

A Complete Insight on Duct Heaters

[Duct heaters](#) are also known as electric heating coils which are commonly used in the process of ducting pipes. These are typically installed over the side wall of the vessel, container or a tank to generate air used in the ducting process. Air generated through this heater is combined with the heat that is being transferred to the content within the tank via open-coil elements. There are many different companies engaged in manufacturing of these devices with each having their own application and specification.



Types of Duct Heaters

There are basically three sub categories of duct heating devices available, with each having different configuration and application according to their design and material. Check out below to know more.

- **Terminal Air Heater:** These are also called as circular or drawer type duct heaters. They are the most common type which is frequently used in many different heating applications. They are designed in a way as to allow easy installation directly in the opening provided within the pipe. However, bent designs are also available upon request.

Specifications: The diameter of this particular type ranges from 100 to 630 mm, which is rated from 500 watt to 36 kilo watt respectively. Terminal heaters for conical shaped pipes and containers are also assembled by different companies which can be obtained upon prior request.

Self-controlled terminal duct heaters (<http://www.wattco.com/duct-heaters.html>) are now available in market for the ease of users. You can manage the entire controlling mechanism and temperature of the contraption using electronic thermostats or remote controllers. Additional safety equipment for maximum protection is also provided when requested.

- **Main Air Heater:** This particular type of duct heating device is used for the treatment of air volume present in the container. The looks and shape of this gadget is similar to a drawer or frame type duct heater.

Specifications: Main air duct heater consists of uncovered tubular elements for less transition loss. It is installed within a frame that is made of electrified steel sheet which is sized according to the opening of the duct dimension. You can also obtain stainless steel frame upon request but the cost would be higher as compared to the latter. The maximum watt density for this type only ranges up to few ten kilo watts.

- **Process Heater:** Yet another type of duct heating device is called process heater with power rating only up to only a few hundred kilowatts. For maximum performance and output, thermal insulated designs with stand alone connections are required to operate this heating tool.

Finned Versus Unfinned Tubular Elements

Given below is a table comprising of details and comparison between finned and unfinned tubular elements.

<i>Finned Tubular Elements</i>	<i>Unfinned Tubular Elements</i>
This is perhaps the general design available in market for common purchasing and use.	This type of heating element in a duct heater is only made accessible on pre-order which is approved by the industrial standard.
It is built in a way to provide maximum watt density with a crossed fragment duct area.	The material used in this type is sturdy enough to withstand corrosion at a highest rate, can be used in severe humid atmosphere and is highly resistant to extreme corrosive chemical particles located in the current of air.
These are energy efficient and environmental	The actual heating element is made as shock

friendly, thus being economical and most preferred for in-house use.	resistant however, it is advised not to touch or expose any body part to it without proper covering.
The tubular element is typically made from steel tube having a ridged fin swathed around the device which is welded together.	For this type, tubular element is usually made from stainless steel as well as steel for maximum efficiency and output for advance industrial heating processes.
These only boost up the heat transferring exterior of the device/element.	As the material used in the manufacturing is robust, you can easily place this tubular element close to the heating grill or roll.
It provides low operating temperature which is susceptible to household applications.	High temperature is easily generated so it is suitable for large industrial applications.

Both finned and unfinned tubular elements require low or moderate maintenance due to their premium quality and robust material used in manufacturing.

Common Applications

Duct heaters are commonly used in the following applications.

- Air drying facilities
- Pre-heating of air
- Inoculation air heater
- Equipments used for air handling and controlling
- For heating and reheating of terminal enclosures
- In fan coils
- Ovens for multi heat zones and to reheat flowing air inside a contraption
- For melting and liquefying of objects and edible items like micro wave ovens
- Core drying operations

Primary Features

As stated earlier, core feature and specification for each type of duct heater differs with industrial design and manufacturing. Listed below are common characteristics you can easily find in all types of heating devices.

- Stainless steel supporting to withstand highly corrosive and humid atmosphere
- Multiple steel coating usually 16-gauge satin steel for maximum efficiency and output
- Replaceable parts and elements in case of damage or malfunction
- ¼ inch, which is approximately 6 mm thermopile diameter, inside the device
- Having 3 ½ inch which is 90 mm insulation coating material
- Variation in size, watt densities and materials can be easily obtained over request.
- Stainless steel frames are available on prior requesting
- Each product is checked by industrial association and is fully certified

Key Benefits

Using duct heaters in various heating processes and HVAC companies, you can get the following benefits out of each unit.

- Easy to install and maintain without any hassle
- Clean and efficient heat transfer without dispersing
- Eco friendly
- Flexible and durable for longer life time
- Each unit is made compatible with local power outlet
- Fully maintained wiring cooler
- Maximum heat transfer in less time with minimal waste and heat loss
- Anti corrosive to oxidation