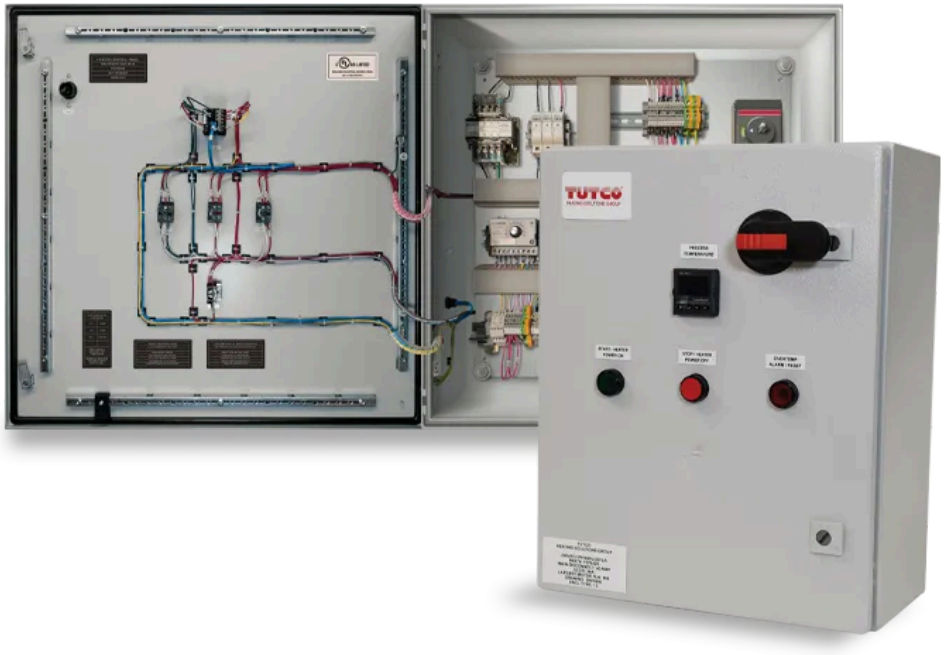
Industrial Control Panels

Industrial heating control systems are critical for proper heater set-up and longer element life. Electric air heaters are merely components of a well-balanced and long-lasting system. Without the proper control setup, electric coil heaters can prematurely fail due to overshoot from voltage control issues. Thermal designed systems are not created equal. The best way to ensure your heater element performs as expected is to purchase a packaged solutions from trusted experts.

Before turning the power on to any heater, it is essential to have the proper airflow through the heater. Only qualified professionals should install TUTCO SureHeat air heaters and controllers. Follow all applicable electrical codes and proper wiring. All control panels are built by UL508A approved facilities and CE approvals are available for all international electrical panels. TUTCO control panels are built for indoor applications and meet NEMA 12 standards. Custom solutions are available. Contact support with your specifications.



When to Specify NEMA 4 or 12 Enclosures

NEMA 4 and NEMA 12 ratings are commonly confusing. Many customers assume they need NEMA 4. NEMA 4 enclosures have one of the highest levels of protection. The NEMA 4 protection rating often exceeds the needs of the customer and results in higher build costs for control panel needs. If the customer requires systems and technology equipment in an outdoor environment with heavy downpours of water, or if it's directly exposed to sunlight, then it's recommended to specify a NEMA 4 enclosure. If the control panel is partly covered, like a parking structure, or a warehouse where minimal water is expected, a NEMA 12 enclosure is adequate.

Key Differences

NEMA 4

Common applications: Used to house standard IT networking connections and equipment, automation electronics or telemetry for non-corrosive and non-explosive processes like transportation signal controls, telecommunications phone, and cable network distribution, communications signal equipment, and security equipment

- Designed for indoor and outdoor use
- Used in applications with direct heavy water applications, like equipment hose downs or pressurized streams of water
- Must provide protection against at least 65 GPM of water from a distance not less than 10 feet for 5 minutes
- Protects against non-hazardous objects (dirt, dust, and flying debris) Protects against rain, snow, sleet, and ice formations

NEMA 12

Common applications: automation control and electronic drives systems, including packaging, material handling, non-corrosive process control, and manufacturing Designed for indoor use Used in applications where non-pressurized oil and light water occurs (light splashes, indirect water) Protects against non-hazardous objects (dirt, dust, and flying debris) No protection against significant environmental risks (rain, snow, sleet, icing, and spray of liquids)

Closed-Loop Controls

Closed-loop heater control system use a power controller, temperature controller, and thermocouples to achieve precise temperature.control.

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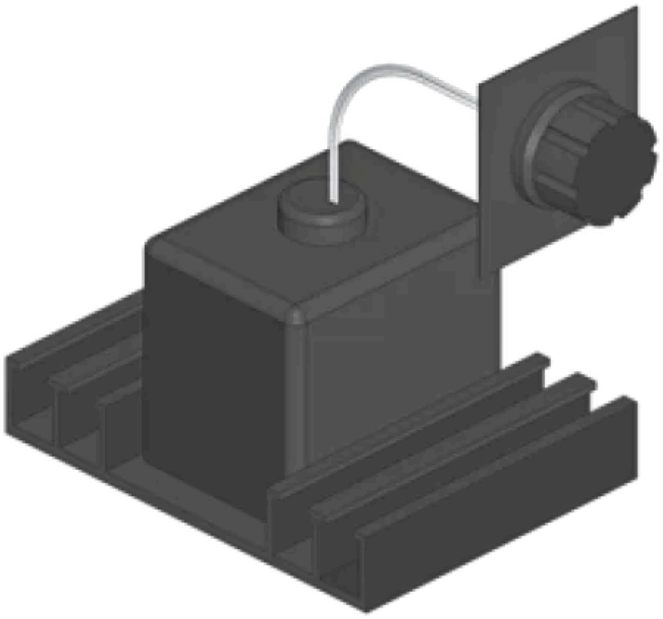

Open-Loop Controls

This simple method of control uses a manually operated power controller to apply a fixed voltage to the heating element.

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Temperature Controllers

A standard PID-type control with a wide proportional band setting will work best to minimize temperature overshoot of heater.

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Thermocouple Placement

For TUTCO SureHeat heaters, use only a fine wire (0.030” max. wire diameter), exposed junction, Type K thermocouple placed within 1” of the heater exit for accurate temperature readings. Other thermocouple styles, or varying the distance from the heater exit, will result in temperature measurement errors and thus the potential for heater failure.

Power Controllers F066823

SCR (Silicon Controlled Rectifier) power controls will provide the smoothest power regulation for TUTCO SureHeat air heaters. Please contact TUTCO SureHeat before using other power controllers, such as SSR (Solid State Relays) or other fast-switching controllers.