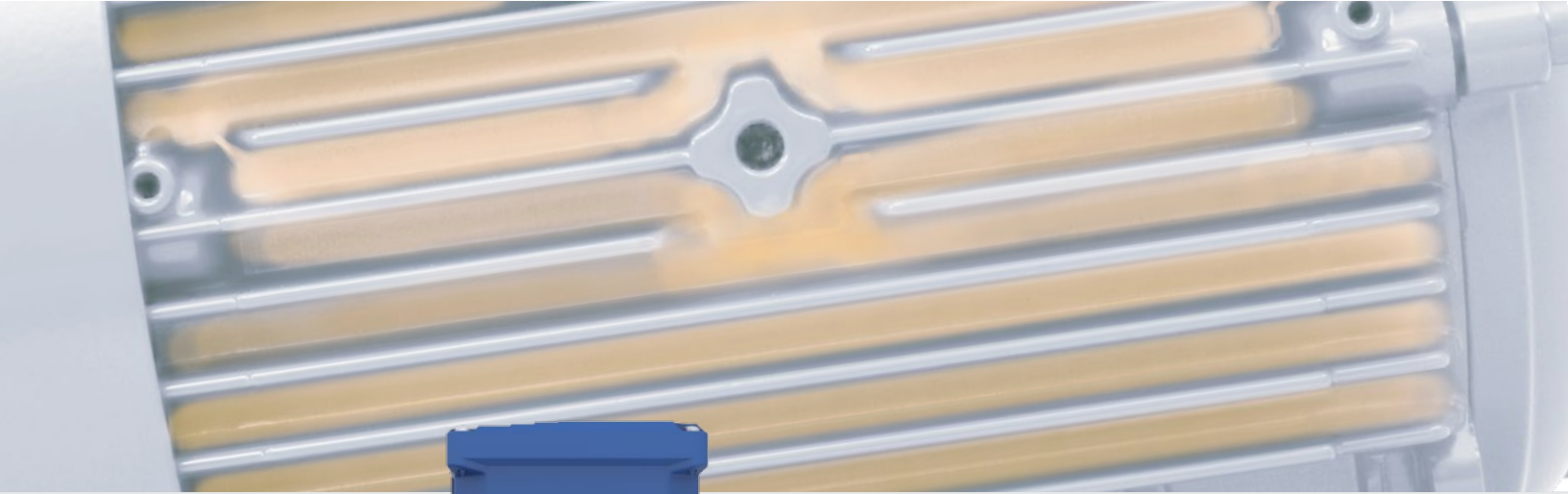
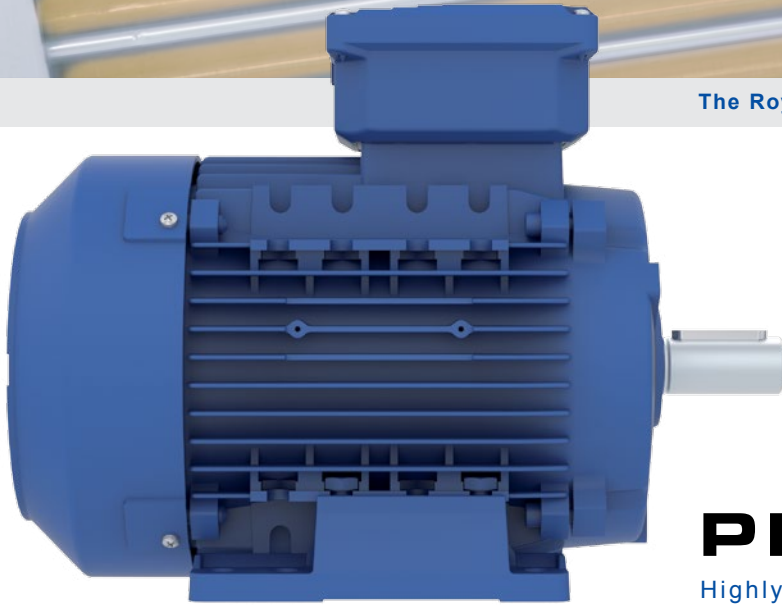


Movement by Perfection



The Royal League in ventilation, control and drive technology



PMblue

Highly efficient IE4* motor technology

PMblue

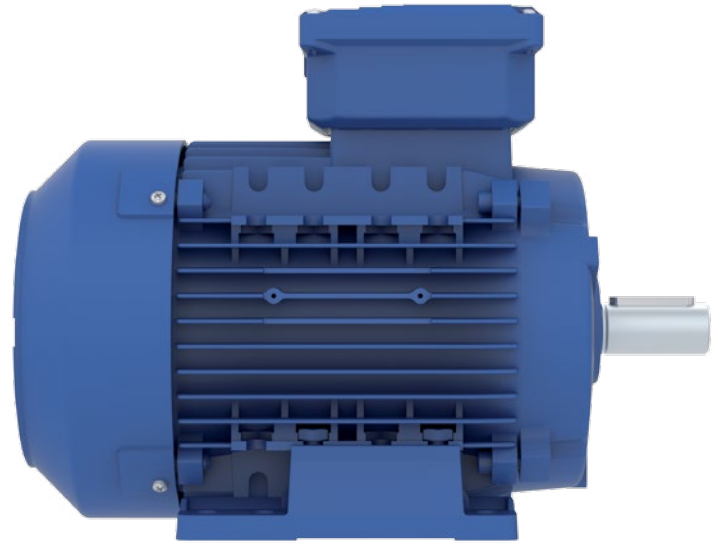
The latest, highest efficiency electric motor

The new standard in the ventilation and air-conditioning sector

The permanent-magnet internal rotor motors in the PMblue series were developed specially for ventilation and air conditioning and already meet the requirements in the planned IE4* efficiency class, Super Premium Efficiency. When combined with our Cpro impeller the potential for high energy savings is guaranteed. The motors are operated using the PMcontrol EC controller.

The benefits of the PMblue motors

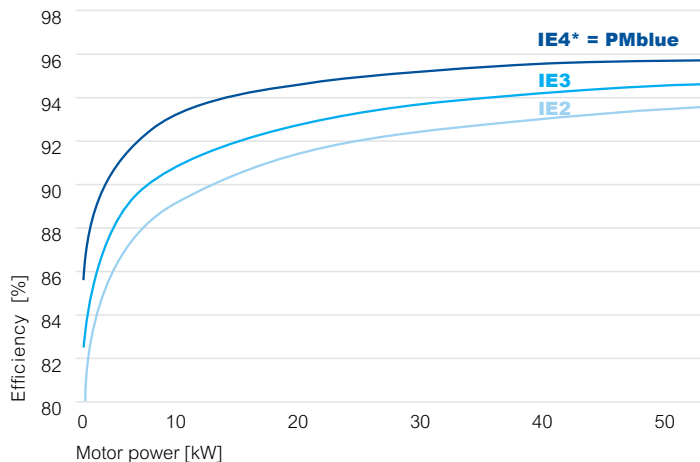
The motors have the highest efficiencies, even at low rotational speeds and in the partial load range. There are none of the system efficiency losses normally associated with motor blockage in the impeller. The PMblue motors have the same dimensions as today's IE2 standard motors, making them directly interchangeable. The motors stand out with their low-noise and vibration-free operation and are also perfect for very high rotational speeds up to 5000 rpm. Since the PMblue motor and PMcontrol controller come from one single source, the drive components are matched perfectly to one another. This facilitates simple and quick commissioning as no special configuration is necessary.



PMblue motor

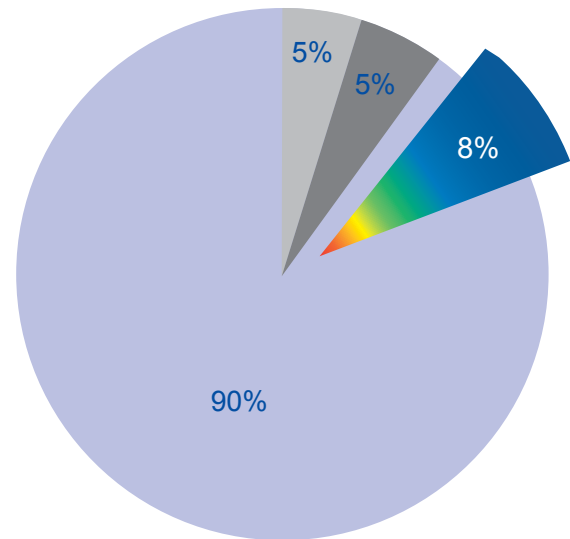
The PMblue series comprises the motor sizes 90, 112 and 132. The motors are available in the 5 to 15 kW power ranges

Use the energy savings potential with PMblue, the IE4* energy saving motor



Comparison of efficiency at 4-pole motors with 50 Hz

IE4* motors, as opposed to IE2 drives, stand out with 7.5% higher efficiency. In a total cost calculation of fans for the air-conditioning system across a time frame of 10 years, the cost component for energy lies at over 90%. By using energy-efficient IE4* class motors, energy consumption and consequentially corresponding energy costs of up to 40% can be saved as compared with IE2 products.



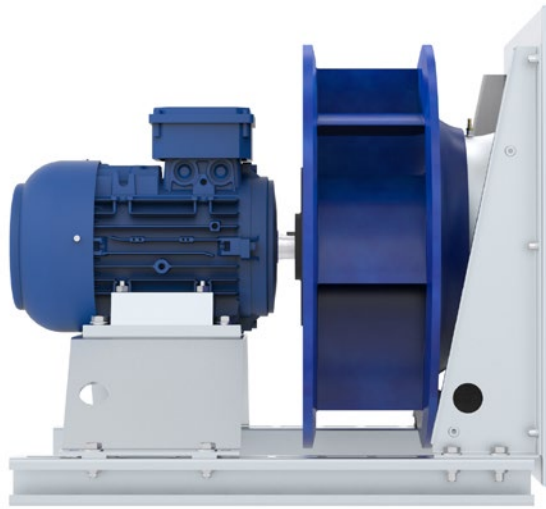
Cost distribution across 10 years

- Energy costs more than **90%**
- Energy savings potential up to **8%**
- Investment costs less than **5%**
- Maintenance costs less than **5%**





PMcontrol



PMblue with Cpro ZAMid high-performance centrifugal fan

Cpro ZAMid®Technology



Cpro ZAMid high-performance centrifugal fan

An investment that quickly pays off

At today's energy costs, an investment in the energy-saving PMblue motors pays off quickly. With a fan operating time of 6,000 hours per year at full load, the higher investment is amortised in less than 2 years.

Example calculation of energy savings

Comparison IE2 to IE4*

Motor 5.5 kW, 4-pole

Motor IE2

Minimum efficiency = 87.7%

$P_{input} = 6.27 \text{ kW}$

$P_{loss} = 0.77 \text{ kW}$

Savings = 0.3 kW

Difference in efficiency (only) 4.4% $\hat{=}$ 39% lower losses

Motor IE4*

Minimum efficiency = 92.1%

$P_{input} = 5.97 \text{ kW}$

$P_{loss} = 0.47 \text{ kW}$

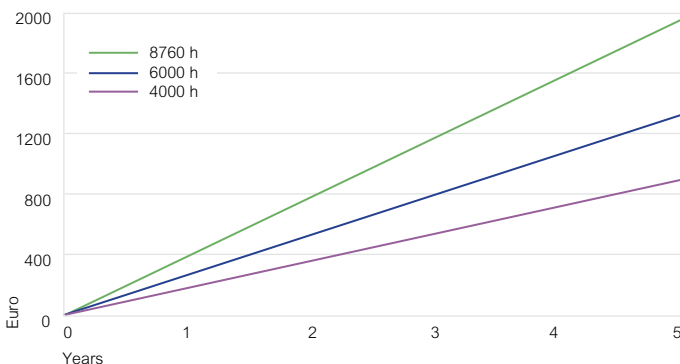
CO²-savings protect the environment

Reduced energy requirements lead to less environmental damage. At circa 160,000 MWh of sold drive power per year, using IE4* motors can prevent the production of up to 20,000 tons of CO².

Legal requirements

New energy laws and impending regulations in the EU on minimum efficiencies (e.g., ErP, EnEV, EPBD, DIN EN 13779, etc.) require the significant reduction of energy consumption in air conditioning systems.

Energy cost savings



PMblue and PMcontrol

A top team for the highest performance

PMcontrol turns the PMblue motor technology into a new energy saving miracle

The intelligent, self-sufficient control engineering, with electronics developed specially for PM motor technology, provides the highest degree of functionality and exceptional performance. Together, the top team meets the highest demands in air conditioning and easily fulfils ErP Directive 2015. We offer PMcontrol pre-programmed, with several selection options for standard and special applications. This saves you time and money during commissioning.

*According to the current draft IEC 60034-31

The Royal League

