



Success Story - Airline Mechanical (Guangxi) Company Ltd.

Airline Mechanical (Guangxi) Company Ltd., a member of the Airline Mechanical Co. Ltd. (AMC Group), began operating in 2021. The company joined WWF-Hong Kong's Low Carbon Manufacturing Programme (LCMP) in 2024, earning the LCMP Silver Label in the same year and highlighting their steadfast commitment to the environment.

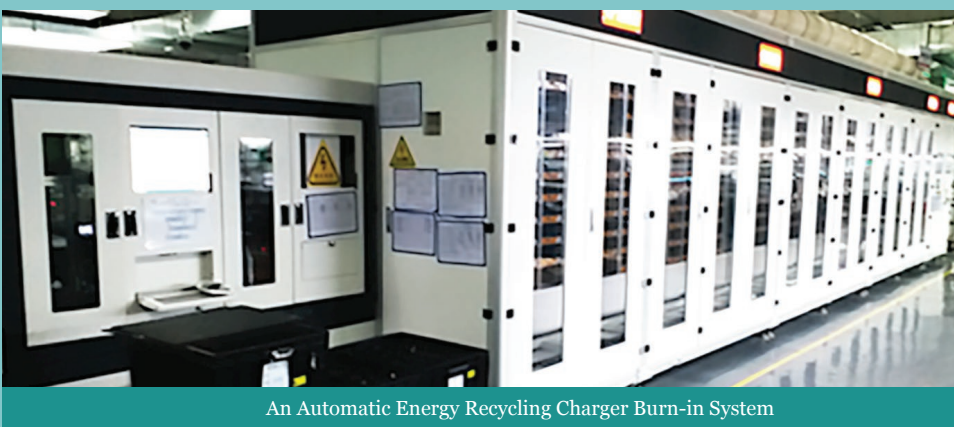
The AMC Group, which celebrates its 60th anniversary next year, specialises in the design and manufacturing of power electronics and transformers. The group has been a pioneer in China's manufacturing landscape, establishing production facilities in Shenzhen shortly after the implementation of the Reform & Opening-up Policy.

Meanwhile, Airline Mechanical is actively working to reduce greenhouse gas emissions throughout their product lifecycle points of view and minimise their overall impact on the global climate. To align with both the "United Nations Framework Convention on Climate Change" and the People's Republic of China's "Action Plan for Peaking Carbon Emissions before 2030", the company's goal is to achieve an annual carbon emission intensity reduction of 3.5% to 4% within the next five years.

Mr Daniel Cheng, CEO of the AMC Group, believes that achieving the LCMP Silver Label is just the beginning for the company – the label is a motivator that will accelerate their journey towards zero carbon emissions manufacturing. As a responsible enterprise and a global citizen, the AMC Group is deeply aware of the impacts of climate change and environmental pollution. They take their commitment to creating a low-carbon manufacturing environment seriously, adhering to environmental laws, actively working to reduce waste and emissions and continually enhancing their sustainability initiatives. Their ultimate goal is to combat climate change and environmental pollution and foster a healthier, more sustainable planet.

Three key practices have contributed to their success in reducing carbon emissions intensity, annual overall carbon emissions and electricity consumption. The company:

1. Installed two automatic energy recycling charger burn-in systems which recycle and reuse 70-80% of electricity, significantly reducing power consumption.



An Automatic Energy Recycling Charger Burn-in System



2. Introduced 17 automatic guided vehicles. These replace manual transportation of goods and materials, enhancing production efficiency and reducing manpower requirements.
3. Adopted an odd-form components auto-insertion line. This has increased output efficiency by 20-30%, reduced working hours and lowered electricity consumption.



An Automatic Guided Vehicle

An Old-Form Components Auto-Insertion Line



Driving Towards a Circular CO₂ Economy

Transportation-related emissions account for 20% of global CO₂ emissions. In 2022, this added up to nearly eight billion metric tonnes. Heavy- and medium-duty trucks, often used for delivering goods, contributed 1.8 billion metric tonnes, a result of their heavy loads and typically poor gas mileage.

Globally, electric automobiles are becoming popular, which will undoubtedly lower CO₂ emissions in the transportation sector. The electric truck market is also on the rise, but relying on electric trucks to lower CO₂ emissions will be costly and time-consuming as it involves replacing numerous existing operable vehicles, expanding charging infrastructure and redesigning delivery routes to accommodate charging needs. How electricity is generated in various areas will also greatly affect the significance of any carbon reductions.

But a bright spot has appeared: Scientists have invented a breakthrough technology in the form of a mobile CO₂ capture system that can be retrofitted into existing trucks. The system isolates CO₂ from other gases such as nitrogen and oxygen by a using powder-based adsorbent mixture designed to absorb and capture CO₂. Once the mixture is saturated, it is heated by the combustion engine's generated heat. This process releases the CO₂, which is then compressed into a liquid by high-speed turbochargers to reduce its volume. The liquified CO₂ is stored in a tank and drained when the truck returns to its terminal. The captured pollutants can then be upcycled into plastics, carbon fibres used in new vehicles, or made into a fuel that replaces fossil gasoline – this can be recaptured again and again in a circular process.

This innovative mobile CO₂ capture system presents a promising and practical solution that can significantly reduce transportation emissions. It also accelerates our progress towards carbon neutrality, contributes to a circular economy and puts the world on a path to long-term environmental resilience.

For more on the mobile carbon capture technology, please scan this QR code:



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