

NEW !

Class IE2 and IE3 high efficiency motors

New efficiency standards and directives applicable to three-phase cage induction motors



Electric motors represent 70% of energy consumption in industry and 33% in the service sector. Since saving the environment and reducing energy bills are major challenges for our planet, increasing the efficiency of electric motors is undeniably key to their energy performance.

Numerous standards or regulations are currently used to define the efficiency of electric motors (NEMA, EPAct, NRCAN, CEMEP, COPANT, AS/NZS, etc), and others are in preparation.

It is becoming increasingly difficult for manufacturers to design motors for a global market and for users to understand the differences and similarities between standards in different countries.

The recent introduction of new efficiency standards and directives applicable to three-phase cage induction motors will clarify a situation which has become increasingly complicated for all those involved in this market:

- **Standard IEC 60034-30** defines the principle to be adopted and brings global harmonisation to energy efficiency classes for electric motors throughout the world.

- **Directive 2005/32/EC** (6 July 2005) from the European Parliament established a framework for setting the eco-design requirements to be applied to "energy-using products". These products are grouped in lots. Motors come under lot 11 of the eco-design programme, as do pumps, fans and circulating pumps.

- **The Commission's regulation 640/2009 for application of the ErP** (Energy related Product, formerly EuP) - **European Directive - lot 11** was published in July 2009. It is based on standard IEC 60034-30 and defines the efficiency classes whose use will be mandatory in the future. It specifies the efficiency levels to be attained for machines sold in the European market and outlines the timetable for their implementation. These efficiency levels are:

- **IE1:** Standard efficiency, level equivalent to Eff2

- **IE2:** High efficiency, level equivalent to Eff1 or "Energy Efficiency" in the United States (EPAct'92), applicable from June 2011

- **IE3:** IE3: Premium efficiency, new in Europe or "Nema Premium" in the United States (EISA) applicable from January 2015 or 2017 depending on the power ratings.

A fourth class is currently in preparation:

- **IE4:** SUPER PREMIUM efficiency

Thanks to its capacity for innovation, LEROY-SOMER, the specialist in industrial electric motors, is already able to supply class IE2 totally enclosed and open drip proof motors: LSES/FLSES series IP 55 protection and PLSES series IP 23 protection, both 2 and 4-pole versions with power up to 375 kW.

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These motor series, with aluminium, cast iron or steel frames respectively, can be supplied in very short lead times, depending on the power ratings concerned.

They are also characterised by their considerable modularity. Indeed, LSES/FLSES and PLSES motors offer not only multiple mechanical options (non-standard flange, special shaft, customised terminal box, etc) but also a wide variety of electrical adaptations (specific connections and voltages, thermal protection, etc).

To take energy saving to the next level, LEROY-SOMER offers variable speed drive solutions, D.C., asynchronous and permanent magnet synchronous technologies, allowing users to reach unrivalled efficiency levels!

To take energy saving to the next level, LEROY-SOMER offers a wide range of drive solutions: whether these be in the area of asynchronous technology, particularly with class IE3 high efficiency motors, which can also be combined with variable speed drives, or in the field of permanent magnet synchronous technology, with the Dyneo® range of drives, allowing users to reach unrivalled efficiency levels, much higher than the minimum levels of the future class IE4.



IE2

IE3

