Commission Regulation (EC) No 640/2009 of 22 July 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors (Text with EEA relevance)

COMMISSION REGULATION (EC) No 640/2009

of 22 July 2009

implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors

(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council[(1)] and in particular Article 15(1) thereof,

After consulting the Ecodesign Consultation Forum,

Whereas:

(1) Under Directive 2005/32/EC ecodesign requirements are to be set by the Commission for energy-using products representing significant volumes of sales and trade, having a significant environmental impact and presenting significant potential for improvement in terms of their environmental impact without entailing excessive costs.

(2) Article 16(2) first indent of Directive 2005/32/EC provides that in accordance with the procedure referred to in Article 19(3) and the criteria set out in Article 15(2), and after consulting the Ecodesign Consultation Forum, the Commission shall, as appropriate, introduce an implementing measure for products used in electric motor systems.

(3) Electric motors are the most important type of electric load in industries within the Community where motors are used in the production processes. The systems in which these motors are operated account for about 70 % of the electricity consumed by the industry. There is a total potential for cost-effective improvement of the energy efficiency of these motor systems by about 20 % to 30 %. One of the major factors in such improvements is the use of energy efficient motors. Consequently, motors in electric motor systems represent a priority product for which ecodesign requirements should be established.

(4) Electric motor systems include a number of energy-using products, such as motors, drives, pumps or fans. Motors and variable speed drives are an important part of these products. This is why this Regulation requires that certain types of motors be equipped with variable speed drives.

Changes to legislation: *There are outstanding changes not yet made to Commission Regulation (EC) No 640/2009. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes*

(5) Many motors are integrated in other products without being separately placed on the market or put into service in the meaning of Article 5 of Directive 2005/32/EC and of Directive 2006/42/EC of the European Parliament and of the Council[(2)]. To achieve the full cost-efficient energy saving potential, motors integrated in other products should be subject to the provisions of this Regulation.

(6) The Commission has carried out a preparatory study which analysed the technical, environmental and economic aspects of electric motors. The study has been developed together with stakeholders and interested parties from the EU and third countries, and the results have been made publicly available.

(7) The preparatory study shows that electric motors are placed on the Community market in large quantities, with their use-phase energy consumption being the most significant environmental aspect of all life-cycle phases, and their annual electricity consumption amounting to 1 067 TWh in 2005, corresponding to 427 Mt of CO_2 emissions. In the absence of measures to limit this consumption, it is predicted that energy consumption will increase to 1 252 TWh in 2020. It has been concluded that the life-cycle energy consumption and the use-phase electricity consumption can be improved significantly, in particular if motors in variable speed and load applications are equipped with drives.

(8) The preparatory study shows that electricity consumption in use is the only significant ecodesign parameter related to product design as referred to in Annex I, Part 1, to Directive 2005/32/EC.

(9) Improvements in the electricity consumption of electric motors should be achieved by applying existing non-proprietary cost-effective technologies that can reduce the total combined costs of purchasing and operating them.

(10) Ecodesign requirements should harmonise power consumption requirements for motors throughout the Community, thus contributing to the functioning of the internal market and to the improvement of the environmental performance of these products.

(11) An appropriate timeframe should be provided for manufacturers to redesign products. The timing should be such that negative impacts on the functionalities of motors are avoided, and cost impacts for manufacturers, in particular small and medium-sized enterprises, are taken into account, while ensuring timely achievement of the objectives of this Regulation.

(12) Power consumption should be determined through reliable, accurate and reproducible measurement methods, which take into account the recognised state of the art including, where available, harmonised standards adopted by the European standardisation bodies, as listed in Annex I to Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services[(3)].

(13) This Regulation should increase the market penetration of technologies that improve the life-cycle environmental impact of electric motors, leading to estimated life-cycle energy savings of 5 500 PJ[(4)] and electricity savings of 135 TWh by 2020, compared to the situation where no measures are taken.

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(14) In accordance with Article 8 of Directive 2005/32/EC, this Regulation should specify the applicable conformity assessment procedures.

(15) In order to facilitate compliance checks, manufacturers should be requested to provide information in the technical documentation referred to in Annexes IV and V to Directive 2005/32/EC.

(16) In order to further limit the environmental impact of motors manufacturers should provide relevant information on disassembly, recycling or disposal at end-of-life.

(17) Benchmarks for currently available technologies with high energy efficiency should be identified. This will help to ensure the wide availability and easy accessibility of information, in particular for small and medium-sized enterprises and very small firms, which will further facilitate the integration of best design technologies for reducing energy consumption.

(18) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 19(1) of Directive 2005/32/EC,

HAS ADOPTED THE FOLLOWING REGULATION:

[F1 Article 1

Subject matter and scope

1 This Regulation establishes ecodesign requirements for the placing on the market and the putting into service of motors, including those integrated in other products.

2 This Regulation shall not apply to:

a motors specified to operate wholly immersed in a liquid;

b motors completely integrated into a product (for example gear, pump, fan or compressor) of which the energy performance cannot be tested independently from the product;

c motors specified to operate exclusively:

(i) at altitudes exceeding 4 000 metres above sea-level;

(ii) where ambient air temperatures exceed 60 °C;

(iii) in maximum operating temperature above 400 °C;

(iv) where ambient air temperatures are less than – 30 °C for any motor or less than 0 °C for a motor with water cooling;

(v) where the water coolant temperature at the inlet to a product is less than 0 °C or exceeding 32 °C; or

(vi) in potentially explosive atmospheres as defined in Directive 94/9/EC of the European Parliament and of the Council[(5)];

d brake motors,

except as regards the information requirements of Annex I, points 2(3) to (6) and (12).]

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Textual Amendments

F1 Substituted by Commission Regulation (EU) No 4/2014 of 6 January 2014 amending Regulation (EC) No 640/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors (Text with EEA relevance).

Article 2

Definitions

In addition to the definitions set out in Directive 2005/32/EC, the following definitions shall apply:

1. ‘Motor’ means an electric single speed, three-phase 50 Hz or 50/60 Hz, squirrel cage induction motor that:
   - — has 2 to 6 poles,
   - — has a rated voltage of U_N up to 1 000 V,
   - — has a rated output P_N between 0,75 kW and 375 kW,
   - — is rated on the basis of continuous duty operation.
2. ‘Variable Speed Drive’ means an electronic power converter that continuously adapts the electrical power supplied to the electric motor in order to control the mechanical power output of the motor according to the torque-speed characteristic of the load (being driven by the motor), by adjusting the three-phase 50 Hz power supply to a variable frequency and voltage supplied to the motor.
3. ‘Squirrel cage motor’ means an electric motor with no brushes, commutators, slip rings or electrical connections to the rotor.
4. ‘Phase’ means the type of configuration of the mains electrical supply.
5. ‘Pole’ means the total number of magnetic north and south poles produced by the rotating magnetic field of the motor. The number of poles determines the base speed of the motor.
6. ‘Continuous duty operation’ means the capability of an electric motor with an integrated cooling system to operate at nominal load without interruption below its rated maximum temperature rise.
7. ‘Brake motor’ means a motor equipped with an electro-mechanical brake unit operating directly on the motor shaft without couplings.

Article 3

Ecodesign requirements

The ecodesign requirements for motors are set out in Annex I.

Each ecodesign requirement shall apply in accordance with the following timetable:

1. from 16 June 2011, motors shall not be less efficient than the IE2 efficiency level, as defined in Annex I, point 1;

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2. from 1 January 2015:

   (i) motors with a rated output of 7,5-375 kW shall not be less efficient than the IE3 efficiency level, as defined in Annex I, point 1, or meet the IE2 efficiency level, as defined in Annex I, point 1, and be equipped with a variable speed drive.

3. from 1 January 2017:

   (i) all motors with a rated output of 0,75-375 kW shall not be less efficient than the IE3 efficiency level, as defined in Annex I, point 1, or meet the IE2 efficiency level, as defined in Annex I, point 1, and be equipped with a variable speed drive.

The product information requirements on motors are as set out in Annex I. Compliance with ecodesign requirements shall be measured and calculated in accordance with requirements set out in Annex II.

Article 4

Conformity assessment

The conformity assessment procedure referred to in Article 8 of Directive 2005/32/EC shall be the internal design control system set out in Annex IV to that Directive or the management system for assessing conformity set out in Annex V to that Directive.

Article 5

Verification procedure for market surveillance purposes

When performing the market surveillance checks referred to in Article 3(2) of Directive 2005/32/EC, the authorities of the Member States shall apply the verification procedure set out in Annex III to this Regulation.

Article 6

Indicative Benchmarks

The indicative benchmarks for the best-performing motors currently available on the market are identified in Annex IV.

Article 7

Revision

The Commission shall review this Regulation in the light of technological progress on both motors and drives no later than seven years after its entry into force and present the result of this review to the Ecodesign Consultation Forum. The review will include resource efficiency, re-use and recycling and the level of measurement uncertainty.