

EUROPEAN ASSOCIATION OF PUMP MANUFACTURERS
ASSOCIATION EUROPÉENNE DES CONSTRUCTEURS DE POMPES
EUROPÄISCHE VEREINIGUNG DER PUMPENHERSTELLER



SECRETARIAT
Standards Commission
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EUROPUMP Guideline

on the application of the Regulation 640/2009/EC on Electric Motor Efficiency requirements clarifying the applicability to close-coupled, submersible including deep well submersible pumps.

Introduction: from Directive EuP to EC Motor Regulation

Directive 2009/125/EC Energy related Products – ErP (and the former version 2005/32/EC (Eco-design Directive for Energy-using Products – EuP) establish a framework for the setting of general eco-design requirements to be fulfilled by energy-using products in view of increasing the energy efficiency of the products and the level of protection of the environment.

Within the framework of the Directive, specific Regulations have been issued for the setting of design and energy efficiency requirements, applicable to the products included in the scope of the Directive. Amongst these, Regulation 640/2009 EC establishes eco-design requirements for electric motors and their drives, in terms of energy efficiency levels.

Subject matter and scope

Regulation EC 640/2009 is applicable to electric motors, the type and size of which are defined in Article 2.1: single speed, three-phase, squirrel cage induction motors, with 2, 4 or 6 poles, rated voltage up to 1000V, rated power output between 0,75 to 375 kW (rating based on continuous duty).

Motors designed to operate wholly immersed in a liquid and motors completely integrated into a product of which the energy performance cannot be tested independently from the product (e.g. canned motor pumps), as well as motors for special applications (e.g. potentially explosive atmospheres - ATEX) are not included in the scope of the Regulation.¹

It follows that:

- submersible motors are excluded (even dry installed).
- deep well submersible motors are excluded
- motors are excluded from the Regulation if they are fully integrated into the pump unit (e.g. canned motor pump).
- motors of all designs of “close-coupled” pumps are covered by Regulation EC 640/2009. This includes motors with all types of shaft extensions and/or flanges.

New efficiency levels

Former efficiency levels were adopted by CEMEP² as a result of a voluntary agreement based on testing methods and limits of acceptance defined under the IEC 60034-2: 1996. CEMEP efficiency levels were categorised as follows:

¹ Text taken from EC 640/2009.

EFF3 = low efficiency level
EFF2 = standard efficiency level
EFF1 = high efficiency level

International efficiency levels have been defined in standard IEC 60034-30:2008, based on test methods and limits of acceptance indicated under IEC 60034-2-1:2007, as follows:

IE1 = standard efficiency (similar to EFF2)
IE2 = high efficiency (similar to EFF1)
IE3 = Premium Efficiency

These efficiency levels are listed in Annex I of the Regulation for levels IE 2 and IE 3.

Eco-design requirements and timetable

Eco-design requirements for electric motors shall be applied in accordance to the following timetable:

1. from June 16th, 2011: motors shall not be less efficient than the IE2 level;
2. from January 1st, 2015: motors with a rated output of 7,5 - 375 kW shall not be less efficient than IE3 or meet IE2, if equipped with a variable speed drive;
3. from January 1st, 2017: all motors with a rated power of 0,75 - 375 kW shall not be less efficient than IE3 or meet IE2, if equipped with a variable speed drive.