

NANO TEC



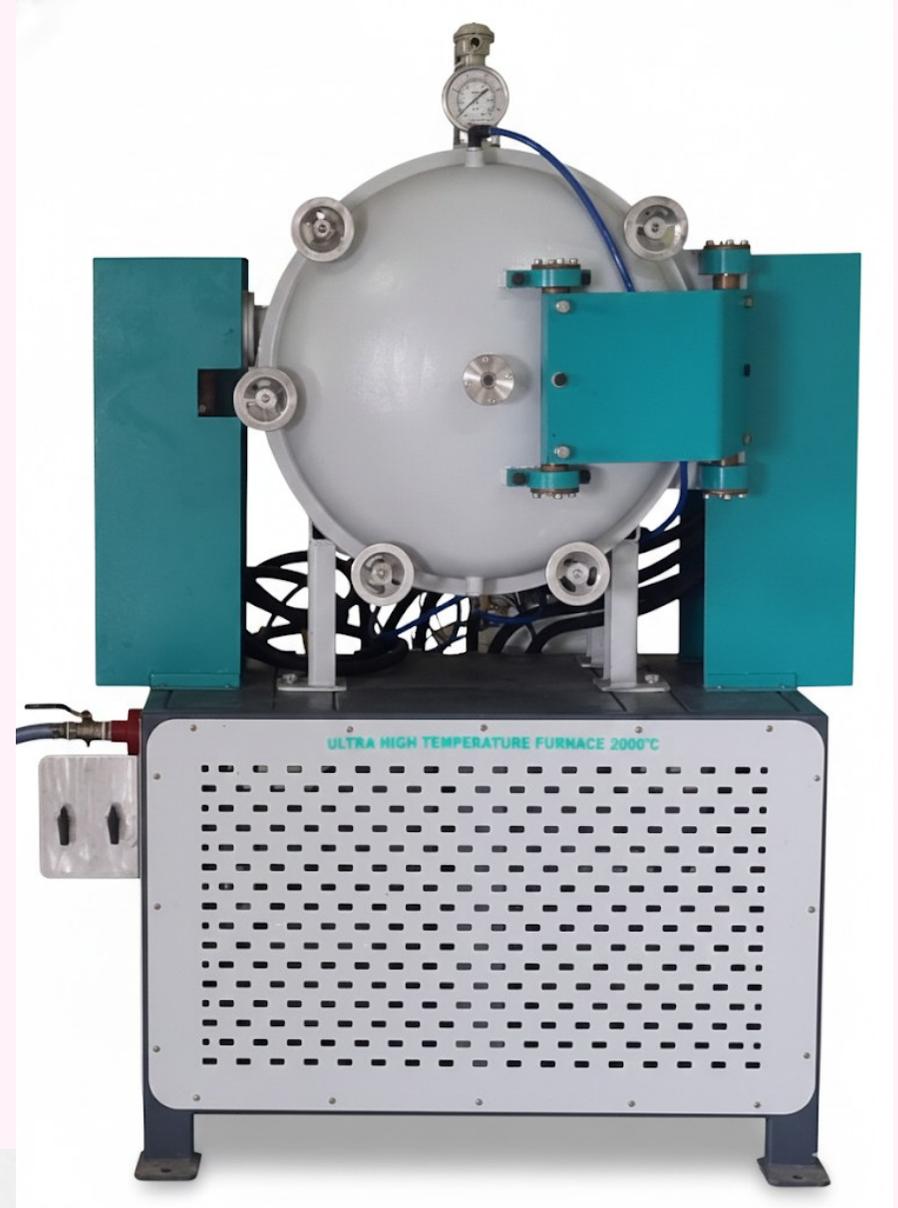
Phone:9445923469,
Email: sales@nanoteclab.com
www.nanoteclab.com



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Manufacturer of Lab Equipment's



43,MURASOLIMARAN STREET

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Email: sales@nanoteclab.com
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NANO TEC MODEL: NT/ULTRA HIGH TEMPERATURE FURNACE

Manufacturer of Lab Equipment's

Golden Parameters

Overview

The Nano Tec Model NT is a specialized industrial system designed for high-precision thermal processing in research and manufacturing. The system integrates a double-walled water-cooled process chamber with a dedicated chiller and a high-resolution PLC interface

Technical Specifications

Thermal Performance

- **Temperature Range (Argon):** 2400°C for 10 hours².
- **Temperature Range (Vacuum):** 2200°C for continuous operation 10^{-2} to 10^{-1} mbar³.
- **Heating Rate:** 1 K/min minimum up to 10 K/min (to 1800°C);
- 5 K/min from 1800°C to 2400°C⁴.

Control System: Automated sliding Type S thermocouple with ceramic mantel and Pyrometer⁵.

Chamber & Heating

- **Heating Elements:** High-quality, high-density graphite elements⁶.
- **Insulation:** Graphite felt around the heating zone with stainless steel facing the cooling side⁷.
- **Working Space:** Available in Cylindrical (200 mm Ø x 200 mm H) or Box (200 mm x 200 mm x 200 mm)⁸.
- **Construction:** Double-walled water-cooled process chamber with overpressure valve⁹.

Door: Swing or sliding doors with silicon tube ring seals and water cooling¹⁰.

Vacuum & Gas Systems

- **Vacuum Pump:** Two-stage rotary vane pump with 15 m³/h speed¹¹.
- **Leakage Rate:** 5×10^{-3} mbar x l/s¹².
- **Gas Control:** Inert gases (N₂/Argon) managed via PLC-integrated Mass Flow Controllers (MFCs)¹³.
- **Gas Flow:** Rates between 20-2000 l/h with a 2500 l/h bypass capability¹⁴.

PLC Control & Safety

- **Interface:** 12" resistive color touch screen with Ethernet and USB^{15,15}.
- **Programming:** 10 programs with 15 segments; built-in power failure protection^{16,16}.
- **Chiller Unit:** Efficient cooling with flow and temperature indicators and automatic low-flow shutdown¹⁷.
- **Safety Standards:** Independent safety readiness sequence including leak testing and purging¹⁸.

Acceptance & Documentation

- **FAT (Factory Acceptance Test):** Verification of dimensions and mechanical/electrical functions¹⁹.
- **SAT (Site Acceptance Test):** Commissioning, hands-on training, and T_{\max} hold test for 2 hours²⁰.

Documentation: Includes instrument diagrams, layout drawings, wiring diagrams, and maintenance instructions²¹.

Optional Accessories

- **Inert Debinding Unit:** Retort and safety torch for volatile burnout²².

Consumables: Spare heating elements, graphite felt (2 pairs each), thermocouples, and silicon O-rings.

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