

Guide to ecodesign and energy labelling requirements for hot water storage tanks

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.

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Are you a manufacturer or importer of hot water storage tanks?

Please be aware. There are new requirements for standing energy loss and energy labelling.

Hot water storage tanks must meet the ecodesign requirements. This means that the product is designed in order not to exceed the maximum allowed standing energy loss.

Hot water storage tanks must also be energy labelled.

Which products?

The Ecodesign Regulation applies to:

- Hot water storage tanks with a maximum storage volume of 2000 litres, including those tanks integrated in packages of water heaters and solar devices
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The Energy Labelling Regulation applies to:

- Hot water storage tanks with a maximum storage volume of 500 litres

When?

The ecodesign requirements for hot water storage tanks include:

- From 26 September 2017 requirements for the standing energy loss depending on the storage volume

The energy labelling requirements for hot water storage tanks includes:

- 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

Who?

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

- a manufacturer in the EEA that produces hot water storage tanks to be placed on the market in the EEA

- an importer of hot water storage tanks 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 countries.

Why?

The standing losses from hot water storage tanks account for a large share of the energy loss in the European households. Consequently, the EU decided to reduce the energy loss from hot water storage tanks by introducing requirements for the maximum allowed standing energy loss and by introducing energy labelling.

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?

Hot water storage tanks

Ecodesign requirements for hot water storage tanks with a maximum storage capacity under 2.000 litres will come into force.

The hot water storage tank is a vessel for storing hot water for direct use and/or space heating purposes, including any additives, which is not equipped with any heat generator except possibly one or more back-up immersion heater. The back-up immersion heater is an electric resistance heater that is part of a hot water storage tank and generates heat only when the external heat source is disrupted (including during maintenance periods) or out of order, or that is part of a solar hot water storage tank and provides heat when the solar heat source is not sufficient to satisfy required comfort levels.

A distinction is made between water heaters, combination heaters and hot water storage tanks. The water heater generates and transfers heat to deliver drinking or sanitary hot water and includes a heat generator. Water heaters have separate Ecodesign requirements and requirements for eco-design and energy labeling. See the 'Guide to eco-design and energy labelling requirements for electric heat pump water heaters and electric conventional water heaters'. For the combination boilers apply that besides providing space heating, they must also be designed for providing hot water including a connection to an external water supply. There are additional requirements for eco-design and energy labelling of combination boilers. 'Guide to eco-design and energy labelling requirements for electric heat pumps and electric boilers' and 'Guide to eco-design and energy labelling requirements of oil- and gas-fired boilers' describe the requirements.

Figure 1 outlines three different types of hot water storage tanks: a) is a storage tank for domestic hot water supplied with heat from a space heater e.g. a boiler, b) is a storage tank for space heating purposes e.g. a buffer tank for a heat pump, c) is a solar hot water storage tank for domestic hot water with a back-up immersion heater.

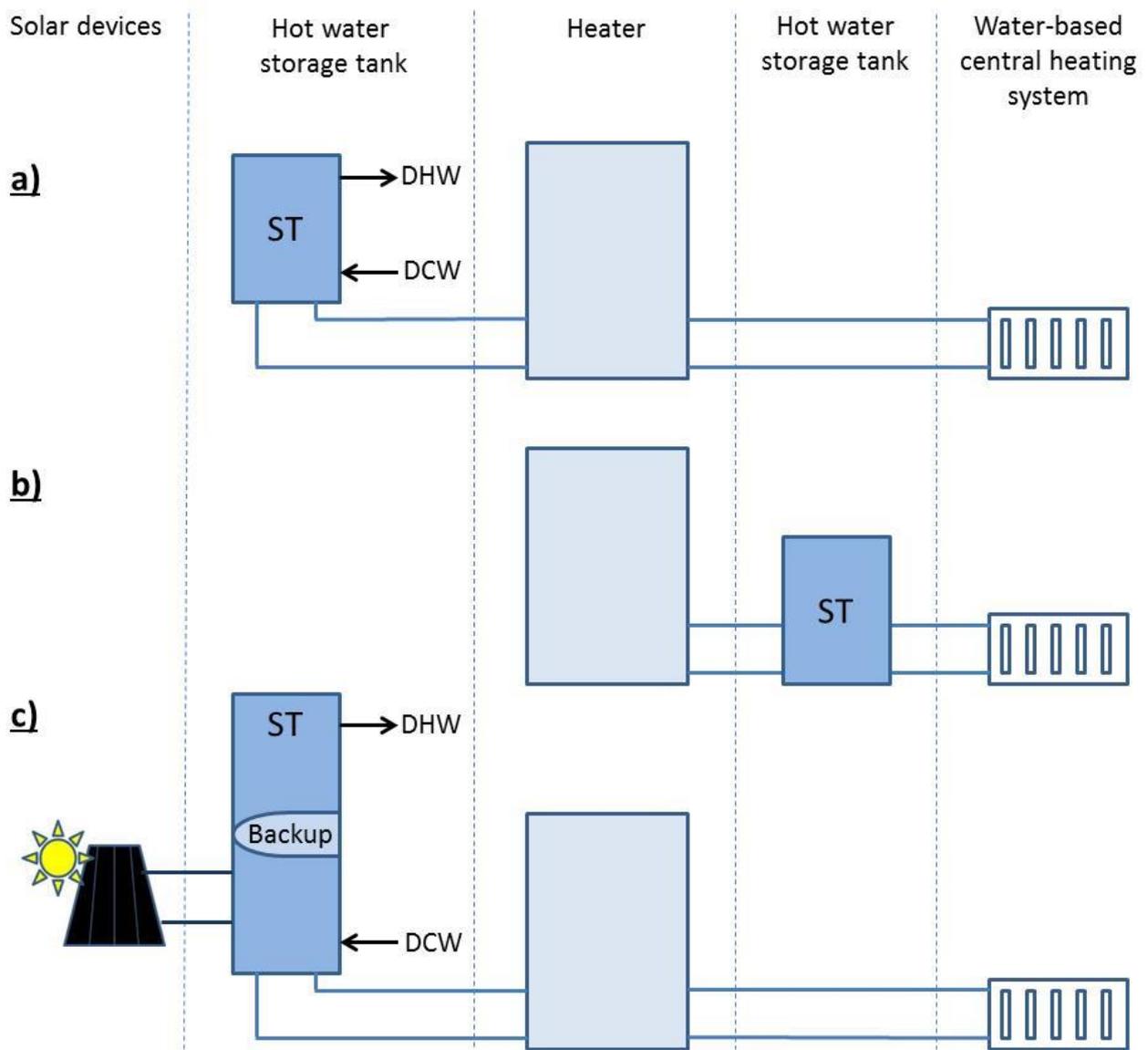


Figure 1 Different types of hot water storage tanks

There are also requirements for energy labelling of packages consisting of water heaters and solar devices including hot water storage tanks. 'Guide to energy labelling requirements of packages of space heaters/combination heaters, temperature controls and solar devices' and 'Guide to energy labelling requirements for packages of water heater and solar device'.

What are the requirements for energy labelling?

The requirements for energy labelling of hot water storage tanks only apply to hot water storage tanks with a maximum storage volume of 500 litres.

Hot water storage tanks must be labelled with the EU energy label. The label is identical in all the EU countries and includes pictograms instead of text so that the label is easy to understand in all the countries.

The label has the recognizable red and green arrows and the A-G scale is expanded with the energy class A⁺.

It is the responsibility of the supplier to provide the energy label together with the hot water storage tank.

Energy efficiency classes on the label

The label for hot water storage tanks includes one single scale, and energy classes will be introduced in two steps according to the schedule in Table 1. From 26 September 2015 energy label with energy classes from A to G is required, and from 26 September 2017 a label with energy classes A⁺ to F is required.

Energy classes	Energy label from
A – G	26 September 2015
A ⁺ - F	26 September 2017

Table 1 Plan for the introduction of energy classes

Determination of the energy classes

The energy label for hot water tanks are determined from the standing energy loss (S) which is an expression of the heating power dissipated from the hot water storage tank at given water and ambient temperatures. The reference water temperature is 65°C and the reference ambient temperature is 20 °C.

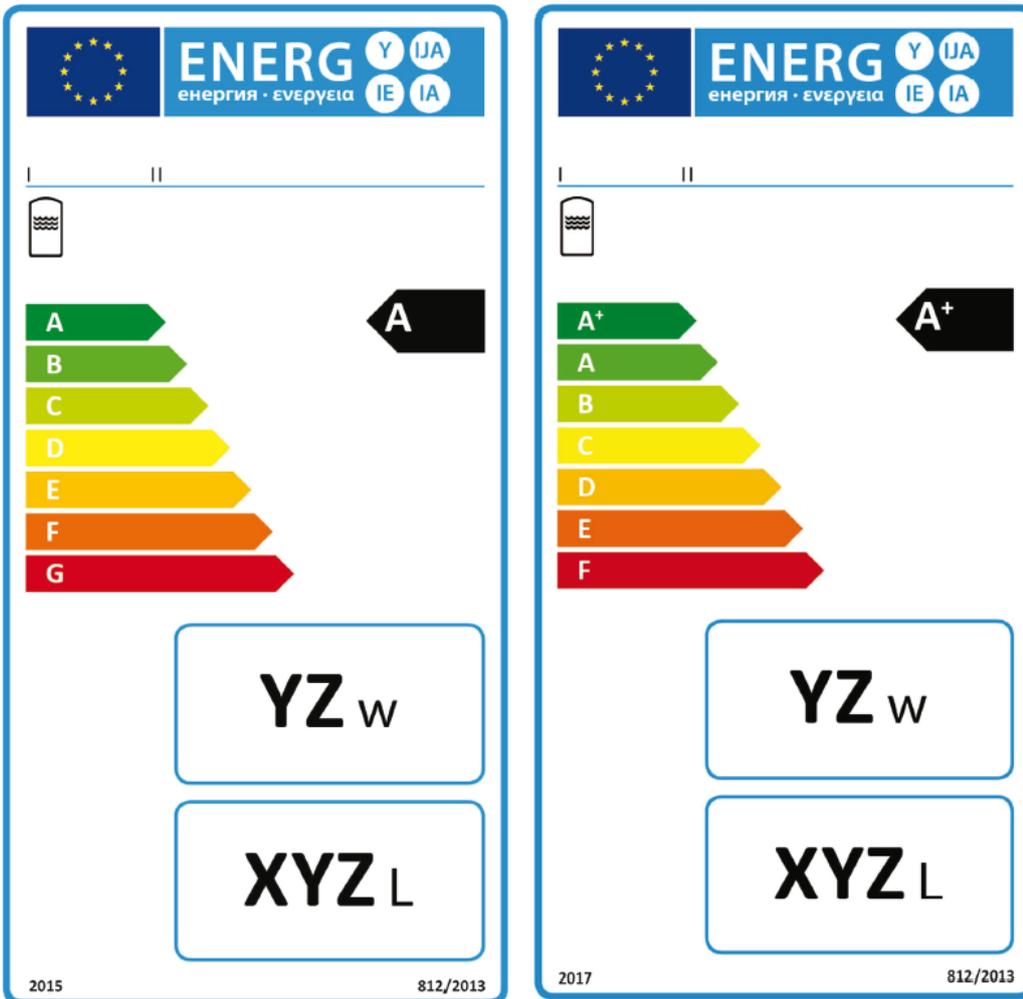
Be aware:

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 shall include information on the hot water storage tank's energy class, the standing energy loss and the storage capacity.

Energy label for hot water storage tanks:



Energy classes

For hot water storage tanks the connection between energy classes, storage capacity and standing energy loss is as shown in Table 2.

Energy efficiency class	Standing loss S in Watts, with storage volume V in litres
A+	$S < 5,5 + 3,16 \cdot V^{0,4}$
A	$5,5 + 3,16 \cdot V^{0,4} \leq S < 8,5 + 4,25 \cdot V^{0,4}$
B	$8,5 + 4,25 \cdot V^{0,4} \leq S < 12 + 5,93 \cdot V^{0,4}$
C	$12 + 5,93 \cdot V^{0,4} \leq S < 16,66 + 8,33 \cdot V^{0,4}$
D	$16,66 + 8,33 \cdot V^{0,4} \leq S < 21 + 10,33 \cdot V^{0,4}$
E	$21 + 10,33 \cdot V^{0,4} \leq S < 26 + 13,66 \cdot V^{0,4}$
F	$26 + 13,66 \cdot V^{0,4} \leq S < 31 + 16,66 \cdot V^{0,4}$
G	$S > 31 + 16,66 \cdot V^{0,4}$

Table 2 Energy classes for hot water storage tanks

What are the requirements for ecodesign?

From 26 September 2017 the standing energy loss from hot water storage tanks must not exceed a certain level.

Requirements for standing energy loss

From 26 September 2017 the maximum allowed standing energy loss must not exceed

$$16,66 + 8,33 \cdot V^{0,4} \text{ Watt}$$

What are the requirements for information and documentation?

Energy labelling

Energy label and product fiche

All hot water storage tanks placed on the market from 26 September 2015 must be provided with a printed energy label and a product fiche. A product fiche may include several models of hot water storage tanks from the same supplier. See the guidelines for product fiches in the Regulation of energy labelling, Annex IV.

Furthermore, electronic versions of the energy label and the product fiche must be made available to dealers for new products placed on the market. The layout of the electronic energy label must be identical with the printed label and the electronic versions of the label and the fiche must include the same information as the printed versions

Information in technical promotion material and in advertisements

Relevant technical promotion material and advertisements for hot storage tanks shall include information on the energy class of the units. Further information is available in the Regulation 812/2013/EU, 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 heat pumps and electric boilers are offered for sale or hire through the internet. The label and the product fiche may be shown using a “nested display”.

Ecodesign

CE marking and EC declaration of conformity

Hot water storage tanks covered by the ecodesign requirements must be CE marked when they are placed on the market in the EU countries. Furthermore, a CE declaration of conformity must be available from which it must appear that the product complies with the requirements of the regulation. Consequently reference number of Regulation EU No 814/2013 must be mentioned in the declaration of conformity.

Find requirement for the contents of EC declaration of conformity in the Ecodesign Directive 2009/125/EC Annex VI.

Ecodesign and energy labelling

Technical documentation

The supplier is responsible for making sure that the hot water storage tank has a technical documentation when placing it on the EEA market. The technical documentation must show that the hot water storage tank is constructed in conformity with the ecodesign requirements and that the energy labelling of the hot water storage tanks is correct. The technical documentation must be compiled by the manufacturer.

For all hot water storage tanks, you can see the requirements for technical documentation and information to be made available on the manufacturer’s website in Regulation 812/2013/EU Annex V and in Regulation 814/2013/EU Annex II.

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 relating to ecodesign requirements must be stored for a period of ten years after the last model of that product has been manufactured. In the case of energy labelling requirements the documentation must be stored in five years.

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

Danish Energy Agency

Amaliegade 44

DK 1256 Copenhagen K

www.ens.dk

Telephone: +45 33 92 67 00

E-mail: ens@ens.dk

More about ecodesign and energy labelling:

www.ens.dk/energikrav

E-mail: ecodesign@ens.dk

