

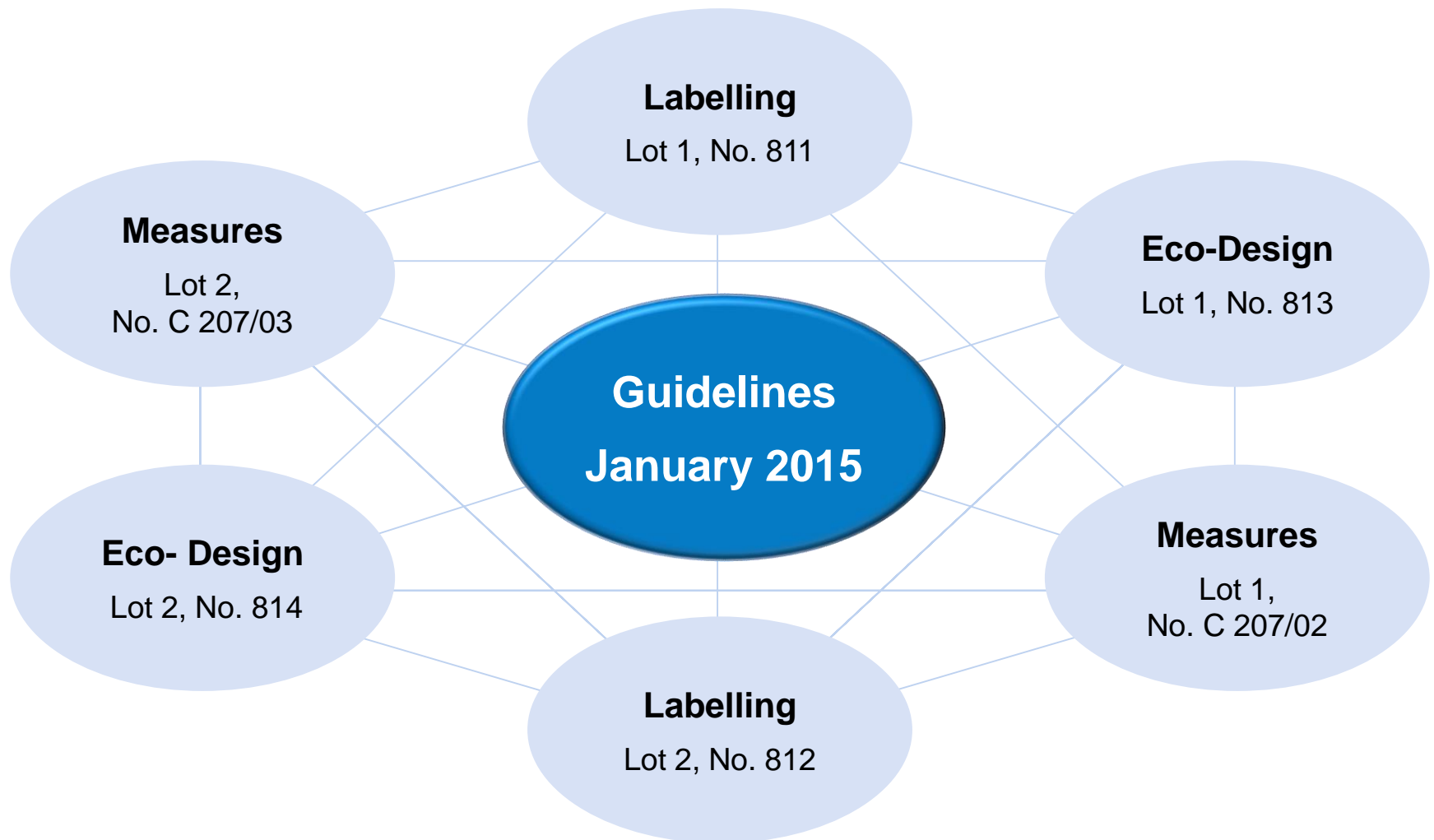


ErP – Required and Implemented?

- A Status Report -

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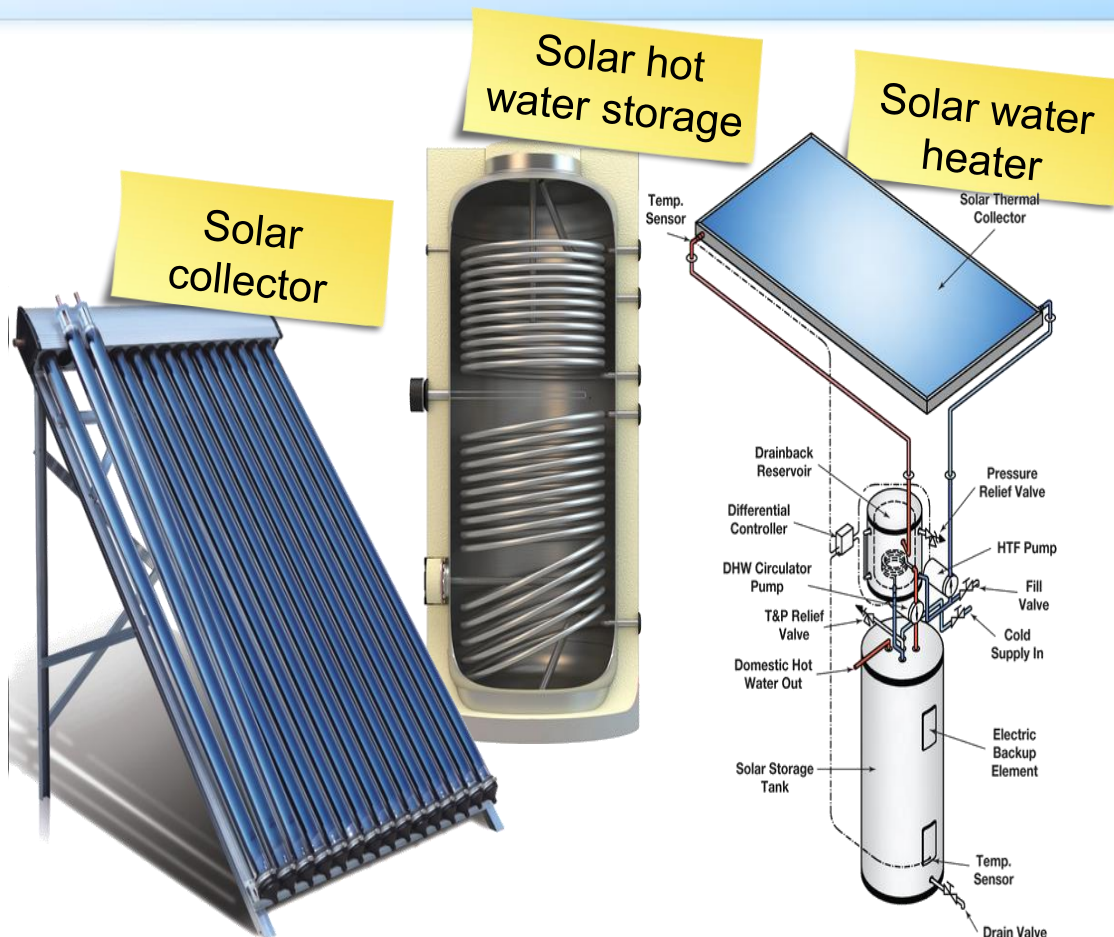
ErP Regulations, Guidelines and Additional Documents



ERP – Relevant Regulations for Solar Product

	Energy Labelling Directive 2010/30/EU	Eco Design Directive 2009/125/EC
Lot 1 (space heater)	Regulation 811/2013 Space heating, combination heater, systems (“packages”) from space heaters, temperature controllers and solar thermal and systems (“packages”) from combination heaters, temperature controllers and solar thermal	Regulation 813/2013 space and combination (space & hot water) heaters
Lot 2 (hot water devices)	Regulation 812/2013 Hot water heater and systems (“packages”) from hot water heater and solar thermal	Regulation 814/2013 Hot water heater and hot water tanks

ERP – Solar Devices



Product data sheets have to be available in the product information; technical information can be provided on request

Required Information Product Data Sheet

- (a) supplier's name or trade mark;
- (b) supplier's model identifier;
- (c) the collector aperture area in m², to two decimal places;
- (d) the collector efficiency in %, rounded to the nearest integer;
- (e) the energy efficiency class of the solar hot water storage tank, determined in accordance with point 3 of Annex II;
- (f) the standing loss of the solar hot water storage tank in W, rounded to the nearest integer;
- (g) the storage volume of the solar hot water storage tank in litres and m³;
- (h) the annual non-solar heat contribution $Q_{\text{non-sol}}$ in kWh in terms of primary energy for electricity and/or in kWh in terms of GCV for fuels, for the load profiles M, L, XL and XXL under average climate conditions, rounded to the nearest integer;
- (i) the pump power consumption in W, rounded to the nearest integer;
- (j) the standby power consumption in W, to two decimal places;
- (k) the annual auxiliary electricity consumption Q_{aux} in kWh in terms of final energy, rounded to the nearest integer.

Required Information Technical Documents

- (a) the name and address of the supplier;
- (b) a description of the solar device model sufficient for its unambiguous identification;
- (c) where appropriate, the references of the harmonised standards applied;
- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) the results of the measurements for the technical parameters as specified in point 9 of Annex VII;
- (g) any specific precautions that shall be taken when the solar device is assembled, installed or maintained.

ERP – Solar Devices and Products

Component	Energy Label	Product Data Sheet	Eco Design Requirements	Standard
Collectors	✗	✓	✗	EN ISO 9806
Solar Storage	✓	✓	✓ (s)	EN 12977-3
Controller	✗	✓	✗	EN 12977-5
Forced Circulated System Solar Device	✗	✓	✗	SOLCAL/Package EN 15316-4-3
Thermosiphon System Solar Device	✗	✓	✗	SOLICS/Package EN 12976/ ISO 9459-5
Forced Circulated System Solar Water Heater	✓	✓	✓ (η_{WH} / V_{40})	SOLCAL/Product EN 15316-4-3
Thermosiphon System Solar Water Heater	✓	✓	✓ (η_{WH} / V_{40})	SOLICS/Product EN 12976/ ISO 9459-5



What does harmonization mean?


- The “translation” of the standard in terms of the relevant ErP requirement
- A harmonized standard replaces the additional documents (measures)
- All requirements in the ordinance are clearly described
- All legal requirements in the harmonization are fulfilled
- (Annex ZX)

A standard is not considered harmonized until it is published as a harmonized standard in the official journal!

ErP Regulation – Solar Collector

Solar Collector

Means a device designed to absorb global solar irradiance and to transfer the heat energy so produced to a fluid passing through it.

- (a) the daily electricity consumption Q_{elec} in kWh, rounded to three decimal places;
- (b) the declared load profile, expressed by the appropriate letter in accordance with Table 3 of this Annex;
- (c) the sound power level in dB, indoors, rounded to the nearest integer (for heat pump water heaters, if applicable);
- (i) the collector aperture area A_{sol} in m^2 , rounded to two decimal places;
- (j) the zero-loss efficiency η_0 , rounded to three decimal places;
- (k) the first-order coefficient a_1 in $W/(m^2 K)$, rounded to two decimal places;
- (l) the second-order coefficient a_2 in $W/(m^2 K^2)$, rounded to three decimal places; in addition, for solar water heaters: 
- (m) the incidence angle modifier IAM, rounded to two decimal places;
- (n) the pump power consumption sol_{pump} in W, rounded to two decimal places;
- (o) the standby power consumption $sol_{standby}$ in W, rounded to two decimal places;

Technical Parameters



Required information – product data sheet

- (a) supplier's name or trade mark;
- (b) supplier's model identifier;
- (c) the collector aperture area in m^2 , to two decimal places;
- (d) the zero-loss efficiency, to three decimal places;
- (e) the first-order coefficient in $W/(m^2 K)$, to two decimal places;
- (f) the second-order coefficient in $W/(m^2 K^2)$, to three decimal places;
- (g) the incidence angle modifier, to two decimal places;

Required information on next Solar Keymark Collector datasheet version

solar collector and the surrounding air of 40 K and a global solar irradiance of 1 000 W/m ² , expressed in %, rounded to the nearest integer		Second-order coefficient (a_2) W/(m ² K ²); Incidence Angle Modifier IAM	
Collector efficiency (η_{col})	50 %	Zero-loss efficiency (η_0)	0.375
Remark: Collector efficiency (η_{col}) is defined in EN ISO 9806:2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. η_{col} is based on the aperture area.		First-order coefficient (a_1)	0.15 W/(m ² K)
		Second-order coefficient (a_2)	0.010 W/(m ² K ²)
		Incidence angle modifier IAM(50°)	1.08
		Remark: The data given in this section are based on the data measured according to the EN ISO 9806:2013. The collector efficiency data are related to the collector aperture areas (A_{ap}) which are determined by the testing laboratory according to the ISO 9488 and the former EN 12975-2.	

Status of the harmonization of EN 12975 (formerly EN 12975-1)

- The standard has been in the editing phase in TC 312 WG1 for some time now
- A draft inviting comments is planned for autumn 2016
- The formal appendices for harmonization with ErP are available
- The definition of product families should be integrated
 - Substantial challenge
 - The goal is rapid agreement that covers over 90% of cases
 - A chapter on “identical collectors” should be added

General practice of product families is not standard at the moment!

ERP Regulation – Solar Hot Water Heater Storage Tank

Solar Hot Water Heater Storage Tank

Means a hot water storage tank storing heat energy produced by one or more solar collectors.

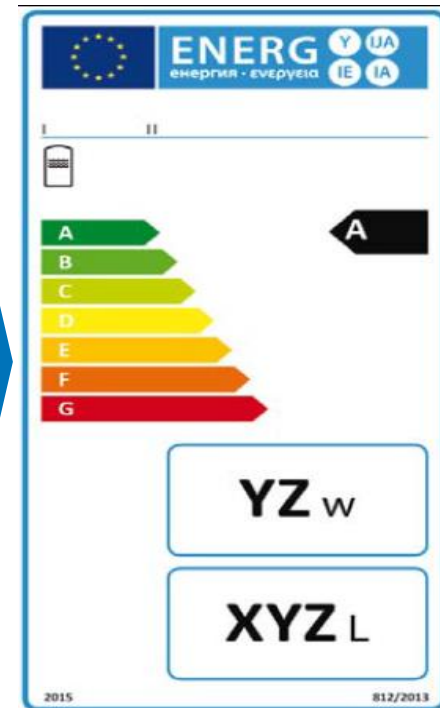


1. Tanks < 500 liter shall be labeled.
2. Tanks > 500 < 2000 liter are not allowed to be labeled but need the product fiche/data sheet.
3. “Solar hot water storage” valid for space and hot water systems.

Heat loss calculation can be prepared according to:

- EN 12897 Annex B
- EN 12977-3
- EN 15332
- EN 60379

From 26 September 2017 Class C will be required as minimum $\geq 16.66 + 8.33 \cdot V^{0.4}$ [W]



Status of Harmonization of EN 12977-3

- The formal appendices for harmonization with ErP are available
- The definition of product families or up and down scaling should become standard in EN 12977-3 (so far it is provided only as information)

General practice of product families is not standard at the moment!

Different standards lead to different results.

Does the application range of the standards need to be more clearly defined or is the free use already sufficiently limited?

ErP – Solar Device Systems and Solar Water Heater

Solar Device SD

- Never used as a stand alone system.
- Daily load is not covered without sun.
- Could contain a safety heater (freeze), not a backup heater.
- No labeling possible.

Solar Water Heater SWH

- Could be used as a stand alone system.
- Daily load is always covered.
- Only with immersed electrical back up heater.
- “Solar Only“-System in ERP.

According to SOLCAL

All requirements:

- SOLCAL calculation acc. to EN 15316-4-3
- Determination Qnonsol

SWH requirements :

- V40 water volume
- Confirmation Profile
- Calculation Label

ErP – SOLICS Systems

Status of the harmonization of EN 12976-1 and -2

- The standard has been in the editing stage in TC 312 WG2 for quite some time; formal vote has been taken
- Important corrections have been submitted as commentary
- The formal appendices for harmonization with ErP are available
- The following points have been integrated:
 - Definition of product families according to solar key mark
 - ErP tap profile adjusted for the DST process
 - Methods for determining warm water efficiency
 - Methods for determining mixed water volume V40 at 40°C

Method for solar water heaters with electrically heated volume of > 75% (normally thermosiphon) is missing!

Status of Harmonization of EN 15316-4-3

- The standard is currently in the editing phase in TC 288; formal vote is currently open
- The formal appendices for harmonization with ErP (according to method 2 “Fchart”) are available
- The following additional points have been integrated:
 - Methods for determining warm water efficiency
 - SOLCAL mistakes were corrected

The results can differ from currently existing invoices according to ErP documents!

Proof of fulfillment of tap profile and of the required warm water volume is not covered by the invoice.

ErP – Systems

Using SOLICS for pumped systems?

Advantages

- Can end up in a higher efficiency class
- Represents the real performance of the system
- SOLCAL only for identification by Qnonsol
- SOLICS also usable for V40 and confirmation of tap profile

Disadvantages

- Additional DST test necessary
- Originally intended for inseparable systems

The ESTIF Guidelines describe a free choice between both methods for pumped systems as well!



Outlook

The most important steps

- Publishing of EN 12975:2017 (definition of families)
- Publishing of EN 12976:2016 (ErP tap profile + definition of families)
- Procedure for labeling of “thermo-siphon” systems
(Problem $f_{aux} > 75\%$)
- Publishing of EN 12977-3 (definition of families/ scaling process standardization)
- Publishing of EN 15316-4-3 (correction of mistakes in SOLCAL)

Outlook

Further steps

- Official harmonization of standards series (EU consultant)
- Strategy for harmonizing framework conditions for long term prognosis of EN 12976, EN 12977 and ErP
- Availability of all ErP relevant values on solar key mark data sheets for systems and storage (as with collectors)
- Possibility of labeling based on the EN 12977 standards series (as a substitute or complement to the SOLCAL process)
- Voluntary 3rd party ErP testing by solar key mark carried out



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