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LabelPack A+

Labelpack A+ online tool handbook

A manual for the users of the online tool for the calculation and labeling of packages of water and space heating systems

CONTENT

KEY

This manual uses hyperlinks to facilitate the analysis of the diverse content.
Yor may click on photos and figures, to get further details.
The following symbols are also used.

 Link to LabelPackA + Online Tool Homepage

 Link to content

 Link to example

 Continue to the next slide

1. INTRODUCTION

Before proceeding to the calculation of the label it is important to:

1. **KNOW WHEN TO ISSUE THE LABEL**
   - If yor place in the market and/or put into service systems with:
     1) Heaters (P≤70kW) for DHW, Heating or Combi-systems;
     2) Temperature Control Device (Heating);
     3) Solar devices; 4) Heat storage
2. **KNOW THE SYSTEM**
   - Know which is the preferred heater, where the heat store, circulation system, etc. are located
3. **KNOW HOW TO FIND THE NEEDED INFORMATION**
   - Ordering directly from yorr supplier / reseller, exploring the manufacturers website and product webpage

2. PACKAGE LABEL CALCULATION

1. IDENTIFICATION OF THE CASE IN ANALYSIS

- The tool covers 6 systems: 1 DHW, 3 Space Heaters and 2 combination heaters

Boiler, Cogeneration, Heat pump

Boiler, Heat pump

2. COLLECTION OF INFORMATION ON SYSTEM COMPONENTS

- Product datasheet and / or Energy Label, technical documentation and detailed information

3. IDENTIFY DATA TO BE USED

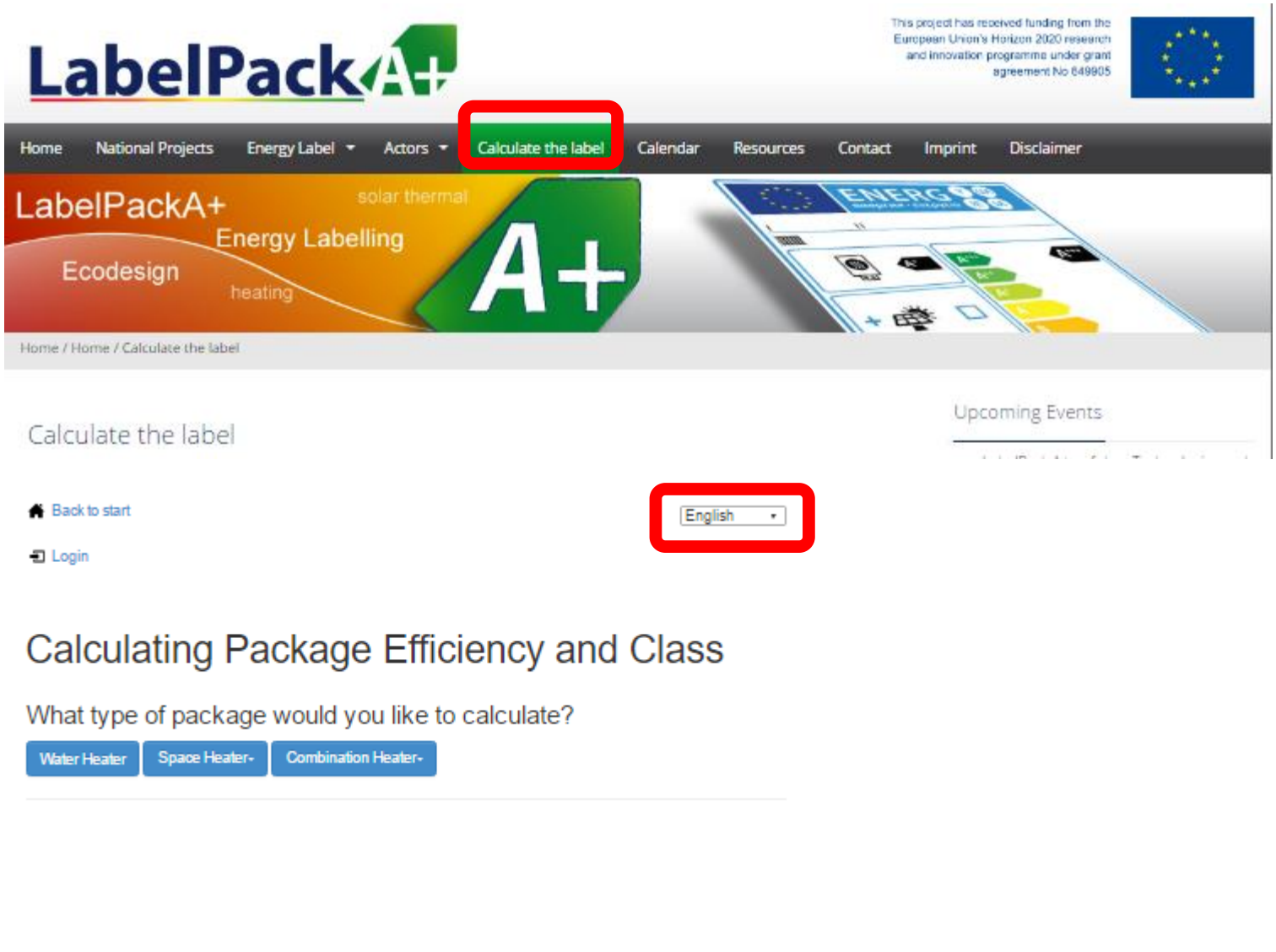
- Understand and identify required and available data

4. AUXILIARY CALCULATIONS, IF NEEDED

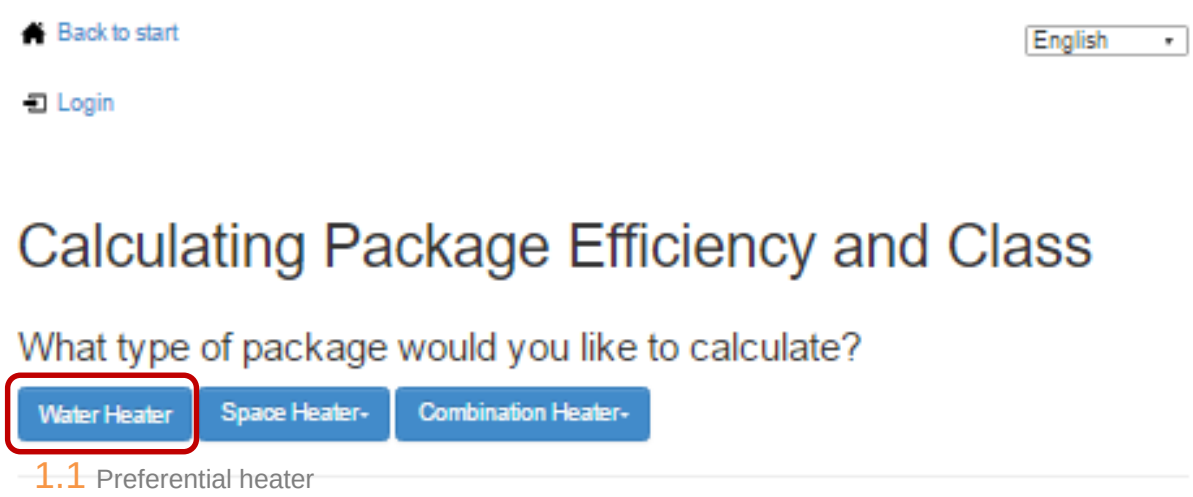
- Use of relevant methodologies when relevant (Ex: SOLCAL)

5. INSERT THE DATA INTO THE LPA+ ONLINE TOOL

3. THE ONLINE CALCULATION TOOL



4.1 EXAMPLE – 1.1 WATER HEATING



+

What is the composition of the water heater package :

1. Heater
2. Solar device
3. Storage

or

4.1 EXAMPLE – 1.1 WATER HEATING

Calculating Package Efficiency and Class

1.1.1 Water heater

Water heating energy efficiency of water heater (in %)

Based on average climatic conditions, if using a heat pump

Declared load profile

M — Label or product fiche

1.1.2 Solar device

Annual non-solar heat contribution (Qnonsol)(in kWh)

Product fiche or SOLCAL calculation

Auxiliary electricity consumption (Qaux)(in kWh)

Solar-only system (Thermosiphon)

1.1.2.1

Solar collector

1.1.2.2

Gas: instantaneous

1.1.1.1

Heat pumps: DHW

1.1.1.4

Gas: storage

1.1.1.2

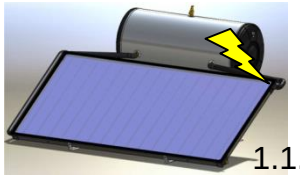
DHW tank: with external heat exchanger

1.1.1.5

Electric: storage

1.1.1.3

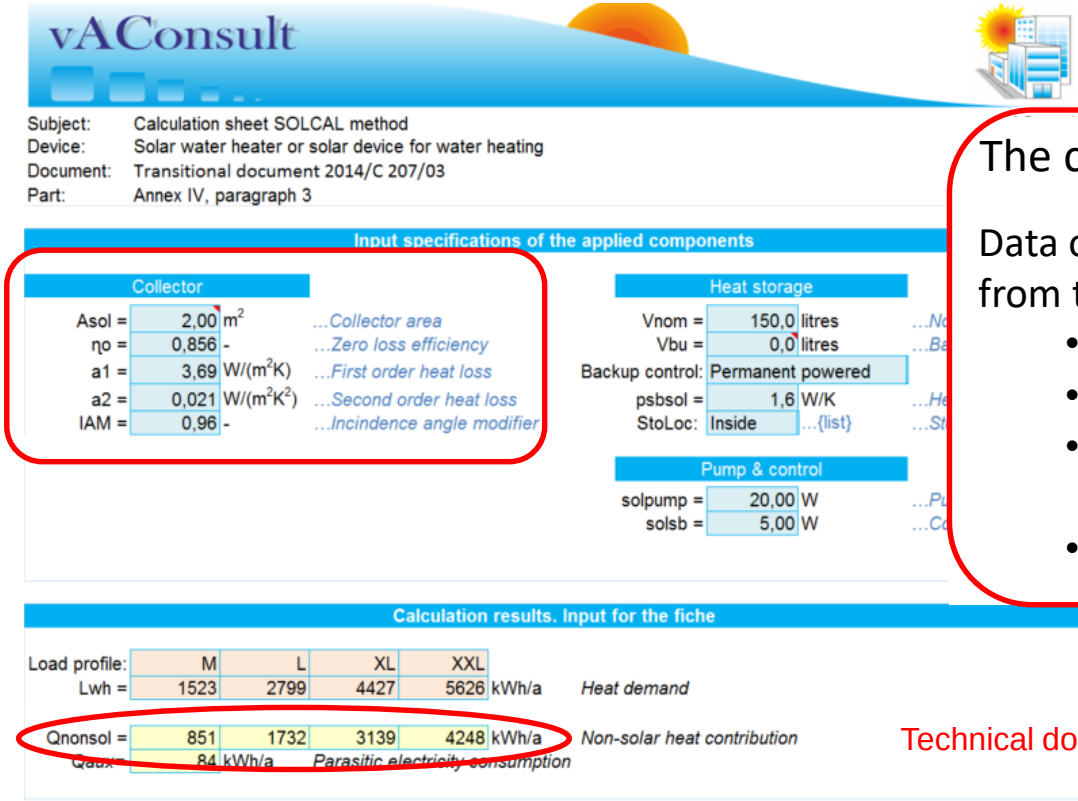
Solar Water Heater



1.1.1.6

4.1 EXAMPLE – 1.1 WATER HEATING

SOLCAL



vAConsult

Subject: Calculation sheet SOLCAL method
Device: Solar water heater or solar device for water heating
Document: Transitional document 2014/C 207/03
Part: Annex IV, paragraph 3

Input specifications of the applied components

Collector

Asol =	2,00	m^2	...Collector area
ηo =	0,856	-	...Zero loss efficiency
a1 =	3,69	$W/(m^2K)$	...First order heat loss
a2 =	0,021	$W/(m^2K^2)$	...Second order heat loss
IAM =	0,96	-	...Incindence angle modifier

Heat storage

Vnom =	150,0	litres	...No
Vbu =	0,0	litres	...Be
Backup control:	Permanent powered		
psbsol =	1,6	W/K	...He
StoLoc:	Inside	...{list}	...St

Pump & control

solpump =	20,00	W	...Pu
solsb =	5,00	W	...Co

Calculation results. Input for the fiche

Load profile:	M	L	XL	XXL		
Lwh =	1523	2799	4427	5626	kWh/a	*Heat demand*
Qnonsol =	851	1732	3139	4248	kWh/a	*Non-solar heat contribution*
Qaux =	84	kWh/a	*Parasitic electricity consumption*			

The calculation of **Qnonsol** requires:

Data on the **Solar thermal collector** from the product fiche

- Asol - Collector aperture area;
- ηo - Zero loss collector efficiency;
- a1, a2 - First and second order heat loss coefficient;
- IAM - Incidence angle modifier

Technical document or test results according to EN 12975

4.1 EXAMPLE – 1.1 WATER HEATING

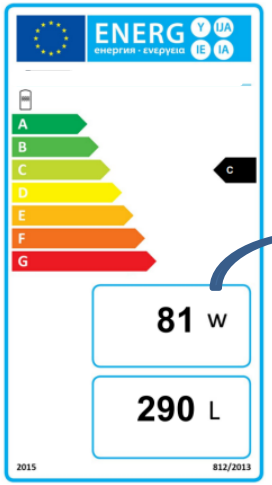
SOLCAL

Heat storage			
Vnom =	150,0	litres	...Nominal volume
Vbu =	0,0	litres	...Backup volume
Backup control:	Permanent powered		
psbsol =	1,6	W/K	...Heat loss storage
StoLoc:	Inside	...{list}	...Storage location

The calculation of **Qnonsol** requires (continued):

Data on the **hot water storage tank**:

- **Vnom** – Tank nominal volume (total volume of the storage tank);
- **Vbu** – Backup heating part of volume (in the case of a storage tank with integrated backup, Vbu is half of Vnom – water volume in direct contact with the electric element);
- **Backup control** – type of backup system control: 'permanently powered', 'night backup' (with timer) or 'emergency backup' (manual on/off switch);
- **Psbsol** – Heat loss capacity rate = losses as indicated in the label, under 'W,' divided by 45 (interior/exterior temperature difference to be considered)
- **StoLoc** – Storage location (interior or exterior)



Psbsol = 81W / 45°

4.1 EXAMPLE – 1.1 WATER HEATING

SOLCAL

vAConsult

Subject:	Calculation sheet SOLCAL method	vAConsult
Device:	Solar water heater or solar device for water heating	28.07.2015
Document:	Transitional document 2014/C 207/03	V3.7
Part:	Annex IV, paragraph 3	

Input specifications of the applied components

Collector

Asol =	2,00	m^2	...Collector area
ηo =	0,856	-	...Zero loss efficiency
a1 =	3,69	$W/(m^2K)$	...First order heat loss
a2 =	0,021	$W/(m^2K^2)$	...Second order heat loss
IAM =	0,96	-	...Incindence angle modifier

Heat storage

Vnom =	150,0	litres	...Nominal volume
Vbu =	0,0	litres	...Backup volume
Backup control:	Permanent powered		
psbsol =	1,6	W/K	...Heat loss storage
StoLoc:	Inside	...{list}	...Storage location

Pump & control

solpump =	20,00	W	...Pump power
solsb =	5,00	W	...Controller power

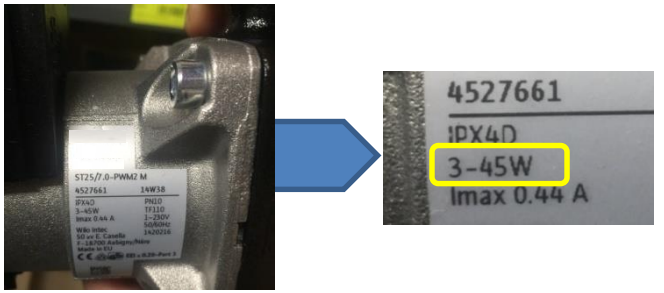
Calculation results. Input for the fiche

Load profile:	M	L	XL	XXL	
Lwh =	1523	2799	4427	5626	kWh/a *Heat demand*
Qnonsol =	851	1732	3139	4248	kWh/a *Non-solar heat contribution*
Qaux=	84	kWh/a	*Parasitic electricity consumption*		

The **Qaux** calculation requires:

Data on the <u>water pump:</u>

- Solpump – Pump power (in the case of variable pumps, use average power) ;
- Solsb – controller power



Solpump = (Pmin+Pmax)/2 = (3+45)/2=24W

Référence	Type de produit	Consommation d'électricité de la pompe (solpump)	Consommation d'électricité en veille (solstandby)
Artikelnummer	Produkttyp	Leistungsaufnahme der Pumpe (sol-pump)	Leistungsaufnahme im Bereitschaftszu-stand (solstandby)
Numer katalogowy	Typ produktu	Pobór mocy pompy (solpump)	Pobór mocy w trybie czuwania (sols-tandby)
N. ord.	Tipo di prodotto	Assorbimento di potenza della pompa (solpump)	Assorbimento di potenza in stand-by (solstandby)
Art.-nr.	Producttype	Energieverbruik van de pomp (solpump)	Energieverbruik in stand-by-stand (sols-tandby)
[redacted]	[redacted]	45,0 W	2,72 W

4.1 EXAMPLE – 1.1 WATER HEATING

1.1.3

Heat storage tank

Storage Tank installed ?

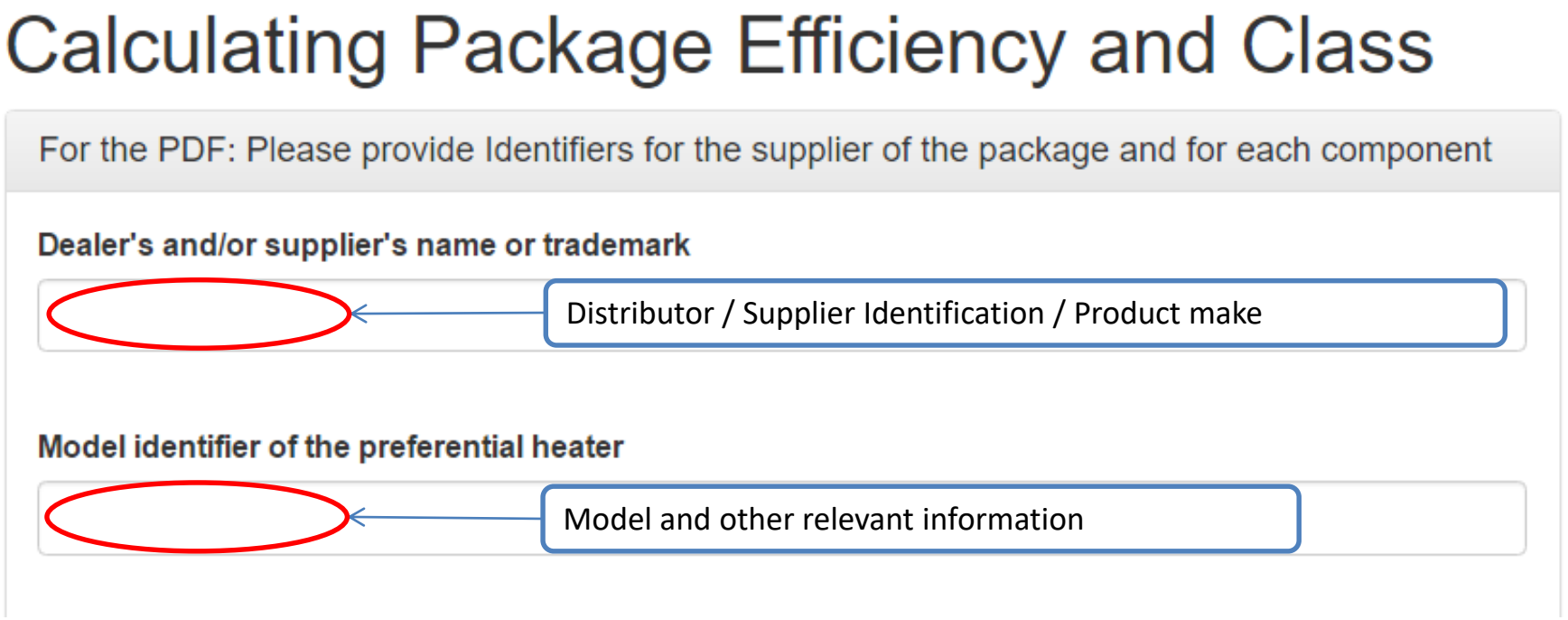
- (•) No
- ( ) Yes

4.1 EXAMPLE – 1.1 WATER HEATING

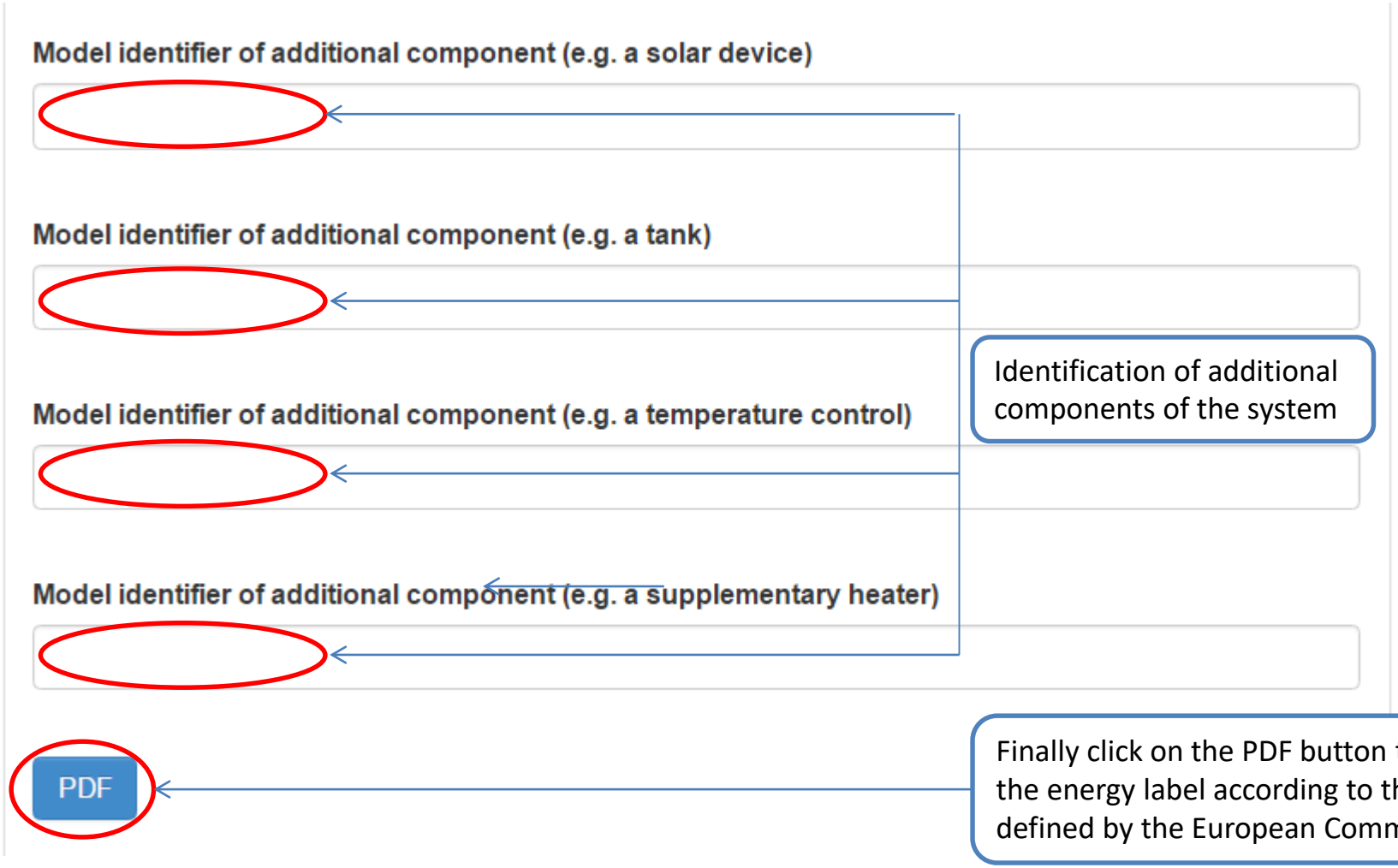
«Calculate» accesses the preliminary version of the label, allowing still editing and changes of the inserted data.

«PDF» redirects to a new web page where the trader must enter the product information that will be shown on the label: make and models of the system components & system supplier.

4.1 EXAMPLE – 1.1 WATER HEATING

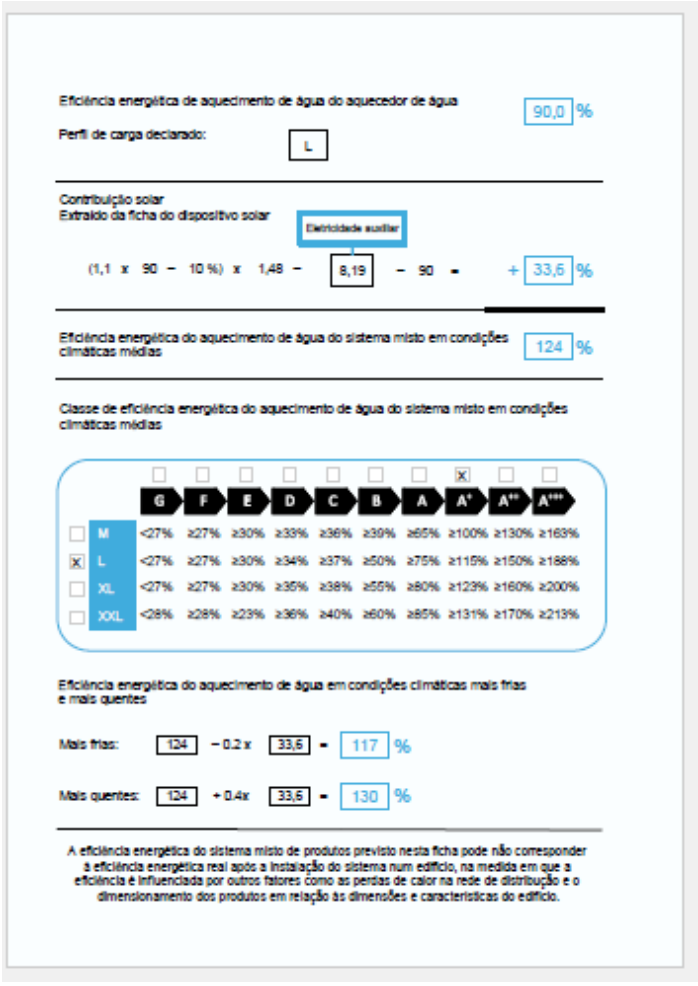


4.1 EXAMPLE – 1.1 WATER HEATING



4.1 EXAMPLE – 1.1 WATER HEATING

The label as well as the system data sheet are automatically downloaded to the PC.



Eficiência energética de aquecimento de água do aquecedor de água 90,0 %

Perfil de carga declarado: L

Contribuição solar
Extraído da ficha do dispositivo solar

Eletricidade auxiliar

(1,1 x 90 − 10 %) x 1,48 − 8,19 − 90 = + 33,6 %

Eficiência energética do aquecimento de água do sistema misto em condições climáticas médias 124 %

Classe de eficiência energética do aquecimento de água do sistema misto em condições climáticas médias

	G	F	E	D	C	B	A	A+	A++	A+++
☐	M	<27%	≥27%	≥30%	≥33%	≥36%	≥39%	≥65%	≥100%	≥130%	≥163%
☒	L	<27%	≥27%	≥30%	≥34%	≥37%	≥50%	≥75%	≥115%	≥150%	≥188%
☐	XL	<27%	≥27%	≥30%	≥35%	≥38%	≥55%	≥80%	≥123%	≥160%	≥200%
☐	XXL	<28%	≥28%	≥23%	≥36%	≥40%	≥60%	≥85%	≥131%	≥170%	≥213%

Eficiência energética do aquecimento de água em condições climáticas mais frias e mais quentes

Mais frias: 124 − 0.2 x 33,6 = 117 %

Mais quentes: 124 + 0.4x 33,6 = 130 %

A eficiência energética do sistema misto de produtos previsto nesta ficha pode não corresponder à eficiência energética real após a instalação do sistema num edifício, na medida em que a eficiência é influenciada por outros fatores como as perdas de calor na rede de distribuição e o dimensionamento dos produtos em relação às dimensões e características do edifício.

4.2 EXAMPLE – SPACE HEATING

+/or

+/or

Calculating Package Efficiency and Class

What type of package would you like to calculate?

Water Heater | Space Heater | Combination Heater

2.1 with preferential Boiler
2.2 with preferential Cogeneration Heater
2.3 with preferential Heat Pump

or

What is the composition of the space heater package :

1. Heater (primary and secondary)
2. Temperature control
3. Solar device
4. Storage

4.2 EX.- 2.1 SPACE HEATING - BOILER

Calculating Package Efficiency and Class

2.1.1 Boiler space heater

Rated heat output (Prated) of boiler (in kW) ← Label or product fiche

Seasonal space heating energy efficiency of boiler (in %) ← Product fiche

Gas

2.1.1.1

Oil

2.1.1.2

2.1.2 Temperature control — Product fiche

Temperature Control (Class)

No temperature control → Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

On-Off Timer

2.1.2.1

Thermostat

2.1.2.2

2.1.3 Supplementary boiler

Rated heat output (Prated) of the supplementary boiler (in kW) ← Label or Product fiche

Check point 2.1.1

Seasonal space heating energy efficiency of supplementary boiler (in %) ← Product fiche

Continues

4.2 EX.- 2.1 SPACE HEATING - BOILER

TEMPERATURE CONTROL

Depending on the temperature control class, different correction factors are used, defined in classes. The class of the temperature control can be found on the fiche of the temperature control.

Class I - “On/off“ room thermostat

Class II - Weather compensator control, for use with modulating heaters

Class III - Weather compensator control, for use with on/off output heaters

Class IV - Time Proportional & Integral (TPI) room thermostat, for use with on/off output heaters

Class V - Modulating room thermostat, for use with modulating heaters

Class VI - Weather compensator and room sensor, for use with modulating heaters

Class VII - Weather compensator and room sensor, for use with on/off output heaters

Class VIII - Multi-sensor room temperature control, for use with modulating heaters

Note: For a more elaborated description, refer to point 5.3.1.2 of the Implementing Guidelines

4.2 EX.- 2.1 SPACE HEATING - BOILER

2.1.4 Solar device

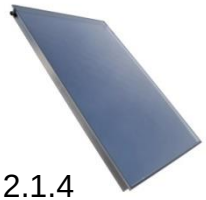
Solar collector area (in m2)

Product fiche: collector area (unit) * no. of collectors

Solar collector efficiency (in %)

Product fiche, or;
Test results (eg.: SKN certificates):
Efficiency curve EN 12975 -> Performance Tm-Ta/G = 0.04

Solar thermal panel



2.1.4

2.1.5 Heat storage tank

Volume of the heat storage tank (in l)

Label or Product fiche

Tank label class

No tank

Solar tank
(Hot water store)

2.1.5

2.1.6 Supplementary heat pump

Rated heat output (Prated) of the supplementary heat pump (in kW)

Label or Product fiche: value for average climatic conditions and temperatures 35 or 55°

Seasonal space heating energy efficiency of supplementary heat pump (in %)

Label or Product fiche: value for average climatic conditions and temperatures 35 or 55° based on actual load profile (demand)

Calculate PDF

Heat Pump

2.1.6

4.2 EX.- 2.1 SPACE HEATING - BOILER

«Calculate» accesses the preliminary version of the label, allowing still editing and changes of the inserted data.

«PDF» redirects to a new web page where the trader must enter the product information that will be shown on the label: make and models of the system components & system supplier.

Distributor / Supplier Identification

Make and model of the various components of the system

Finally click on the button ‘PDF ‘ to obtain the Energy Label and package fiche according to the template defined by the European Commission.

4.2 EX.- 2.2 SPACE HEATING – COGENERATION

Calculating Package Efficiency and Class

2.2.1 Cogeneration space heater

Rated heat output (Prated) of cogeneration space heater (in kW)

Label or Product fiche

Seasonal space heating energy efficiency of cogeneration space heater (in %)

Product fiche

2.2.2 Temperature control

Temperature Control (Class)

Product fiche

No temperature control

Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

2.2.3 Supplementary boiler

Rated heat output (Prated) of the supplementary boiler (in kW)

Label or Product fiche

Seasonal space heating energy efficiency of supplementary boiler (in %)

Label or Product fiche

Microgeneration: stirling

2.2.1

Temperature control

2.2.2

2.2.2 Check point 2.1.1

Continues

4.2 EX.- 2.2 SPACE HEATING – COGENERATION

2.2.4 Solar device

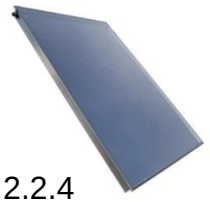
Solar collector area (in m2)

Product fiche: collector area (unit) * no. of collectors

Solar collector efficiency (in %)

Product fiche, or;
Test results (eg.: SKN certificates):
Efficiency curve EN 12975 -> Performance Tm-Ta/G = 0.04

Solar collector



2.2.4

2.2.5 Heat storage tank

Volume of the heat storage tank (in l)

Label or Product fiche

Tank label class

No tank

Calculate PDF

Water store

2.2.5

4.2 EX.- 2.2 SPACE HEATING – COGENERATION

«Calculate» accesses the preliminary version of the label, allowing still editing and changes of the inserted data.

«PDF» redirects to a new web page where the trader must enter the product information that will be shown on the label: make and models of the system components & system supplier.

Distributor / Supplier Identification

Make and model of the various components of the system

Finally click on the button 'PDF ' to obtain the Energy Label and package fiche according to the template defined by the European Commission.

4.2 EX.- 2.3 SPACE HEATING – HEAT PUMP

Calculating Package Efficiency and Class

2.3.1 Heat pump space heater

Rated heat output (Prated) of heat pump (in kW)

Label or Product fiche: value for average climatic conditions and temperatures 35 - 55°

Seasonal space heating energy efficiency of heat pump (in %)

Product fiche: value for average climatic conditions and temperatures 35 - 55°

Seasonal space heating energy efficiency of heat pump at colder climate (in %)

Product fiche: cold climatic conditions

Seasonal space heating energy efficiency of heat pump at warmer climate (in %)

Product fiche: warm climatic conditions

Is it a low temperature heat pump?

- (•) No
- ( ) Yes

2.3.2 Temperature control — Product fiche

Temperature Control (Class)

No temperature control → Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

Heat Pump

2.3.1

On-Off Timer

2.3.2.1

Thermostat

2.3.2.2

Continues

4.2 EX.- 2.3 SPACE HEATING – HEAT PUMP

2.3.3 Supplementary boiler

Rated heat output (Prated) of the supplementary boiler (in kW)

Label or Product fiche

Seasonal space heating energy efficiency of supplementary boiler (in %)

Product fiche

Gas

2.3.3.1

Oil

2.3.3.2

2.3.4 Solar device

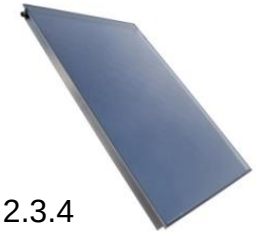
Solar collector area (in m2)

Product fiche: collector area (unit) * no. of collectors

Solar collector efficiency (in %)

Product fiche, or;
Test results (eg.: SKN certificates):
Efficiency curve EN 12975 -> Performance Tm-Ta/G = 0.04

Solar collector



2.3.4

2.3.5 Heat storage tank

Volume of the heat storage tank (in l)

Label or Product fiche

Tank label class

No tank

Calculate PDF

Solar tank
(Hot water store)

2.3.5

4.2 EX.- 2.3 SPACE HEATING – HEAT PUMP

«Calculate» accesses the preliminary version of the label, allowing still editing and changes of the inserted data.

«PDF» redirects to a new web page where the trader must enter the product information that will be shown on the label: make and models of the system components & system supplier.

Distributor / Supplier Identification

Make and model of the various components of the system

Finally click on the button ‘PDF ‘ to obtain the Energy Label and package fiche according to the template defined by the European Commission.

4.3 EX.- COMBINATION HEATER

+/or

+/or

Calculating Package Efficiency and Class

What type of package would you like to calculate?

Water Heater | Space Heater | Combination Heater

3.1 with preferential Boiler

3.2 with preferential Heat Pump

What is the constitution of a combination heater:

1. Heater (preferential / supplementary)
2. Temperature Control
3. Solar device
4. Hot water store

or

4.3 EX.- 3.1 COMBINATION HEATER - BOILER

3.1.1

Boiler combination heater

Rated heat output (Prated) of the boiler combination heater (in kW)

Label or Product fiche

Seasonal space heating energy efficiency of the preferential boiler combination heater (in %)

Product fiche

Water heating energy efficiency of the combination heater

Product fiche

Declared load profile

M

Label or Product fiche

Gas

3.1.1.1

Oil

3.1.1.2

3.1.2

Temperature control

Temperature Control (Class)

No temperature control

Product fiche

Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

Temperature Control

3.1.2

3.1.3

Supplementary boiler

Rated heat output (Prated) of the supplementary boiler (in kW)

Label or Product fiche

Seasonal space heating energy efficiency of supplementary boiler (in %)

Product fiche

3.1.3 Check point 3.1.1 or 2.1.1

Continues

4.3 EX.- 3.1 COMBINATION HEATER - BOILER

3.1.4 Solar device

Solar collector area (in m2)

Product fiche: collector area (unit) * no. of collectors

Solar collector efficiency (in %)

Product fiche, or; Test results (eg.: SKN certificates): Efficiency curve EN 12975 -> Performance Tm-Ta/G=0.04

Annual non-solar heat contribution (Qnonsol)(in kWh)

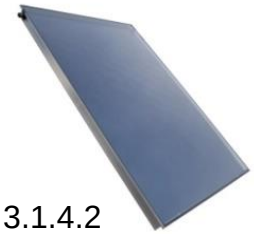
Product fiche or calculation with SOLCAL method

Auxiliary electricity consumption (Qaux)(in kWh)

Solar-only system

Solar thermal collector

3.1.4.1



3.1.4.2

3.1.5 Heat storage tank

Volume of the heat storage tank (in l)

Label or Product fiche

Tank label class

No tank

Water storage tank

3.1.5.1

Hot water tank

3.1.5.2

3.1.6 Supplementary heat pump

Rated heat output (Prated) of the supplementary heat pump (in kW)

Label or Product fiche: value for average climatic conditions and temperatures 35 or 55°

Seasonal space heating energy efficiency of supplementary heat pump (in %)

Label or Product fiche: value for average climatic conditions and temperatures 35 or 55° based on actual load profile (demand)

Heat Pump

3.1.6

4.3 EX.- 3.1 COMBINATION HEATER - BOILER

«Calculate» accesses the preliminary version of the label, allowing still editing and changes of the inserted data.

«PDF» redirects to a new web page where the trader must enter the product information that will be shown on the label: make and models of the system components & system supplier.

Distributor / Supplier Identification

Make and model of the various components of the system

Finally click on the button 'PDF ' to obtain the Energy Label and package fiche according to the template defined by the European Commission.

Note: In the case of combination heaters, the package fiche has two pages, one referring to the space heating component and the second to the hot water preparation.

4.3 EX.- 3.2 COMBIN. HEATER – HEAT PUMP

3.2.1

Heat pump combination heater

Rated heat output (Prated) of the preferential heat pump combination heater (in kW)

Label or Product fiche: average climate conditions

Seasonal space heating energy efficiency of the preferential heat pump combination heater (in %)

Product fiche: average climate conditions

Seasonal space heating energy efficiency of the preferential heat pump combination heater at colder climate (in %)

Product fiche: cold climate conditions

Seasonal space heating energy efficiency of the preferential heat pump combination heater at warmer climate (in %)

Product fiche: warm climate conditions

Is it a low temperature heat pump?

- No
- Yes

Product fiche/ Technical data sheet of the product

Water heating energy efficiency of the combination heater

Product fiche: average climate conditions

Declared load profile

M

Label or Product fiche

Combination heat pump

3.2.1

3.2.2

Controlo de temperatura

Product fiche

Classe do dispositivo de controlo de temperatura

Não dispõe de dispositivo de controlad

Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

Modulation Thermostat

3.2.2

Continues

4.3 EX.- 3.2 COMBIN. HEATER – HEAT PUMP

3.2.3 Supplementary boiler

Rated heat output (Prated) of the supplementary boiler (in kW)

Label or Product fiche

Seasonal space heating energy efficiency of supplementary boiler (in %)

Product fiche

Gas

3.2.3.1

Oil

3.2.3.2

3.2.4 Solar device

Solar collector area (in m2)

Product fiche: collector area (unit) * no. of collectors

Solar collector efficiency (in %)

Product fiche, or; Test results (eg.: SKN certificates):
Efficiency curve EN 12975 -> Performance Tm-Ta/G=0.04

Annual non-solar heat contribution (Qnonsol)(in kWh)

Product fiche or calculation with SOLCAL method

Auxiliary electricity consumption (Qaux)(in kWh)

Solar-only system

3.2.4.1

Solar thermal collector

3.2.4.2

3.2.5 Heat storage tank

Volume of the heat storage tank (in l)

Label or Product fiche

Tank label class

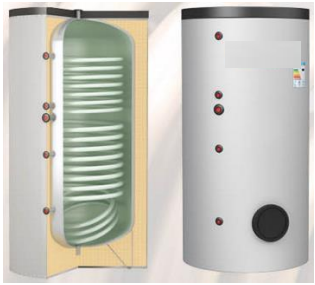
No tank

Water store

3.2.5.1

Hot water tank

3.2.5.2



4.3 EX.- 3.1 COMBIN. HEATER – HEAT PUMP

«Calculate» accesses the preliminary version of the label, allowing still editing and changes of the inserted data.

«PDF» redirects to a new web page where the trader must enter the product information that will be shown on the label: make and models of the system components & system supplier.

Distributor / Supplier Identification

Make and model of the various components of the system

Finally click on the button 'PDF ' to obtain the Energy Label and package fiche according to the template defined by the European Commission.

Note: In the case of combination heaters, the package fiche has two pages, one referring to the space heating component and the second to the hot water preparation.

5. EXAMPLES OF LABELS & PRODUCT FICHES

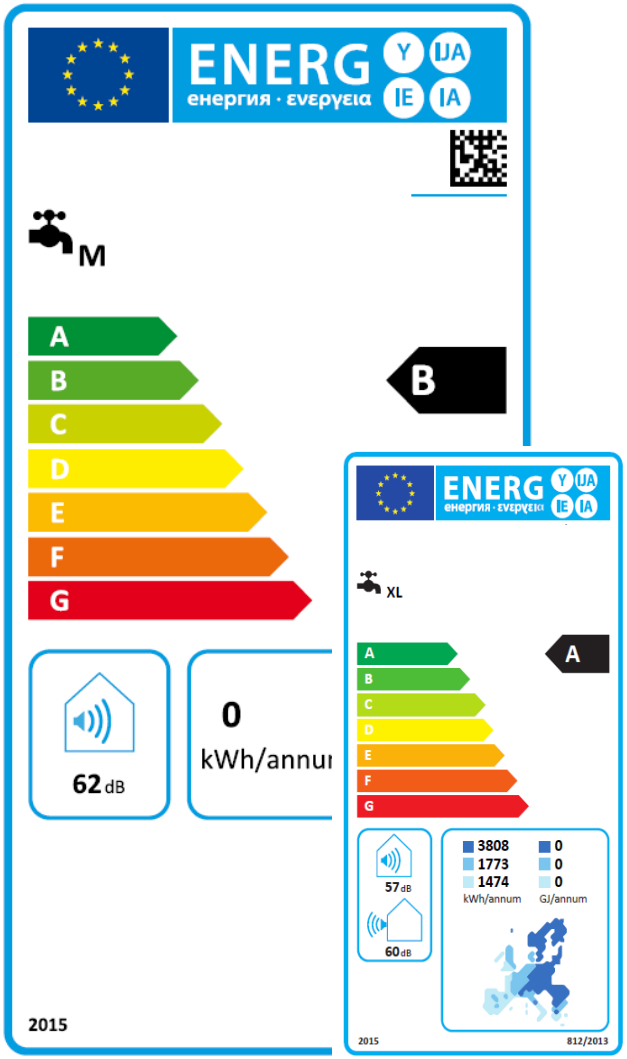
Product data	Symbol	Unit	
Heat losses	S	W	92.0
Nominal storage volume	V	l	192.0
Annual non-solar heat contribution in case of power use (M)	Q nonsol	kWh	908
Annual non-solar heat contribution in case of power use (L)	Q nonsol	kWh	1709
Annual non-solar heat contribution in case of power use (XL)	Q nonsol	kWh	3061
Annual non-solar heat contribution in case of power use (XXL)	Q nonsol	kWh	4146
Aperture area of the collector	A_{sol}	m ²	2.43
Collector efficiency	η_{col}	%	62
Zero loss efficiency	η_0		0.794
First-order coefficient	a_1	W/(m ² K)	3.86
Second-order coefficient	a_2	W/(m K ² ²)	0.013
Incidence angle modifier	IAM		0.94

Product data sheet (in

				A	*B*			
1	Brand name							
2	Models							
3	Room heating: Seasonal energy-efficiency class		-	*A+*	*A+*			
4	Room heating: Nominal heat output (*8) (*11)	P_{rated}	*kW*	*7*	*9*			
5	Room heating: Seasonal energy efficiency (*8)	η_s	*%*	*105*	*108*			
6	Annual energy consumption (*8)	Q_{HE}	*kWh*	*5358*	*6729*			
7	Sound power level, internal	L_{WA} indoor	*dB(A)*	-	-			
8	⚠ All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions.							
9	Nominal heat output (*9)	P_{rated}	*kW*	*2*	*10*			
10	Nominal heat output (*10)	P_{rated}	*kW*	*5*	*7*			
11	Room heating: Seasonal energy efficiency (*9)	η_s	*%*	*89*	*108*			
12	Room heating: Seasonal energy efficiency (*10)	η_s	*%*	*117*	*107*			
13	Annual energy consumption (*9)	Q_{HE}	*kWh*	*2301*	*9144*			
14	Annual energy consumption (*10)	Q_{HE}	*kWh*	*2138*	*3454*			
15	Sound power level, external	L_{WA} outdoor	*dB(A)*	*66*	*66*			
16	⚠ All of the data that is included in the product information was determined by applying the specifica directives. Differences to product information listed elsewhere may result in different test conditio in this product information is applicable and valid.							

(*8) For average climatic conditions
(*9) For colder climatic conditions
(*10) For warmer climatic conditions
(*11) For boilers and combination boilers with a heat pump, the nominal heat output "Prated" is the same as the design load in heating mode "Pdesig auxiliary boiler "Psup" is the same as the additional heating output "sup(Tj)"

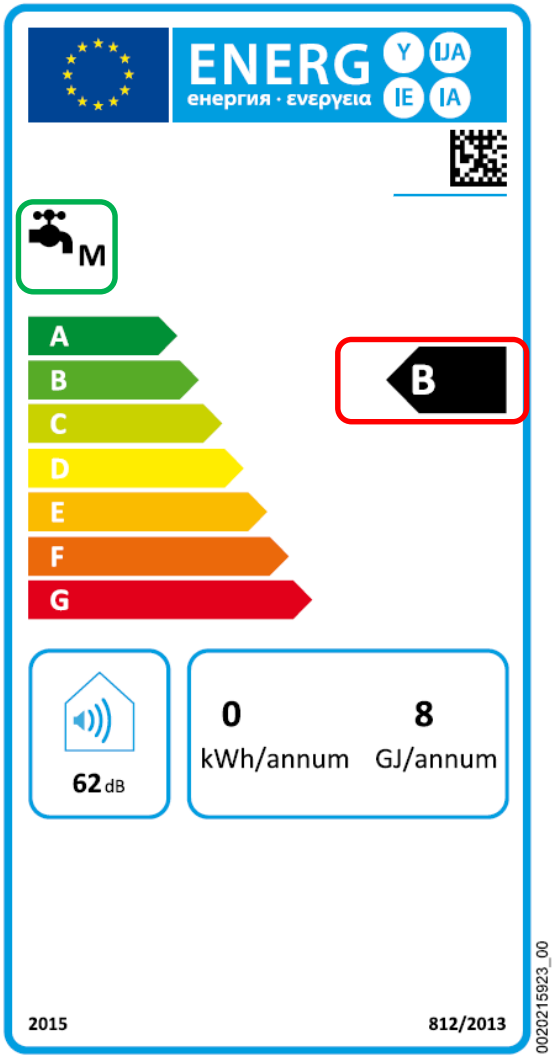
MODEL			
DHW tapping profile			XS
Erp Class			A
Heat input	Max	kW	10,1
Heat output	Min	kW	3,6
	Max	kW	8,9
Operating pressure	Max	bar	10
DHW flow rate	Δt 25°C	l/min	5,1
	Δt 50°C	l/min	2,6
DHW set point	Min	°C	40
	Max	°C	65
Dimensions	WxHxD	mm	280x455x130



5. WATER HEATER: INSTANT / TANKLESS

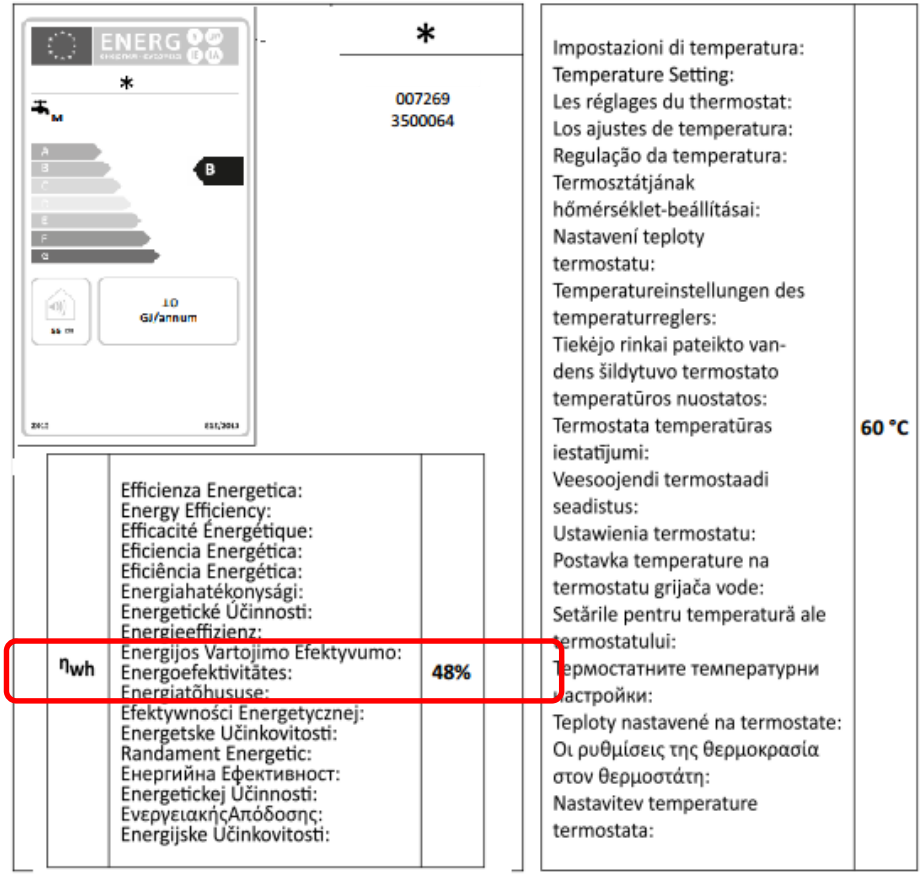
1.1.1

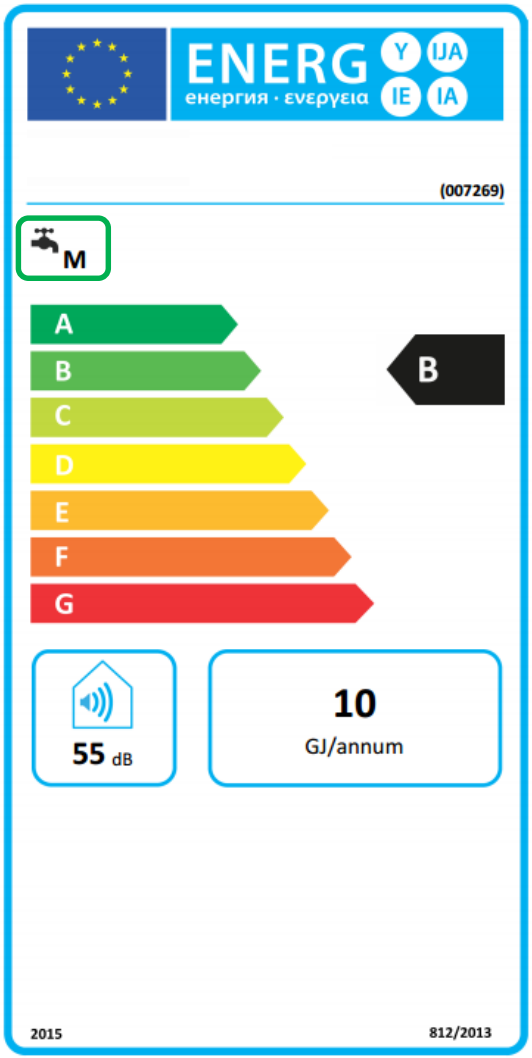
MODEL			
DHW tapping profile			XS
Erp Class			A
Heat input	Max	kW	10,1
Heat output	Min	kW	3,6
	Max	kW	8,9
Operating pressure	Max	bar	10
DHW flow rate	Δt 25°C	l/min	5,1
	Δt 50°C	l/min	2,6
DHW set point	Min	°C	40
	Max	°C	65
Dimensions	WxHxD	mm	280x455x130



5. STORAGE WATER HEATER

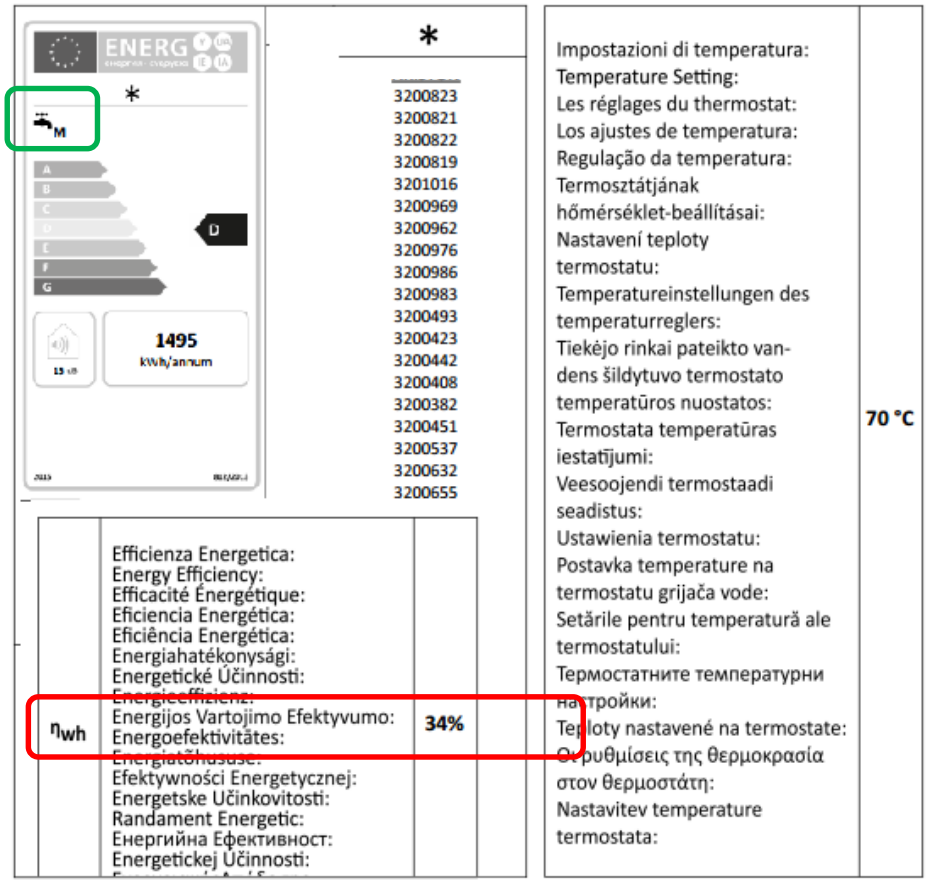
1.1.1





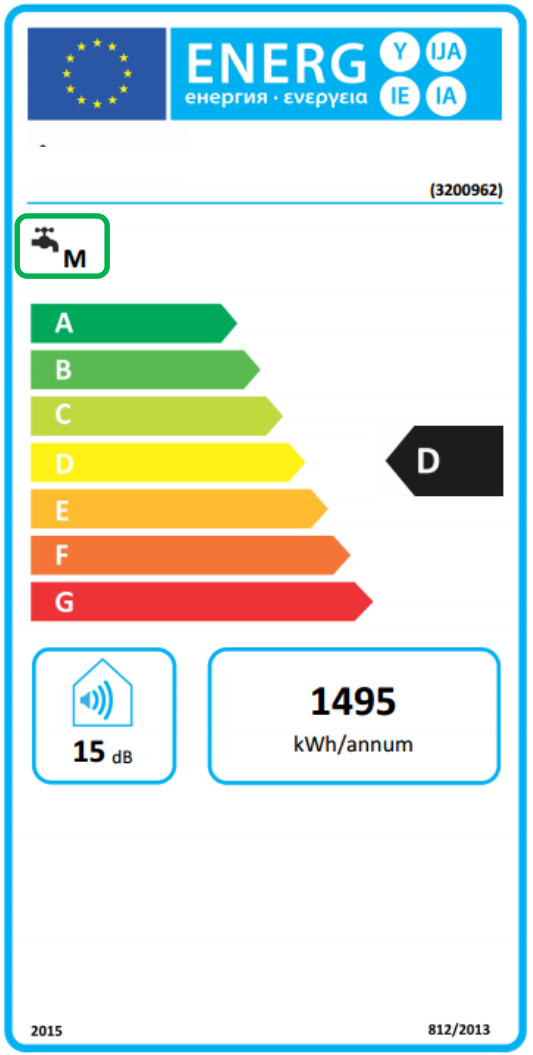
5. ELECTRIC WATER HEATER

1.1.1



	Efficienza Energetica: Energy Efficiency: Efficacité Énergétique: Eficiencia Energética: Eficiência Energética: Energiahatékonysági: Energetické Účinnosti: Energieeffizienz: Energijos Vartojimo Efektyvumo: Energoefektivitātes: Energiatõhususe: Efektywności Energetycznej: Energetske Učinkovitosti: Randament Energetic: Енергийна Ефективност: Energetickej Účinnosti:	
η_{wh}	Energijos Vartojimo Efektyvumo: Energoefektivitātes:	34%

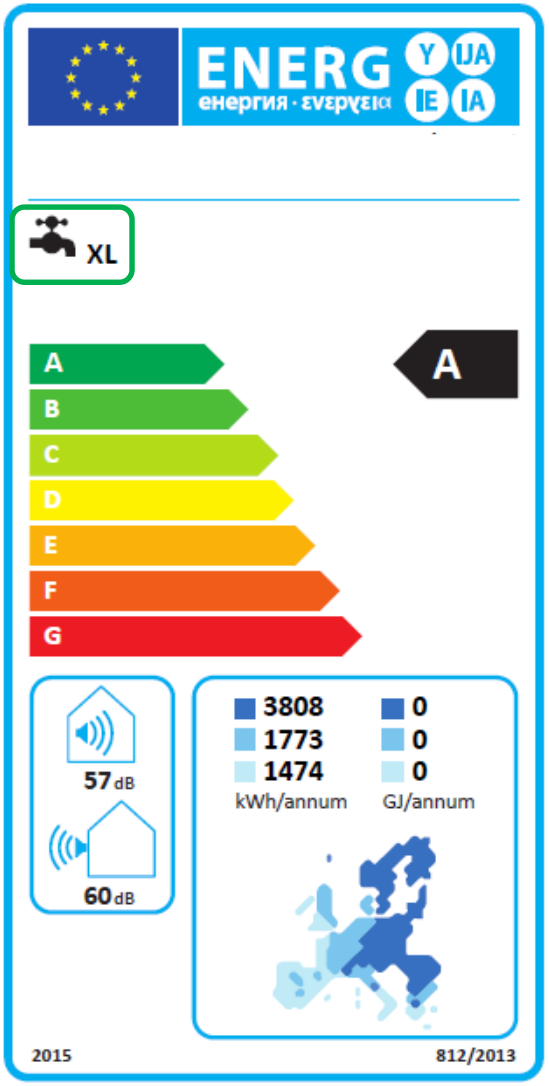
Impostazioni di temperatura: Temperature Setting: Les réglages du thermostat: Los ajustes de temperatura: Regulação da temperatura: Termosztátjának hőmérséklet-beállításai: Nastavení teploty termostatu: Temperatureinstellungen des temperaturreglers: Tiekėjo rinkai pateikto vandens šildytuvo termostato temperatūros nuostatos: Termostata temperatūras iestatījumi: Veesoojendi termostaadi seadistus: Ustawienia termostatu: Postavka temperature na termostatu grijača vode: Setările pentru temperatură ale termostatului: Термостатните температурни настройки: Teploty nastavené na termostate: Ρυθμίσεις της θερμοκρασία στον θερμοστάτη: Nastavitev temperature termostata:	70 °C



5. HEAT PUMP WATER HEATER (DHW)

1.1.1

a) Supplier's name or trademark:		
b) Supplier's model identifier:		
c) Declared load profile for water heating:	L	L
d) Water heating efficiency class:	A	A
e) Water heating efficiency:	115%	115%
f) Annual energy consumption for water heating:	887 kWh	887 kWh
g) (Other load profiles with corresponding water heating efficiency and annual energy consumption):	NA	NA
h) Thermostat temperature setting as placed on the market:	NA	NA
i) Sound power level indoors LWA:	48 dB	48 dB

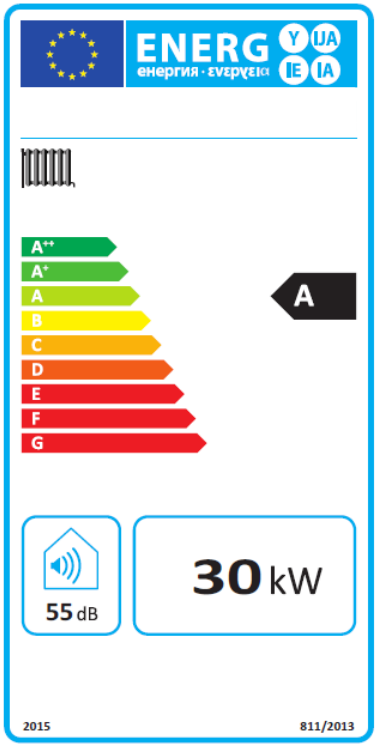


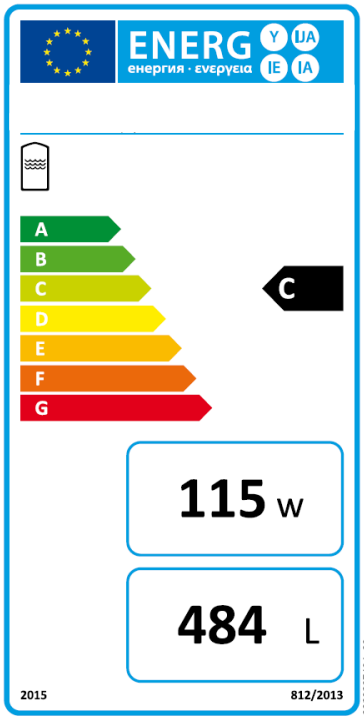
5. BOILER + HOT WATER STORE

3.1.1

Product fiche for boiler space heaters

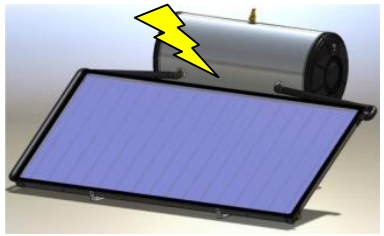
Seasonal space heating energy efficiency class		A	A	A
Rated heat output *(Prated or Psup)*	kW	16	19	25
Seasonal space heating energy efficiency	%	93	93	93
Annual energy consumption	kWh GJ	13764 50	16344 59	21506 77
Sound power level L_{WA} indoors	dB	33	34	37





5. SOLAR WATER HEATER

1.1.1



Product Fiche

1. WATER HEATERS

1.1. The information in the product fiche of the water heater shall be provided in the following order and shall be included in the product brochure or other literature provided with the product:

(a) supplier's name or trade mark;

(b) supplier's model identifier;

(c) the declared load profile, expressed by the appropriate letter and typical usage in accordance with Table 3 of Annex VII;

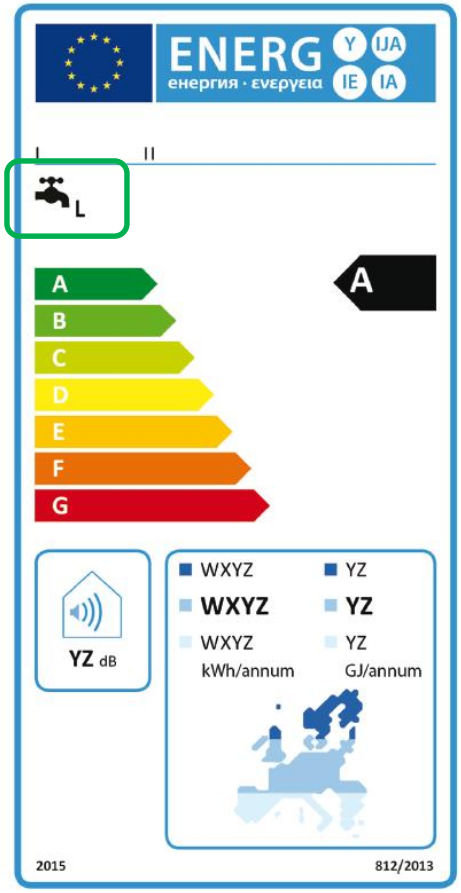
(d) the water heating energy efficiency class of the model, determined in accordance with point 1 of Annex II, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;

(e) the water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 3 of Annex VIII, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;

(f) the annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of GCV, rounded to the nearest integer and calculated in accordance with point 4 of Annex VIII, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;

(g) if applicable, other load profiles for which the water heater is suitable to use and the corresponding water heating energy efficiency and annual electricity consumption as set out in points (e) and (f);

(h) the thermostat temperature settings of the water heater, as placed on the market by the supplier;



Continues

5. SOLAR WATER HEATER

1.1.1

Supplier's name or trade mark:

Supplier's model identifier:

Declared load profile: **M**

Water heating energy efficiency class: **B**

	G	F	E	D	C	B	A	A+	A++	A+++
M	<27%	≥27%	≥30%	≥33%	≥36%	≥39%	≥65%	≥100%	≥130%	≥163%
L	<27%	≥27%	≥30%	≥34%	≥37%	≥50%	≥75%	≥115%	≥150%	≥188%
XL	<27%	≥27%	≥30%	≥35%	≥38%	≥55%	≥80%	≥123%	≥160%	≥200%
XXL	<28%	≥28%	≥32%	≥36%	≥40%	≥60%	≥85%	≥131%	≥170%	≥213%

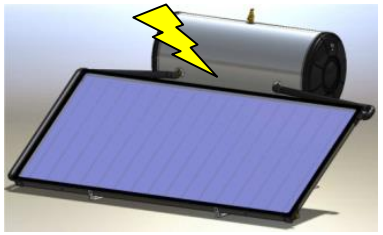
Water heating energy efficiency:

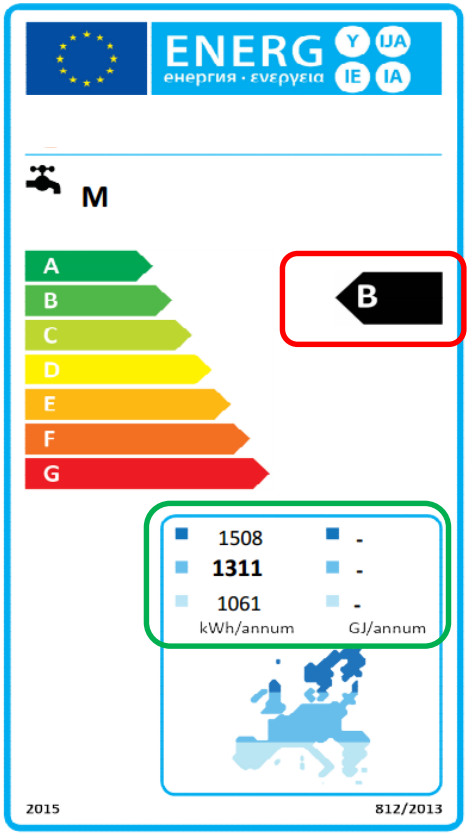
Average climate	39,2%	B
Colder climate:	34,0%	D
Warmer climate:	48,4%	B

Annual electricity / fuel consumption:

Average climate	1311	kWh
Colder climate:	1508	kWh
Warmer climate:	1061	kWh

Thermostat setting:	65	°C	-
Sound power level (indoor):	-	dB	LwA
Only operative during off-peak hours:	-		
Precautions during mounting / .. :	see Manual		
...			
Collector apperture area:	1,92	m^2	Asol
Zero loss efficiency:	0,755	-	ηo
First order coefficient:	3,75	$W/(m^2K)$	a1
Second order coefficient:	0,015	$W/(m^2K^2)$	a2
Incidence angle modifier:	0,96	-	IAM
Storage volume (nominal):	196	litres	Vsto
Standing loss	73	W	S
Pump power consumption:	35	W	solpump
Standby power consumption:	0,60	W	solsb





5. SOLAR-ONLY SYSTEM

1.1.2 3.1.4 3.2.4

Product data	Symbol	Unit	
Heat losses	S	W	92.0
Nominal storage volume	V	l	192.0
Annual non-solar heat contribution in case of power use (M)	Q_{nonsol}	kWh	908
Annual non-solar heat contribution in case of power use (L)	Q_{nonsol}	kWh	1709
Annual non-solar heat contribution in case of power use (XL)	Q_{nonsol}	kWh	3061
Annual non-solar heat contribution in case of power use (XXL)	Q_{nonsol}	kWh	4146
Aperture area of the collector	A_{sol}	m^2	2.43
Collector efficiency	η_{col}	%	62
Zero loss efficiency	η_o		0.794
First-order coefficient	a_1	$W/(m^2 K)$	3.86
Second-order coefficient	a_2	$W/(m K^2)$	0.013
Incidence angle modifier	IAM		0.94

The load profile is the one indicated for the preferential heater

Continues

5. SOLAR COLLECTOR

1.1.2

Multiply unitary colletor area by the total number of solar collectors in the system

Product data	Symbol	Unit	
2.1.4 Aperture area of the collector	A_{sol}	m ²	2.43
Collector efficiency	η_{col}	%	62
Zero loss efficiency	η_{0}		0.794
First-order coefficient	a_1	W/(m ² K)	3.86
Second-order coefficient	a_2	W/(m K ² ²)	0.013
2.2.4 Incidence angle modifier	IAM		0.94

Solar KEYMARK Certificate *(EN 12975)*

2.3.4

Collector name	Aperture area (Aa) [m²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (AG) [m²]	Power output per collector unit G = 1000 W/m² Tm-Ta : 0 K [W]	10 K [W]	30 K [W]	50 K [W]	70 K [W]
	2.426	2 170	1 175	87	2.550	1 926	1 829	1 617	1 379	1 116

3.1.4

Collector efficiency parameters related to aperture area (Aa) Type of fluid and flow rate see note 1			
	η_{0a}	0.794	-
	a_{1a}	3.863	W/(m²K)
	a_{2a}	0.013	W/(m²K²)
Stagnation temperature - Weather conditions see note 2	tstg	192	°C
Effective thermal capacity	ceff = C/Aa	5.43	kJ/(m²K)
Max. operation pressure - see note 3	pmax	1000	kPa

3.2.4

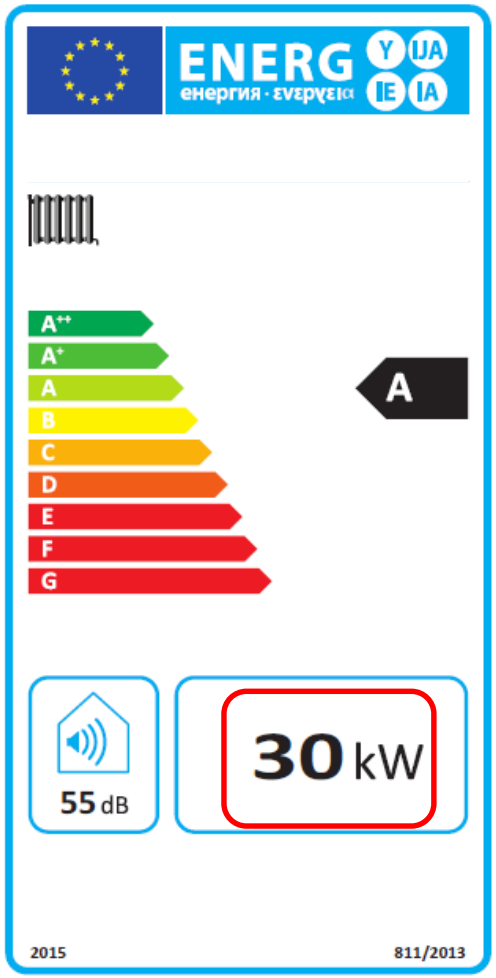
Incidence angle modifiers $K_\theta(\theta)$	G_{DIF}/G_{TOT} min	G_{DIF}/G_{TOT} max	θ_T / θ_L	50°	10°	20°	30°	40°	60°	70°
			$K_\theta(\theta_T)$	0.94	1.00	0.99	0.98	0.97	0.90	0.80
	0	0	$K_\theta(\theta_L)$	0.94	1.00	0.99	0.98	0.97	0.90	0.80
G_{DIF}/G_{TOT}: min&max - while measuring					*Optional values*					

5. BOILER

2.1.1

2.3.3

Brand:	
Diameter:	–
Fuel Type:	Natural Gas
KW:	30
Model Number:	
Range:	
Warranty:	5 Year
Height (mm):	850
Rated Heat Output (Prated or Psup):	30 (Prated)
Seasonal Space Heating Energy Efficiency %:	92
Water Heating Energy Efficiency Class:	A
Seasonal Space Heating Energy Efficiency Class:	A
Width (mm):	400



TEMPERATURE CONTROL

Product information as defined in the delegated act N.º 811/2013

2.1.2

Product fiche

(a)	Supplier		
(b)	Model		
(c)	Temperature control class	*I*	
(d)	Contribution (temp. control) to the seasonal energy efficiency of the heating system	*1,0*	%

2.3.2

Product information as defined in the delegated act N.º 811/2013

Product fiche

(a)	Supplier		
(b)	Model		
(c)	Temperature control class	*V*	
(d)	Contribution (temp. control) to the seasonal energy efficiency of the heating system	*3,0*	%

WATER STORAGE TANK

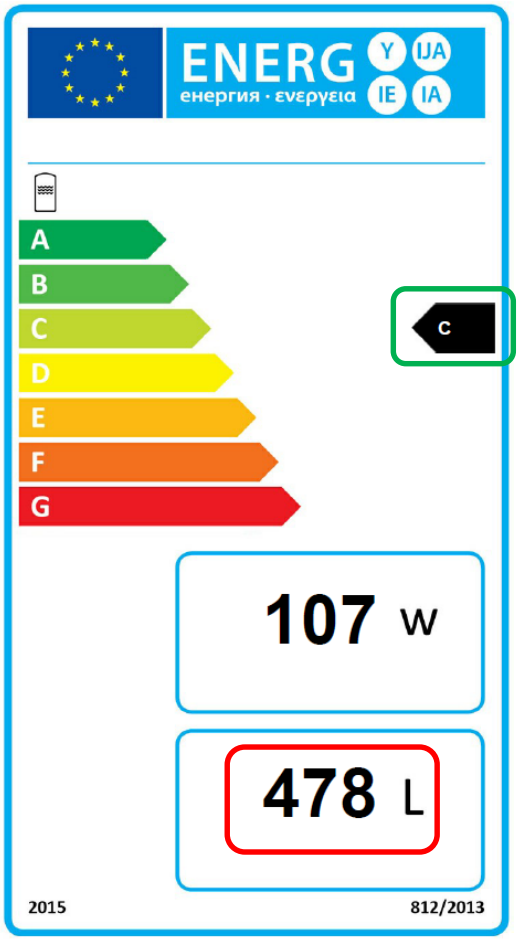
2.1.5 2.2.5 2.3.5 3.1.5 3.2.5

Product information as defined in the delegated acts:
- 811/2013; 812/2013; 813/2013; 814/2013

Product fiche

a) **Supplier**
b) **Model**

		(c)	(d)	(e)
IT	Modello	Classe di efficienza Energetica	Perdite per dispersione	Volume del serbatoio
EN	Model	Energy Class	Waste heat	Net Volume
FR	Modèle	Classe Energetique	Chaleur Dissipée	Volume Net
ES	Modelo	Clase Energética	Calor Perdido	Volumen Neto
DE	Modell	Energieeffizienzklasse	Gestreute Wärme	Netto-Volumen
CZ	Model	Energetická třída	Odpadní teplo	Čistý objem
RO	Model	Clasă energetică	Căldură dispersată	Volum net
RU	Модель	Класс энергоэффективности	Отходящее тепло	Объем нетто
PL	Model	Klasa Energetyczna	Ciepło Rozproszone	Objętość Netto
GR	Μοντέλο	Ενεργειακή κλάση	Διασκορπισμένη θερμότητα	Καθαρός όγκος
HU	Modell	Energetikai osztály	Vesztett hő	Nettó űrtartalom
LT	Modelis	Energijos klasė	Šilumos nuostoliai	Grynasis tūris
SK	Model	Energetická trieda	Odpadové teplo	Čistý objem
SLO	Model	Energetski razred	Odpadna toplota	Neto prostornina
PT	Modelo	Classe Energética	Calor Disperso	Volume Líquido
FIN	Malli	Energialuokka	Hukkalämpö	Nettotilavuus
SWE	Modell	Energiklass	Spillvärme	Nettovolym
NL	Model	Energieklasse	Verspreide warmte	Netto volume
HR	Model	Energetska klasa	Raspršivanje topline	Neto volumen
EST	Mudel	Energiaklass	Jääksoojus	Netomaht
DK	Model	Energiklasse	Overskudsvarme	Nettovolumen
LV	Modelis	Enerģijas kategorija	Siltuma zudumi	Neto tilpums
	500	C	107 [W]	478 [l]



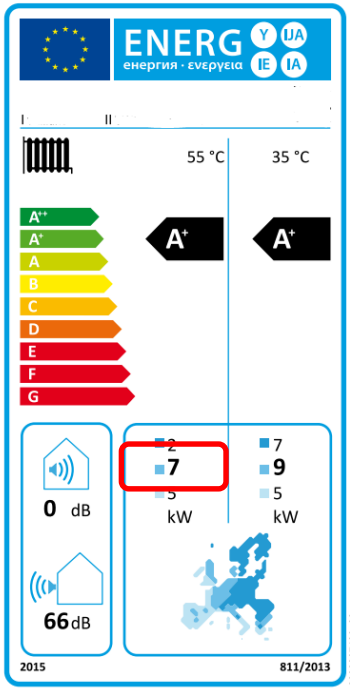
HEAT PUMP: SPACE HEATING

2.1.6 2.3.1

Product data sheet (in accordance with EU regulation no. 811/2013, 812/2013)

1	Brand name								
2	Models		A						
			B						

				A	B				
3	Room heating: Seasonal energy-efficiency class	-	-	A+	A+				
4	Room heating: Nominal heat output (*8) (*11)	P_{rated}	kW	7	9				
5	Room heating: Seasonal energy efficiency (*8)	η_s	%	105	108				
6	Annual energy consumption (*8)	Q_{HE}	kWh	5358	6729				
7	Sound power level, internal	L_{WA} indoor	dB(A)	-	-				
8	⚠ All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions.								
9	Nominal heat output (*9)	P_{rated}	kW	2	10				
10	Nominal heat output (*10)	P_{rated}	kW	5	7				
11	Room heating: Seasonal energy efficiency (*9)	η_s	%	89	108				
12	Room heating: Seasonal energy efficiency (*10)	η_s	%	117	107				
13	Annual energy consumption (*9)	Q_{HE}	kWh	2301	9144				
14	Annual energy consumption (*10)	Q_{HE}	kWh	2138	3454				
15	Sound power level, external	L_{WA} outdoor	dB(A)	66	66				
16	⚠ All of the data that is included in the product information was determined by applying the specifications of the relevant European directives. Differences to product information listed elsewhere may result in different test conditions. Only the data that is contained in this product information is applicable and valid.								



(*8) For average climatic conditions
(*9) For colder climatic conditions
(*10) For warmer climatic conditions
(*11) For boilers and combination boilers with a heat pump, the nominal heat output "Prated" is the same as the design load in heating mode "Pdesignh", and the nominal heat output for an auxiliary boiler "Psup" is the same as the additional heating output "sup(Tj)"

COMBI GAS BOILER

3.1.1

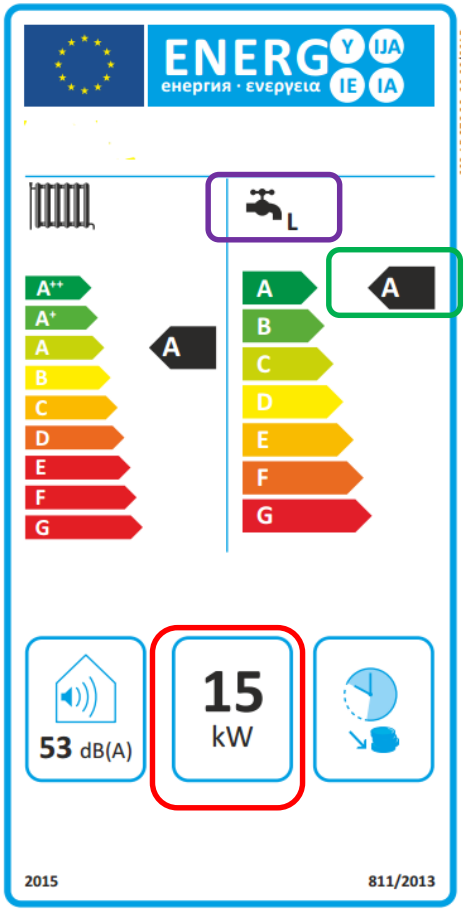
3.2.3

Energy labelling Regulation: (EU) 811/2013

Product fiche

Ecodesign Regulation: (EU) 813/2013

Combination heaters designed for using gaseous fuels	/ Model names					
Seasonal space heating Energy efficiency class		-	A	A	A	A
Prated		[kW]	15	15	24	24
Seasonal space heating efficiency (ηs)		[%]	91	91	91	91
Annual energy consumption		[kWh]	62	62	62	62
Sound power		[dB(A)]	54,6	54,6	54,6	54,6
Water heating	Energy efficiency class	-	A	A	A	A
	Water heating energy efficiency (ηwh)	[%]	75	75	75	75
Storage tank	Energy efficiency class	-	B	B	B	B
	Standing loss	[W]	64	64	64	64
	Hot water storage tank volume	[L]	294	294	294	294
Controller	class of temperature control	-	II	II	II	II
	contribution to seasonal space heating efficiency	[%]	2	2	2	2
	Energy efficiency class	-	A	A	A	A
	Seasonal space heating efficiency (η_s)	[%]	93	93	93	93
Control with RoCon U1/BM1 connected	class of temperature control with RoCon U1/BM1	-	VI	VI	VI	VI
	contribution to seasonal space heating efficiency	[%]	4	4	4	4

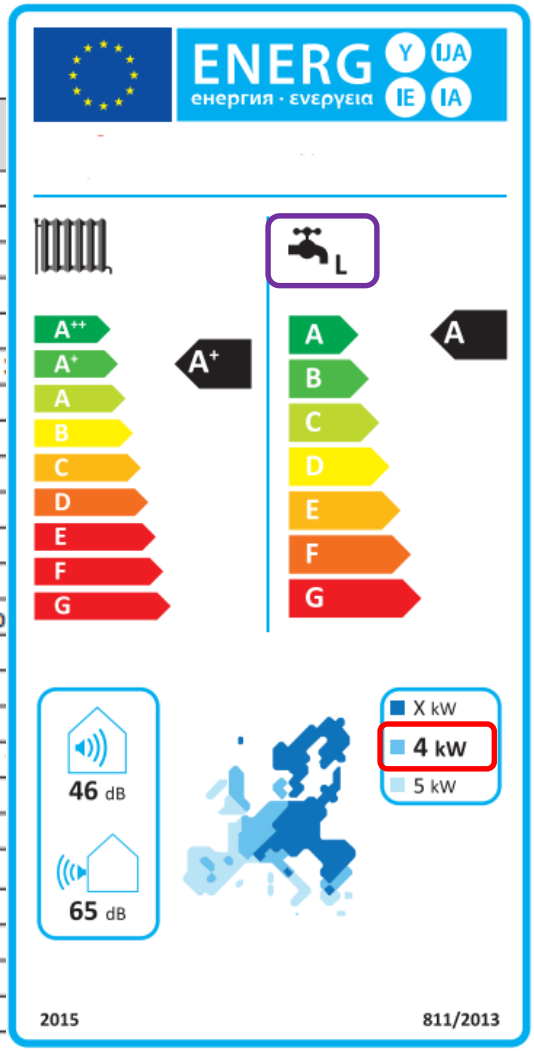


HEAT PUMP: COMBI

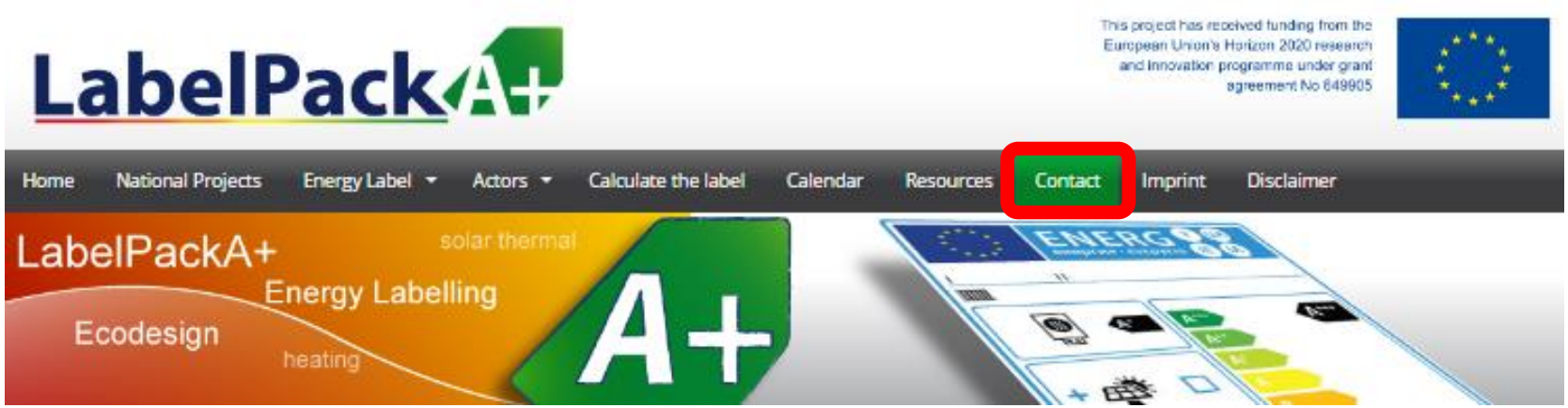
3.2.1

Product fiche according to Commission Delegated Regulation (EU) 811/2013

Model	Hydraulic unit				
	Outdoor unit				
Temperature application		°C		55	35
Declared load profile				L	L
Seasonal space heating energy efficiency class				A+	A++
Water heating energy efficiency class				A+	A+
Rated heat output		kW		4	4
Annual energy consumption		kWh		3026	2160
Annual electricity consumption		kWh		880	880
Annual fuel consumption		GJ			
Seasonal space heating energy efficiency		%		115	169
Water heating energy efficiency		%		120	120
Sound power level	Hydraulic unit	dB		46	46
Work only during off-peak hours					
Specific precautions in assembled, installed or maintained			Refer to the installation and o		
Rated heat output	Colder climate	kW		-	-
	Warmer climate	kW		5	7
Annual energy consumption	Colder climate	kWh		-	-
	Warmer climate	kWh		1778	1539
Annual electricity consumption	Colder climate	kWh		-	-
	Warmer climate	kWh		880	880
Seasonal space heating energy efficiency	Colder climate	%		-	-
	Warmer climate	%		138	217
Water heating energy efficiency	Colder climate	%		-	-
	Warmer climate	%		120	120
Sound power level	Outdoor unit	dB		65	60



TECHNICAL SUPPORT



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