



27.12 MHz 50 Ω - 8 KW LABORATORY RF OVEN LABOTRON TRF 08



The Labotron TRF 08 is a laboratory equipment using RF heating for applications in food processing, such as thawing, drying, cooking, disinfestation, etc. It can also be used for polymerization and pre-heating before pressing or heating of plastic materials (thermoset or thermoplastic).

The equipment uses Sairem's 50 Ohm technology, allowing the exact measurement and display of power transferred between generator and product. With its **automatic impedance tuning** and its user-friendly interface, the Labotron TRF 08 achieves very precise power outputs, allows the operator to understand the evolution of the dielectric characteristics of the heated product, measures and displays product temperature (by optical fiber), electrode height, RF voltage, RF field, etc., as well as recording all the parameters during the process and enabling easy "copy and paste" transfer of the recorded data to a PC.

The other distinctive features of this oven are its one-piece design (a compact footprint), hot air injection with adjustable flow and temperature (60 °C max), centralized control from a touch-screen HMI, precise positioning of the electrode via an electric actuator.

The Labotron TRF 08 can operate either in continuous flow or in batch mode.

Other RF frequencies are available on demand.

Technical specifications

REF	LABOTRON 08 TRF 50
Design	One-piece oven with integrated RF generator and matching box, stainless steel 304L, continuous flow or batch mode, motorized upper electrode, centralized control on PLC and HMI, water cooling, equipped with lockable wheels, chiller (option).
Frequency	27.12 MHz +/- 0.01 %, quartz driven
Output power	Adjustable from 0 to 8000 W (10 W steps)
HMI (human-machine interface)	12" color touch screen. The HMI controls: <ul style="list-style-type: none"> • Forward and reflected powers. • Electrode RF voltage and RF field (V/cm). • Product temperature in batch mode (optical fiber 200 °C max). • Electrode position, tune and load (matching box) position. • Speed of conveyor belt or treatment time selection. • Hot air temperature. 20 programmable recipes, oven status, faults history, emergency stop, etc.... Data transfer to a PC via USB and Ethernet.
Conveyor belt	Intralox « flat top », width 500 mm, speed from 3 cm/min to 300 cm/min, RF treatment time: 30 minutes when speed = 3 cm/min and 17 seconds when speed = 300 cm/min. Belt height: 900 mm above floor level.
Matching box	« Tune & Load » motorized inductances, manual or automatic control, display of inductance position, pre-positioning for short processes in batch mode. Integration of the matching box above the electrode.
RF electrode	900 x 440 mm. Electrode height adjustable from 20 to 220 mm or from 100 to 300 mm by mechanical setting and selectable on HMI.
Oven access door	On the front and on the back with limit switches, 4 windows, 2 internal lightings.
Input & output zones (for continuous flow operation)	Maximum product dimensions. Height: 190 mm, width: 520 mm. Adjustable shutters to reduce hot air output in case of thin products, or fully closed in batch mode. Length of loading / unloading zones: 480 mm, loading/unloading height 900 mm.
Air extraction	A fan with variable frequency drive evacuates the vapors generated during drying processes.
Hot air (option)	Power 3 kW, temperature adjustable up to 60 °C, air flow is not adjustable.
Mains consumption	400 V 3 phases no neutral + earth, 50/60 Hz, 21 kVA at full power, i.e. 30 A per phase.
Water cooling	Minimum water supply 20 L/min, pressure 3 bars min; water temperature 18°C to 23°C; no solid particles, maximum power to evacuate 5 kW, water connection: 3/4" gas female. Chiller (option): to cool the Labotron in a closed circuit.
Size / weight	Size: see drawing in page 4, total weight: 830 kg.



Labotron TRF 08 with doors open

Advantages of the 50 Ω RF technology compared to a self-oscillator

	Self-oscillator	50 Ω amplifier with quartz
Frequency stability	Bad	Very good
Power stability	Average	Very good
Power control	Impossible	Very accurate
Multi-applicators (one generator, 2 or more applicators)	Impossible	Possible

