



TORONTECH



INDUSTRIAL FURNACE - TT-IF-1000-1200

The Industrial Furnace TT-IF-1000-1200 is engineered to meet the demanding requirements of thermal processing across a wide range of industries. With its maximum operating temperature of 1200°C and spacious 1000 × 1000 × 1000 mm chamber, it is ideally suited for the heat treatment of metal components, including quenching, tempering, normalizing, and annealing. Its large capacity makes it an excellent choice for medium- to large-scale production as well as research and pilot testing in laboratories and industrial facilities.

Beyond metallurgical applications, the furnace is highly effective for the sintering of non-metallic ceramics and composite materials, supporting the development of advanced materials for aerospace, automotive, and energy sectors. Its uniform three-sided heating and precise $\pm 1^\circ\text{C}$ temperature accuracy ensure consistent quality, making it particularly valuable for precision manufacturing, prototyping, and process validation.

The TT-IF-1000-1200 is also widely applied in universities, R&D centers, and production environments where versatility and reliability are critical. Optional features such as manual air intake, automatic exhaust, and rapid cooling expand its usability, providing tailored solutions for specialized processes.

APPLICATIONS

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- **Metallurgical Heat Treatment** – Supports quenching, tempering, normalizing, and annealing of steels and alloys. Ensures precise thermal control for automotive, aerospace, and heavy machinery components.
- **Ceramic and Composite Sintering** – Provides uniform heating for non-metallic ceramics, advanced composites, and structural materials. Ideal for electronic ceramics, refractories, and prototype components.
- **Powder Metallurgy** – Enables high-temperature sintering of metal powders into dense, durable shapes. Widely applied in advanced alloy development and industrial component production.
- **Energy & Battery Research** – Suitable for thermal treatment of solid-state electrolytes, lithium-ion battery electrodes, and next-generation energy materials. Delivers stability and reproducibility in energy research.
- **Aerospace & Defense Materials** – Facilitates processing of high-performance alloys and ceramic composites used in aerospace, defense, and turbine applications. Ensures strength and stability under extreme conditions.
- **Universities & R&D Centers** – Designed for pilot-scale experiments, advanced material research, and teaching applications in physics, chemistry, and engineering disciplines.
- **Industrial Quality Control** – Provides reliable heat treatment and thermal testing for product validation, compliance checks, and certification. Meets international standards including ISO, CE, SGS, and TÜV.

FEATURES

Furnace Shell

- Constructed from Q235 low-carbon steel, the furnace shell features an electrostatically resistant and corrosion-resistant finish.
- Its robust metal frame minimizes surface temperature for safer operation.
- Equipped with an electro-hydraulic lifting door and a built-in limit switch.
- The door's automatic opening mechanism is available in either push-button or foot-pedal configuration.

Refractory

- The multi-layer insulation system includes double-layer lightweight refractory bricks, offering strong structural integrity.
- Asbestos-free, with high-strength stacking and interlocking, ensuring low heat loss and reduced energy consumption.

Heating System

- Features premium metal or ceramic heating elements with radiant heat distribution throughout the furnace chamber.
- Three-sided heating (left, right, and bottom) ensures uniform temperature control.
- A silicon carbide bottom plate shields the lower heating elements, delivering excellent mechanical strength, heat conduction, and flat load support.

Temperature Control Panel

- Uses PID and SCR control for precise temperature management.
- Outfitted with an international-grade thermocouple for durability.
- Includes a built-in door safety switch that cuts power when the door is open.
- The controller is mounted on the right side of the furnace; an optional independent control cabinet is available.

Program Controller

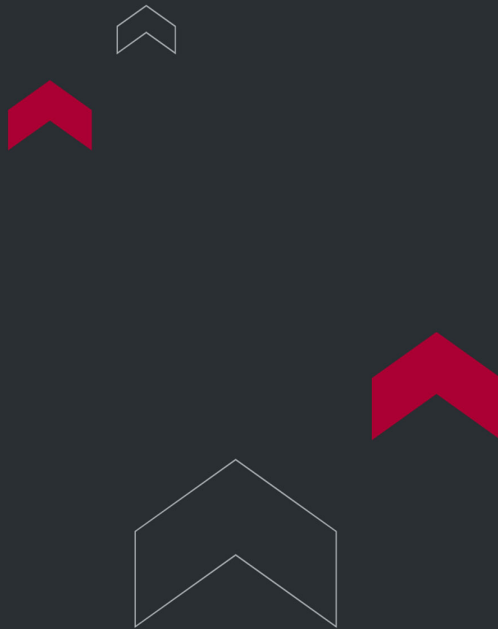
- Advanced controller supports complex thermal processing.
- User-friendly interface with flexible programming capabilities.
- Supports up to 30 programmable segments per curve.
- Includes over-temperature protection, fault alarms, and automated safety features.

- Optional features include manual air intake, automatic exhaust venting, and a rapid cooling system for temperatures up to 400°C.

TECHNICAL SPECIFICATIONS

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°C	1100°C	380V	15KW	HRE	±1°C
TT-IF-150-1200P	450×530×590	150L	1200°C	1100°C	380V	24KW	HRE	±1°C
TT-IF-200-1200P	500×530×720	200L	1200°C	1100°C	380V	27KW	HRE	±1°C
TT-IF-300-1200P	550×700×780	300L	1200°C	1100°C	380V	45KW	HRE	±1°C
TT-IF-660-1200P	600×1100×1000	660L	1200°C	1100°C	380V	60KW	HRE	±1°C
TT-IF-1000-1200P	800×1000×1250	1000L	1200°C	1100°C	380V	80KW	HRE	±1°C
TT-IF-96-1400P	400×600×400	96L	1400°C	1300°C	380V	21KW	SIC	±1°C
TT-IF-150-1400P	450×530×590	150L	1400°C	1300°C	380V	25KW	SIC	±1°C
TT-IF-200-1400P	500×530×720	200L	1400°C	1300°C	380V	28KW	SIC	±1°C
TT-IF-288-1400P	600×800×600	288L	1400°C	1300°C	380V	30KW	SIC	±1°C
TT-IF-640-1400P	800×1000×800	640L	1400°C	1300°C	380V	50KW	SIC	±1°C
TT-IF-1200-1400P	1000×1200×1000	1200L	1400°C	1300°C	380V	100KW	SIC	±1°C
TT-IF-96-1700P	400×600×400	96L	1700°C	1600°C	380V	25KW	MoSi2	±1°C
TT-IF-150-1700P	450×530×590	150L	1700°C	1600°C	380V	30KW	MoSi2	±1°C
TT-IF-200-1700P	500×530×720	200L	1700°C	1600°C	380V	40KW	MoSi2	±1°C

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℃



Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 

Phone: +971 488 19252
Email: me@torontech.com

