MITSUBISHI ELECTRIC
Changes for the Better

ERP/ECODESIGN DIRECTIVE

SHAPING THE FUTURE WITH ECODAN HEAT PUMPS

Information for heating professionals and forward-thinkers

SHAPING THE FUTURE

Our use of energy is changing. From the perspective of European legislation too. Key milestones have to be reached by 2020 compared to 1990:

LOWER USE
of primary energy

MORE
renewable energy sources

FEWER
CO_2-emissions

It is against this background that the ErP Directive ensures that 'Energy-related Products' meet corresponding minimum efficiency and minimum emission standards and have to be clearly labelled as doing so. We endeavour to explain in this brochure what impact this will also have on heat pumps from 26 September 2015 onwards.

We can help to find the right heating solution every time – to meet your needs at the same time as conserving the environment. Shape the future with us!

EFFICIENCY AND SUSTAINABILITY IN FOCUS

The ErP Directive is intended to help consumers make an informed decision about an environmentally-sound heating system. It defines minimum energy efficiency requirements for the manufacturers of heating systems. Products are divided into product groups known as lots. In terms of heat pumps, Lot 1 is relevant for space and combination heaters and Lot 2 for water heaters.

There are two regulations to implement the ErP Directive: the Ecodesign Directive for CE Labelling and the Energy Labelling Directive.

CE labelling

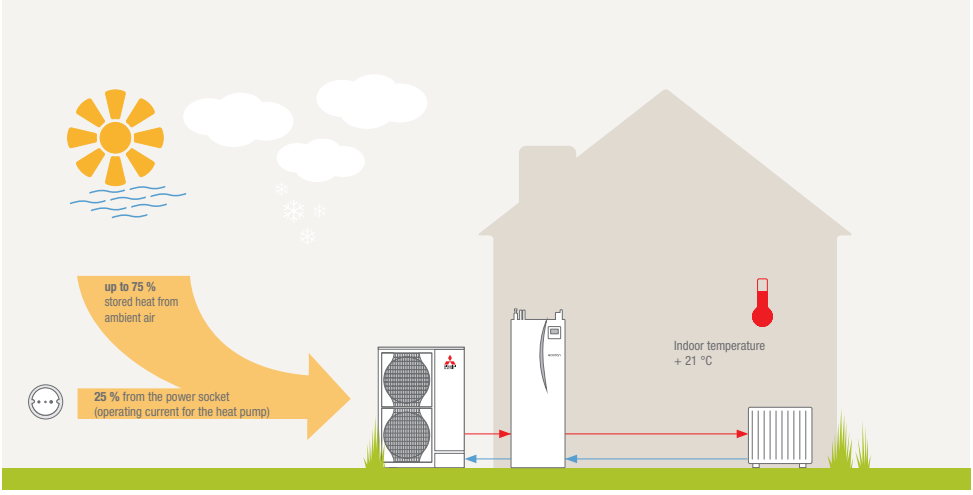
The Eco-design Directive defines so-called minimum efficiency and minimum emission standards. Only units that comply with the directive will be permitted to carry the CE mark. All other units may no longer be imported into the EU. This requires manufacturers, above all, to work with technologies that are CE-compliant, now and in the future.

Energy labelling

The Energy Labelling Directive sets out how the new Energy Labels should look. It defines which values are needed for classification within a specific efficiency class. The labels are intended, above all, to help consumers to compare products, independently of the manufacturer and energy carrier, and select them based on their efficiency.

THE ERP DIRECTIVE FOR HEAT PUMPS

The energy efficiency of space and combination heaters has to be labelled EU-wide **from 26 September 2015 on.** In direct comparison with fossil fuel systems, this clearly shows that heat pumps, that use electricity to draw energy from the environment, achieve a very good rating. They are the only stand-alone heating system to be awarded the current highest efficiency class A^{++}.

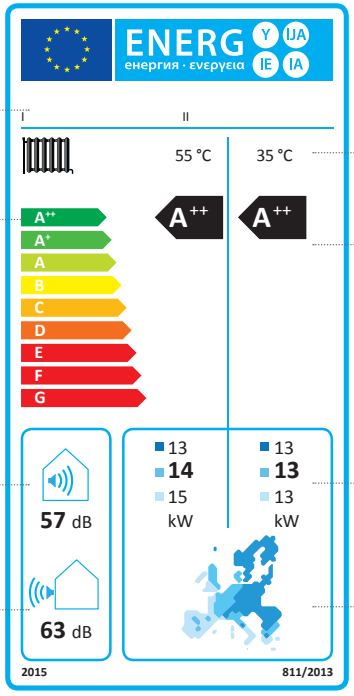


ENERGY LABEL

FOR HEAT PUMPS

The new energy label for heat pumps relates to units with a nominal output of up to 70 kW. It is important to note that flat-rate annual energy consumption does not work on these labels – unlike with tumble dryers or refrigerators – as it is largely dependent on the building in which the heating system is installed. 'Seasonal space heating energy efficiency' is therefore used to make a meaningful comparison.

The energy label and its constituent parts



Manufacturer's name or trademark

Energy efficiency classes

Sound power level L_{WA} indoors (if applicable)

Sound power level L_{WA} outdoors

Space heating function, indicated by the heater symbol, for both medium and low temperature applications

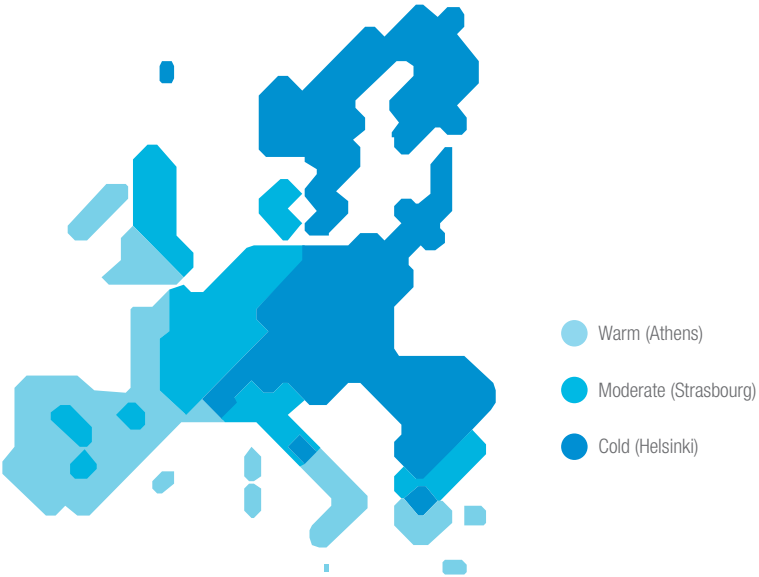
Energy efficiency classes for medium and low temperature applications

Heat output at moderate, colder and warmer climatic conditions, as well as for medium and low temperature applications

Temperature map of Europe with three temperature zones used as reference points

Temperature map of Europe

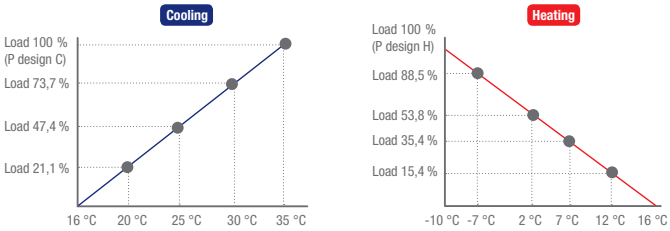
Climatic conditions play a key role in evaluating heat pumps. Europe is therefore sub-divided into three zones on which the nominal heat outputs are based: cold, moderate and warm. Strasbourg in the moderate zone is used as the basis for annual energy consumption.



All the technical data sheets on our heat pump systems are available here:
erp.mitsubishielectric.eu/erp

Energy efficiency rating

The performance data for the SCOP value is recorded at four different measuring points in line with DIN EN 14825. The measuring points are weighted differently according to the temperature curves of the reference climate in Strasbourg, in order to reflect the energy efficiency of the unit under the most realistic conditions possible.



The following are also taken into consideration:

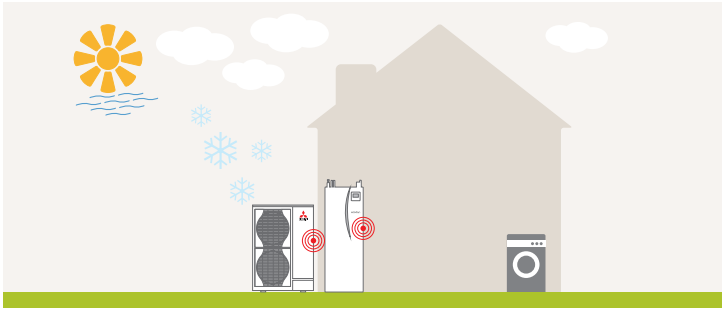
- Thermostat Off consumption
- Standby consumption
- Crankcase heater

The SCOP value recorded is included in the calculation of the seasonal space heating energy efficiency (η_S) within Lot 1. Space heaters have to meet certain minimum requirements depending on the energy carrier used. The yardstick for heat pumps is significantly higher than for all other technologies. The energy efficiency of hot water heating (η_{wh}) is relevant for the energy efficiency classification in Lot 2.

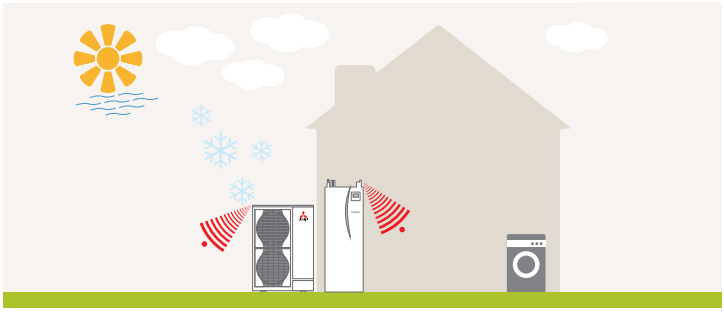
Sound power and sound pressure level

The Directive also defines the maximum sound power level for heat pumps depending on the heat capacity of the heat pump. The energy label carries the figures. The label shows the sound power level of the indoor and outdoor unit in decibels as an objective acoustic variable.

The technical data sheets for the units give the sound power level as well as the sound pressure level. It describes in acoustics the metrologically recorded level generated by a sound source at a specific distance.



The sound power level is an acoustic variable that defines the source strength of the sound generator and thus is independent of the distance to the receiver.

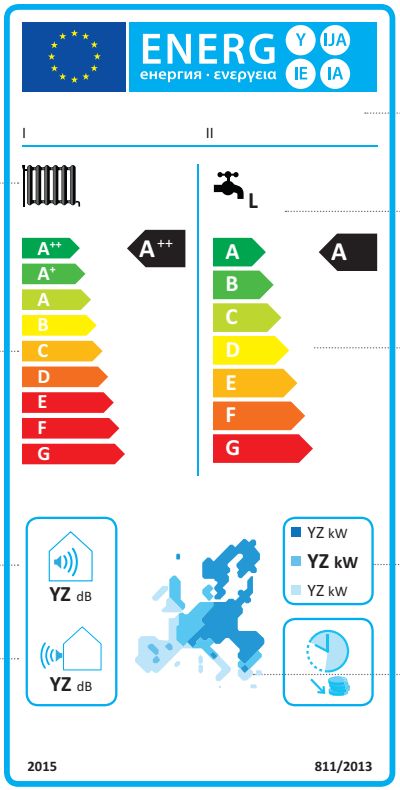


The sound pressure level is a sound field variable and gives the operating noise of an indoor or outdoor unit perceived at a specified distance.

ENERGY LABEL

FOR COMBINATION HEATERS

Combination heaters that heat water as well as providing space heating have their own label. This label also carries an efficiency class scale that relates to water heating.



Space heating function, indicated by the heater symbol, for medium temperature applications

Efficiency classes for space heating

Sound power level L_{WA} indoors (if applicable)

Sound power level L_{WA} outdoors

Manufacturer's name or trademark

Hot water heating function, indicated by the tap symbol with tap profile (3XS to XXL)

Energy efficiency classes for hot water heating

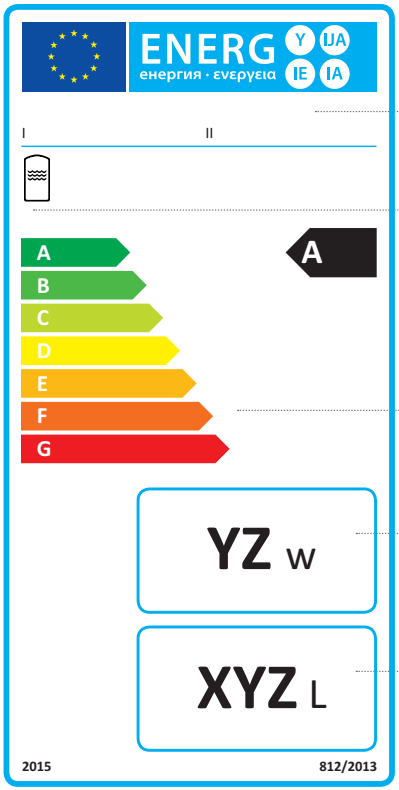
Nominal heat output at moderate, colder and warmer climatic conditions, as well as for medium temperature applications

Temperature map of Europe with three temperature zones acting as reference points

ENERGY LABEL

FOR HOT WATER STORAGE TANKS

Hot water storage tanks also have a label that provides information on their heat retention losses and tank volume alongside the efficiency class.



Manufacturer's name or trademark

Efficiency class scales for hot water storage, indicated by the storage tank symbol

Efficiency class scales for hot water storage

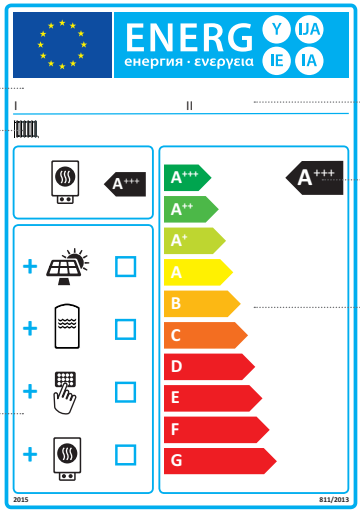
Heat retention losses from storage tank in watts

Storage tank volume in litres

ENERGY LABEL
FOR COMPOSITE SYSTEMS

A composite system is produced when other components are included in the system in addition to the heat pump. The label takes into account temperature controls, solar systems, storage tanks and other heat generators. If the composite system is also used for hot water heating, the label also carries a further efficiency scale. The package label is issued by manufacturers, wholesalers or installers, depending on where the system is 'combined'.

Ecodan heat pumps are equipped as standard with an intelligent temperature controller and are therefore always also considered as composite systems.



Manufacturer's name or trademark

Space heating function

Indication of whether additional components, such as solar system, hot water storage tank, temperature controller and other space heaters, form part of the composite system

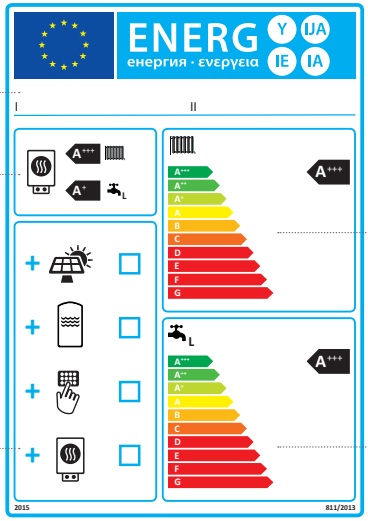
Efficiency class of space heater (similar to product label)

Efficiency class of the composite system

Efficiency class scale of composite systems

While individual systems today achieve a maximum of energy efficiency class A^{++}, composite systems can already be labelled as A^{+++}.

The hot water heating energy efficiency is also specified with composite systems consisting of combined heaters and other components.



Manufacturer's name or trademark

Efficiency classes of composite system

Indication of whether additional components, such as solar system, hot water storage tank, temperature controller and other space heaters, form part of the composite system

Efficiency classes for space heating

Efficiency classes for hot water heating

SIMPLY ALWAYS RIGHT!

The future lies in heating systems that use electricity to generate green energy. In short, heat pumps are consistently rated as A^{++} as sole stand-alone solutions. Ecodan heat pumps are therefore the system of choice for anyone constructing a new building or upgrading the heating system in an existing building.

The reason is the exceptional efficiency with which Ecodan heat pumps work. They draw 75% of the energy they need from the ambient air. State-of-the-art inverter technology ensures that the output precisely matches demand. And as the patented Zubadan inverter ensures reliable heat pump operation at temperatures as low as –28 °C, no additional heating systems are needed even at temperatures below freezing.

Using ambient air as the heat source is also beneficial at the design and installation stage. The Ecodan outdoor unit can be positioned flexibly with no additional infrastructure provision costs, for instance from piling work.

With its many persuasive benefits, Ecodan heat pumps ensure that your decision is always the right one:

- **Energy efficiency class A^{++}**
- **Complete independence from fossil fuels**
- **Finely modulating, highly efficient inverter operation**
- **Fast and flexible installation of indoor and outdoor unit**
- **No additional costs for infrastructure provision for the heat source**
- **Reliable heat pump operation without the need for supplementary heating even at freezing temperatures**
- **Precise control for maximum heating and hot water comfort**
- **Simple integration into existing heat emitters when upgrading a heating system**
- **Designed as a cascade with an output of up to 138 kW also ideal for apartment block and commercial buildings**

ANSWERS
TO FREQUENTLY ASKED QUESTIONS
ON THE ECO-DESIGN DIRECTIVE

Is there a better classification today than A^{++}?

Energy efficiency class A^{++} is currently the highest rating given on the product label. According to today's criteria, a higher classification is not possible for a single unit. It is altogether different with package units. In the very best case, a complete system can be labelled today with energy efficiency class A^{+++}. This is certified on the package label.

Will the provisions of the Directive change?

A number of changes are a foregone conclusion. In four years time, "Label II" will replace the current energy efficiency label. Then individual units will be able to achieve energy efficiency class A^{+++}. D will be at the bottom end of the scale (instead of G today).

Why do the energy efficiency labels for different heat generators look different?

Different heat generators are rated in Lot 1 (Space and combination heaters) within the Eco-design Directive. However, other points have to be taken into consideration with fossil heat generators than with heat pumps. This is reflected in the appearance of the energy efficiency label. However, as the efficiency rating for all heat generators is based on the seasonal space heating energy efficiency, the efficiency classes are now comparable with each other.

Does the ErP Directive apply in all EU states or is it graduated?

The same rules of the Implementing Regulation for the ErP Directive for heat generators (Lot 1) apply in all EU states.

Does the new regulation also apply to stock items?

All heat generators imported or produced before 25 September 2015, held in stock by the manufacturer or dealer, are unaffected by this and may be sold unaltered.

MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow

LIKE TO KNOW MORE?

GET IN TOUCH WITH US!

We'd be pleased to answer further questions on the Eco-design Directive and on Ecodan heat pumps in person.

Simply e-mail us at **ecodan@mitsubishi-les.de**

There is more information on the Eco-design Directive for heating and air conditioning available at:
www.my-ecodesign.de/en/

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