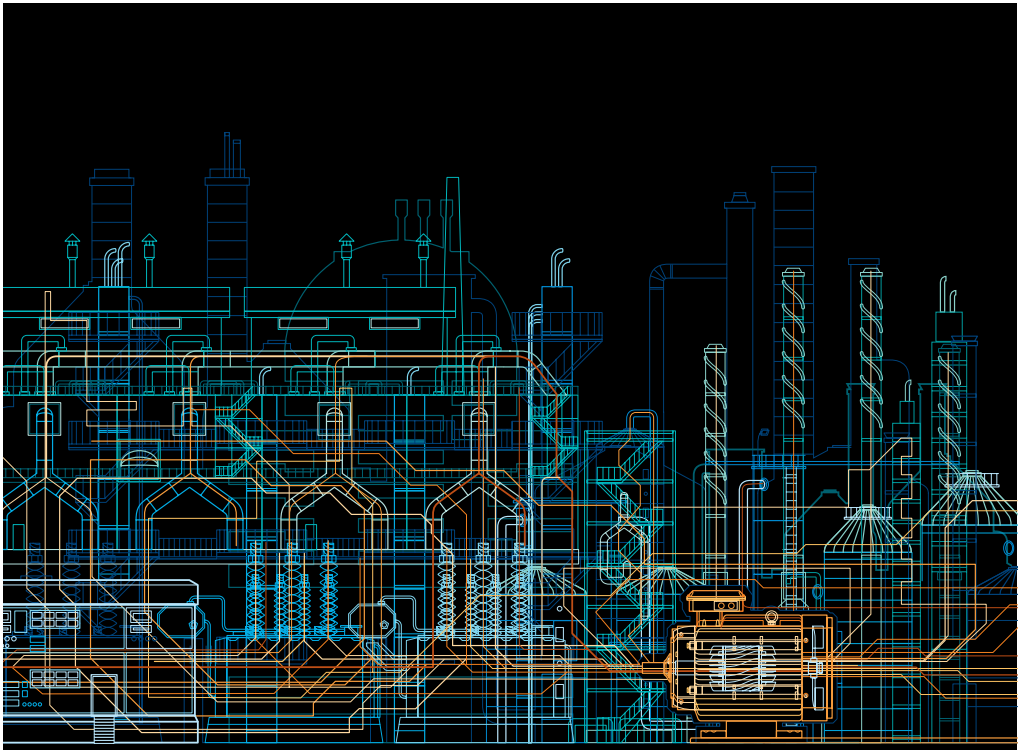


EU MEPS
for low voltage electric motors

Power and productivity
for a better world™

ABB

EU MEPS in brief

The EU MEPS (European Minimum Energy Performance Standard) scheme sets mandatory minimum efficiency levels for electric motors introduced into the European market. It is part of the EU's eco-design project, which aims to reduce the energy consumption and other negative environmental impacts of energy-using products.

The scheme covers most single speed, three-phase induction motors up to 375 kW (see Scope below). It will come into effect in three stages from mid 2011 onwards.

Under the scheme manufacturers are required to show the IE (International Efficiency) class and efficiency values on motor rating plates and in product documentation.

EU MEPS is based on two IEC (International Electrotechnical Commission) standards. It requires efficiency to be measured using methods specified in IEC 60034-2-1: 2007, and uses efficiency classes defined in IEC 60034-30. As the EU MEPS scheme is based on international standards, it represents an important step towards harmonization of efficiency regulations on a global scale.

Scope

EU MEPS covers 2-, 4- and 6-pole single speed, three-phase induction motors in the power range 0.75 to 375 kW, rated up to 1000 V and on the basis of continuous duty operation.

The following types of motor are excluded:

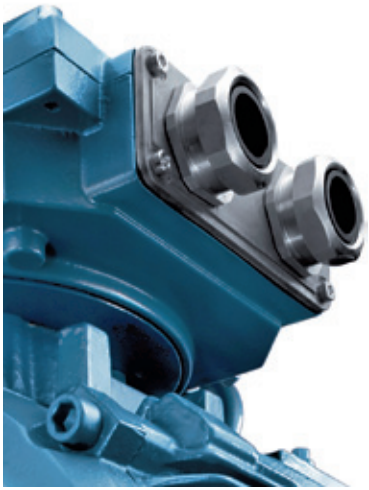
- motors designed to operate wholly immersed in a liquid;
- motors completely integrated into a product (e.g. pump or fan) where the motor's energy performance cannot be tested independently from the product;
- motors specifically designed to operate:
  - at altitudes exceeding 1000 meters ASL;
  - where ambient air temperatures exceed 40°C;
  - in maximum operating temperatures above 400°C;
  - where ambient air temperatures are less than –15°C (any motor) or less than 0°C (air-cooled motors);
  - where the water coolant temperature at the inlet to a product is less than 5°C or exceeds 25°C;
  - in potentially explosive atmospheres as defined in Directive 94/9/EC;
- brake motors.

Timeline

6 July 2005	EU adopted “Eco-design Directive” (2005/32/EC) for Energy Using Products – an overall framework to be complemented by “implementing measures” (e.g. MEPS).
22 July 2009	EU Commission adopted a regulation to apply the eco-design requirements to electric motors, with effect from mid 2011 onwards, giving manufacturers around 2 years to ensure that their products comply.
16 June 2011	**Stage 1: Motors must meet the IE2 efficiency level**
1 January 2015	**Stage 2: Motors with a rated output of 7.5 – 375 kW must meet EITHER the IE3 efficiency level OR the IE2 level if fitted with a variable speed drive**
1 January 2017	**Stage 3: Motors with a rated output of 0.75 – 375 kW must meet EITHER the IE3 efficiency level OR the IE2 level if fitted with a variable speed drive**

ABB and EU MEPS

ABB has a full range of IE2 motors – with many available from stock – and a broad range of IE3 motors.



As the world market leader, ABB offers the largest range of LV motors available. It has long advocated the need for efficiency in motors, and high efficiency products (EFF1 in the former European classification scheme) have formed the core of its portfolio for many years.

Frequently Asked Questions

Are manufacturers allowed to produce IE1 motors after June 2011?

Standard efficiency (IE1) motors may no longer be placed on the European market as of 16 June 2011. By then all new motors will have to meet the IE2 (high efficiency) rating in Europe.

The regulations do not apply outside Europe, however. Therefore it will be possible for manufacturers to produce IE1 motors for markets that do not have minimum efficiency requirements.

When I purchase a motor, how can I be sure that it meets the requirements of EU MEPS?

Compliance with the efficiency standards is verified by testing. Each EU member state will police the verification procedures and implementation according to EU MEPS.

Is there a grace period after June 2011?

No. In fact, the grace period runs from July 2009 to June 2011 (see Timeline).

The three-stage introduction from June 2011 onwards is intended to allow all manufacturers, in particular small and medium-size producers, to adapt to the new requirements.

Can I compare efficiency values from different manufacturers?

Yes, but only if the efficiency values are based on the same testing method. Manufacturers' documentation must show which testing method has been used.

Are hazardous area and marine motors included in EU MEPS?

No. The EU MEPS scheme does not cover all the types of motor covered by IEC 60034-30. Some motors (such as hazardous area and brake motors) are included in IEC 60034-30 but excluded from EU MEPS. Marine motors are excluded from EU MEPS because they are designed for ambient temperatures higher than 40°C, as required by the classification societies.

As a global player, ABB will follow the requirements of IEC 60034-30. Even though it is not required under EU MEPS, we will also provide IE markings for standard hazardous area, marine and brake motors.

Efficiency classes

EU MEPS efficiency classes are based on IEC 60034-30: 2008. The table below shows the EU MEPS and IEC efficiency classes, with the CEMEP and EPAct classes for comparison.

IEC 60034-30	**EU MEPS**	CEMEP European voluntary agreement	US EPAct	Local regulations
IE3 **Premium efficiency**	**IE3** **Premium efficiency**		Identical to NEMA Premium efficiency	
IE2 **High efficiency**	**IE2** **High efficiency**	Comparable to EFF1	Identical to NEMA Energy efficiency/ EPACT	Canada Mexico Australia New Zealand Brazil 2009 China 2011 Switzerland 2012
IE1 **Standard efficiency**		Comparable to EFF2	Below standard efficiency	China Brazil Costa Rica Israel Taiwan Switzerland 2010

In addition, IEC 60034-30 also introduces IE4 / Super Premium Efficiency, a future level above IE3.

Note that the scope of IEC 60034-30: 2008 is wider than that of EU MEPS. The IEC standard covers hazardous area and brake motors, for example, which are excluded from EU MEPS. As a global player, ABB will follow the IEC standard, and will provide efficiency class information (on the rating plate and in documentation) for hazardous area, brake motors, etc. even though this is not required under the EU MEPS scheme.

More detailed information on IEC 60034-30: 2008 is available from ABB Technical note TM025 RevB 2009.

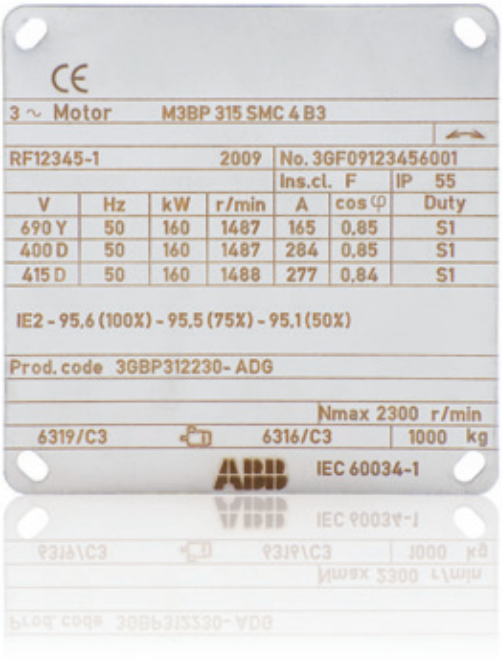
Markings and documentation

From 16 June 2011, the following information must be shown on the motor rating plate and in motor documentation:
– Lowest nominal efficiency at 100%, 75% and 50% rated load
– Efficiency level (IE2 or IE3)
– Year of manufacture

In addition EU MEPS lists information that has to be shown in motor technical documentation and on manufacturers' free-access websites.

ABB determines efficiency values according to IEC/EN 60034-2-1 using the low uncertainty method (i.e. indirect method, with additional load losses determined by measurement). More detailed information on IEC 60034-2-1: 2007 is available from ABB Technical note TM018 RevC 2009.

The rating plates of all ABB motors covered by IEC/EN 60034-30 – including hazardous area motors – will carry the lowest efficiency values and associated IE code with efficiency at 100%, 75% and 50% load. As standard ABB has stamped the motors with 400 V, 415 V and 690 V, 50 Hz, while the efficiency value is given for 400 V.



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