



# ROTARY TUBE FURNACE 1200°C -TT- RTF-300-1200

The Large-diameter Rotary Tube Furnace 1200°C - TT-RTF-300-1200 is designed for advanced material processing, featuring an integrated heating system, automatic rotation, automated feeding and discharging mechanisms, and a tiltable furnace body. The tube rotates 360° with adjustable speed to ensure uniform heating, while the feeding speed can be fine-tuned in real time for precise control. The furnace body tilts up to 15° to simplify material loading and unloading, making it efficient and user-friendly.

Equipped with a  $\Phi 300$  quartz tube and a 440 mm heating zone, this model supports continuous operation at 1100°C and reaches a maximum temperature of 1200°C. Powered by 220V/13kW (with 110V option available), it utilizes high-quality alloy resistance wire (HRE) heating elements and an N-type thermocouple for reliable temperature measurement. A collection unit at the tube outlet enables continuous small-scale production, making this furnace ideal for research, pilot testing, and specialized industrial applications.

## APPLICATIONS

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**Advanced Ceramic Processing** – Enables high-temperature sintering and thermal treatment of large ceramic components. Ensures structural integrity, thermal resistance, and durability for both research and industrial applications.

**Nanomaterials and Powder Processing** – Provides precise, uniform heating for nanopowders, catalysts, and functional composites. Supports continuous small-scale production with automated feeding and collection systems.

**Semiconductor and Electronic Materials** – Facilitates annealing, diffusion, and oxidation of semiconductor substrates and electronic ceramics. Delivers uniform heating essential for microelectronics and optoelectronics manufacturing.

**Powder Metallurgy** – Supports controlled sintering of metal powders into dense, uniform structures. Ideal for prototyping complex alloys and components in pilot-scale environments.

**Chemical and Petrochemical Research** – Suitable for catalyst activation, thermal decomposition, and controlled reaction studies under vacuum or protective atmospheres. Provides reproducible, high-temperature results for R&D.

**Aerospace Materials Engineering** – Enables high-precision thermal processing of advanced alloys, ceramics, and composites used in aerospace applications. Ensures high strength and thermal stability under extreme conditions.

**Energy and Battery Materials** – Provides controlled heating for solid-state electrolytes, lithium-ion components, and next-generation energy storage systems. Ensures consistent material performance in research and pilot production.

**Universities and Research Institutions** – Offers flexible operation, automation, and reliable performance for academic laboratories. Suitable for advanced studies in physics, chemistry, materials science, and process engineering.

**Pilot Production & Industrial Testing** – Equipped with automatic feeding, tilting, and collection systems, the furnace is ideal for continuous small-batch processing, product validation, and scaling up from research to industrial applications.

## FEATURES

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### Furnace Shell

- The shell is constructed from Q235 low-carbon steel with an electrostatically applied corrosion-resistant coating. A solid double-layer metal frame combined with a heat-insulating fan structure ensures a low external surface temperature. The unit is designed for horizontal operation with a top-opening configuration for ease of use.

### Refractory Material

- The furnace features a multi-layer insulation system made of lightweight alumina ceramic fiber and high-grade insulation board. It is asbestos-free, minimizing heat loss and energy consumption.

**Heating System**

- High-performance HRE spiral resistance wires are securely embedded along the inner surface, providing efficient thermal radiation heating and extended service life.
- Circular heating via resistance wire ensures uniform temperature distribution throughout the chamber.

**Temperature Control Panel**

- Equipped with advanced controllers designed to handle complex thermal processes.
- Supports up to 30 programmable segments for automated temperature control curves.
- Includes over-temperature protection, fault alarms, and automatic safety shutdown.

**Rotary and Automatic Feeding System**

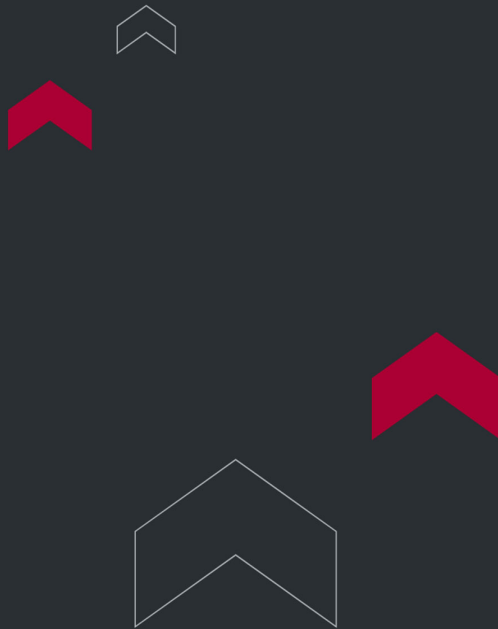
- The furnace tube uses a gear-driven electric motor to rotate 360°, with adjustable speeds ranging from 12-20 RPM for even heating.
- The furnace body is electrically tiltable with an adjustable angle, allowing for smoother loading and unloading of materials.
- An integrated automatic screw feeder enables adjustable feeding speed and includes a material collection system at the discharge end, enabling continuous processing for small-batch production or experimental use.

**TECHNICAL SPECIFICATIONS**

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|-----------|-------------------|--------------------|--------------------|--------------------|
| 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 Temperature       | 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 Structure      | 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                                                      |       |       |       |
| Certificate            | 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<br>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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