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EC MOTORS FOR UNIT COOLERS

Over the past decade, Electronically Commutated (EC) motors have been used in many applications including HVAC equipment and refrigerated display cases. While the benefits of using EC motors are the same, the application requirements are considerably different. An EC motor developed for one specific application may not be suitable for use in other applications. The specific requirements must be understood in order to select the appropriate EC motor for a given application.

Question: Why use an EC motor in a commercial refrigeration application?

There are two primary reasons you should consider using EC motors: Regulatory Compliance and Energy Efficiency. First, effective January 1, 2008, California Energy Commission (CEC) Title 20 will require all new unit coolers used in walk-in coolers and freezers to be equipped with EC motors. Other states are also considering this legislation and will likely adopt similar language within the next few years. Secondly, EC motors are much more efficient than PSC or Shaded Pole motor offerings. EC motors by InterLink are up to 75% efficient—that's a 51-59% increase over shaded-pole motors and a 30-35% increase over permanent split-capacitor (PSC) motors. Additionally, these motors run cooler than PSC or shaded pole motors, introducing less heat into the refrigerated space and further increasing energy savings.

Question: What EC motor options are currently available?

Originally, the use of EC motors in refrigeration applications was limited to smaller unit-bearing motors used in refrigerated display cases. Recently, larger and more robust designs that are capable of providing higher airflows for walk-ins have been available in the industry. However, these motors were primarily used in medium temperature applications. Through its InterLink brand, Heatcraft Refrigeration Products (HRP) is the first in the industry to offer an EC motor capable of providing the performance and reliability expected in both medium and low temperature applications. These motors are available factory installed on new low profile, medium profile, low velocity, and center mount evaporators for Bohn, Larkin, Climate Control, and Chandler equipment. For existing systems, InterLink EC motors are available as an aftermarket part and are drop-in replacements for existing shaded pole and PSC motors.

Right source. Right parts. **Right now.**

Question: What is the difference between these motors?

At only 12-16 watts, smaller unit-bearing EC motors are typically used in refrigerated display cases where the airflow requirements are minimum. These smaller motors are only capable of powering 4 to 8 inch fans that are typically used in these applications. In comparison, the more robust Interlink EC motors operate at a much higher output power of 55-85 watts and are designed specifically for use in larger applications such as walk-in coolers and freezers. InterLink EC motors are capable of powering 10 to 18 inch fans that produce higher airflows necessary to effectively cool larger refrigerated spaces.



Interlink EC Motor

Unit-bearing EC motor used in Refrigerated Display Cases

Question: What problems have competitive motors in the market experienced and what has InterLink done to address these issues?

Since many EC motors have been applied in applications that they were not designed to meet, customers have experienced reliability issues and high failure rates in certain situations such as wet produce and meat display cases and walk-in freezers. In most cases, these failures occurred because the electronic control boards inside the motors were susceptible to moisture issues.

In contrast, HRP has applied our extensive knowledge of refrigeration applications to develop a line of EC motors that effectively meets our high reliability standards without sacrificing airflow and capacity. InterLink EC motors feature a fully potted electronic control board that completely eliminates moisture issues, even in low temperature applications.

Question: How can I be certain HRP’s InterLink EC motors will perform reliably in all conditions?

HRP’s product development process includes extensive lab and field-testing that exceeds industry standards and ensures customers will receive the same high performance and reliability that they have come to expect from all of our products. InterLink EC motors have undergone rigorous E99-5 testing, which includes HALT (highly accelerated life testing) and surge testing to ensure motors will not fail prematurely. In addition, HRP tested InterLink EC motors to a more stringent heat rise standard than required by UL. Finally, HRP conducted a comprehensive field-testing program where these motors were successfully applied in a wide range of refrigeration applications for over a year, including high moisture and low-temperature applications (-30°F room, -40°F SST). Because of the rigorous testing regimen and the proven reliability of these motors, HRP is offering a replacement warranty of two years from the date the motors are shipped.

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