

LABOTRON HIGH TEMPERATURE

3 or 6 kW – 2450 MHz

The Labotron HTE is a high-performance microwave oven for high-temperature laboratory heating applications, up to 1600 C°.

This equipment has been designed to ensure an optimal transfer of microwave energy to the product to be treated, thus guaranteeing excellent yields and very good heating homogeneity.

Developed in partnership with research teams, the Labotron HTE allows the heating of materials with high or low microwave absorption, such as ceramics or glasses at low temperature.

The microwave generators can work in continuous wave or pulsed modes to study the potential effects of electromagnetic fields on the product.

The oven cavity accepts large volume samples, necessary for industrial extrapolation. It also allows you to reach unmatched heat kinetics.



MAIN APPLICATIONS

LABORATORY APPLICATIONS

- Ceramics sintering
- Solid-track synthesis
- Calcination
- Pyrolysis
- Biomass treatment
- All thermal treatments of materials at temperatures between 200 and 1600 °C.

KEY BENEFITS

DESIGN

- Alternating turntable ensures a homogeneous distribution of microwaves
- Polished internal walls to reflect up to 90% of the IR radiation from the sample onto itself

TECHNOLOGY

- Integrated hybrid T impedance adapter

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KEY FEATURES

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| Model name | <ul style="list-style-type: none"> • LABOTRON HTE 3 kW • LABOTRON HTE 6 kW |
| Microwave generator | <ul style="list-style-type: none"> • 2450 MHz • 0 to 3000 W continuous or pulsed • 2450 MHz • 600 W to 6000 W continuous or pulsed |
| Microwave cavity | <ul style="list-style-type: none"> • Reduced ripple rate to reduce the risk of arcs with high-field microwave, reduced pressure and high temperature • 30 mm thick walls in polished aluminum • Turntable diameter 330 mm, thickness 2 mm, continuous or alternating rotation • Manually opening door, equipped with a quartz window • Interior dimensions: 427 x 427 x 488 mm, 88 L volume |
| HMI control | <ul style="list-style-type: none"> • 7.5" color touchscreen (IP65) • Data export in CSV format via port USB or Ethernet • Programming: incidental power, temperature, time, process steps, CW or pulses, maximum reflected power (stop or limitation) |
| Maximum temperature | <ul style="list-style-type: none"> • Product temperature rises according to its thermal characteristics (Cp) • Max. temperature is achieved when thermal losses (mainly by radiation) are equal to the microwave power applied • Temperature limited to 1650 °C due to the supplied sample support in sintered alumina |
| Temperature rise | <ul style="list-style-type: none"> • At 6 kW of microwave power, the temperature rise speed is 3 °C/s per 1 kg of sample, with an average Cp of 2 Jg⁻¹K⁻¹, before the radiation loss reduces the speed (P-m-Cp-/t) K |
| Temperature measurement and control | <ul style="list-style-type: none"> • Aiming device from above, pointing over the center of the turntable, consisting of two IR pyrometers. The first from 50 to 400 °C, the second from 400 to 1650 °C, regulation and management of process steps. • Minimum sample diameter 30 mm required for thermometer sighting |
| Vacuum use | <ul style="list-style-type: none"> • Primary vacuum 1 mbar, DN25 strap on theback. Pump not provided. |
| Use under pressure | <ul style="list-style-type: none"> • Maximum pressure of 0.8 bar (safety valve at 1 bar) • Oxidative controlled atmosphere, neutral, reducing, partial water vapor pressure |
| Gas inflows or outflows | <ul style="list-style-type: none"> • 4 x 3/8", 1 underneath, 1 at the back, 1 on the left side and 2 on top. • Manometer, safety valve |
| Impedance matching | <ul style="list-style-type: none"> • By Hybrid T. Cancels reflected power even with high power densities in the case of a low-charged cavity • Power density measurement showing sample absorption |
| Operator safety | <ul style="list-style-type: none"> • Safety interlocks • Flashing signal on the IHM screen if the sample temperature exceeds 60 °C with the door open |
| Cooling | <ul style="list-style-type: none"> • By water, minimum flow 8 L/min (6 kW), 3.5 bars minimum. Quick connectors in and out. • Cooling power 4 kW (for 3 kW) and 8 kW (for 6 kW) |
| Power voltage | <ul style="list-style-type: none"> • 400 V three-phase + earth, 11 kVA |
| Weight | <ul style="list-style-type: none"> • 290 kg |

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DIMENSIONS

