

Embraco VCC - The Intelligent Compressor

Embraco technology helps refrigerators to save up to 40% in energy consumption

World leader in the market of reciprocating compressors for refrigeration, Embraco is recognized by its state-of-the-art high efficiency products. One of the best examples is its Variable Capacity Compressors (Embraco VCC), that are used in domestic applications where a better performance, better temperature control, lower power consumption and very low noise levels are required. This is possible thanks to the use of an electronic inverter capable of driving the compressor at different speeds and therefore, controlling its refrigeration capacity.

An innovative feature of the Embraco VCC compressors is the possibility of a self-controlled mode, where the speed is automatically adjusted by the electronic inverter. This allows the Embraco VCC to be an immediate replacement for the conventional fixed speed compressor, even keeping the standard electromechanical thermostat. The so-called Drop In control mode actually causes the compressor "to feel" the thermal load variations on the system and adjusts the compressor speed automatically, looking for the most efficient operation. The integrated design between this compressor and the electronic controls will allow us to reach even higher performance and savings in the next product generations.

Embraco VCC compressors are also compatible with electronic thermostats and controllers, making it possible to get its speed controlled by either a frequency signal or the serial interface.

Whatever may be the control mode, the selection of the operation speed where the system and the compressor works more efficiently and the reduction of on/off cycles, enable a significant decrease in the application's power consumption. For example, the average annual power consumption of a high efficiency side-by-side refrigerator with standard On/Off compressor is around 570 kWh/y. With the Embraco VCC, the same appliance would consume 480kWh/y, meaning US\$ 18 yearly savings on the energy bill (considering US\$0.20/kWh). When we consider a country with higher energy rates, savings will be even more representatives.

Since product's first production, Embraco has already sold around 3 Million VCC compressors to be applied on domestic refrigerators and freezers. If you took the energy savings accumulated during 2006 by those Embraco VCCs running all over the world, it would be possible to power all houses of a city the size of Washington DC for 37 days.

The Embraco VCC technology is also available for L,M and HBP light commercial applications, bringing to this segment the same advantages delivered to domestic appliances.

Embraco VCC Technology in the practice

- Power consumption reduction of the refrigeration system of up to 40%, relative to an operation with a conventional compressor.
- Considerable reduction of the noise levels in comparison with most of the models used in commercial applications.
- Excellent performance at low line voltages: compressor can start as low as 60Vac (115Vac model) or 160Vac (220Vac model).
- The first hermetic compressor with Embraco VCC technology for commercial refrigeration intended for applications in Beverage Coolers, Vending Machines, Food Storage Refrigerators and Freezers.
- Representative contribution to American high efficient appliances manufacturers to accomplish Energy Star's requirements (Embraco is market leader in the US for household refrigeration).

Last Feb, 08, the Embraco VCC compressor was chosen as one of the 10 biggest Brazilian innovations of the last decade by a research of Exame magazine / Monitor Consultants. The study, the largest ever carried out on innovation in the country, analyzed more than 220 projects.