



TORONTECH



MUFFLE FURNACE TT- MF-3-1200

Laboratory Muffle Furnace TT-MF-3-1200 is used for sintering and heat treating advanced materials, including metals, ceramics, nanomaterials, and semiconductors. It supports high-temperature thermal processing.

APPLICATIONS

Muffle Furnace TT-MF-3-1200

Muffle Furnace TT-MF-3-1200

- **Advanced Materials Research & Development** – Supports high-temperature sintering, annealing, and thermal treatment of ceramics, metals, nanomaterials, and semiconductors. Ensures uniform heating and precise process control for cutting-edge material innovation.
- **Metallurgical Laboratories** – Enables reliable heat treatment, phase transformation studies, and oxidation testing of metallic alloys. Delivers reproducible results critical for metallurgy, alloy development, and structural analysis.
- **Ceramics & Glass Manufacturing** – Provides stable high-temperature processing for ceramic sintering, glaze development, and glass transition studies. Maintains material integrity while ensuring energy-efficient performance.
- **Electronics & Semiconductor Industry** – Facilitates thermal oxidation, diffusion, and annealing processes for semiconductors and advanced electronic components. Ensures precision, consistency, and compliance with industry quality standards.

- **Chemical & Catalysis Research** – Suitable for catalyst activation, thermal decomposition, and material pyrolysis studies. Offers programmable temperature profiles for advanced research in chemical kinetics and reaction mechanisms.
- **Energy & Battery Material Development** – Supports thermal processing of cathode, anode, and solid-state electrolyte materials. Enables stable high-temperature treatment for lithium-ion, solid-state, and next-generation battery innovations.
- **Academic & Institutional Laboratories** – Ideal for teaching, research experiments, and specialized projects across physics, chemistry, and material science. Provides reliable, safe, and versatile thermal processing in an academic setting.
- **Quality Control & Certification Agencies** – Delivers consistent high-temperature testing for product verification, certification, and compliance. Ensures traceable results aligned with ISO, CE, and SGS standards.

FEATURES

Furnace Shell

1. Constructed from Q235 low-carbon steel with an electrostatic-resistant, corrosion-resistant finish.
2. Durable metal frame design helps maintain a low external surface temperature.
3. Side-opening door hinges on the right for convenient operation.

Refractory Material

Features a multi-layer insulation system made from lightweight alumina ceramic fiber and premium insulation board.

Asbestos-free, it ensures low heat loss and reduced energy consumption.

Heating System

- 1. High-grade HRE spiral resistance wire heating elements are securely embedded on the chamber walls. Radiant heating inside the cavity ensures energy efficiency and long service life.
- 2. Three-sided heating (left, right, and bottom) promotes excellent temperature uniformity.
- 3. A silicon carbide plate covers the bottom elements, enhancing durability, thermal conductivity, and horizontal load support.

Temperature Control Panel

- 1. PID and SSR-based control system delivers accurate temperature regulation.
- 2. Equipped with an N-type nickel-chromium-silicon thermocouple (0–1300°C range) for reliable temperature measurement and extended lifespan.
- 3. Integrated safety switch automatically cuts power when the furnace door is opened.

Program Controller

- 1. Designed to handle complex thermal processing routines.
- 2. User-friendly interface with flexible programming options.
- 3. Supports up to 30 programmable segments per curve.
- 4. Includes over-temperature and fault alarms with automatic safety shutdown.

TECHNICAL SPECIFICATIONS

Model	TT-MF-1-1000	TT-MF-3-1200	TT-MF-6-1200	TT-MF-8-1200	TT-MF-12-1200	TT-MF-18-1200	TT-MF-30-1200
Chamber size W xD xH mm	100 x100x100	150 x150x150	180x230x150	200x300x120	200 x300x200	250 x300x250	300 x500x200

Outer size□ W xD xH□ mm	250 x240x350	430x465x620	460x570x660	480 x630x630	480 x630x710	550x635x780	600 x870x735
Max temperature	1200℃						
Working temperature	1100℃						
Voltage	220V/1.2KW (110V is also available)	220V/2.5KW (110V is also available)	220V/3KW (110V is also available)	220V/3KW (110V is also available)	220V/4KW (110V is also available)	220V/6KW (110V is also available)	380V/7.5KW
Heating element	HRE Alloy resistance wire						
Chamber material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration						
Temp.Precision	±1℃						
Termocouple	N Type termocouple						
Temperature controller	Intelligent microcomputer PID temperature control instrument, SSR control, PID parameter self-tuning function; programmable 30 program segments, program temperature rise, program heat preservation, program cooling						
Heating rate	1-25℃/min free adjustment						
Furnace structure	Furnace temperature control integrated structure						
Equipment protection	Modular control, sound and light alarm signal will be sent out for over temperature and broken coupler in the working process, and the protection action will be completed automatically						
Safety protection	The equipment is equipped with a circuit breaker, which will automatically pop open in case of short circuit leakage, which can protect the safety of equipment and operators						
Furnace shell	High-quality cold-rolled steel plate CNC machine tool blanking processing, after welding, grinding, polishing, phosphating, pickling, surface electrostatic spraying plastic powder						
Quality certificate	ISO9001 CE SGS TUV						
Standard packing	1. Furnace body 1 set 2. Temperature controller 1 set 3. Power cord 3 meters 4. Thermocouple 1 set 5. Manual 1 copy 6. Crucible pliers 1 set 7. High temperature gloves 1 pair						

Optional	1. Optional exhaust chimney for evacuation of volatile substances 2. Optional corundum crucible, furnace floor, shed board and other kiln furniture 3. Optional material recorder for online recording of temperature curves
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