

4. Why are there different “test methods” for the motor efficiency levels and what is the difference between them?

The AS/NZS standard 1359.5:2004 describes two internationally recognised test methods for motor efficiency levels. Both are valid for MEPS and are referred to as Test Method A and Test Method B.

Following is an extract from AS/NZS 1359.5:2004:

Method A: This method is identical to Method 1 of IEC 61972. It is also technically equivalent to the method specified in IEEE 112-B(USA). This method requires direct measurement of additional load losses and differs from Method B described below.

Method B: This method is drawn from AS 1359.102.1, which is based on IEC 60034-2, including Amendment 1:1995 and Amendment 2:1996. In this method, an allowance of 0.5% fixed stray (additional load) loss is assumed for all the motors.

The main difference between the test methods is in the way stray losses are accounted for.

Both test methods are valid.

5. I already have local stock of motors; can I still sell these or use them in my local machines?

Yes, PROVIDING that the motors were imported prior to the implementation of the updated MEPS program that became effective in April 2006. The motors must also have met the pre-existing 2001 efficiency levels and have been registered on the motors database. You will also need to have documented proof of the import date of the motors.

Remember there are penalties - including product recall - that will apply for non-compliant product, so keep your records in good order.

The Australian Competition and Consumer Commission (ACCC) can also take separate action against infringing parties.

6. What if I export?

If your product is for the exclusive supply into equipment for export to a country other than Australia or New Zealand, an exclusion applies. Refer to www.energyrating.gov.au/reg-ruling.html

7. I need to have an electric motor rewind - will this reduce the energy efficiency of my motor?

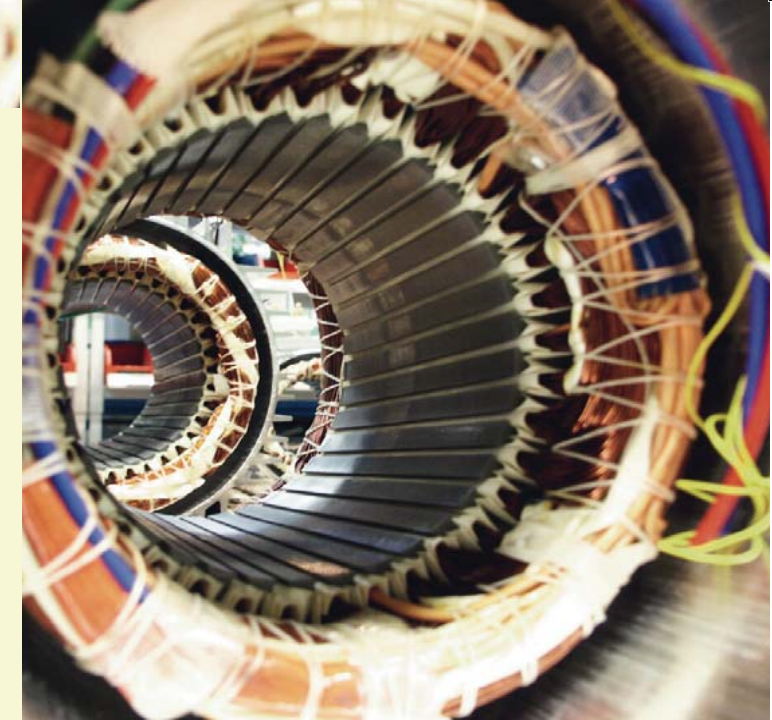
Like all machines, electric motors wear out or fail at some stage. When this happens, you need to choose between replacement and repairing. If the motor is rewind, you may experience losses in motor efficiency. However, you can generally avoid efficiency losses by using proper materials and quality repair methods. A poorly conducted rewind can result in a loss of several percentage points in efficiency. A first-class rewind can restore the motor to its original level of efficiency. MEPS does not apply to a rewind motor except where a supplier claims the rewind motor meets the efficiency requirement of one of the levels defined by MEPS. For more details, please see www.greenhouse.gov.au/motors/rewinders.html.

8. What are the benefits of using a more efficient motor?

- lower operating costs
- higher reliability and longer motor life
- quieter and cooler operation
- *reduced greenhouse gas emissions*

9. What else should be considered regarding motor efficiency?

- Motors are most efficient between 75% and 100% load - size your motor according to the machine demand power.
- Consider using variable speed drives to adjust your process speeds for optimal efficiency.
- Look at the motor and complete system efficiency. What is the motor driving and how can the efficiency of the driven load be improved?



Motor Torque

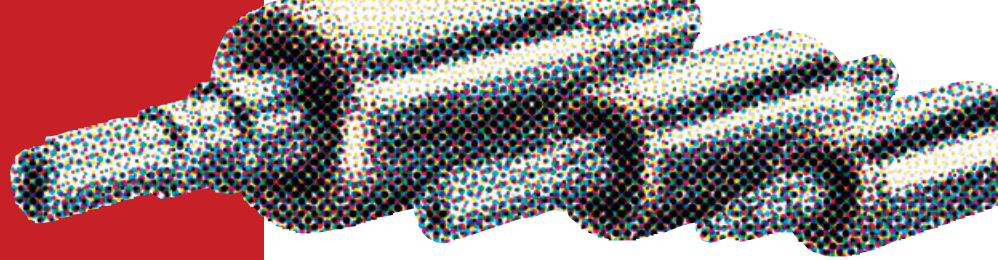
Information for industry
on mandatory efficiency
requirements for electric motors



Motor Torque

HOW TO AVOID A BRUSH WITH THE LAW

- Energy consumed by appliances and equipment is a major source of greenhouse gas emissions in Australia. Improved energy efficiency of appliances and equipment is a key objective for Australian governments. The Equipment Energy Efficiency Program (E3) is co-funded by the Australian Government, state and territory governments and the New Zealand Government. E3 covers the technical, legal, and administrative aspects of national appliance and equipment energy efficiency initiatives, in particular mandatory Minimum Energy Performance Standards (MEPS). This market intervention has proved to be an extremely cost-effective mechanism for reducing energy demand and greenhouse gases produced by consumer appliances, commercial and industrial equipment.
- In October 2001, the first stage of the MEPS program for 3 phase induction motors was introduced and became mandatory for motor suppliers and importers. In effect, minimum efficiency levels for MEPS1 equated to European EFF2 motor efficiency levels. The second stage, MEPS2 (also mandatory), was introduced in April 2006. MEPS2 motor efficiency levels are similar to European EFF1 efficiency and also redefined the "High Efficiency" levels at a higher level with nominally 15% less losses than the EFF1 levels.
- The regulatory vehicle for these new legal requirements is the AS/NZS standard 1359.5:2004, "*Rotating electrical machines—General requirements- Three-phase cage induction motors—High efficiency and minimum energy performance standards requirements*". The range and scope of motors affected by this new standard are single speed three phase cage induction motors from 0.73kW up to but not including 185 kW, for voltages to 1100V.



- MEPS programs are made mandatory in Australia by state government legislation and regulations which give force to the relevant Australian Standards. Regulations specify the general requirements for MEPS for appliances, including offences and penalties if a party does not comply with the requirements. Strict penalties apply to manufacturers, importers and suppliers in Australia whose motors do not conform to these new standards.
- Australian motor suppliers and importers have met these new commitments by offering for sale motors that meet the new efficiency levels as required by the standard AS/NZS 1359.5:2004. Three phase motors that fall within the scope of the standard are considered 'proclaimed electrical equipment' under the Electrical Safety Acts of the various Australian States and must be registered to be offered for sale in Australia.
- Motors registered for sale in Australia and New Zealand can be found on www.energyrating.gov.au/emmenu.html. The interactive product list shows users of electric motors, products and manufacturers/importers that comply with the MEPS2 requirements.
- For more information on the electric motor MEPS program, please visit the Australian Greenhouse Office's website at www.greenhouse.gov.au/motors/meps.html. A copy of the relevant standard is also available at www.standards.org.au for purchase.
- **You should ask your motor supplier whether they have met the requirements of the updated MEPS program.**

This brochure has been prepared by the Equipment Energy Efficiency (E3) Program and the Australian Electrical and Electronic Manufacturers' Association AEEMA www.aeema.asn.au

Frequently Asked Questions

CONCERNING MEPS FOR ELECTRIC MOTORS

1. ***As a small machine manufacturer, we import our own low volumes of electric motors to meet our requirements. Do I have to comply with the MEPS requirements?***

Yes – if you import electric motors into Australia or New Zealand that fall within the MEPS scope. Irrespective of quantity, you must ensure your product meets the standard AS/NZS 1359.5:2004. You must also register your motors and your company on the Interactive Product List. Details on how to register product are available at www.energyrating.gov.au/forms.html.

2. ***We are an EPC (Engineering Procurement and Construction) contractor responsible for the installation of industrial plants throughout Australia. As part of our scope of supply we import various types of mechanical equipment such as pumps, fans, conveyor systems, etc. These are all powered by electric motors. Are we responsible for ensuring these motors are MEPS compliant?***

Yes, you are. If you are importing this equipment, the motors must be MEPS compliant and registered on the Interactive Product List. It is an offence to import motors which are not registered and penalties apply.

3. ***How do I know that the motors I use are MEPS compliant?***

The program is mandatory for Australian motor suppliers and importers. Responsible companies will ensure motors sold in Australia and New Zealand comply with the efficiency requirements of the standard. **You should ask your motor supplier whether they have met the requirements of the updated MEPS program.** You can also check the www.energyrating.gov.au/emmenu.html website.