

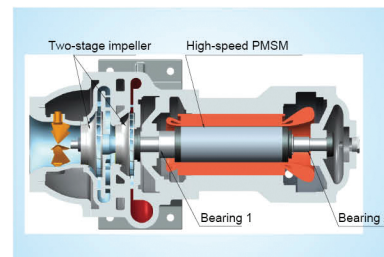
Product Features

Core Technology. High Efficiency

High-speed Direct-drive Two-stage Impeller

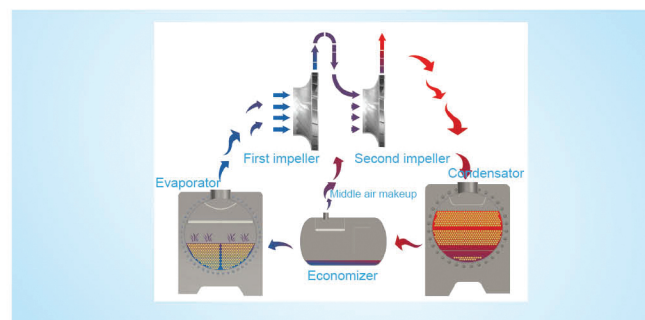
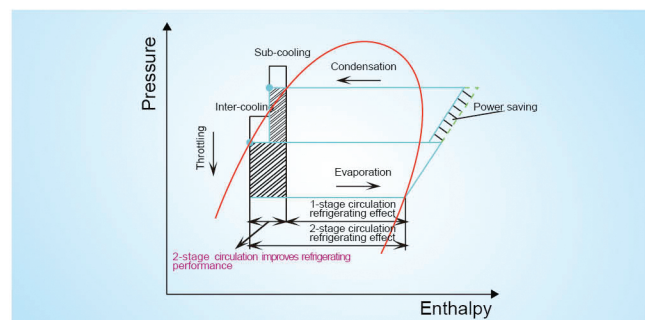
Gree's magnetic bearing inverter centrifugal chiller adopts high-speed motor to directly drive the 2-stage impeller structure. We cancel speed-up wheelwork and 2 radial bearings to reduce mechanical loss and improve energy efficiency. Compressor is compact and reliable. Volume and weight of the compressor is only 40% of the same capacity conventional compressor.

Speed-up wheelwork is canceled. Without the high-frequency noise of wheelwork, compressor's operating sound is much lower. That is 8dBA lower than that of a conventional unit.



Two-stage Compression Technology

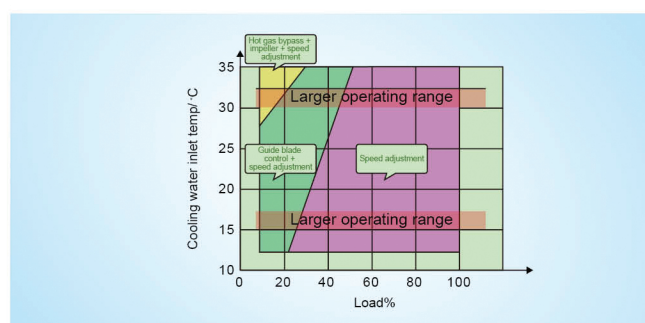
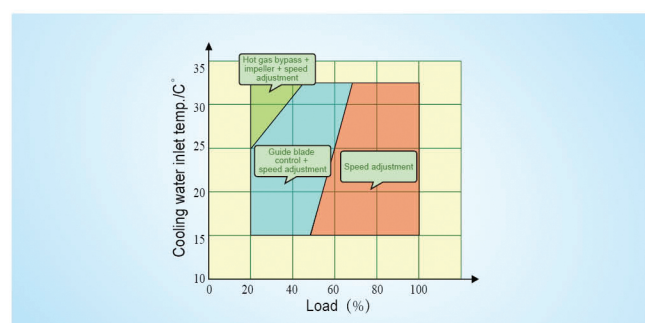
Two-stage compression with air makeup is more efficient when compared to single-stage compression. The refrigerating efficiency is improved by 5~6%. It has lower running speed, higher reliability, and longer service life. In addition, two-stage compression enables large flow angle for impeller outlet, large surge margin and wider operating range.



Wide Operating Range

Two-stage compression and the patent diffuser technology have greatly expanded the unit's operating range. It can operate stably when entering cooling water temperature is 12~35°C. It can realize stepless regulation at 10~100% load.

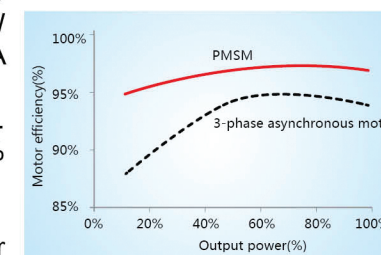
Conventional inverter centrifugal chiller adopts variable rotation speed + guide vane to adjust cooling capacity and will begin to turn down the guide vane at 50~60% load, which is not energy-efficient. In comparison, Gree permanent magnet synchronous inverter centrifugal chiller can adjust its rotation speed at 25~100% load, which can reduce the throttling loss of guide vane and improve energy efficiency.



Core Components. Stable and Reliable

High-speed Permanent Magnet Synchronous Inverter Motor (PMSM)

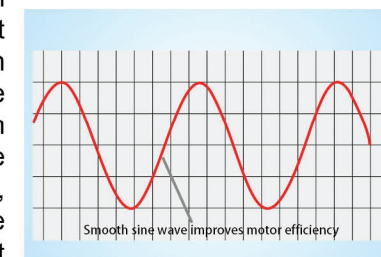
It's the world's first high-power and high-speed PMSM that is dedicated for refrigerating centrifugal compressor. The power of motor is more than 400 kW and the rotational speed is above 18000 rpm. It is compact and lightweight. A 400kW high-speed PMSM weighs the same as a 75kW AC induction motor. The motor has low startup current, only 1/5 of the star-delta startup current. Within the operating range, motor efficiency is above 96% all the time and 97.5% to the maximum.



By adopting spiral refrigerant injection cooling technology to cool down motor stator and rotor, motor's temperature can be controlled at around 40°C, ensuring efficient operation. Under partial load, motor generates little heat. It can work efficiently when the entering cooling water temperature is 12°C.

On-board Sine-wave Inverter

Sine-wave inverter is built with the unit. To satisfy the requirement of a closed compressor system, the inverter adopts high-speed permanent magnet with no position sensor. It can detect the position of motor rotor without probe. It is directly installed on the unit, which will save floor space for customers. In addition, the inverter adopts refrigerant cooling and the copper piping is simple and reliable. With PWM controllable rectification technology, the inverter can output smooth sine wave to improve motor efficiency, which allows the unit to be reliably used for data processing rooms, hospitals, scientific research institutes, factories or special areas that are sensitive to electromagnetic interference. The diode inverter has high power density, which makes it economic and reliable. It has complete protection and voltage harmonic THD is less than 5%. It can be widely applied in large office buildings, schools, hotels, shopping malls, etc.



Low Viscosity Vane Diffuser

Unique low viscosity vane diffuser design and airfoil guide vane can effectively turn high-speed gas into high static pressure gas so as to realize high-efficiency pressure recover. In partial load, vane diversion reduces backflow loss, which has improved the partial load performance and expanded the unit's operating range. The unit's partial load performance is improved by more than 8%.

