

Open Coil vs Finned Tubular

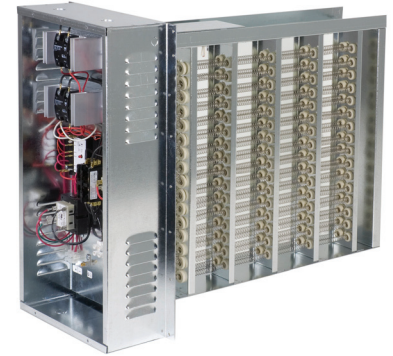
Choosing Between Open Coil or a Finned Tube Design

Open Coil Duct Heaters

Open Coil Duct Heaters utilize the highest grade resistance wire in the manufacturing process. An iron-free, 80% nickel and 20% chromium wire has a lower operating temperature, a higher corrosion resistance, less resistance change, less sag, and a longer life expectancy than other commonly used resistance wires.

For most simple space heating applications, open coil models are a good choice. Open coil models tend to be lower kW and smaller in size than a finned tubular unit. Some of the advantages of an open coil model are:

- **Element Temperature** – The open coil element releases its heat directly into the airstream. As a result, the open coil runs cooler than the coil in the finned tubular element which is isolated from the air by insulation and a metal sheath. Because the heat is going directly into the airstream, the duct heats up quicker.
- **Low Pressure Drop** – Because of the high percentage of open space across the heater, open coil heaters have very low pressure drop as compared to finned tubular heaters. This can result in reduced fan motor horsepower and makes it possible to retrofit open coil heaters into existing systems without changing the fan motor.
- **Large Electrical Clearances** – Generous electrical clearances between the coil and frame enable open coil heaters to withstand severe applications, such as subway car heating, where voltages may exceed 750 volts.
- **Smaller Size** – It is normally possible to get a higher kW with open coil construction for a given face area.



Finned Tubular Duct Heaters

These Finned Tubular Duct Heaters are custom built to meet specific job specifications, similar to the Open Coil Duct Heaters. Elements for Finned Tubular Heaters have steel fins brazed and centered in copper plated steel tubes. The element wire is 80/20 nickel / chromium and protected against corrosion by a high-temperature aluminum coating. The terminals are sealed with silicone rubber to protect against moisture. There is a magnesium oxide filler that assures rapid heat transfer from the element to the tube to the steel fins. For applications that require a high kW output, a finned tubular model is typically more economical than an open coil model due to lower manufacturing costs.

- **Reduce Watt Density** – Finned tubular elements help to reduce watt density. This also allows for more consistent air flow streams within the duct.
- **Finned Tubular Uses** – Duct heaters that have finned tubular elements are typically made for outdoor use or in harsher environments. Elements that use stainless steel fins can withstand the external elements of outdoor usage and are widely used in commercial and industrial applications.

