Temperature Control Unit

Monitors and maintains temperature for optimal coating material performance.

The Nordson Temperature Control Unit provides an effective method to monitor and maintain material temperature by heating or cooling during can coating operations. The TCU heats, cools and circulates the closed-loop conditioning water through heat exchangers and ancillary components to ensure proper temperature of the coating material throughout production. A temperature sensor located in the coating fluid stream sends the material temperature to the PID controller, which automatically determines whether heating, cooling, or no action is required. This method provides very consistent control of the coating temperature.

The Nordson temperature control unit can be customized to meet specific production requirements for size, heat exchanger mounting, and pump volume.

Features and Benefits

- Coating materials are applied at optimal temperature.Material viscosity is controlled and will not be adversely affected by changes in plant temperature.
- Materials can be heated or cooled to achieve optimal performance and coverage by raising or lowering viscosity.
- The microprocessor PID controller continuously indicates the temperature set point and process temperature. An RTD temperature sensor in the fluid stream automatically selects heating or cooling.
- User-friendly controller includes temperature deviation alarm, front panel and external fault monitoring, loop break alarm and security lockout.
- Turbulence Elements are installed inside the heat exchanger, improving flow of the material and increasing efficiency. Data shows that Turbulence Elements can remove an additional 4-8°F, depending on incoming material conditions.
- While the standard TCU operates a single heat exchange circuit, the system can be ordered with multiple channels of temperature conditioning.
- Remote mountable heat exchanger

Heating Capability

The heating component of the temperature control unit helps to maintain consistent viscosity of coating material for proper film deposition and better operating efficiency and performance. Application of coating material kept at ideal temperature with water based coatings helps to improve flow and leveling characteristics for uniform coverage and reduced metal exposure. This can provide improved quality that minimizes reworks and production line stoppages. Further, proper temperature control can enable the use of lower spray pressures, which can reduce component wear and maintenance requirements to help ensure long service life.

Nordson

Temperature Control Unit

Electric Heater with High Temperature Safety

During operation, water is heated by an electric circulation heater(s) located in the TCU unit.

Since many coating materials are damaged by high temperature, this heater includes an adjustable high-temperature safety switch that will disable the heater circuit when the set temperature is exceeded, even if the controller is still calling for heat.

Other features of the electric heater include maintenance-free water circulators, water reservoir with level switch, pressure and temperature gauges, and adjustable flow indicator.

Chilling Capability

Ambient temperatures in the manufacturing plant can have an adverse effect on coating material performance. During warmer periods of the year when ambient temperatures are above 70° F, plants will often experience increased problems with metal exposure (high mAs). Typically this occurs where line speeds have increased, reducing the “cool-down” period from the deco oven to the inside-spray area.

Increased metal exposure is attributed to an elevated temperature of the can. When internally sprayed, this may result in faster evaporation of the coating material and reduced flow-out. This “hot can” condition typically results in uncoated areas, especially along the dome ridge of cans, and unacceptable cans. Reducing the temperature of the coating by chilling it can significantly improve these conditions, allowing more “open time” of the coating and better flow-out. Metal exposure occurrences are reduced, improving quality and productivity.

Integral Modular Water Chiller

A modular air-cooled water chiller is built into the Nordson temperature control unit. This chiller maintains a reservoir of water at approximately 50° F, and is completely self-contained. An internal thermostat senses the reservoir water temperature and cycles the chiller on demand.

User-friendly Controller

The microprocessor PID controller is located on the door of the control panel and continuously indicates the temperature set point and the process temperature. An RTD temperature sensor located in the coating material fluid stream provides a temperature signal to the controller, which automatically selects heating or cooling.

Specifications

Voltage	200 – 480 vac
Temperature Sensing	PID temperature controlled
Maximum Coating Flow Rate	5 GPM flow rated material heat/cool at 20° F delta
Coating Material Hydraulic Pressure	5000 PSI maximum

Why choose Nordson

In highly competitive manufacturing markets, productivity is vital and performance is essential. That’s why we apply both to everything we do, whether it’s our products, expertise or outstanding customer service. We’ll always be there to help maintain the new standards you’ve set, with expert service and support delivered through our teams working across the globe.

This unique Nordson approach helps you reach new levels of production, while working more accurately, efficiently and competitively than ever. Precisely why manufacturers who demand quality, can rely on Nordson.

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