Guide to energy labelling requirements for packages of water heater and solar device

Preface

The European Commission has published in the Official Journal 6th of September 2013 four regulations concerning ecodesign and energy labelling requirements of appliances for space heating and water heating (Regulations: 811/2013, 812/2013, 813/2013 and 814/2013). The first requirements will apply from 26th September 2015.

In order to prepare manufacturer and importers of appliances for the new requirements a number of guides are developed. Four guides are developed in the frame of the Nordic surveillance cooperation for green products (Nordsyn):

- 'Guide to ecodesign and energy labelling requirements for electric heat pumps and electric boilers'
- 'Guide to ecodesign and energy labelling requirements for electric heat pump water heaters and electric conventional water heaters'
- 'Guide to ecodesign and energy labelling requirements of hot water storage tanks'
- 'Guide to energy labelling requirements for packages of water heater and solar device'

In addition, two guides are provided by the Norwegian Water Resources and Energy Directorate (NVE):

- 'Guide to ecodesign and energy labelling requirements of oil- and gas-fired boilers'
- 'Guide to energy labelling requirements of packages of space heaters/combination heaters, temperature controls and solar devices'

Together, these guides cover the most common space and water heating appliances on the market in the Nordic countries. However, they do not cover all appliances comprised by the above mentioned regulations as for instance micro CHP appliances and gas-fired water heaters are not covered.

The individual guides use cross-referencing to the other guides when relevant. Therefore, it is recommended to have all guides available for the full benefits.

The guides present the contents of the Regulations and are addressed to manufacturers, importers and others interested. The guides are not a substitution for the Regulations, in any case of doubt, the Regulations are applicable. The guides are not legally binding as a binding interpretation can only be made by the EU court.

The guides are developed by Danish Technological Institute and Viegand Maagøe consultants, Denmark.

March 2014

Guide to energy labelling requirements for packages of water heater and solar device

Contents

Are you a manufacturer or importer of packages of water heaters and solar devices?

Please be aware. There are information requirements for solar devices and requirements for energy labelling of packages of water heaters and solar devices.

Which products?

The Energy Labelling Regulation applies to:

- Packages of water heater with a rated output up to and including 70 kW and solar devices

Even if a water heater is included in a package and it is labeled as a package, the water heater must also be provided with an energy label as an individual product.

When?

The energy labelling requirements for packages of water heaters and solar devices include:

- From 26th September 2015 provision of printed EU energy label and product fiche
- From 26th September 2015 information on the energy class in advertisements and in technical promotion material
- From 26th September 2015 making electronic versions of the EU energy label and product fiche available to dealers for new products placed on the market
- Display of the energy label and product fiche when the products are offered for sale through the internet

Further, requirements for solar devices include:

- From 26th September 2015 provision of product fiche

Who?

You have the responsibility of ensuring and documenting compliance with the requirements, if you are:

- a manufacturer in the EEA, that produces solar devices or packages of water heaters and solar devices to be placed on the market in the EEA
- an importer of solar devices or packages of water heaters and solar devices from a country outside of EEA to be placed on the market in the EEA
- an authorised representative in the EEA for a manufacturer that is situated in a country outside of EEA

The above mentioned responsible parties are hereafter referred to as suppliers.

The EEA (European Economic Area) includes the EU member states and the EFTA counties.

Why?

The water heaters account for a large share of the energy consumption in the European households. Consequently EU has decided to reduce the energy consumption for water heaters by introducing requirements for energy labelling with new energy classes.

Where can I find more information?
Find relevant regulations on the last page of this guide, or read more about ecodesign and energy labelling on www.ens.dk/energikrav

Disclaimer
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Acknowledgement
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Which products must comply with the requirements?

Packages with water heater and solar devices

From 26 September 2015, there will be ecodesign requirements for individual water heaters with a rated output (heat capacity) ≤ 400 kW and energy labelling requirements for individual water heaters with a rated output (heat capacity) ≤ 70 kW. The requirements for individual water heater products are described in the guide 'Guide to ecodesign and energy labelling requirements for electric heat pump water heaters and electric conventional water heaters'

Besides the energy labelling requirements of individual water heaters, packages consisting of water heaters with a rated output (heating capacity) ≤ 70 kW and solar devices are also subject to energy labelling requirements concerning the entire package.

Solar devices

Solar devices cover both entire solar heating systems, sold as a combined entity, and solar collectors, solar hot water storage tanks and pumps in the solar collector loop, sold as individual entities. The term 'solar-only' system is also used for the combined entity.

A hot water storage tank is defined as a vessel, for storing of hot water, for water and/or space heating purposes, including potential additives. Thus, the definition of a hot water storage tank is broader than the common Northern European perception of a hot water storage tank; i.e. a vessel used only for domestic hot water. Hot water storage tanks are covered by the requirements of energy labelling ecodesign, which is described in the guidelines, 'Guide to ecodesign and energy labelling requirements of hot water storage tanks'.

Solar collectors are defined as a device designed to absorb global solar irradiance and transfer the heat energy so produced to a liquid, which passes through it.

Pumps in the solar collector loop are covered by the requirements of ecodesign (from 1 August 2015), cf. COMMISSION REGULATION (EC) No 641/2009 of 22 July 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for glandless standalone circulators and glandless circulators integrated in products.

Packages of water heater and solar device or solar water heaters

Figure 1 show a package of a water heater and solar device as well as a so-called 'solar water heater':

a) package of water heater and solar device
b) 'solar water heater': a water heater equipped with one or more solar collectors, solar hot water storage tanks, heat generators and possibly pumps in the collector loop and other parts, a solar water heater is placed on the market as one unit

Solar water heaters have typically about two collectors and are widely used in southern Europe. Solar water heaters are not considered a package, but an individual product and must fulfill ecodesign water heating efficiency and labeling requirements in line with other water heaters. Solar water heaters will not be described further in this guide.

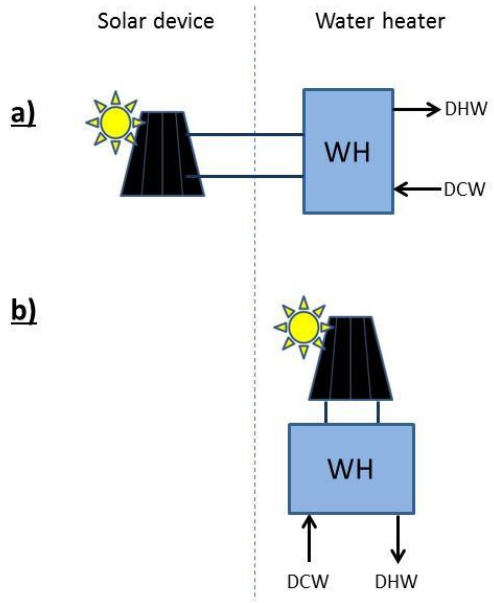

Figure 1 Examples of a) package of water heater and solar device and b) a solar water heater

What are the requirements for energy labelling?

Packages of water heaters and solar devices are covered by the new EU energy labelling regulations. The energy label is identical in all the EU countries and it includes pictograms instead for text so that the label is easy to understand in all the countries.

The label has the recognisable red and green arrows and the A-G scale is expanded with the new energy classes A^{+}, A^{++} and A^{+++}.

It is the responsibility of the supplier of the entire package to provide the energy label together with the package.

Energy efficiency classes on the label

The label for packages containing water heaters includes one single scale and energy classes will be introduced in one step.

From 26 September 2015, an energy label with the energy classes A^{+++} to G is required - the energy classes E, F and G can be left out of the scale.

Determination of the energy classes

For packages of water heaters and solar devices the energy label is based on the water heating energy efficiency (η_{WH}) of the individual water heater. The efficiency improvements produced by the solar devices are added and the resulting (improved) water heating energy efficiency of the package is assessed according to the same scale as the one for the individual water heaters.

The calculation method of the labelling of packages is described in the Regulation. Figure 2 shows the information and the method which are to be used when labelling a package.

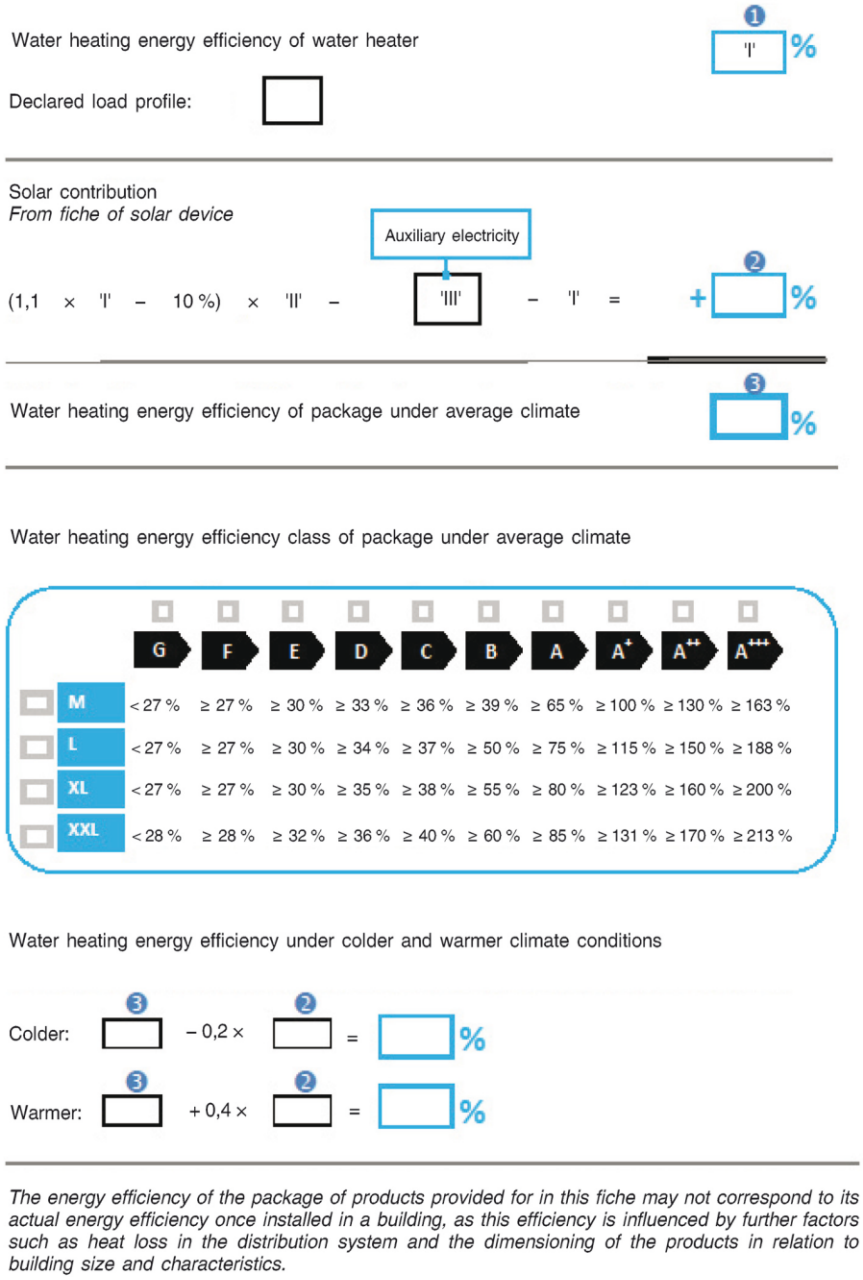

Figure 2 Information and calculation sheet for water heating efficiency for a water heater

Be aware:
It is the actual measurement results without addition of tolerances that must be used for declaration of the energy efficiency class and other required declarable values.

Information on the energy label

Labels for packages must include information on the water heating energy class and load profile of the water heater product alone as well as the energy class of the combined package of water heater and solar device. Further, indication of whether a solar collector and hot water storage tank may be included in the package of water heater and solar device shall be included, see figure 3.

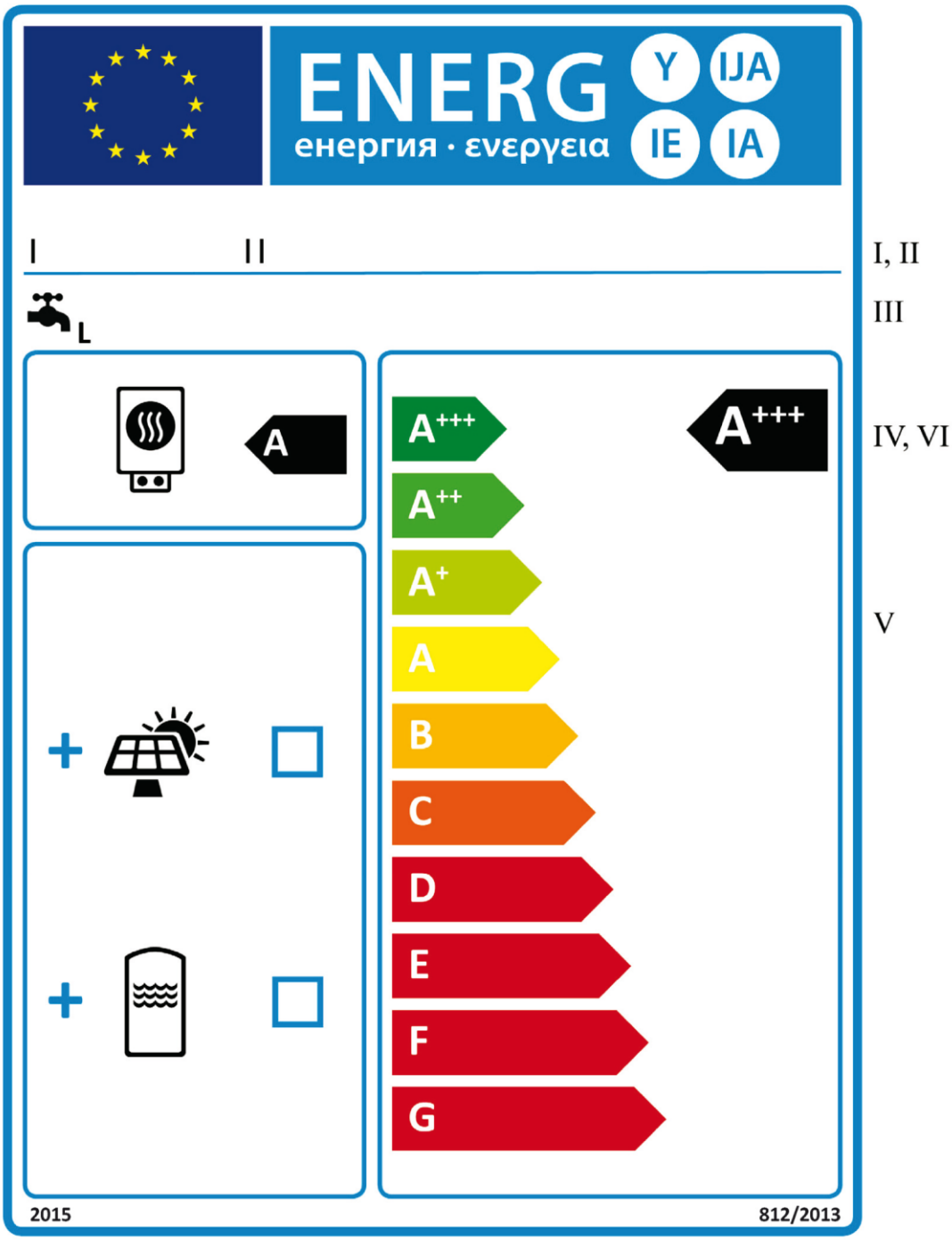

Figure 3 Water heater package label

Energy classes

For water heating the connection between energy class for a given load profile and energy efficiency is as shown in Table 1.

	3XS	XXS	XS	S	M	L	XL	XXL
A^{+++}	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 69$	$\eta_{wh} \geq 90$	$\eta_{wh} \geq 163$	$\eta_{wh} \geq 188$	$\eta_{wh} \geq 200$	$\eta_{wh} \geq 213$
A^{++}	$53 \leq \eta_{wh} < 62$	$53 \leq \eta_{wh} < 62$	$61 \leq \eta_{wh} < 69$	$72 \leq \eta_{wh} < 90$	$130 \leq \eta_{wh} < 163$	$150 \leq \eta_{wh} < 188$	$160 \leq \eta_{wh} < 200$	$170 \leq \eta_{wh} < 213$
A^{+}	$44 \leq \eta_{wh} < 53$	$44 \leq \eta_{wh} < 53$	$53 \leq \eta_{wh} < 61$	$55 \leq \eta_{wh} < 72$	$100 \leq \eta_{wh} < 130$	$115 \leq \eta_{wh} < 150$	$123 \leq \eta_{wh} < 160$	$131 \leq \eta_{wh} < 170$
A	$35 \leq \eta_{wh} < 44$	$35 \leq \eta_{wh} < 44$	$38 \leq \eta_{wh} < 53$	$38 \leq \eta_{wh} < 55$	$65 \leq \eta_{wh} < 100$	$75 \leq \eta_{wh} < 115$	$80 \leq \eta_{wh} < 123$	$85 \leq \eta_{wh} < 131$
B	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$35 \leq \eta_{wh} < 38$	$35 \leq \eta_{wh} < 38$	$39 \leq \eta_{wh} < 65$	$50 \leq \eta_{wh} < 75$	$55 \leq \eta_{wh} < 80$	$60 \leq \eta_{wh} < 85$
C	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$36 \leq \eta_{wh} < 39$	$37 \leq \eta_{wh} < 50$	$38 \leq \eta_{wh} < 55$	$40 \leq \eta_{wh} < 60$
D	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$33 \leq \eta_{wh} < 36$	$34 \leq \eta_{wh} < 37$	$35 \leq \eta_{wh} < 38$	$36 \leq \eta_{wh} < 40$
E	$22 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$30 \leq \eta_{wh} < 33$	$30 \leq \eta_{wh} < 34$	$30 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 36$
F	$19 \leq \eta_{wh} < 22$	$20 \leq \eta_{wh} < 23$	$23 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$27 \leq \eta_{wh} < 30$	$27 \leq \eta_{wh} < 30$	$27 \leq \eta_{wh} < 30$	$28 \leq \eta_{wh} < 32$
G	$\eta_{wh} < 19$	$\eta_{wh} < 20$	$\eta_{wh} < 23$	$\eta_{wh} < 23$	$\eta_{wh} < 27$	$\eta_{wh} < 27$	$\eta_{wh} < 27$	$\eta_{wh} < 28$

Table 1 Energy classes for water heating

What are the requirements for information and documentation?

Energy label and product fiche

Solar devices
Solar devices (in any case entire solar heating systems) placed on the market from 26 September 2015 must be provided with a printed product fiche. A product fiche can include several models from the same supplier. See the guidelines for product fiches in the Regulation of energy labelling, Annex IV.

Energy label and product fiche for packages containing water heaters and solar devices
All packages water heaters and solar devices placed on the market from 26 September 2015 must be provided with a printed energy label and product fiche. A product fiche can include several models of space heating systems from the same supplier. See the guidelines for product fiches in the Regulation of energy labelling, Annex IV.

The energy label and product fiche for packages must also be presented if the unit is sold via the internet. Therefore, the manufacturer must provide the label and product fiche electronically to retailers, etc. who sell online. The layout of the electronic energy label must be identical with the printed label and it must include the same information as the printed label. The electronic product fiche must also include information identical with the printed version.

Information in technical promotional material and in advertisements
Relevant promotion material and advertisements for packages shall include information of the energy class of the package. Further information is available in the Regulation of energy labelling, Article 3 and 4.

Labelling on the internet
The electronic energy label and product fiche must be shown on the display in proximity to the price when packages are offered for sale or hire through the internet. The label and the product fiche may be shown using a “nested display”.

Technical documentation

The supplier is responsible for making sure that the solar devices as well as packages of water heaters and solar device have a technical documentation when placing it on the EEA market. The technical documentation must show that the energy labelling of the temperature controls and solar devices as well as packages of space heaters/combination heaters is correct. The technical documentation must be compiled by the manufacturer.

For solar devices as well as packages of water heaters and solar devices, you can see the requirements for the content of the technical documentation in the Regulation of energy labeling, Annex V.

The market surveillance authorities of EEA countries may request the technical documentation, and you must provide it within a maximum of ten days after receiving the request.

The documentation must be stored for a period of five years after the last model of that product has been manufactured.

Measurement and calculation methods

Reliable, accurate and reproducible measurement methods based on generally accepted measurement techniques must be used. A reproducible measurement method means that the measurements can be repeated with the same result.

Measurements must always be carried out in accordance with guidelines of the Regulations.

Where can I find information?

Danish Energy Agency's homepage www.ens.dk/energikrav contains more information about policies, new requirements in regulations, guidance, contact information and links to relevant legislation.

Legislations

COMMISSION REGULATION (EU) No 814/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water heaters and hot water storage tanks.

DIRECTIVE 2009/125/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (recast).

COMMISSION DELEGATED REGULATION (EU) No 812/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of water heaters, hot water storage tanks and packages of water heater and solar device

DIRECTIVE 2010/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products (recast).

Danish legislations with regard to ecodesign

The ecodesign directive is implemented by the following Danish legislations:

- Lovbekendtgørelse om miljøvenligt design af energirelaterede produkter, nr. 1068 af 15. september 2010
- Bekendtgørelse om miljøvenligt design af energirelaterede produkter, nr. 1274 af 19. november 2010 (only available in Danish)

Danish legislations with regard to energy labelling

The energy labelling directive is implemented by the following Danish legislations:

- Lov om energimærkning af energirelaterede produkter, nr. 455 af 18. maj 2011
- Bekendtgørelse om energimærkning af energirelaterede produkter, nr. 1026 af 18. maj 2011 (only available in Danish)

Where can I find help and guidance?

You can have your questions answered and help to comply with the requirements by contacting the Secretariat for Ecodesign and Energy Labelling of Products

Telephone: +45 43 30 50 20
Monday to Thursday 9:00 - 16:00
Friday 9:00 - 15:30
E-mail: sekretariat@eco-energimaerke.dk

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