EV/CAB

Continuous CAB Line for brazing EV Battery Cooling Plates

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THE TECHNOLOGY DRIVING THE FUTURE OF E-MOBILITY

EV/CAB is a continuous Controlled Atmosphere Brazing (CAB) system designed specifically for large aluminum battery cooling plates used in electric vehicles. The line ensures a stable, uniform temperature distribution and a ultralow oxygen nitrogen atmosphere throughout the brazing process, guaranteeing high quality joints and flawless surface integrity.

Components move on a conveyor belt at an adjustable speed through sequential zones: drying, convection preheating, radiation brazing, and several cooling stages. This controlled, continuous workflow ensures repeatability, dimensional stability and uniform filler metal flow across even the largest and heaviest parts.

Discover why EV/CAB is the most complete and reliable solution for brazing EV battery cooling plates.

The rapid global expansion of electric vehicles has created an urgent need for advanced thermal management systems. Battery cooling plates must be lightweight, leak-tight, dimensionally stable, and capable of maintaining extremely narrow operational temperature windows to protect battery life, safety and performance. To fulfill these requirements, most battery cooling plates are made of aluminum.

EV/CAB provides the precision, atmosphere purity and thermal stability needed to braze next-generation EV components at scale. It ensures clean, uniform metal bonding, supports thin-wall lightweight designs, and enables reliable high-volume production that meets OEM and Tier 1 expectations.

INDUSTRIES

- Automotive – Electric Vehicles
- Energy storage and power electronics
- Thermal management systems
- Aluminum heat exchanger manufacturing

MATERIALS

- Aluminum battery cooling plates
- Aluminum heat exchanger assemblies
- Lightweight thermal management components

PROCESSES

- Controlled Atmosphere Brazing (CAB) in nitrogen
- Convection preheating
- Radiation brazing
- Continuous high-volume thermal processing
- Multi-zone heat control and stabilized cooling

OPTIONS

- Multiple furnace versions for different component mass and geometry
- Automation compatibility for loading, inspection, and quality control
- Scalable for OEM and Tier 1 production volumes

FEATURES

- Advanced Line and Furnace Architecture
  - Convection preheating for stable thermal distribution
  - Multiple independently controlled heating zones
  - Available furnace versions: Radiation, Convection/ Radiation, Full Convection
  - Radiation brazing section for uniform and repeatable final temperature
- Atmosphere and Brazing Quality
  - Ultralow oxygen nitrogen atmosphere ensures clean, strong brazed joints
  - Highly uniform heat distribution across wide and heavy components
  - Consistent brazing conditions across full plate geometry
  - Reduced risk of distortion or overheating
- Energy Efficiency and Uptime
  - IDLE and WEEKEND modes reduce consumption during downtime
  - Optimized nitrogen flow and chamber design
  - Suitable for long, uninterrupted production runs
- Environmental and Safety Features
  - Thermal afterburner reduces VOC emissions
  - Aluminum oxide scrubber significantly reduces HF emissions
  - Clean, safe, and compliant process for modern EV manufacturing facilities

INTEGRATION OF EV/CAB WITH FACTORIES OF THE FUTURE

EV/CAB is engineered for integration within Smart Factory environments. It supports MES/SCADA connectivity, automated loading and quality inspection systems, and predictive maintenance enabled by stable thermal and atmospheric parameters. Its modular architecture enables scalable expansion as production requirements increase.

SECO/WARWICK

the 1st Choice Supplier
of Solutions for Heat Treatment and Metallurgy.

We create innovative products that provide our customers with reliable, safe and environmentally friendly solutions for heat treatment and metallurgy and ensure the economic efficiency of their businesses. Expertise includes end-to-end solutions in 5 categories: vacuum heat treatment, atmosphere, and aluminum thermal processing, controlled atmosphere brazing of aluminum heat exchangers and vacuum metallurgy.

SECO/WARWICK Group, with 7 companies located on 3 continents, has customers in nearly 70 countries with more than 5000 deployed solutions. The company provides standard or customized state-of-the-art heat processing and metallurgy equipment and technologies to leading companies in the following industries: automotive, aerospace, electronics, tooling, medical, recycling, energy including nuclear, wind, oil, gas, solar and production of steel, titanium, and aluminum.

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