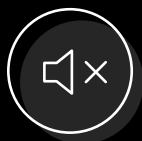


Wellington®

BROCHURE

# Wellington ECR 2 Motor



**Silent**  
36.5 dBA



**Highly efficient**  
Up to 70%



**Highly reliable**  
Up to 10x more reliable



**Dual voltage**  
70-264V



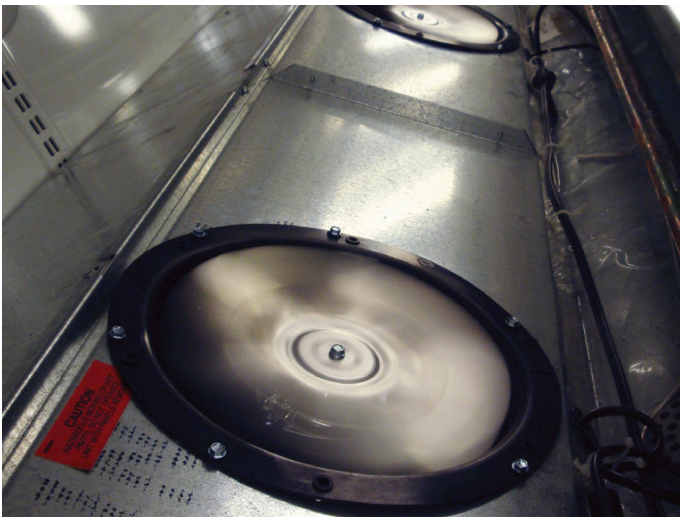
**SKU reduction**  
Up to 57:1





## The worlds most advanced refrigeration fan motor

AoFrio's **Wellington ECR 2** motor is a drop-in replacement for shaded pole Q-frame and unit bearing motors used in commercial refrigeration. With efficiency up to 70%, it uses 2/3 less power than shaded pole motors. AoFrio has over 30 years of experience designing the industry's most advanced motors. We have focused this expertise to make ECR 2 the best motor for commercial refrigeration applications.



## Applications

**Wellington ECR 2** motors are commonly used to drive evaporator and condenser fans in commercial refrigeration systems. This includes supermarket displays, bottle coolers, ice cream freezers and food service cabinets.

They offer much lower power consumption and improved reliability compared to shaded pole motors.

## Advanced control options

Advanced control options improve case performance, enable manufacturers to differentiate themselves and improve manufacturing flexibility. Mounting, wiring, and speed options are all directly compatible with unit bearing and Q-frame type shaded pole motors.

**ECR 2** motors have mounting options for a wide range of bracketry, including basket mount, rear mount (3 or 4 hole), and foot mount. The power rating is suitable for driving most 150-200mm (6-8") fans.

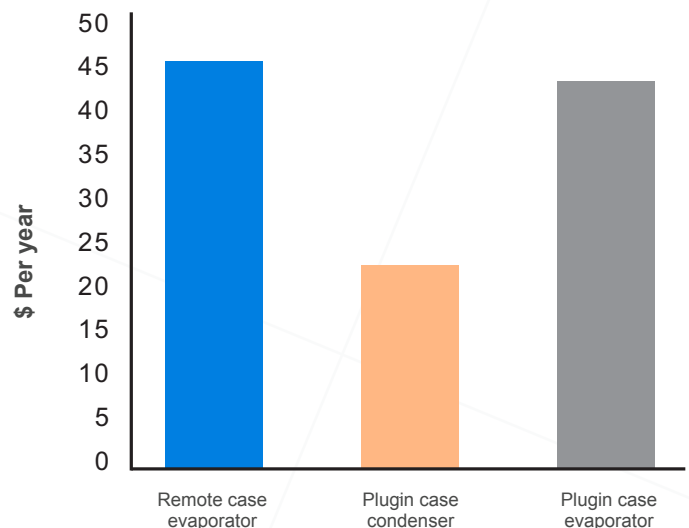
## Energy saving

Fan motors are one of the main power consumers in a commercial refrigeration system, so efficiency is important. Evaporator fans are even more important to optimize because any wasted power becomes heat, which must be extracted by the compressor.

**ECR 2** motors have an efficiency of up to 70%, and maintain high efficiency over a very wide range of loads. This compares with typical shaded pole motor efficiency of 18-22%, meaning ECR 2 motors use over 70% less power than a typical shaded pole motor. Combined with the COP and capacity benefits of reduced heat load in the cold space, this reduces the power consumption of a plug-in system such as a glass door merchandizer by as much as 30%.

**ECR 2's** smart control features allow power consumption to be even further reduced by tuning airflow to the exact needs of the system.

## Annual cost saving per motor



Based on \$0.1 1/kWh and 200/28 fan at 1550 RPM



## Long life

EC motors have inherently long life compared to shaded pole motors, due to their cool running properties and good starting torque. The Wellington **ECR 2** is AoFrio's third generation ECR motor, and includes reliability-enhancing features determined by over five million ECR fan motors. These include:

- Extreme levels of surge protection (4000V)
- Protection against sustained under and overvoltage
- Multiple water protection features on cable and shaft entry
- Corrosion-proof housings
- Intelligent thermal protection, which reduces motor power in an overload case to ensure the refrigeration system continues to receive airflow
- Soft starting to reduce transient loads and noise

**ECR 2** motors have a design life ( $L_{10}$ ) of 10 years.

## Low noise

**ECR 2** has the most advanced electronic control in its class, featuring silent and ultra high efficiency "three phase field oriented control" technology.

This makes it particularly well suited to applications where both noise and efficiency are critical. Test data shows ECR 2 operates at as low as 36.5 dBA, which is roughly as quiet as the fan on your computer. ECR 2 maintains its high efficiency and low noise characteristics across the full range of power and speed.



One customer documented up to 10x fewer failures after they switched to ECR 2 and field reliability of up to 99.97%.



## Smart control

AoFrio's unique "third wire" system allows motor programming (in or out of the cooler), variable speed control, and simple programmed behaviors such as reversibility or three-speed operation. All in a single motor SKU, and without the need for extra connections or opening a programming hatch.

By connecting the third (black) wire to a switched phase output (such as the compressor switch), additional speeds, direction changes, or programmed behaviors such as delayed start or stop can be triggered. Alternatively, by connecting the same third wire to a AoFrio refrigeration controller, field programming box, or speed control transducer, the motor can be controlled or programmed for variable speed operation. This capability offers advanced users a vast number of strategies for refrigeration system efficiency improvement and noise reduction.



## ECR 2 motor combined with the ECF Fanpack

The ECF™ Fanpack integrates the ECR 2 motor into a high-performance fan and basket assembly, providing a turnkey solution compatible with industry-standard 8" (200mm) axial fanpacks. This provides better pressure delivery than competing fanpacks, with improved noise and efficiency, and delivers substantially reduced vibration and current consumption (VA). They are made from high-specification glass-filled polymers and are suitable for both condenser and evaporator applications, including low-temperature evaporators.



ECR 2 can also be used as a simple fixed-speed motor.



## Flexibility

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With **ECR 2**, one motor SKU can cover all of your needs. Wide power range, dual voltage, factory or field programmability, and customer specific cable terminations mean less part numbers and more productivity.

OEMs that switched to ECR 2 have reported SKU reductions of up to 57:1

## Lighter weight

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**ECR 2** motors are packed for shipping up to 33% more densely than their competitors, delivering lower total procurement costs and simplifying logistics in warehouses and production facilities.

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### About AoFrio Limited:

AoFrio is a leading provider of IoT solutions, cloud-based fleet management platforms, energy-efficient electronic motors and connected refrigeration control solutions. It serves some of the world's leading food and beverage brands and refrigerator manufacturers and offers proximity-based marketing for Smart Cities to the Australian market. AoFrio's services and products improve sales, decrease costs and reduce energy consumption. Headquartered in Auckland with a global reach, AoFrio is listed on the New Zealand stock exchange under the ticker symbol NZ: AOF

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