
Case study

Helmer Scientific: Protecting the medicines that save lives

Executive summary

Helmer Scientific targeted improvements in performance, noise, and reliability for their next generation medical-grade refrigeration platform. By using ECR 2 motors, noise was reduced up to 4.5 dBA to levels that had customers questioning if the unit was in operation. They also reduced motor energy consumption up to 75%. ECR 2 motors support rigorous accelerated life testing requirements and reliable operation across healthcare applications.

Challenges

As a leader in the development of customized medical grade refrigerators for hospitals, blood centers, laboratories, pharmacies, clinics, health departments, and research facilities, Helmer Scientific's customers need a reliable refrigerator that is quiet enough to use in clinical and healthcare environments, yet meets the rigorous performance requirements of the medical industry. Equipment failure could mean the expiration of expensive vaccines, loss of medical research, or the loss of temperature uniformity that is critical in many of these applications.

Helmer was seeking to advance medical refrigeration by developing products with improved temperature performance, and reduced noise to avoid disturbing patients or staff.



“ We are receiving great feedback on the GX Solutions medical-grade refrigerators that use the ECR 2 motor from our healthcare customers! With GX Solutions, Helmer has introduced innovation in performance, noise, and energy efficiency. These units are so quiet compared to traditional cold storage equipment that it can be difficult to tell the unit is operating!

- Ben Greenfield -

Director of Marketing and Business Development



The solution



With over 15 years of experience developing motors for the world's most difficult applications, Wellington's engineers quickly understood the challenge of reducing noise while also maintaining stringent performance requirements. After discussing various options with Helmer, they quickly determined the ECR 2 motor was the best choice for their specific application.

The ECR 2 is an extremely efficient electronically commutated motor (ECM) with operational efficiency up to 70% and a power factor of up to 0.95. This motor is also fully programmable in the factory or field, operating at 300-1800RPM. It accepts input voltages of 70-264V, enabling them to use the same motor with all models around the world, reducing SKUs and improving operational flexibility.

Results and future plans

After installing the **ECR 2** motor, Helmer's engineers were amazed by the motor's quiet operation. Some engineers estimated it was up to 4.5 dBA quieter than their previous model. They noticed it was so quiet and smooth when operating in their hands, they could barely tell it was on. Helmer also noted that ECR 2 maintains temperature more uniformly, recovers more quickly after door openings, and is up to 75% more energy efficient than conventional motors. Its reliability has also supported Helmer's commitment to lead the industry in reliability and quality.

Helmer sees the ECR 2's quiet operation, low vibration, and extremely high efficiency as a critical part of their products' quality and performance. They are currently including the ECR 2 in new product updates. Since the ECR 2 accepts a universal input voltage, they are able to use the same SKU in all models around the world – saving cost and greatly simplifying their products.

