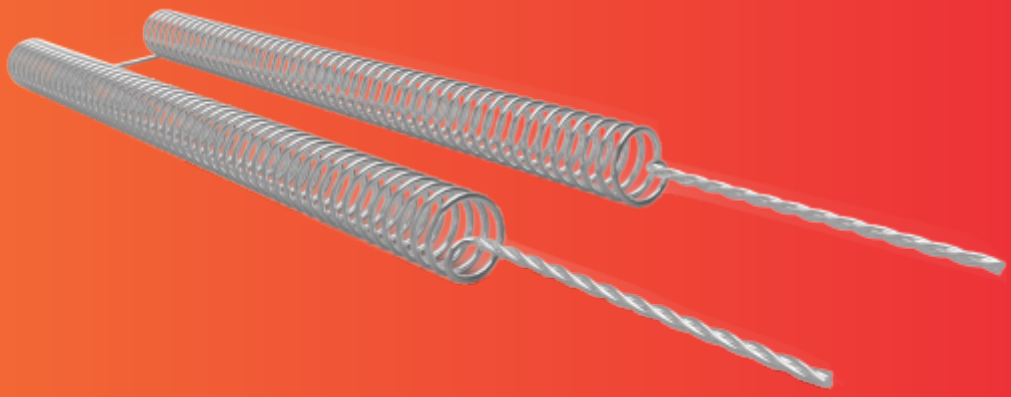
Marathon Tempwatt

Engineered Solution for Heating

OPEN COIL HEATERS



Open coil heating elements have open circuits consisting of coiled resistance wire (usually Ni- Chrome or FeCrAl) fixed onto a supporting element that heat the medium directly. Termed as the most efficient and versatile while also the most economically feasible solution for heating, these elements have fast heat up times that improve efficiency and have been designed for low maintenance and inexpensive replacement parts. When an electrical current is applied to the wire, it gives off heat. The wire is connected to the control panel which regulates the amount of heat provided by the electric heater and fills the tunnel of the air handling unit. Because of the low mass and fast response time, SSR or SCR switching devices are advisable. They serve as an indirect solution to decrease watt density requirements and prevent heat sensitive materials from breaking down. The heater can be formed into a compact, coiled nozzle heater supplying a full 360 degrees of heat with optional distributed wattage.

The face velocity of the air passing over the open coil elements must not be less than a minimum specified value when the heater is energized. There are three factors that are considered when an appropriate face velocity is calculated, i.e. kW, frame size and heater element type. Sufficient airflow for the required kW in a given frame prevents an overheating condition. Heat must be dissipated away from the heating elements.

The following calculation is used for determining face velocity :

Face velocity = CFM/Face Area

Another consideration is the amount of current draw the electric heater will place on the incoming power source. Electric heaters should be divided into individual circuits drawing 48 amps or less. The amp draw can be calculated using the kW and voltage of the heater.

Amps = (kW x 1000)/ (Vac x 1.732)

Attention must also be paid to the geographical area in which the open coil heater will be located.

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DIFFERENT CONFIGURATIONS

- One, two or four resistance wires
- Parallel coil or straight wire
- Drawn or swaged sheaths
- With or without thermocouples
- Round, rectangular or square cable cross sectionals

OPTIONS

Wire	Alloy 825, Stainless Steel
Rating	Up to 50 W/in2
Watt Density	1100°F
Operating Temperature	1400°F
Length	600 V
Outside diameters	1 7/8" and 2 ¾"
Voltage	240 or 480V AC
Controls	SSR/ SCR/ Relays/ RTD
Terminations	Customized

ADVANTAGES

- High ductility
- Low mass
- Constructed with no open seams

ADVANTAGES

- Plastic injection molding nozzles
- Semiconductor manufacturing and wafer processing
- Hot metal forming dies and punches
- Sealing and cutting bars
- Medical, analytical and scientific instruments
- Restaurant and food processing equipment
- Cast-in heaters
- Laminating and printing presses
- Air heating
- Textile manufacturing
- Heating in a vacuum environment

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