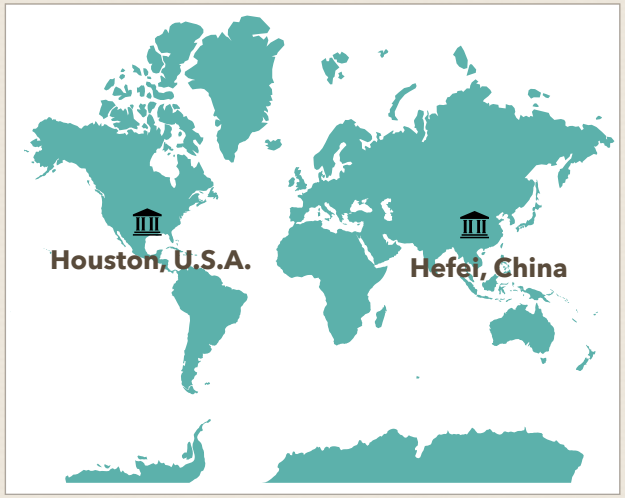


A & N Technologies

Reliable and Durable

OUR MISSION



Operating at our Houston office (Anning) and Hefei factory, we are partnered to provide our clients with reliable and durable products, including packages, equipments, materials, and services.

A & N Technologies
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FURNACE BROCHURE



LABORATORY FURNACE

Applicable for: Various materials and components, including new energy materials (Lithium/Sodium battery cathode and anode materials), anode materials, ceramic powders, chemical powders, semiconductors, electronic devices, metallurgy, machinery, bioengineering, etc. It supports multiple heat treatment processes such as degassing, curing, drying, sintering, carbonization, annealing, tempering, and is ideal for small-scale production, research, and testing.









TUBE FURNACE (I)

Tube furnaces are primarily used for heat treatment of materials under **vacuum or controlled-atmosphere conditions**. A variety of configurations are available to meet the requirements of different laboratory experiments.



FEATURES:

1. *Maximum Temperature: 1100–1700°C:*
2. *Intelligent Programmable Temperature Control:*
   - Precise temperature control with the ability to edit, save, and recall multi-step heating programs.
3. *Double-Shell Furnace Structure:*
   - Air-cooled double-layer furnace housing for improved thermal insulation and safety;
4. *Adjustable Flange Support Structure:*
   - Adjustable supports at both ends help extend the service life of the furnace tube. In-furnace measurement system;
5. *Optional Configurations:*
   - Vacuum system;
   - Atmosphere control system;
   - In-furnace measurement system.



TUBE FURNACE (II)

Tube furnaces are primarily used for heat treatment of materials under **vacuum or controlled-atmosphere conditions**. A variety of configurations are available to meet the requirements of different laboratory experiments.

Model	Max Temp.	Tube Dia.	Heating Zone Length	Thermocouple	Heating Element
FGL-50/11/1	1100 ^{o}C	50 mm	420 mm	Type K	Resistance Wire
FGL-60/11/1	1100 ^{o}C	60 mm	420 mm	Type K	Resistance Wire
FGL-80/11/1	1100 ^{o}C	80 mm	420 mm	Type K	Resistance Wire
FGL-50/13/1	1300 ^{o}C	50 mm	420 mm	Type S	Resistance Wire
FGL-60/13/1	1300 ^{o}C	60 mm	420 mm	Type S	Resistance Wire
FGL-80/13/1	1300 ^{o}C	80 mm	420 mm	Type S	Resistance Wire
FGL-50/17/1	1700 ^{o}C	50 mm	300 mm	Type B	$MoSi_2$
FGL-60/17/1	1700 ^{o}C	60 mm	300 mm	Type B	$MoSi_2$
FGL-80/17/1	1700 ^{o}C	80 mm	300 mm	Type B	$MoSi_2$

Other furnace chamber dimensions are available for customization to meet specific process requirements.

LABORATORY BOX FURNACE / MUFFLE (I)

The **FMJ Series Laboratory Box Furnace / Muffle Furnace** features a compact design, an attractive and refined appearance, and an excellent cost-to-performance ratio, making it an ideal choice for a wide range of laboratory applications.

It is particularly well suited for **routine high-temperature experiments** in university laboratories, research institutes, and corporate R&D facilities.

FEATURES:

1. *Maximum Temperature: 1100–1700°C;*
2. *Intelligent Programmable Temperature Control:*
   - Precise temperature control with the ability to edit, save, and recall multi-step heating programs;
3. *Over-Temperature Protection;*
4. *Leakage Protection;*
5. *Optional Configurations:*
   - Gas inlet system;
   - Exhaust system.







LABORATORY BOX FURNACE / MUFFLE (II)

The **FMJ Series Laboratory Box Furnace / Muffle Furnace** features a compact design, an attractive and refined appearance, and an excellent cost-to-performance ratio, making it an ideal choice for a wide range of laboratory applications.

It is particularly well suited for **routine high-temperature experiments** in university laboratories, research institutes, and corporate R&D facilities.

Model	Max Temp.	Capacity	Chamber Dim. (W×H×D)	Temp. Accuracy	Thermocouple	Heating Element
FMJ-07/11	1100 °C	7L	200×120×300mm	±1°C	Type K	Resistance Wire
FMJ-12/11	1100 °C	12L	200×200×300mm	±1°C	Type K	Resistance Wire
FMJ-19/11	1100 °C	19L	200×250×300mm	±1°C	Type K	Resistance Wire
FMJ-07/13	1300 °C	7L	200×120×300mm	±1°C	Type S	Resistance Wire
FMJ-12/13	1300 °C	12L	200×200×300mm	±1°C	Type S	Resistance Wire
FMJ-19/13	1300 °C	19L	250×250×300mm	±1°C	Type S	Resistance Wire
FMJ-05/17	1700 °C	5L	150×160×200mm	±1°C	Type B	$MoSi_2$
FMJ-08/17	1700 °C	8L	200×200×200mm	±1°C	Type B	$MoSi_2$

Other furnace chamber dimensions are available for customization to meet specific process requirements.

EQUIPMENTS FOR ELECTRONICS AND SEMICONDUCTORS(I)

Applicable for: various heat treatment processes such as drying, sintering, brazing, sealing, and annealing for a wide range of products, including: thick-film circuits, thick-film resistors, electrodes, LTCC, electric heaters, thermistors, varistors, capacitors, component electrodes, ceramic metallization, copper electrodes, photovoltaic cells, dye-sensitized solar cells, copper paste processes, electronic glass, curved screens, sensors, chips, functional ceramics, ceramic copper-clad substrates, and biomedical applications.

FEATURES:

1. *High-Precision Temperature Control:*
   - Accurate process temperature curve fitting with uniform and stable temperature field control.
2. *Atmosphere Options:*
   - Supports a variety of atmospheres: air, oxygen, nitrogen, hydrogen, nitrogen-hydrogen, and nitrogen-hydrogen-oxygen mixtures.
3. *Advanced Mode Technology:*
   - Utilizes self-developed, high-pressure compacted mold materials.
   - Modular design ensures high cleanliness, durability, and easy maintenance.







EQUIPMENTS FOR ELECTRONICS AND SEMICONDUCTORS(II)

Applicable for: various heat treatment processes such as drying, sintering, brazing, sealing, and annealing for a wide range of products, including: thick-film circuits, thick-film resistors, electrodes, LTCC, electric heaters, thermistors, varistors, capacitors, component electrodes, ceramic metallization, copper electrodes, photovoltaic cells, dye-sensitized solar cells, copper paste processes, electronic glass, curved screens, sensors, chips, functional ceramics, ceramic copper-clad substrates, and biomedical applications.

FEATURES(CONT.)

4. *Innovative Thermal and Atmosphere Design:*
   - Unique engineering of thermal systems and internal atmosphere setup to meet diverse process and quality requirements.
5. *Enhanced Furnace Structure:*
   - Special furnace chamber architecture and atmosphere configuration with new insulation materials.
   - Significantly improves temperature control stability, uniformity of temperature fields and atmospheres, and consistency in product quality.
6. *Energy Efficiency:*
   - High efficiency and energy-saving, with significant reductions in energy consumption.
7. *Optional Features:*
   - Centralized integrated control system.
   - Cleaning system.
   - Automated external circulation system.







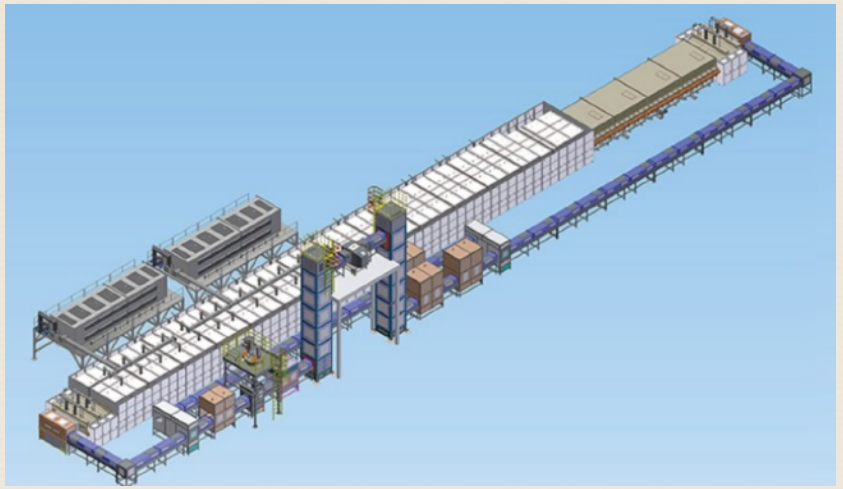


ROLLER FURNACE / PUSHER FURNACE (I)

Applicable for: Industrial production, piloting testing and research in the fields of new energy (Lithium/Sodium battery cathode and anode materials), ceramic powder materials, and chemical powder, under atmospheres of air, oxygen, or nitrogen.

FEATURES:

1. *High-Precision Process Curve Fitting:*
   - Uniform temperature control and precise temperature regulation.
2. *Advanced Mold Materials:*
   - Independently developed mold materials with resistance to heat, oxidation, and alkaline corrosion.
   - Modular design ensures durability and easy maintenance.
3. *Thermal and Atmosphere Design:*
   - Specifically tailored for the sintering process of Lithium/ odium battery cathode and anode materials.
   - Efficient discharge of volatile media to reduce pollution while meeting multiple requirements for process quality and product standards.
4. *Special Furnace Chamber and Atmosphere Configuration:*
   - Combines heat-resistant and corrosion-resistant materials with new insulation materials.
   - Enhances temperature stability, uniformity of the temperature field, and atmosphere distribution, ensuring consistent product quality.
5. *Energy Efficiency:*
   - High efficiency and energy-saving design.
   - Achieves energy savings of 20-25% compared to traditional industrial heat treatment equipment.



One-to-One Roller Furnace System Model



One-to-Two Roller Furnace System Model

ROLLER FURNACE / PUSHER FURNACE (II)

Applicable for: Industrial production, piloting testing and research in the fields of new energy (Lithium/Sodium battery cathode and anode materials), ceramic powder materials, and chemical powder, under atmospheres of air, oxygen, or nitrogen.

STANDARD PARAMETERS:

- *Carrier Sizes:* Common carrier sizes are 330mm, 340mm, 355mm, 365mm, 385mm, 400mm, and 450mm.
- *Configuration Options*: Available in standard configurations of two, four, five, or six rows; single, double, triple, or quadruple layers.
- *Length Options*: Typical lengths include 30m, 40m, 50m, 60m, 70m, 80m, and 100m. Custom designs are available upon request.





TUNNEL FURNACE

Applicable for: Pre-carbonization, high-temperature carbonization, and sintering of new energy materials (Lithium/Sodium battery cathode and anode materials), ceramic powder materials, chemical powders, etc., under atmospheres such as air, nitrogen, and oxygen.

STANDARD PARAMETERS:

- *Standard Lengths:* 60m, 80m, 100m, 120m, 140m, 160m, 180m, 200m.
- Custom designs are available upon request.









AUTOMATION EQUIPMENT

Automatic production lines, automated loading and unloading lines, and robotic applications.
Application Fields: New Energy: Battery cathode and anode materials; Advanced Materials: Electronic materials and components, electronic ceramic and devices; High-Tech Industries: Aerospace electronics, semiconductors, magnetic materials, metal heat treatment, bioengineering, automotive electronics, photovoltaics, and chemicals.

FEATURES:

1. *Stable and Reliable Design:*
   - Utilizes a precision-paced conveyor structure for smooth operation.
2. *Cleaning Mechanisms:*
   - Equipped with cleaning systems before and after unloading to eliminate impurities and ensure product quality.
3. *Flexible Loading and Unloading:*
   - Supports multi-layered loading and unloading processes for increased efficiency.
4. *Innovative Material Handling:*
   - Features unique tipping or vacuum suction systems for material transfer.
   - Ensures no powder spillage, creating an environmentally friendly workspace.
5. *Advanced Control and Drive Systems:*
   - High-performance electronic control systems and robust transmission structures enhance equipment stability and reliability.





ENVIRONMENTAL PROTECTION EQUIPMENT

Electric heating exhaust gas treatment furnace and other heating methods for exhaust gas treatment.
Application Fields: New Energy: Battery cathode and anode materials; Advanced Materials: Electronic materials and components, electronic ceramic and devices; High-Tech Industries: Aerospace electronics, semiconductors, magnetic materials, metal heat treatment, bioengineering, automotive electronics, photovoltaics, and chemicals; Exhaust Gas Management: Designed for the treatment of exhaust gases generated during thermal processes in these industries.

FEATURES:

1. *Expandable Functionality:*
   - Capable of handling large volumes of exhaust gas through centralized treatment, promoting environmentally friendly emissions.
2. *Advanced Intelligent Control:*
   - Features a user-friendly interface and strong intelligent control capabilities.
   - Enables automated exhaust gas treatment for precise and efficient operation.





ENERGY-SAVING THERMAL DESIGN

The **furnace chamber** is designed with a special combination of refractory materials and utilizes high-temperature-resistant, lightweight, low-thermal-conductivity refractory fibers instead of traditional refractory bricks for the lining. This design effectively reduces heat storage and radiation loss from the furnace body, significantly improving thermal efficiency. It also eliminates arch thrust, lightens the furnace door, and reduces the load on the furnace frame. Depending on customer requirements, suitable refractory materials for the inner wall are selected, ensuring the equipment is resistant to corrosion, energy-efficient, and provides uniform temperature. The energy-saving rate can reach 20-25%.

FEATURES:

1. *Advanced Chamber Design:*
   - Inner layer made of specially shaped magnesia-zirconia corundum and alumina hollow spheres.
   - Wide-body micro-arc arch structure with reinforced support and isolation devices at the top to prevent sagging, enhancing the chamber's lifespan and maintainability.
2. *Efficient and Protective Heating Chamber:*
   - The top section incorporates an independent heating chamber structure for secondary protection of heating elements.
   - Provides multiple layers of protection for materials undergoing firing.
3. *Double-Arch Design:*
   - Tailored for larger spans and customized requirements, ensuring structural integrity and adaptability to specific applications.

