



ErP directive

Directive for energy-related products

Important answers to questions on the new regulation, applicable from June 2011

Energy efficiency - a megatrend
Halting climate change, preserving energy reserves

2009/125/EC directive
"Environmentally friendly design of energy-using products"
(ErP directive)

Ordinance (EC) No. 640/2009
for the implementation of the 2005/32/EC directive

E.g. Energiebetriebene-Produkte-Gesetz (Energy Using Products Act)
(EBPG)

From June 2011
minimum degrees of efficiency for three phase AC motors in the EU

Lenze

ErP directive | Important answers

From June 2011, minimum degrees of efficiency for three-phase AC motors will be introduced in the EU. In order to ease familiarisation with the new requirements, Lenze has summarised the answers to some of the most important questions.

When does the regulation come into effect?

| Switchover date | Power | Minimum degree of efficiency |
|------------------|-----------------|---------------------------------|
| 16th June 2011 | 0.75 ... 375 kW | IE2 |
| 1st January 2015 | 7.5 ... 375 kW | IE3 or IE2 + frequency inverter |
| 1st January 2017 | 0.75 ... 375 kW | IE3 or IE2 + frequency inverter |

Which products are affected?

- ▶ 2-, 4-, 6-pole three-phase asynchronous motors, 0.75 to 375 kW
- ▶ 50 Hz and/or 60 Hz
- ▶ S1 – continuous operation
- ▶ Also, geared motors and motors operated by an inverter

Which products are not affected?

- ▶ All motors which do not meet the above requirements (e.g. motors with other rated frequencies).
- ▶ Explosion-protected motors in accordance with ATEX

- ▶ Motors which are completely integrated into a product and whose degree of efficiency cannot be measured independently of this product (e.g. compressors).
- ▶ Pole-changing motors
- ▶ Brake motors
- ▶ Motors which are designed for:
 - ambient temperature < -15 °C or > 40 °C
 - Site altitude >1000 m
 - Rated voltage >1000 V

What form of marking do the motors have?

- ▶ Energy-efficient motors are divided into efficiency classes in accordance with IEC/EN 60034-30. The efficiency class is indicated on the motor. The current efficiency marking is to be discontinued.

| IEC/EN 60034-30 | Comparable with | |
|-----------------|-----------------|-------------------------|
| | in Europe | in the USA |
| IE1 | eff2 | NEMA Energy Efficiency |
| IE2 | eff1 | NEMA High Efficiency |
| IE3 | – | NEMA Premium Efficiency |

How is a higher degree of energy efficiency achieved?

A higher degree of efficiency can be achieved by:

- ▶ Using more active material
- ▶ Using lower-loss laminations
- ▶ Increasing copper fill factors



What are the technical differences in comparison to conventional three-phase AC motors (IE1)?

Depending on the selected design measures, any of the following may occur:

- ▶ Change in speed/torque characteristic (e.g. rated speed, slip, starting performance)
- ▶ Change in currents/voltages
- ▶ Change in moments of inertia
- ▶ Change in dimensions
- ▶ Lower heating

Is there a special acceptance procedure for efficient motors?

Acceptance via a state-recognised test institute is not necessary. CE-conformity confirms, among other things, compliance with legal efficiency regulations and standardised efficiency classifications.

Does the switchover date apply to commissioning or bringing the machine into circulation?

The legal regulations only affect bringing the machine into circulation for the first time (e.g. import or a manufacturer selling the motor to a dealer). From the stipulated switchover dates onwards, motors which fall into the legal scope and do not meet the minimum energy efficiency requirements must no longer be brought into circulation. This applies only to EU countries.

Motors which have already been ordered may still be integrated into machines after the switchover date.



Do existing machines need to be upgraded?

What happens in the case of repair work?

For three-phase AC motors which have already been commissioned there is no compulsory switchover. In the case of a simple repair (e.g. changing the ball bearing), existing motors can also continue to be used. If, in the event of repair work, a complete motor needs to be replaced, the new motor must comply with efficiency regulations.

What support does Lenze offer?

On the one hand we offer comprehensive advice on how to comply with legal regulations. On the other, we go one step further than is required by the standard when it comes to optimising energy efficiency. Our **Lenze BlueGreen Solutions** demonstrate three ways in which you can increase energy efficiency, taking into consideration the entire drive system: inverter, motor and gearbox. We can also provide you with consistently efficient and coordinated products, perfectly tailored to suit your needs:

- ▶ L-force MH (geared) three-phase AC motors conform to efficiency class IE2 and thereby comply with the legal regulations. In most instances, efficiency class IE2 is attained without an increase in size in comparison to IE1 motors. This means that costly design changes are not necessary.
- ▶ The L-force gearboxes boast an extremely high degree of efficiency of 94 to 98%. This means that it's not only on the motor that you can save energy.
- ▶ The L-force inverters from the 8400 platform precisely adjust the available power to process requirements. Only the amount of energy actually required is consumed.

We would be more than happy to send you the corresponding documentation or to arrange a personal consultation.

It's good to know | why we are there for you



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You can rely on our service. Expert advice is available 24 hours a day, 365 days a year, in more than 30 countries via our international helpline: 008000 24 Hours (008000 2446877).

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