

Electrification and Decarbonization

Electric heat in environmental test chambers.

TUTCO has been receiving a number of inquiries from manufacturers of environmental test chambers who are actively seeking alternatives to using direct fired natural gas as their primary heating source. In certain cases, the unavailability of gas posed a challenge, while in many instances, the outgassing resulting from gas usage was adversely affecting the ongoing testing within the chambers.

In response to these evolving needs and challenges, TUTCO has a diverse range of custom electric solutions, catering to the specific requirements of each manufacturer. These solutions span from compact duct heaters designed for tabletop units to heaters specifically tailored for large environmental chambers that accommodate substantial objects like vehicles.

Our electric heaters are engineered for seamless integration into the chamber's system control panels, which facilitates efficient and precise control of the heating process, ensuring optimal performance and accuracy during testing. Moreover, in situations where low or no airflow occurs, TUTCO's electric heaters can be easily replaced, minimizing downtime and ensuring uninterrupted operation.

For companies transitioning from gas to electric heat in their environmental test chambers, TUTCO is here to provide comprehensive assistance and support. Our team of experts is ready to collaborate and identify the most suitable electric heating solutions that align with the specific requirements. With our extensive experience and dedication to customer satisfaction, we are committed to helping achieve a successful transition and enhance the performance and reliability of test chambers.

To learn more about energy transition, click here.

The use and proper mounting of strip heaters

by Ian Renwick

TUTCO offers four different types of strip heaters suitable for various applications.

Ultima Strip Heaters utilize a reliable tubular heating element encased in a stainless-steel sheath.

Withstanding corrosive and high-temperature environments (up to 1200 °F / 648 °C), they are suitable for demanding applications. Offering higher watt densities, faster heat-up times, and longer service life than conventional strip heaters, they are customizable with various mounting options, terminations, and lengths. They can also be finned for air heating applications if required.

HT Mica Strip Heaters are cost-effective and reliable in providing uniform heat over flat surfaces. With a maximum operating temperature of 900 °F / 482 °C, they are best suited for low to moderate temperatures. Available in various shapes, sizes, and termination styles, they are versatile for different applications, including food warming, heating enclosures, and packaging machinery.

Permaheat Strip Heaters are TUTCO's most rugged strip heater. Designed for heavy-duty applications, they use a tubular heating element for excellent heat transfer and resistance to contamination. Featuring an aluminum body, they conform better to slightly irregular surfaces due to high thermal conductivity and low thermal expansion coefficient. Customizable with various mounting options, terminations, shapes, and sizes, they have a maximum temperature of 600 °F / 315°C, and are suitable for medium to low-temperature applications.

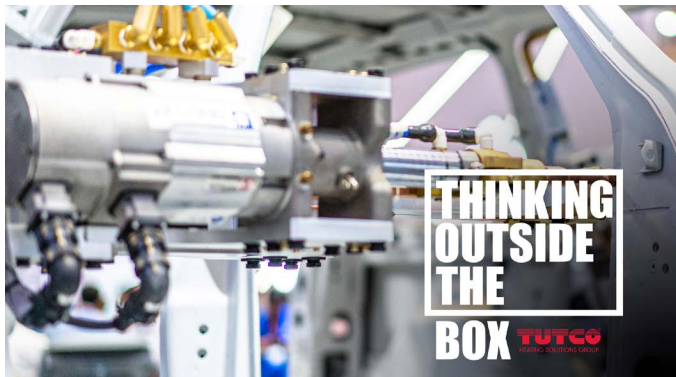


Ceramic Strip Heaters can withstand higher temperatures than the others and are limited to 40 to 45 watts per square inch, depending on the application. Consisting of a stainless-steel sheath containing a high-temperature ceramic insulating nichrome wire coil, they utilize Magnesium oxide (MgO) to fill any air pockets, ensuring optimal heat transfer. With a maximum operating temperature of 1000 °F / 538°C, they are suitable for medium-temperature applications and can be customized with fins, mounting options and various terminations. Available in lengths from 6" to 160" and always 1 1/2" wide, with a thickness of 5/16" or 3/8".

For proper mounting, follow these steps:

- Choose a suitable location with adequate clearance, ventilation (if required), and ensure safe installation.
- Clean and prepare the mounting surface, ensuring it is flat and smooth.
- Apply a thin layer of thermal transfer compound to the back of the heater to improve heat transfer and fill any small air gaps, using non-metallic based thermal paste like milk of magnesia or boron nitride spray.
- Secure the heater to the surface using clamps, bolts, screws, or rivets, avoiding overtightening or deforming the heater.
- Connect the electrical wiring according to specifications and codes, using appropriately sized wire, terminals, connectors, and insulation.
- While not mandatory, it's recommended to have someone check the set up and electrical wiring for safety before applying power, prioritizing safety at all times. Double-checking the installation can prevent any potential hazards and ensure the strip heater operates efficiently and reliably.

TUTCO provides cure for changes in automotive application



An automotive customer had an issue with a heater they were using in a curing oven where the application required using a liquid mist on a new material they were curing. The original oven manufacturer, who was using a TUTCO open-coil heater suggested the customer speak to us directly to see if we had a

solution that would work with this new misting process. We designed and built a custom tubular heater assembly for the application that fit in place of the original heater. The new heater consisted of three stainless-steel tubular elements along with a stainless-steel support frame with all stainless steel hardware. Since the initial release of the design, TUTCO has worked with the customer on a few design changes based on the application which have added value and allowed the heater life to go from what had been just a few days when they came to us to still operating months later when they are serviced on as part of an ongoing preventive maintenance schedule. Our solution eliminated production down time due to failed elements, a valued benefit in the automotive industry.

MORE THINKING OUTSIDE THE BOX

TUTCO SureHeat

The precision of Jet Heaters

In the world of industrial heating solutions, precision, efficiency, and safety are paramount. The TUTCO SureHeat Jet Air Heater stands as a testament to these principles. With the capability to reach temperatures of up to 1400°F (760°C), this remarkable device is designed to meet the demands of various industries and applications.

One of the standout features of the TUTCO SureHeat Jet Air Heater is its incorporation of built-in Type K thermocouples. These thermocouples play a crucial role in ensuring precise temperature measurement, a critical aspect of many industrial processes. Accurate temperature control is essential for maintaining product quality and process consistency. The inclusion of these thermocouples is complemented by their integration with TUTCO SureHeat's Control Panels. This synergy guarantees not only precise voltage control but also overshoot protection, further enhancing the safety and reliability of the heating process. With TUTCO's SureHeat Control Panels, operators can have peace of mind knowing that their heating process is being closely monitored and controlled.

Selecting the appropriate heater for a specific application can be a daunting task, given the myriad of variables involved. Fortunately, TUTCO has provided a helpful calculation tool on their website to assist in this process. By inputting the desired specifications and parameters, users can easily determine the ideal heater for their unique needs. This tool simplifies the decision-making process, ensuring that the TUTCO SureHeat Jet Air Heater is tailored to your application requirements.



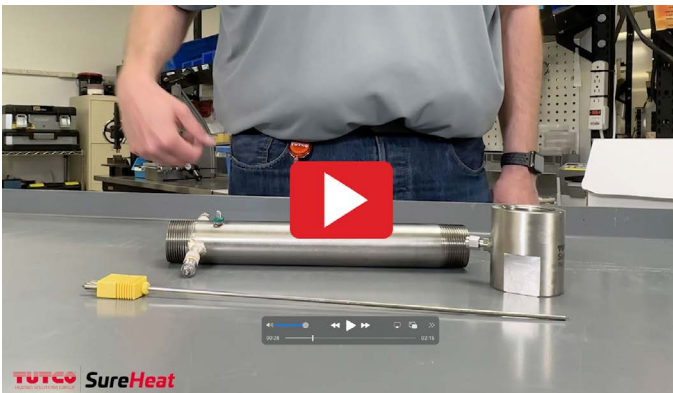
Jet and F078420 Controller

The TUTCO SureHeat Jet Air Heater is a cutting-edge solution for industrial heating needs, offering precision, efficiency, and safety. With its ability to reach temperatures up to 1400°F, it meets the demands of diverse applications, from manufacturing to research and development. Whether it's for your laboratory, production line, or any other industrial setting, the TUTCO SureHeat Jet Air Heater is a reliable and indispensable tool for achieving consistent and controlled heating results. Its integration with the SureHeat Control Panel and user-friendly calculation tool makes it an excellent choice for those seeking to optimize their heating processes while ensuring safety and reliability.

[LEARN MORE](#)

Feature Video

Proper thermocouple placement extends heater element life



Achieving the ideal temperature for your process from your TUTCO SureHeat electric air heater requires the proper placement of the heater's thermocouple. The last thing you want is to set your temperature setpoint only to have your heater element fail before the display reached your target temperature. In this month's Feature Video, learn a number of best practices to ensure you achieve the performance you need for your application, while avoiding overshoot and extending the heater's element life.

[WATCH THE VIDEO](#)



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