



Product Overview

The **Laboratory Muffle Furnace** is a high-performance box-type electric furnace designed for heat treatment, material testing, sample preparation, annealing, ashing, calcination, and laboratory research applications. The furnace provides excellent temperature uniformity through a silicon carbide muffle chamber and energy-efficient ceramic fiber insulation, ensuring reliable and repeatable results.

Designed for continuous laboratory operation, the furnace features an advanced PID temperature controller, solid-state power control, and multiple safety protections for precise thermal processing.

Applications

The furnace is suitable for a wide range of laboratory and industrial applications, including:

- General Laboratory Testing
- Heat Treatment
- Annealing
- Ash Determination
- Coal Analysis
- Lime Calcination
- Ceramic Sample Firing
- Chemical Analysis
- Organic & Inorganic Ashing
- Soil & Aggregate Testing
- Cement Testing
- Metallurgical Research
- Glass Processing

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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- Research Laboratories
- Universities & Engineering Colleges
- Industrial Quality Control

Technical Specifications

Parameter	Specification
Furnace Type	Box Type Laboratory Muffle Furnace
Maximum Operating Temperature	1200°C
Chamber Dimensions (W × D × H)	175 × 300 × 150 mm
External Dimensions (W × D × H)	550 × 550 × 400 mm
Chamber Volume	7.9 Litres
Power Rating	3.2 kW
Heating Element	Kanthal A1 Resistance Heating Elements
Control Thermocouple	Type N
Temperature Accuracy	±1°C
Display	7-Segment LED Digital Display
Temperature Control	Electronic PID Controller
Power Control	Solid State Relay (SSR)
Temperature Sensor	NABL Certified Thermocouple

Construction Features

- Heavy-duty **1.6 mm powder-coated mild steel cabinet**
- High-purity vacuum-formed ceramic fiber insulation
- Pre-sintered insulation board for maximum energy efficiency
- Silicon carbide muffle chamber for superior temperature uniformity
- Double-wall construction with cooling fan
- Low external surface temperature
- High thermal efficiency with low heat loss
- Compact laboratory design
- Easy access front-loading chamber

Temperature Control System

The furnace is equipped with an advanced electronic temperature control system that provides stable and accurate heating performance.

Standard Functions

- Digital PID Temperature Controller
- LED Temperature Display

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- Temperature Accuracy $\pm 1^{\circ}\text{C}$
- Solid State Relay (SSR) Power Control
- NABL Certified Thermocouple
- Type-N Temperature Sensor
- Automatic Temperature Regulation
- Uniform Heating Performance

Safety Features

The furnace incorporates multiple safety systems to ensure reliable and safe operation.

- Over-temperature protection limiter
- Adjustable safety cut-out temperature
- Door safety limit switch disconnecting heating elements when opened
- Thermocouple break protection
- Double insulated outer body
- Cooling fan for electrical component protection
- Energy-efficient insulated chamber
- Low external cabinet temperature

Door Mechanism

- Parallel motion swing door
- Mechanical linkage opening system
- Push-down lever locking mechanism
- Safe and convenient front loading

Standard Features

- Maximum operating temperature **1200°C**
- Silicon carbide muffle chamber
- Excellent temperature uniformity
- PID electronic temperature controller
- Digital LED display
- Solid State Relay controlled heating
- High-grade ceramic fiber insulation
- Energy-efficient operation
- Rugged steel construction
- Easy maintenance
- Continuous duty operation
- Compact laboratory footprint

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Optional Features

- Programmable PID Controller
- RS-232 Communication Interface
- RS-485 Communication Interface
- Ethernet Connectivity
- PC-Based Data Logging Software
- Vacuum Operation Facility
- Gas Purging Arrangement
 - Argon (Ar)
 - Nitrogen (N₂)
 - Hydrogen (H₂)
 - Oxygen (O₂)
 - Carbon Dioxide (CO₂)
- Observation Window
- Custom Chamber Sizes

Standard Accessories

- Heat Resistant Gloves
- Ceramic Crucible
- Crucible Tongs
- Spare Heating Element

Advantages

- Excellent temperature stability and uniformity
- Fast heating with energy-efficient insulation
- Long-life Kanthal A1 heating elements
- Accurate temperature measurement using Type-N thermocouple
- Reliable solid-state power control
- Safe and user-friendly operation
- Low maintenance requirements
- Suitable for continuous laboratory and industrial use
- Ideal for research, testing, educational, and quality control laboratories

Scope of Supply

- Laboratory Muffle Furnace (1200°C)
- Digital PID Temperature Controller
- Silicon Carbide Muffle Chamber

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- Type -N Thermocouple
- Solid State Relay Power Control System
- Heat Resistant Gloves
- Ceramic Crucible
- Crucible Tongs
- User Manual



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