

# INNOVATION

**SPOTLIGHT** from the brands of Altra Industrial Motion Corp.



## BAUER GEAR MOTOR LEADS THE INDUSTRY WITH ENERGY EFFICIENT MOTOR TECHNOLOGY

Bauer Gear Motor is one of the world's leading manufacturers of geared motor solutions. It has always been at the forefront of developing new technologies with a desire to improve energy efficiency and reduce costs for its customers. It is this commitment to efficiency that has led to the development of a range of Permanent Magnetic Synchronous Motors (PMSM) which meet the requirements of the IE4 (Super Premium Efficiency) classification.

In today's market, energy efficiency has become one of the key determining factors when specifying geared motor solutions. Energy prices continue to rise, so it is important that a drive's lifelong running costs are considered; rather than simply the cost of procurement.

Bauer's PMSM series is an environmentally-friendly range of motors, employing a highly efficient rotor design that integrates embedded permanent magnets made from rare-earth metals, in place of a squirrel-cage rotor found in most LV induction motors. This design offers a number of key benefits. It reduces heat loss from the rotor by 100%, total loss by approximately 25%, and increases total efficiency by 10% or more.

### **GREAT NEWS FOR CUSTOMERS... AND THE ENVIRONMENT**

For the PMSM user, this improved performance translates into a lower total cost of ownership, a reduction in CO2 emissions, and ongoing savings that buffer against future increases in energy costs.



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During the product's development it was clear that the new PMSM would offer customers impressive energy savings over conventional, inverter driven Asynchronous Motors (ASM). There has been a large amount of publicity recently about PM motors, but there is still reluctance in the market to buy them, as the purchase cost is higher than that of standard motors. In some light-duty applications, where the motor is rarely on, it is still more economical to specify a standard motor, but, if the duty cycle is high then a PM motor can quickly meet its ROI figure and then go on to deliver savings for a long time to come.

Since the motors can deliver both efficiency and flexibility, the combination of these features with a compact size and high torque rating means that they can be used to cut inventory significantly for large plants. Offering a replacement for a wide variety of different asynchronous geared motors in the field can result in a further reduction in costs for inventory, logistic and maintenance.

The synchronous design of the PMSM motors means that not only are they superior at converting electrical energy into mechanical power, but also offer the added benefit of maintaining constant speed independent of the load. This means that motor speed does not vary, despite overload variations, or in cases of voltage drop, as long as the mains frequency is kept constant.



The PMSM range also includes application specific models — including the world's first modular stainless steel IE4 permanent magnetic synchronous geared motor for the food and beverage industry complementing the already successful Aseptic™ range — offering unique features and capabilities designed for the special requirements of hygiene-sensitive environments.

Bauer PMSM motors are available in ventilated and non-ventilated configurations across the power range from 0.55kW to 15kW. They operate on 380V to 500V power supplies, and are rated for inverter duty, offering an extended speed range with constant torque.



## WHAT DOES IE4 MEAN?

IEC 60034-30 is an international standard for energy-efficient motors that will eventually be used worldwide. Electric motors account for approximately 1.07 billion kWh of the total energy demand of the EU.

Using energy efficient motors would achieve energy savings of 20 to 30 percent, thereby reducing the total cost of ownership (TCO) and reducing global warming.

IE (International Energy Efficiency) efficiency classes:

- IE1 = Standard Efficiency
- IE2 = High Efficiency
- IE3 = Premium Efficiency
- IE4 = Super Premium Efficiency