

# PREHEATER 6000 TC

Conductor preheater with integrated temperature measurement and control for cable extrusion lines



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During cable manufacturing, specifically automotive and data cables, a reliable conductor preheating is required to ensure an optimum adhesion of the insulation to the conductor, respectively a controlled foaming. With the PREHEATER 6000 TC (Temperature Controlled), SIKORA offers an innovative solution for a precise conductor preheating, the basis for high-quality cable production, and thus, a reliable process control.

The PREHEATER 6000 TC is available for temperatures from 50 to 150 °C (optionally 250 °C), for a product diameter of 0.32 to 2.8 mm (0.08 to 6 mm<sup>2</sup> cross section) and for a line speed of up to 2,500 m/min. Devices for larger cross sections are available on request.

In some applications, it may be sufficient to control the output power of a conductor preheating device only based on the conductor size and type, the line speed and the required temperature. However, there are numerous influences on the accuracy of the conductor temperature, such as the ambient temperature, the initial temperature of the conductor and, in particular, the development of the temperature of the wire

guiding short-circuit wheel within the first ten to 20 minutes of production or after an interruption of the production. All these criteria influence the adhesion of the cable insulation and the capacitance of data cables.

The progressive PREHEATER 6000 TC conductively heats the conductor exactly to the desired nominal value. The intelligent combination of the non-contact temperature measurement and the controlling module of the PREHEATER 6000 TC allows for continuous adjustment of the preheating temperature. The result is a stable temperature of the wire always matching the nominal temperature, independent of the conductor material, the dimensions of the conductor and the line speed. No further settings are necessary. Bright LED displays directly at the PREHEATER 6000 TC show the measured temperature at different perspectives.

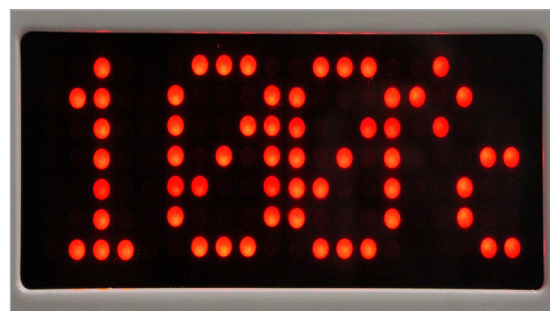
Repetitious processes are the result, ultimately leading to increased quality and productivity.

## Interfaces

The PREHEATER 6000 TC offers standard interfaces such as RS232 and RS485 for the direct connection to a PC or SIKORA's range of ECOCONTROL processor systems. Optionally, it also offers a Profibus DP interface and a plug-in module, which supports all major fieldbus and industrial Ethernet systems, like EtherNet/IP, Profinet IO, DeviceNet, CANopen etc.



The non-contact measurement of the conductor temperature in the PREHEATER 6000 TC provides benefits you do not want to miss



Two-sided large displays of conductor temperature

## New: Innovative current pre-control for highest precision in temperature control

The PREHEATER 6000 TC is characterized by its innovative current pre-control. During start-up processes, the current pre-control first intervenes in the heating phase of the system. This results in rapid heating and temperature pre-control of the conductor within a few seconds, for a precise conductor temperature, and thus, a fast start-up process. The precise temperature value of the heated conductor is then verified with the non-contact IR camera and readjusted if necessary.

Whether temperature control with IR camera switched on or in manual mode – with the SIKORA current pre-control in the PREHEATER 6000 TC, a precise and reliable control of the conductor temperature is always guaranteed under all production conditions.

The novel current pre-control in the PREHEATER 6000 TC requires the specification of the following nominal values:

- Cross-section of the conductor to be heated (in mm<sup>2</sup>)
- Material of the conductor to be heated (e.g. copper)
- Target temperature of the conductor to be heated (in °C)

### Online Power Calculator PREHEATER 6000 TC

Three device models are available for the power ranges of 10, 20, 30 and 35 kW. A power calculator on the SIKORA website [www.sikora.net/powercalc](http://www.sikora.net/powercalc) helps you to choose the optimal device for your needs.

The SIKORA temperature measuring system is also available as the stand-alone system WIRE-TEMP 6000.

### Calibration

According to European standards, open operated measuring and testing equipment has to be checked regularly. For the calibration of the PREHEATER 6000 TC, SIKORA offers a calibration set. This set contains a gold-coated sensor and a handheld console. The console provides accurate measuring values directly at the device or for analysis at a PC. The calibration is easy and fast and ensures regular safety for production lines by comparing contact and non-contact temperature measurements.

The screenshot shows a web browser window titled "PREHEATER 6000 TC Power Calculator". The main heading is "Which PREHEATER 6000 TC suits my requirements?". Below this, there are several input fields and a table.

Language: English (selected) Deutsch

Material: Copper (dropdown menu)

Wire diameter: 0 (input field, units: mm, mm², AWG)

Inlet temperature [°C]: 0 (input field)

Outlet temperature [°C]: 0 (input field)

Haul-off speed [m/min]: 0 (input field)

Current product recommendation:

Material	Diameter [mm]	Cross Section [mm²]	Input [°C]	Output [°C]	Speed [m/min]	Recommendation	Memorize
Copper	0	0	0	0	0		

Below the table is a link: [Show calculation results](#)

Online power calculator

### Typical features

- Optimum adhesion of the insulation (PE or other plastics) to the conductor
- Perfection in preheating with innovative contactless temperature measuring and control
- The PREHEATER 6000 TC is applicable for new lines and can be retrofitted into existing lines

# PREHEATER 6000 TC



Certified according to  
DIN EN ISO 9001

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## Technical Data PREHEATER 6000 TC

<b>Functional Principle</b>
Conductive heating including non-contact measurement and control of the conductor temperature
<b>Conductor Material</b>
Copper, aluminum, steel
<b>Diameter Range</b>
0.45 to 2.8 mm (0.16 to 6 mm <sup>2</sup> ) [0.02 to 0.2" (0.006 to 0.6 in <sup>2</sup> )] (AWG 25 – 5) – standard system
0.32 to 1.2 mm (0.08 to 1 mm <sup>2</sup> ) [0.01 to 0.05" (0.003 to 0.004 in <sup>2</sup> )] (AWG 28 – 17) – small wire system
0.32 to 2.8 mm (0.08 to 6 mm <sup>2</sup> ) [0.01 to 0.2" (0.003 to 0.6 in <sup>2</sup> )] (AWG 28 – 5) – wide range system*
Given dimensions are for solid round conductors (for stranded conductors)
Larger diameters on request
<b>Line Speed</b>
From 50 up to 2,500 m/min [164 to 8,200 ft/min]**
<b>Heating Frequency</b>
2,000 Hz
<b>Power Rating</b>
10, 20, 30 or 35 kW (others on request)
<b>Conductor Temperature</b>
From + 50 to + 150 °C (optional: + 250 °C) [300 °F (optional: 480 °F)] based on an inlet temperature of the conductor of + 20 °C [68 °F] (temperatures below + 50 °C on request)
<b>Power Supply</b>
3 phases 400 V, ± 10 %, 47 to 63 Hz
<b>Environmental Temperature</b>
+ 15 to + 45 °C [+ 59 to 113 °F]
<b>Humidity</b>
Max. 95 %, no condensation
<b>Interfaces</b>
Ethernet/UDP interface, serial interface RS485 + RS232
Optional: 1 analog input and 1 analog output, 0 to 10 V, industrial fieldbus (e.g. Profinet IO, EtherNet/IP, Profibus-DP, CANopen, DeviceNet)

\* For applications where smaller and bigger wires are produced on the same line

\*\* The maximum line speed depends on the conductor size, desired temperature and the power of the selected PREHEATER  
Technical data is subject to change

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