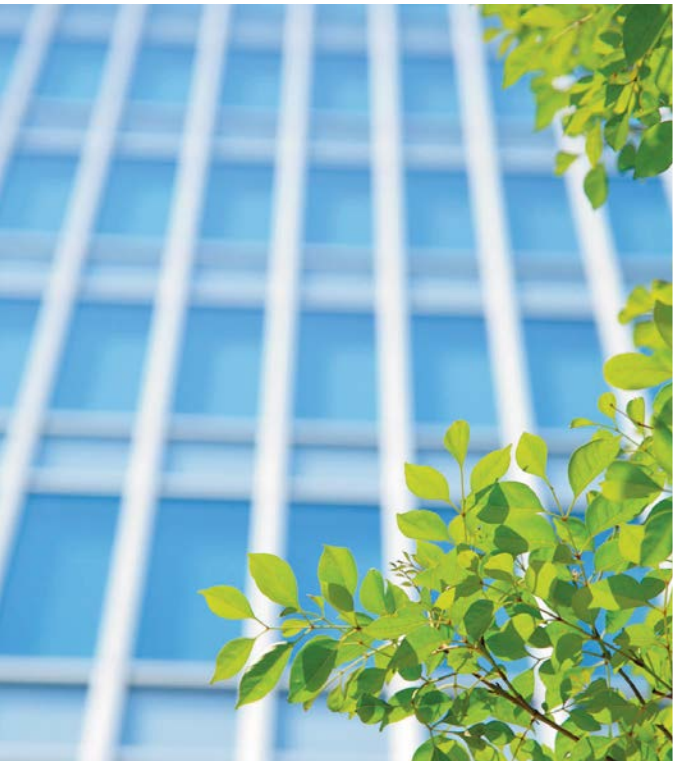
Corporate Solutions

Knowledge File 23

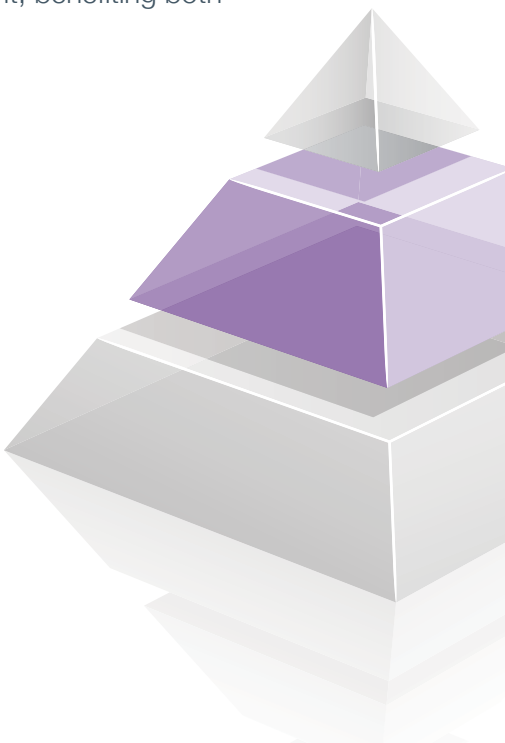
Introducing the Ecodesign Directive for Energy Related Products



Introducing the Ecodesign Directive for Energy Related Products

The Ecodesign Directive for Energy Related Products has been introduced by the EU to improve the environmental performance of energy related products.

Affecting all products that are associated to energy and are sold within the EU, the new guidelines have been developed to enhance product quality and their effect on the environment, benefiting both businesses and consumers.



MITSUBISHI ELECTRIC

LIVING ENVIRONMENTAL SYSTEMS

Air Conditioning | Heating
Ventilation | Controls

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Mitsubishi Electric propose to launch a new splits range that will be in stock from January 2013, meeting all ErP standards, in line with Ecodesign requirements.

Some of the highest performing models have an A+ to A++ energy ranking. Full details of the new range will be provided towards the end of this year.

Units already shipped and stocked in the UK by any manufacturer before 1st January 2013 can still be sold after this date and won't fall under the ErP directive. This means current Mitsubishi Electric Power Inverter units will still be available to purchase if in stock in 2013.

What products does the Ecodesign Directive for Energy Related Products affect?

The Ecodesign Directive for Energy Related Products affects any products that use or are related to energy consumption:

Energy using products (EuPs) – this refers to any product that uses, generates, transfers or measures energy (electricity, gas, fossil fuel), such as boilers, air conditioning, computers, televisions, transformers, industrial fans, industrial furnaces etc.

Other energy related products (ErPs) - this refers to any product that has an impact on energy consumption and energy savings, such as windows, insulation material, shower heads, taps etc.

All companies that produce energy using or energy related products should comply with the directive if they want to sell their products in the EU.

What is driving the need for the Ecodesign Directive for Energy Related Products?

The purpose of the Ecodesign Directive for Energy Related Products is to decrease the harmful environmental effects of energy related products and to promote a sustainable environment. In the long term this will secure energy supply and help the EU achieve sustainable development. It also goes beyond looking at just energy efficiency; it considers the whole life-cycle cost. Businesses and consumers benefit not only from better products and an improved environment, but also economically. Future products will consume less energy, resulting in reduced CO_2 emissions and lower running costs.

Requirements for air conditioning, heating and ventilation

Different types of products are categorised into 'lots' depending on their functionality. Mitsubishi Electric products fall under various 'lots' which will come into effect over a number of years, starting from January 2013. Currently the 'lot' of interest is Ecodesign ENER lot 10 - air conditioning units below 12kW which affects a large number of our products.

There are three main requirements for products which fall into 'lot 10':

- Maximum standby/off mode power consumption
- Maximum sound power levels
- Minimum seasonal performance

1 - Standby / off mode power consumption

In 2005 it was estimated that 3.7 billion products had standby/off modes consuming €6.4 billion in electrical costs. By 2020 it is anticipated there will be 4.6 billion products so it is imperative to reduce power consumption during these modes.

2 - Sound Power Levels

Products will have a maximum requirement Sound Power Level for indoor and outdoor units. Mitsubishi Electric products will operate with the proposed guidelines.

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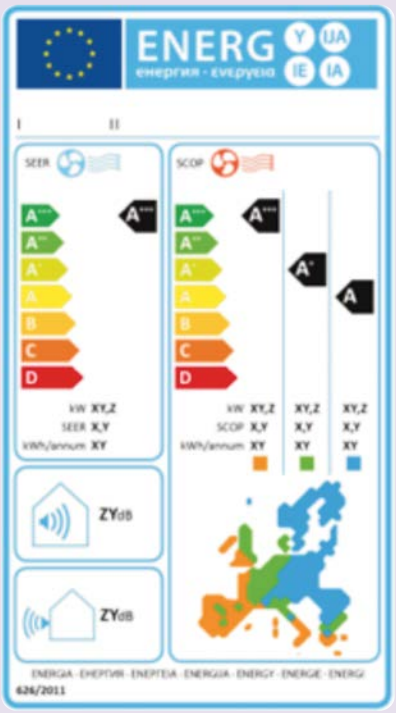
New label

From 1st January 2013 products will be labelled as below so that the end user can be assured of purchasing products that comply with the Ecodesign requirements.



The SEER and SCOP will be indicated by an energy rating label of A+++ to G. Heating seasonal performance (SCOP) is shown for 3 temperature conditions, warm, average and cold. Europe is split into temperature conditions as indicated on the map above; you may notice that the UK is now considered to have two temperature conditions.

3 - Seasonal Performance

Currently a products energy label is determined by its full load efficiency at a single temperature condition. This gives an indication of performance which has traditionally been widely accepted by the industry. In reality it does not give clear results of how a product will operate in different seasonal temperatures.

For EuP lot 10, an air conditioning unit will be ranked based on its seasonal performance. This takes into account the efficiency at varying temperatures and partial loads throughout the year. Using the methodology from EN14825 legislation, the SCOP (Seasonal Co-efficient of Performance) and SEER (Seasonal Energy Efficiency Ratio) is calculated.

The directive for Lot 10 also states that air conditioning units will have to satisfy minimum SCOP and SEER levels from 1st January 2013 depending on the refrigerant GWP (Global Warming Potential). The table below shows the requirements where SCOP is based on 'average' climate conditions.

	Min SEER	Min SCOP
If GWP of refrigerant > 150	3.60	3.40

This poses a major challenge for many manufacturers as the majority of current air conditioning units in the UK use R410A refrigerant which has a GWP > 150. Products that do not satisfy these requirements may be prevented from being sold in the EU.

The rankings are shown below for SEER/SCOP for air conditioning units from 1st January 2013 with the 'cut-off' points for the GWP > 150 products highlighted in purple.

Energy Efficiency Class for Air Conditioners	SEER	SCOP
A+++	SEER ≥ 8,50	SCOP ≥ 5,10
A++	6,10 ≤ SEER < 8,50	4,60 ≤ SCOP < 5,10
A+	5,60 ≤ SEER < 6,10	4,00 ≤ SCOP < 4,60
A	5,10 ≤ SEER < 5,60	**3,40 ≤ SCOP < 4,00**
B	4,60 ≤ SEER < 5,10	3,10 ≤ SCOP < 3,40
C	4,10 ≤ SEER < 4,60	2,80 ≤ SCOP < 3,10
D	**3,60 ≤ SEER < 4,10**	2,50 ≤ SCOP < 2,80
E	3,10 ≤ SEER < 3,60	2,20 ≤ SCOP < 2,50
F	2,60 ≤ SEER < 3,10	1,90 ≤ SCOP < 2,20
G	SEER < 2,60	SCOP < 1,90

Furthermore, the minimum required SEER/SCOP will be increased again in 2014 and for each subsequent year thereafter (subject to review) until 2019.

MITSUBISHI ELECTRIC
Changes for the Better

Telephone: 0870 3000 070
email: mitsubishicorporatesolutions@meuk.mee.com web: www.heating.mitsubishielectric.co.uk

UNITED KINGDOM Mitsubishi Electric Europe Living Environmental Systems Division
Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, England General Enquiries Telephone: 01707 282880 Fax: 01707 278881
IRELAND Mitsubishi Electric Europe Westgate Business Park, Ballymount, Dublin 24, Ireland
Telephone: Dublin (01) 419 8800 Fax: Dublin (01) 419 8890 International code: (003531)

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