

Emerson and Taiwan Tatung Company Develop an Energy-saving, Environmentally-friendly and Intelligent Commercial Air-conditioning System



Overview

As a leading air-conditioner brand in Taiwan, Tatung Company continuously strives to deliver products that are energy-saving, environmentally-friendly and have smart capabilities. Featuring Emerson's Copeland Scroll compressors and OMB Electronic Oil Level Management System, Tatung's TCW series of water-cooled chillers is used in hospitals, restaurants, offices, and production lines, and has garnered praise from the customers for its industry-leading performance.

Customer Profile

One of the first listed companies in Taiwan, Tatung was founded in 1918 and has evolved into a global conglomerate. Its three business groups are made up of six business units, such as Power Equipment, Motor, Smart Solution, System Integration, Advanced Electronics and Home Appliances. A leader in the field of energy saving and green energy creation, Tatung has pioneered the development of the national smart grid in Taiwan and many smart IoT solutions.

Challenges

To maintain its leading position in the market, Tatung is focused on research and development to meet the needs of its customers. When developing its commercial air-conditioners, Tatung concentrates on three areas – energy-saving, environmental friendliness and smart capabilities – to differentiate itself from other brands and stand out amidst fierce competition. Additionally, as Taiwan's energy efficiency standards for air-conditioners look set to shift from COP (Coefficient of Performance) to IPLV (Integrated Part Load Value) in 2020, Tatung recognizes the need for more products that can satisfy the upcoming needs of the market and cope with this regulatory change.

Solutions

Since 2014, Tatung and Emerson have jointly carried out the research and development of new commercial air-conditioners, combining four Emerson ZR125 Copeland Scroll compressors with an OMB Electronic Oil Level Management System to create the 40-RT quattro water-cooled chiller. This is Tatung's first commercial air-conditioner prototype using the TCW system. After product testing and comparison, the model not only meets the energy efficiency standards set by Taiwan's Industrial Technology Research Institute, but it also has a much higher efficiency than other 40-RT air-conditioners on the market.

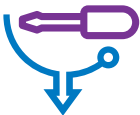
In the years that followed, Tatung's TCW series products gradually entered the consumer market. At the same time, the R410A model was developed, while its product line was expanded to 160-RT compressors, which are used in various locations such as hospitals, restaurants, office buildings, and production lines. The excellent results have won the recognition of the market and customers. In early 2019, there have already been numerous orders for Tatung's TCW system.



Benefits



Energy efficient, energy-saving and environmentally-friendly: With a high partial load energy efficiency, a daily cooling load of approximately 70% of the designed capacity, as well as a wide capacity range, the quattro chiller is able to run on one compressor at a load of up to 25%. Upon using it, users have seen a significant decline in their electricity bill.



High reliability and low maintenance costs: Emerson's scroll compressors can operate at low ambient temperatures and can be loaded/unloaded when needed. With the OMB Electronic Oli Level Management System, the self-contained unit supplies oil independently to avoid pollution between compressors, and also gives advanced warning when the oil level is low. Tatung had also used six compressors in the same refrigerant system, with the Emerson compressors running for more than a year without any problems.



Reduced installation and maintenance time for greater savings: It takes only a few hours to replace a scroll compressor, as compared to more than 15 days for a screw compressor. Moreover the scroll compressors do not require oil to be changed regularly. This leads to greater savings in time and cost for installation and daily maintenance.



Easy installation and replacement: Due to space and transport constraints for retrofit projects, customers often require water chillers to be assembled on site. Scroll chillers are easy to install and can be assembled directly at the customer's site and delivered after inspection.



Superior energy efficiency to suit current and future market developments: With Emerson's solutions, Tatung can easily upgrade the capacity of its air-conditioning systems from 10hp to 30hp, enabling them to be expanded from 40-RT to 160-RT or more. The excellent energy efficiency of the TCW air-conditioning system will continue to perform well even under the future IPLV standards.

From the Customer

“ The excellent performance of Emerson's air-conditioning solutions, along with their great service team, have been of great help in the research and development and subsequent launch of our TCW products, and have helped us stand out from the competition. At present, many air-conditioning systems using our products have been awarded the energy efficiency badge by the Industrial Technology Research Institute and Taiwan Refrigeration & Air-Conditioning Engineering Association of R.O.C. With more stringent requirements from government regulations and customers, we believe that this product can become the leading product on the market in future, owing to its technical and performance advantages. ”