

BATTERY MATERIALS

Heat Treatment for Tomorrow's Energy



6-ROW N₂ ROLLER HEARTH KILN

Technical Specifications:

Use: Designed for sintering LFP, LFMP, Polyanion materials

Max Temp: up to 800°C

Atmosphere: N₂

Chamber Dimensions: Width: 2170mm, Height: 400mm, Length: up to 100m

Key Features

- Experience: In 2022, we are recognized by the market for supplying the highest units of 6 Row 2 Layer RHKs for LFP mass production, i.e., over 200 units.
- Efficient Design: Flat top structure minimizes heat loss, ensuring energy efficiency.
- Optimized Insulation: Primarily utilizes lightweight thermal insulation materials, ensuring superior energy consumption performance.
- Temp Uniformity: Thanks to advanced thermal engineering and multiple insulation techniques, temperature uniformity is maintained at $\pm 3^{\circ}\text{C}$ for 6 Row 1 Layer, $\pm 5^{\circ}\text{C}$ for 6 Row 2 Layer.
- Preheated Inlet: Bottom inlet improves the balance of both atmosphere and heat.
- Cooling System: Features a circulating rear cooling system that not only reduces nitrogen consumption but also offers robust cooling capabilities.



2-LEVEL 6-ROW N₂ ROLLER HEARTH KILN

Technical Specifications:

Use: Sintering of LFP materials

Max Temp: up to 900°C

Atmosphere: N₂

Chamber Dimensions: Width: 2280mm, Height: 420mm, Length: up to 80m

Key Features

- **Production Capacity:** The state-of-the-art 2-Level design positions us at the forefront of the LIB industry, doubling the throughput compared to standard 6-row 2-layer RHK.
- **Structural Design:** Incorporating a front arch with a rear flat configuration, our kiln ensures efficient gas exhaust, optimal temperature consistency, and reduced energy consumption.
- **Sealing:** The integration of multiple sealing designs guarantees a consistent pressure environment within the kiln.
- **Temp Uniformity:** Temp control precision of +/- 1°C, auxiliary heating mechanisms, and a temperature uniformity ±6°C across the holding section.
- **Cooling System:** Offer diverse patented cooling approach, encompassing both air- and water-cooling mechanisms.
- **Sustainability:** Use multi-layered, high-quality, and eco-friendly insulation materials, ensuring minimal heat loss and energy conservation.
- **Industry-Leading Efficiency:** With meticulous equipment design and temperature control strategies, to reach exceptional low energy and gas consumption rates.



4/6-ROW AIR/O₂ ROLLER HEARTH KILN

Technical Specifications:

Use: Designed for sintering NMC, NCA, LCO, Layered Oxides (Sodium-Ion Batteries)

Max Temp: up to 1100°C

Atmosphere: Air or O₂

Chamber Dimensions: Width: 2220mm, Height: 200mm, Length: up to 100m

Key Features

- Exhaust System: Arch top facilitates rapid discharge of exhaust and residual alkali.
- Anti-Corrosion: Use 99.5% pure Alumina Hollow Ball, ensuring strength and durability.
- Waterproof: Adopt patented high-temperature nano-grade water-resistant ceramic fiber boards, complemented by efficient bottom drainage.
- Structural Design: Features pressure-less sintered beam with less than 1% free Si content, ensuring durability and avoid contamination.
- Preheated Inlet: Bottom and multi-dimensional inlet promotes a harmonious balance of atmosphere and heat distribution inside the RHK.
- Sustainability: Incorporates optional O₂ recycling mechanism, saving of approximately 50 Nm³ in O₂ consumption per hour.



4-ROW N₂ ANODE ROLLER HEARTH KILN

Technical Specifications:

Use: Designed for sintering anode materials, e.g., Graphite, SiC, silicon oxide, hard carbon, etc.

Max Temp: Up to 1350°C

Atmosphere: N₂

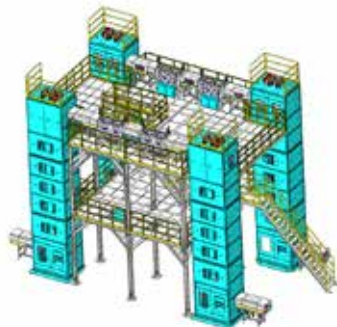
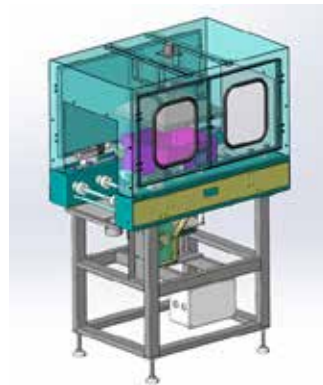
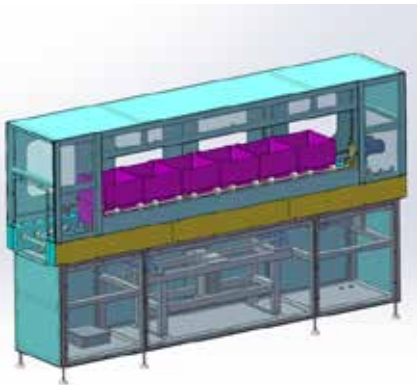
Chamber Dimensions: Width: 1520mm, Height: 250mm, Length: up to 100m

Key Features

- Exhaust System: Arch top facilitates rapid discharge of exhaust gas.
- Anti-Corrosion: Use corundum bricks in the heating area, offering robust resistance against carbon corrosion from tar and pitch to ensure durability.
- Heater Protection: Adopt quartz and dense corundum tube to prevent electric arc.
- Exhaust System: Feature extra-large exhaust outlet, pipe with backflow mechanism for easy clean-up, and insulated heating pipe against tar adhesion.
- Preheated Inlet: Bottom inlet promotes a harmonious balance of atmosphere and heat distribution inside the RHK.
- Off-gas Treatment: Use multiple sectional labyrinth thermal oxidizer design to ultimately avoid the incomplete burn-off of tar.



SAGGER HANDLING SYSTEM



ROTARY KILN

Rotary Kiln:

- Maximum contact surface, good heat transfer
- Without saggars
- Heating and cooling section
- Built for continuous operation
- Designed for handling fine powder
- Inert atmospheric conditions
- Adjustable system: rotation speed, tilting...

