



EC Motor

H2O Air Conditioning is proud to announce that we have introduced international energy efficient Index IE4 EC , efficiency up to 90% motor in two of our mobile coolers, both the **HP24BX** and **HP36BX** units are now fitted with these motors.

What is the Difference between AC, DC, and EC Motors?

When energy-efficiency costs come into play, more designers are opting for the electronically commutated motor **EC** rather than familiar **AC** and **DC** versions.

AC induction motors use a series of coils powered and controlled by AC input voltage. The stator field is created from the input voltage, and the rotor field is induced by the stator field. AC motors consume additional energy to create a magnetic field by inducing a current on the rotor. Consequently, AC motors are less efficient than DC motors. In fact, the DC motor is 30% more efficient than AC motors due to the secondary magnetic field being generated from the permanent magnets rather than copper windings.

EC motors are brushless DC motors controlled by external electronics—either an electronic circuit board or variable frequency drive. The rotor contains permanent magnets and the stator has a set of fixed windings. The mechanical commutation is performed by the electronic circuitry. The circuit board switches the phases in the fixed windings to keep the motor turning. This supplies the right amount of armature current. When the current is delivered in the right direction at the precise time, the higher the accuracy is achieved. Since the motor's speed is controlled by external electronics, EC motors do not have a limited synchronous speed.

EC motors have several benefits.

- EC motors have no brushes, they do not spark or have a short life due to brushes.
- They do not waste power because the electronics control the stator.
- They provide better performance and controllability.
- They run cooler than induction motors. In terms of size.
- Small motors can achieve the same output as traditional DC or AC motors.
- Power distribution is much cleaner with an EC motor.
- AC motors power supply usually adds extra cost and complexity.
- EC motors can connect directly to AC main power supply with their integrated electronics. They do not completely depend on voltage or frequency; hence, small changes in voltage do not affect motor output.