



INDUSTRIAL FURNACE - TT-IF-150-1200

The Industrial Furnace TT-IF-150-1200 is an advanced automatic-door furnace engineered for precision heat treatment applications. With a maximum operating temperature of 1200°C and a continuous working temperature of 1100°C, it is specifically designed for processes such as quenching, tempering, normalizing, and annealing of metal materials. Beyond metallurgical use, the furnace is also well-suited for the sintering of non-metallic ceramic materials, making it a versatile solution for a wide range of industries.

Featuring a 450 × 530 × 590 mm chamber, the TT-IF-150-1200 provides ample capacity for small-scale production as well as laboratory and pilot testing. It is powered by high-quality alloy resistance wire (HRE) heating elements and controlled with an N-type thermocouple, delivering precise temperature accuracy of $\pm 1^{\circ}\text{C}$. Operating on 380V, this furnace combines efficiency, durability, and reliability to support both research environments and industrial production needs.

APPLICATIONS

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- **Nanomaterials Research** – Provides controlled, uniform thermal processing for nanostructures and ceramic composites. Supports R&D in functional nanomaterials for electronics, catalysis, and advanced coatings.
- **Metallurgical Heat Treatment** – Ideal for quenching, tempering, annealing, and normalizing of metal alloys. Ensures precision in hardness adjustment, stress relief, and microstructure refinement.

- **Ceramic and Composite Processing** – Supports sintering of non-metallic ceramics and composite materials for use in aerospace, construction, and high-performance engineering applications.
- **Tooling and Machining Industry** – Applied in heat treatment of cutting tools, dies, and molds to enhance wear resistance, toughness, and durability.
- **Research & Development Laboratories** – Suitable for universities and research centers conducting experiments in materials science, physics, and engineering. Offers flexible programming and reliable results for pilot studies.
- **Energy and Electronics Materials** – Facilitates processing of advanced materials for batteries, solid electrolytes, and electronic components where precise temperature uniformity is essential.
- **Quality Control & Certification** – Ensures repeatable heat treatment processes for product validation, compliance testing, and certification under international standards such as ISO, CE, SGS, and TÜV.

FEATURES

Furnace Shell

- The outer shell is constructed from Q235 low-carbon steel with an electrostatically resistant, anti-corrosive finish.
- A reinforced metal frame structure ensures durability and helps maintain a low external surface temperature.
- Features an electro-hydraulic lifting door equipped with a built-in limit switch for safe operation.
- Door activation is available in either push-button or foot-switch configurations.

Refractory

- Designed with multi-layer thermal insulation, the chamber is lined with double-layer lightweight refractory bricks.
- These bricks are arranged using a high-strength interlocking method for enhanced durability.
- The insulation is asbestos-free, delivering low heat loss and reduced energy consumption.

Heating System

- The system utilizes high-performance metal or ceramic heating elements that deliver radiant heat efficiently within the chamber.
- Heating is distributed from three sides—left, right, and bottom—to promote uniform temperature throughout the furnace.
- A silicon carbide bottom plate shields the lower heating elements, offering strong mechanical support, excellent thermal conductivity, and consistent horizontal load capacity.

Temperature Control Panel

- Incorporates PID and SCR control modes for precise and stable temperature management.
- Equipped with an international-standard thermocouple to ensure long operational life.
- A safety interlock disables power when the furnace door is opened.
- The controller is located on the right side of the furnace body, with an optional standalone control cabinet available.

Program Controller

- Designed to support complex process requirements with advanced functionality.
- Easy to operate and program, allowing flexible setup of thermal profiles.
- Supports 4 programmable groups with up to 32 segments per profile.
- Includes over-temperature protection and system fault alarms with automatic shutdown.
- Optional features include manual air intake, automated exhaust flap, and a rapid cooling system capable of bringing the chamber down to 400°C quickly.

Model	Chamber size□ mm□	Chamber volume	Max temp.	Working temp.	Voltage	Power	Heating element	Temp Precision
TT-IF-100-1200P	400×530×460	100L	1200℃	1100℃	380V	15KW	HRE	±1℃
TT-IF-150-1200P	450×530×590	150L	1200℃	1100℃	380V	24KW	HRE	±1℃
TT-IF-200-1200P	500×530×720	200L	1200℃	1100℃	380V	27KW	HRE	±1℃
TT-IF-300-1200P	550×700×780	300L	1200℃	1100℃	380V	45KW	HRE	±1℃
TT-IF-660-1200P	600×1100×1000	660L	1200℃	1100℃	380V	60KW	HRE	±1℃
TT-IF-1000-1200P	800×1000×1250	1000L	1200℃	1100℃	380V	80KW	HRE	±1℃
TT-IF-96-1400P	400×600×400	96L	1400℃	1300℃	380V	21KW	SIC	±1℃
TT-IF-150-1400P	450×530×590	150L	1400℃	1300℃	380V	25KW	SIC	±1℃
TT-IF-200-1400P	500×530×720	200L	1400℃	1300℃	380V	28KW	SIC	±1℃
TT-IF-288-1400P	600×800×600	288L	1400℃	1300℃	380V	30KW	SIC	±1℃
TT-IF-640-1400P	800×1000×800	640L	1400℃	1300℃	380V	50KW	SIC	±1℃
TT-IF-1200-1400P	1000×1200×1000	1200L	1400℃	1300℃	380V	100KW	SIC	±1℃
TT-IF-96-1700P	400×600×400	96L	1700℃	1600℃	380V	25KW	MoSi2	±1℃
TT-IF-150-1700P	450×530×590	150L	1700℃	1600℃	380V	30KW	MoSi2	±1℃
TT-IF-200-1700P	500×530×720	200L	1700℃	1600℃	380V	40KW	MoSi2	±1℃
TT-IF-288-1700P	600×800×600	288L	1700℃	1600℃	380V	50KW	MoSi2	±1℃
TT-IF-640-1700P	800×1000×800	640L	1700℃	1600℃	380V	80KW	MoSi2	±1℃
TT-IF-1200-1700P	1000×1200×1000	1200L	1700℃	1600℃	380V	150KW	MoSi2	±1℃



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