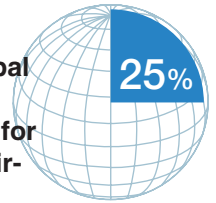


# Important Contributions to the Growth and Evolution of Automotive Air Conditioning; Helping to Provide Pleasant Breezes and Refreshing Journeys to the World's Cars



**Sanden's Global Share of Compressors for Automotive Air-Conditioners:**



**■ Ultracompact and Lightweight HVAC System**  
HVAC (heating, ventilating air-conditioning) systems are substantially more compact than previous units because of the adoption of ultrathin evaporators and a unit structure that includes the heater core.



Sanden's principal product in its automobile equipment and systems business is its compressors for use in Automotive air-conditioning systems. In 1969, the number of cars in Japan equipped with air conditioners was only 5%, but Sanden recognized the growth potential of this market and began the development of Automotive air-conditioning systems. In 1970, Sanden signed a technology licensing agreement with Mitchell, Inc., of the United States and began the full-scale production of compressors. In 1981, Sanden combined two centrifuges for pressurization and developed the world's first scroll compressor. These units succeeded in changing the common wisdom because they were more compact and lighter, gave a higher performance, and were more efficient than previous compressors, and therefore contributed to substantially expanding the use of Automotive air-conditioners. Today, Sanden sells more than 12 million compressors annually, including a wide range of designs — vibrating plate, slanted plate, and scroll types— and has grown to become a leading contender for the top position among the world's compressor manufacturers. Sanden accounts for more than 45% of the market for compressors for automobile air-conditioner use. In the course of its history, Sanden has worked to contribute to environmental preservation through various improvements in compressor performance, including reduction in leakage due to condensation and energy conservation. Aiming for an even higher level of eco-friendliness, Sanden is accepting the challenge of expanding its Automotive air-conditioning system business, including heat-exchange elements.



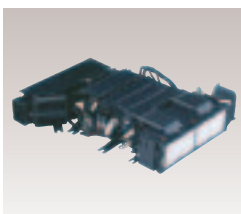
**■ Hybrid-Type Compressors**  
Designed to meet the needs of hybrid vehicles. These units are compact and lightweight and adopt DC brushless motors with high-performance neodymium magnets and realize sophisticated control through the application of control computers.



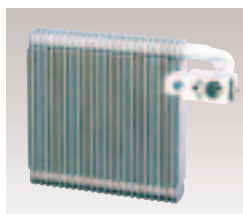
**■ Externally Controlled Compressors**  
Realizes smooth continuous drive through the use of external control methods and clutchless operation. Finely controlled operation contributes to conservation of fuel.



**■ Scroll Compressors**  
Scroll compressors have been adopted by the world's automobile manufacturers because of their quiet operation and ultrahigh speed durability. Sanden took the lead in the development of this type of compressor ahead of other companies in the field in Japan and overseas.



**■ Air-Conditioning Systems for Construction Equipment**  
These systems help to improve work efficiency by offering a pleasant environment in the cabin of construction equipment while also saving space and offering automatic operation. The fact that many construction machinery manufacturers have selected these Sanden-brand systems reflects the high level of technology and reliability of Sanden systems.



**■ Plate Thin Evaporators**  
Compact and light, these units offer flexibility in design. High performance is realized by distributing the temperature evenly through the core.



**■ HVAC Units**  
Sanden's HVAC (heating, ventilating air-conditioning) units create pleasant driving spaces that place a high level of importance on human beings, the natural environment, and automobiles. Backed by cutting-edge technology, the solid reliability and high quality of these units deliver a pleasant driving experience.