CASE STUDY

Copeland helps Merak provide reliable and comfortable air-conditioning products for urban rail transit

Customer Profile

Merak is a leading supplier of air-conditioning systems for the rail industry. It designs and manufactures heating, ventilation and air-conditioning (HVAC) systems for all types of rail applications in different climates. Widely used across five continents, Merak's systems are widely implemented in light rail vehicles, commuter trains, metros, locomotives, long-distance trains and high-speed trains.

Overview

In recent years, China's urban rail transit (metro and light rail) has grown at a speed and scale that's unmatched in the world, leading to a corresponding increase in customer expectations about the technology. Air-conditioning for urban rail transit has to not only be small, lightweight and highly reliable, but it should also have low maintenance costs. In particular, its comfort and energy-saving features are equally important.
In the second phase of the Shanghai Metro Line 10, Merak-Jinxin Air-Conditioning Systems (Wuxi) Co., Ltd. (Merak) provided air conditioners that are equipped with Copeland Scroll ZRH(V) horizontal compressor. Lauded by the rail transit industry, this air-conditioner is energy-saving, generates low noise as well as provides reliable operations and accurate temperature control.

Challenges

As a supplier of air-conditioning systems for urban rail transit, Merak has seen the increasing demands the industry places on air-conditioning products. For rail transit air conditioner customers, other than product reliability, the demand for comfort and energy-saving features is becoming more significant. Features such as temperature control, energy conservation and noise reduction performance of air conditioning products have gradually become buyers' key requirements. In contrast, for rail transit air-conditioning suppliers, the situation has evolved from competing solely on products to competing on the trio of technology, quality and price. Therefore, Merak urgently needs to launch new products to address the industry's heightened needs.

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Solutions

To create a more competitive product, Merak has partnered with Copeland to launch its first variable speed rail transit air conditioner KLRV-44MPP. This product uses Copeland Scroll ZRH(V) horizontal compressor, which has a better performance in temperature control and energy conservation than fixed speed products. This product was installed in the second phase of Shanghai Line 10 subway train, with more than 300 Copeland compressors operating smoothly, providing passengers with a stable and comfortable environment.

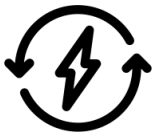
> **“Copeland has greatly contributed to our research and innovation efforts for new air-conditioning products. Thanks to the excellent performance of Copeland Scroll ZRH(V) horizontal compressor, we have created more reliable, comfortable and cost-effective air-conditioning products for our customers, setting us apart from other air-conditioning suppliers. We look forward to further cooperation with Copeland in the future, and to launch more outstanding products and solutions to address the ever-increasing needs of customers.”**

Benefits

High reliability: Copeland compressors operate reliably at reduced maintenance costs and feature a low-frequency start-up, preventing sudden stops in the power supply caused by impact on the vehicle grid during start-up. The frequency modulation is able to mitigate the lifespan of the compressor, which typically shortens due to the frequent starting and stopping during transitional seasons of spring and autumn.

Optimal comfort: At start up, the compressor emits low vibration and low noise. The overall noise level of the unit is 3dB lower than that of similar products. The temperature fluctuation is also small and the precision is controlled within ±1 degree, providing a good experience for drivers and passengers.

High adaptability: The scroll variable speed horizontal compressor is compatible across platforms with multiple cooling capacities. For example, just one variable speed compressor is able to satisfy all the different cooling capacity requirements of 35KW-44KW, increasing the potential of standardizing Merak’s air-conditioning products.



High energy efficiency ratio: Based on Merak’s tests, Copeland’s Scroll horizontal compressors have an energy efficiency ratio of 2.5 under rated conditions, achieving the Class 1 energy efficiency standard in the rail transit industry.

To learn more, visit **copeland.com**

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