

Laboratory Furnaces

STANDARD FEATURES

- Max Operating temperature 1100°C
- Bottom loading type furnace.
- Multiple Programmable PLC automatic controller.
- High accurate test results under uniform temperatures.
- Display- LED display
- Accuracy- $\pm 1^{\circ}\text{C}$
- Temperature- Ambient to 1100°C.
- Electrically operated actuator rail protects operator from the chamber's radiation.
- Outstanding temperature uniformity inside chamber.
- Vacuum and moisture removal for stopping the contamination with the Specimen.
- Easy operation and maintenance.
- Long service life and Optimum functionality
- Laboratory standard machine.

DENTAL FURNACE



Dental Furnace is a bottom loading type heat treatment equipment used to change physical properties of samples at very high temperature. These laboratory furnaces are widely used in scientific experiments in dental laboratories. Its major applications are in sintering translucent zirconia and dental ceramics operations. This furnace provides the following advantages: easy loading and removal of samples like molten glass, dental zirconia etc. furnace use an electrically operated elevator hearth, which as it rises into the furnace chamber, lifts the load into the heated zone. Uniform heating achieved by locating elements in all side walls of the chamber. All the parameters are controlled and operated with the help of a PLC programming.

Tempsens is ISO certified Laboratory & Industrial furnace manufacturers and suppliers. Our company makes these Furnaces in various temperature ranges and chamber sizes. Each unit is made with rugged construction and equipped with easy to use controller system and safety devices.

TECHNICAL SPECIFICATION

CONSTRUCTION

- Powder coated CRC 1.6mm thick Mild Steel cabinet.
- Stainless Steel Chamber and flanges for vacuum creation inside the chamber.
- Double shell case with cooling fan to keep electric components safe.
- Maximum thermal efficiency using high grade ceramic fiber insulation.
- Anti-corrosion and high quality stainless steel working chamber.
- Ceramic fibre insulation around the chamber to provide excellent

uniformity and energy efficiency.

- Easy loading and removal of samples like molten glass, dental zirconia material.
- Limit switch for controlling the stepper motor to while door is in open condition.
- Exhaust air vents in the control panel housing and roof for protection from thermal damage.
- Door limit switch for cutting power to heating element while door is in open condition.

DIMENSIONS

- Inner chamber size – 80mm X 100mm (Diameter x Length).
- Volume – 0.5 Liters. (Approx.)
- Outer body - 390mm X 450mm X 725mm (WxDxH).
- Net Weight: 50 Kg

ELECTRICAL REQUIREMENTS

- Power – 220V, Single Phase, 50Hz.
- Wattage – 1 KW.

HEATING ELEMENTS

- Element type – FeCrAl Heating Elements
- SSR based heaters.
- 1 kg Wattage/ Single Phase.

TEMPERATURE CONTROL

- Electronic/Automatic control.
- Temperature sensing through N type sensor.
- NABL certified thermocouple.
- High temperature alarm output.
- Over temperature protection and short circuit breaker.

DOOR OPERATION

- Door's vertical motion controlled through motorized actuator arrangement.
- Motor driven lifting table with silicone rubber gasket carrying the specimen.

BUILT IN PROGRAM:

Sr. No.	Process Steps	Procedure
1.	Furnace Closing Time	Closing time of the furnace
2.	Degassing Temperature Rise	Heater on reaching up to Degassing Temperature °C
3.	Degassing Process	Removal of Moisture by Opening
4.	Vacuum	Vacuum start
5.	Ramp – 1	Rate of temperature rise (°C /min.)
6.	High Temperature 1 (T1)	Ramp-1 - Temperature limit at T1 °C
7.	Temperature Delay	Holding Time Specimen at T1 °C
8.	Ramp – 2	Rate of Temperature Rise from T1 °C (°C /min.)
9.	High temperature – 2 (T2)	Ramp-2 Temperature Limit at T2 °C
10.	Temperature Delay	Holding Time at T2 °C (min.)
11.	Cooling Time Inside Chamber	Heater off after holding period complete (min.)
12.	Furnace Opening Time	Cooling inside the furnace
13.	Natural Cooling to Room Temperature	Opening and cooling in ambient

OPTIONAL FEATURES

- Programmable PLC controller with RS-485 & Data Logging software.
- Provision for vacuum/ gas purging application (Ar, N2, H2, O2, CO2, etc.).
- Available in standard sizes and as per customer requirements.

ACCESSORIES

- One pair of Heating Element.
- Crucible Tongs.