

Interior Permanent Magnet Synchronous Motor / Integrated Motor & Drive (IMD)

Co-existing with the
environment through High
Energy-Efficient Motors



▶ About Chicony

Founded in 2008, Chicony Power Technology Co., Ltd. is one of the global leading company in switching power supply. The products are commonly used within the laptop, gaming console and server sectors, and continue to expand their market worldwide seeking for business opportunities in different application.

Responding to the energy saving trend and building a greener environment, Chicony had established a team devoted to high electric motor efficiency research and development. Not only does Chicony provides standard IE3 induction motor, but also provide advanced IE5 permanent magnet motor. Moreover, they launched an innovative drive and motor all-in-one solution to ease the installation and commissioning barrier for users. Deeply rooted in Taiwan, Chicony have developed into a global enterprise, aim to assist users to achieve the mission of better energy saving and carbon dioxide reduction, and together establish a sustainable environment.

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▶ Product Introduction

Interior Permanent Magnet Synchronous Motor

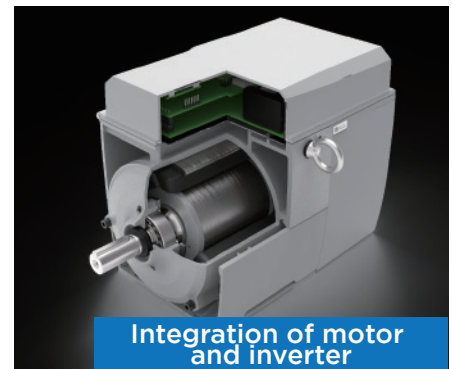
Chicony Power Technology develops IE5 Interior Permanent Magnet Synchronous Motor (IPM motor) where permanent magnets are mounted inside and the construction of stator is a split design. Compared with traditional induction motors, IPM motors have a smaller frame size, which makes them smaller and lighter in weight. Permanent magnets are used in rotor without rotor cropper loss. Each stator slot is individually wound, which makes the coil occupancy rate 75%-85% higher than that of the integrated stator design. Due to the above, the motor efficiency is greatly improved, so the motor could run at the highest efficiency under the required load. IPM motors also feature low starting current and low temperature rise in bearings, thereby providing longer life span.



Interior Permanent Magnet Synchronous Motor

Integrated Motor & Drive (IMD)

Chicony Power Technology launches Integrated Motor & Drive (IMD), a solution for integrating an IPM motor and inverter within a single housing to resolve users' challenge of commissioning the inverter while fulfilling the needs of different industries. Its all-in-one design could save installation space and with IMD's modularized system design, users can plug and play to save commissioning time. Moreover, its protection class reaches IP55, which can withstand harsh environments. IMD also provides multiple communication methods such as via Bluetooth connection (pairing with IMD Remote App) and keypad operation (MODBUS RS-485). When IMD is applied to water pumps, fans, ventilation and air conditioning (HVAC) systems, compressors and other equipment, it can bring significant energy-saving benefits.



Integration of motor and inverter



Save electricity

Improving motor efficiency and reducing energy consumption.



Reduce the replacing idle time

Removable inverter module can be easily replaced, simplifying the procedures.



Shared cooling system

Use of a common cooling system for the motor and inverter.



Real-time monitoring

Built-in G sensor to detect system abnormalities.



Stable performance

Providing stable high torque output even when starting at low speeds or sensor-less control.



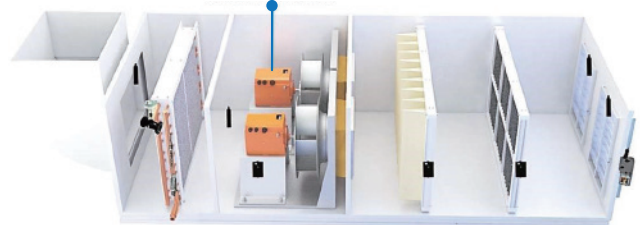
Diversified applications

Can be equipped with a reducer and brake, with excellent scalability.

Practical Applications: Smart Air Handling Unit (AHU)

Chicony Power Technology applies the "Integrated Motor & Drive (IMD)" product to the HVAC systems and integrates motors, controllers, temperature and humidity sensors, wind differential pressure sensors...etc, to provide smart AHU solution for buildings or large-scale HVAC systems. The motor efficiency of IMD reaches IE5 class. Multiple IMDs are arranged in parallel to form a wind wall establishing a backup operating mechanism for the AHU system, therefore, a single motor failure will not affect the overall operation. This not only improves reliability and energy efficiency of the system, but also saves up to 30% of the electricity bill.

Motors are arranged in parallel to form a wind wall



Configuration Diagram of Smart Air Handling Unit

