



TORONTECH



MUFFLE FURNACE TT- MF-8-1700

TT-MF-8-1700 Ceramic Muffle Furnace is designed for high-temperature heat treatment processes such as sintering ceramic materials, nanomaterials, semiconductors, powder metallurgy, and other advanced materials. It is widely used in universities, research institutions, manufacturing facilities, the petrochemical sector, and the aerospace industry.

APPLICATIONS

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- **Advanced Ceramic Processing** - Provides ultra-high temperature sintering and densification of ceramic components. Ensures excellent thermal stability, uniformity, and structural integrity for advanced material applications.
- **Nanomaterials Research & Development** - Offers precise heat treatment for nanostructures and composites. Supports functional materials research in electronics, catalysis, coatings, and next-generation technologies.
- **Semiconductor Industry** - Facilitates annealing, diffusion, and thermal oxidation of semiconductor substrates at temperatures up to 1700°C. Ensures consistent and accurate processing for high-performance electronic devices.

- **Powder Metallurgy** - Enables high-temperature sintering of metallic powders into dense and durable parts. Suitable for producing complex shapes, alloys, and advanced metal components in research and manufacturing.
- **Petrochemical & Chemical Research** - Ideal for catalyst activation, pyrolysis, and thermal decomposition studies. Provides programmable thermal cycles for accurate simulation of chemical processes.
- **Aerospace Materials Engineering** - Delivers controlled high-temperature processing for aerospace-grade alloys, ceramics, and composites. Ensures performance testing and stability validation under extreme thermal conditions.
- **Energy & Battery Materials Research** - Supports heat treatment of solid electrolytes, cathodes, and anodes for lithium-ion, solid-state, and next-generation batteries. Guarantees reproducible results critical to energy R&D.
- **Universities & Research Institutes** - Widely applied in academic research for physics, chemistry, and materials science. Combines advanced programmability with safe operation for high-level educational environments.
- **Industrial Quality Control & Certification** - Provides reproducible high-temperature testing for batch samples, inspection, and certification. Fully compliant with ISO, CE, SGS, and TÜV standards.

FEATURES

Furnace Shell

1. Constructed from Q235 low-carbon steel with a corrosion-resistant, electrostatically coated surface.
2. Durable double-layer metal frame structure helps maintain a low exterior temperature.

3. Right-side, side-opening door design for convenient operation.

Refractory Material

1. Features a multi-layer insulation system made from lightweight alumina ceramic fiber and high-grade insulation board.
2. Asbestos-free, with low heat loss and reduced energy consumption.

Heating System

1. Equipped with high-quality MoSi₂ heating elements, securely mounted on both sides for efficient free-radiation heating inside the chamber.
2. Dual-sided heating ensures excellent temperature uniformity.
3. Custom high-temperature models available with maximum temperatures of 1750°C and 1800°C, suitable for ceramic sintering applications.

Temperature Control Panel

1. Utilizes PID and SCR control for precise temperature management.
2. Integrated B-type platinum-rhodium thermocouple (50–1800°C) ensures accuracy and durability.
3. Safety switch automatically cuts power when the door is opened.

Program Controller

1. Advanced control system supports complex process requirements
2. User-friendly interface with flexible programming
3. Capable of storing up to 30 programmable segments
4. Built-in over-temperature and fault alarms with automatic safety features

TECHNICAL SPECIFICATIONS

Model	TT-MF-1-1700	TT-MF-3-1700	TT-MF-8-1700	TT-MF-12-1700	TT-MF-20-1700	TT-MF-36-1700	TT-MF-45-1700
Chamber size □ W xD xH□ mm	100 x120x100	150 x150x150	200x200x200	200x300x200	250 x320x250	300x400x300	300 x500x300
Outer size □ W xD xH□ mm	383 x432x660	510x560x870	600x620x920	600x693x920	610 x730x970	700x840x1500	700x940x1500
Max temperature	1700℃						
Working temperature	1600℃						
Voltage	220V/2KW (110V is also available)	220V/4KW (110V is also available)	220V/5KW (110V is also available)	220V/6KW (110V is also available)	220V/7KW (110V is also available)	380V/15KW	380V/18KW
Heating element	MoSi2 rod						
Chamber material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration						
Temp.Precision	±1℃						
Termocouple	B Type termocouple						
Temperature controller	Intelligent microcomputer PID temperature control instrument, SCR/SSR control, PID parameter self-tuning function; programmable 32 time periods, program heating, program heat preservation, program cooling						
Heating rate	1-15℃/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
Quality certificate	ISO9001 CE SGS TUV
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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