



TORONTECH



AUTOMATIC LOADING ROTARY TUBE FURNACE 1200°C -TT- RTF-60-1200 PRO

Automatic Loading Rotary Tube Furnace 1200°C -TT-RTF-60-1200 Pro features a built-in heating system, motorized rotation, an automated material handling setup, and a tilt-adjustable furnace body. The tube rotates a full 360° with variable speed control. Feeding speed can be adjusted in real time, and the furnace body tilts up to 15°. A material collection unit is installed at the tube's end, supporting continuous small-scale production for product development and pilot testing.

APPLICATIONS

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- **Advanced Materials Processing** – Enables continuous thermal treatment of powders, granules, and small-scale bulk materials. The automated feeding and rotating mechanism ensures uniform heating, reproducibility, and scalability for product development.
- **Nanomaterials & Composites** – Provides precise thermal processing for nanostructures, catalysts, and advanced composites. The 360° rotation prevents agglomeration, enabling uniform microstructure control essential for high-performance materials.
- **Semiconductors & Electronics** – Supports annealing, diffusion, and calcination of semiconductor precursors and electronic materials. Ensures stable, controlled processing for microelectronics, optoelectronics, and functional ceramics.

- **Catalyst Development & Petrochemical Research** – Facilitates calcination, activation, and regeneration of catalytic materials under continuous feeding. Suitable for petrochemical R&D where controlled reaction environments and reproducible results are critical.
- **Powder Metallurgy & Alloy Processing** – Enables thermal sintering and treatment of metallic powders in a rotating tube environment, ensuring homogeneity. Ideal for fabricating advanced alloys, coatings, and specialized metallic components.
- **Energy & Battery Materials** – Delivers continuous calcination and sintering of electrode materials, solid electrolytes, and cathode/anode powders for lithium-ion and next-generation batteries. Ensures uniform particle properties for consistent energy performance.
- **Aerospace & Defense Materials** – Provides controlled thermal processing of ceramic composites, superalloys, and refractory materials. Supports validation of heat resistance and structural stability in aerospace-grade applications.
- **Food, Pharmaceutical & Biomaterials R&D** – Suitable for controlled drying, calcination, and sterilization of biomaterials, pharmaceutical powders, and specialty food research. Ensures contamination-free processing with programmable precision.
- **Universities & Research Institutes** – Offers advanced programming, automated feeding, and reliable safety for laboratory research. Widely applicable in materials science, chemistry, and engineering programs requiring versatile thermal solutions.
- **Industrial Pilot Production & Quality Control** – Supports small-scale continuous production and batch testing. Ensures consistent process validation and product certification, meeting ISO9001, CE, SGS, and TÜV international standards.

FEATURES

Furnace Shell

- The shell is constructed from Q235 low-carbon steel with an electrostatic coating that resists corrosion. A durable double-layer metal frame is integrated with a heat-insulating fan system, keeping the exterior surface temperature low. The furnace is designed for horizontal operation with a top-opening lid, making it user-friendly.

Refractory Material

- The insulation consists of multiple layers, including lightweight alumina ceramic fiber and high-quality backing boards. It is asbestos-free, minimizes heat loss, and supports energy efficiency.

Heating System

- High-performance HRE spiral resistance wire heating elements are securely mounted on the inner chamber walls, delivering efficient radiant heat with long service life.
- Ring-shaped resistance wire configuration ensures uniform temperature distribution throughout the chamber.

Temperature Control Panel

- Equipped with advanced controllers capable of managing complex thermal processes.
- Supports up to 30 programmable segments for automated temperature curve control.
- Includes over-temperature and fault alarms with built-in safety protection.

Rotary and Automatic Feeding System

- The furnace tube uses an electric gear-driven mechanism that rotates 360° at adjustable speeds between 12–20 rpm, ensuring uniform heating. The furnace body tilts via electric drive, allowing smooth material entry and discharge. An automatic screw feeder with adjustable feed rate and a collection system at the tube's end enables continuous material processing.

TECHNICAL SPECIFICATIONS

Item	TT-RTF-60-1200PRO	TT-RTF-100-1200PRO	TT-RTF-150-1200PRO	TT-RTF-200-1200PRO
Tube Size	Φ60×1200mm	Φ100×1200mm	Φ150×1500mm	Φ200×1800mm
Heating Zone	440mm	440mm	600mm	800mm
Max Temperature	1200°C			
Work Tempearture	1100°C			
Heating Element	HRE high temperature alloy resistance wire			
Chamber Material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration			
Temperature accuracy	±1°C			
Thermocouple	N type thermocouple			
Temperature Controller	Intelligent microcomputer PID temperature control instrument, SSR voltage regulation control, PID parameter self-tuning function; programmable 32 program segments, program temperature rise, program heat preservation, program cooling			
Heating Rate	1-20°C/min freely adjustment			
Furnace Strcuture	Furnace temperature control integrated structure			
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			

Cerfiticate	ISO9001 CE SGS TUV
Standard Accessories	1□ Furnace Body 1 set 2□ Power cable 3 meter 3□ Thermocouple 1 pc 4□ Manual 1 pc 5□ Furnace Hook 1 pair 6□ High Temperature 1 pair
OEM	According to the output requirements of the actual material of the user, the customization of special specifications of the product can be realized



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