

About Fairland Heat Pump

Fairland Group has more than 20 years of expertise in inverter heat pump technologies and is dedicated to developing high-efficiency **Air-to-Water Heat Pump solutions** for residential heating, cooling, and domestic hot water applications.

Combining advanced engineering capabilities, continuous R&D innovation, and intelligent control technologies, Fairland R290 Air-to-Water Heat Pumps deliver outstanding energy efficiency, reliable performance, and intelligent energy management solutions for the global low-carbon heating market.

Core Advantages

COP up to 7.0 & Dual A+++ Energy Efficiency

Fairland R290 Air-to-Water Heat Pumps achieve outstanding efficiency with **COP up to 7.0** and **Dual A+++ energy ratings**, delivering maximum energy savings under both **35°C and 55°C water temperature conditions**.

100% Heating Capacity at -10°C

Even in harsh winter conditions, the system maintains **100% heating capacity at -10°C**, ensuring stable and reliable heating performance when outdoor temperatures drop.

Industry-first Aluminum Alloy Casing

Featuring an industry-first aluminum-alloy casing with a premium multi-hole design, Fairland heat pumps provide excellent corrosion resistance, improved durability, and long-term reliability for outdoor applications.

Edge AI Technology — The Local Brain of the Heat Pump

Fairland is one of the pioneers in introducing **Edge AI technology into the Air-to-Water Heat Pump industry**, bringing a new generation of intelligent control capabilities to residential heating systems.

Fairland Edge AI technology gives the heat pump its own **“local brain”**. Unlike traditional systems that rely entirely on remote cloud servers, the heat pump can process data, learn operating patterns, and make intelligent decisions directly on the device.

This enables faster response, smarter energy optimization, and enhanced data security, creating a more efficient, comfortable, and intelligent heating experience.

Key Benefits of Edge AI

Real-time Intelligent Response

With local data processing, the heat pump does not need to continuously send data to the cloud and wait for feedback. This significantly reduces communication delays and enables **millisecond-level response**, allowing the system to react faster and control operation more precisely.

Smart Electricity Price Optimization

Edge AI enables the heat pump to intelligently adapt to dynamic electricity prices:

- During low electricity price periods, the system automatically increases operation to store additional thermal energy.
- During peak electricity price periods, the system reduces energy consumption and utilizes stored heat to avoid expensive peak-hour electricity usage.

This helps end users reduce operating costs while improving overall energy efficiency.

Local Self-learning of User Behavior

Based on Edge AI technology, the heat pump continuously learns the unique characteristics of each home and creates a personalized operating model, including:

- Building insulation performance and heat loss characteristics;
- Family heating and domestic hot water usage habits;
- Local weather conditions and environmental changes.

All data is processed locally on the heat pump, ensuring enhanced data security and privacy protection while delivering a more personalized comfort experience.

Additional Advantages

100% Compatibility with Solar Energy Systems

Fairland heat pumps can be seamlessly integrated with photovoltaic systems, supporting Net-Zero and low-carbon homes while helping users maximize renewable energy utilization.

13 Built-in R290 Safety Protections

Designed for natural refrigerant R290, the system integrates **13 safety protection functions** to ensure reliable, stable, and secure operation.

Integrated AIoT Smart Platform

The built-in AIoT platform enables remote monitoring, intelligent control, and efficient after-sales service management, providing users with a smarter and more convenient heating experience.

Smart Environmental Visualization

The system helps end users clearly understand their energy savings and environmental contribution by visualizing carbon reduction results, such as converting CO₂ savings into the equivalent number of trees planted.

With continuous investment in R&D, strict quality management, and global service capabilities, Fairland is committed to advancing **Air-to-Water Heat Pump technology** and helping partners succeed in the rapidly growing sustainable heating market.

Fairland — Innovating smarter, more efficient, and more sustainable heating solutions.