



## **ECODESIGN REQUIREMENTS FOR SPACE & COMBINATION HEATERS**

### **A. Energy Efficiency Requirements**

Energy efficiency requirements shall apply in accordance with the below timelines.

#### Seasonal space heating efficiency

- From 26 September 2015, the seasonal space heating energy efficiency and useful efficiencies shall not fall below the following values
  - For fuel boiler space heaters with rated heat output  $\leq 70\text{kW}$  and fuel combination heaters with rated heat output  $\leq 70\text{kW}$ , with the exception of type B1 boilers with rated heat output  $\leq 10\text{kW}$  and type B1 combination boilers with rated heat output  $\leq 30\text{kW}$ , the seasonal space heating energy efficiency  $\geq 86\%$
  - For type B1 boilers with rated heat output  $\leq 10\text{kW}$  and type B1 combination boilers with rated heat output  $\leq 30\text{kW}$ , the seasonal space heating energy efficiency  $\geq 75\%$
  - For fuel boiler space heaters with rated heat output  $\geq 70\text{ kW}$  and  $\leq 400\text{ kW}$  and fuel boiler combination heaters with rated heat output  $\geq 70\text{ kW}$  and  $\leq 400\text{ kW}$ , the useful efficiency at 100% of the rated heat output  $\geq 86\%$  and the useful efficiency at 30% of the rated heat output  $\geq 94\%$
  - For electric boiler space heaters and electric boiler combination heaters, the seasonal space heating energy efficiency  $\geq 30\%$
  - For cogeneration space heaters, the seasonal space heating energy efficiency  $\geq 86\%$
  - For heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps, the seasonal space heating energy efficiency  $\geq 100\%$
  - For low-temperature heat pumps, the seasonal space heating energy efficiency  $\geq 115\%$
  
- From 26 September 2017, the seasonal space heating energy efficiency and useful efficiencies shall not fall below the following values
  - For electric boiler space heaters and electric boiler combination heaters, the seasonal space heating energy efficiency  $\geq 36\%$
  - For cogeneration space heaters, the seasonal space heating energy efficiency  $\geq 100\%$

*This document is intended as a guide. It is not intended as a substitution for the Regulations and does not purport to be a legally binding interpretation of the Regulation.*

- For heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps, the seasonal space heating energy efficiency  $\geq 110\%$
- For low-temperature heat pumps, the seasonal space heating energy efficiency  $\geq 125\%$

### Water Heating Energy Efficiency

- From 26 September 2015, the water heating energy efficiency of combination heaters shall not fall below the following values

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	22%	23%	26%	26%	30%	30%	30%	32%	32%	32%

- From 26 September 2017, the water heating energy efficiency of combination heaters shall not fall below the following values

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	32%	32%	32%	32%	36%	37%	38%	60%	64%	64%

### Sound power level

- From 26 September 2015, the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values

Rated heat output $\leq 6\text{kW}$		Rated heat output $> 6\text{kW}$ and $\leq 12\text{kW}$		Rated heat output $> 12\text{kW}$ and $\leq 30\text{kW}$		Rated heat output $> 30\text{kW}$ and $\leq 70\text{kW}$	
Indoors	Outdoors	Indoors	Outdoors	Indoors	Outdoors	Indoors	Outdoors
60 dB	65 dB	65 dB	70 dB	70 dB	78 dB	80 dB	88 dB

### Emissions of nitrogen oxides

- From 26 September 2018 emissions of nitrogen oxides (expressed in nitrogen dioxide) shall not exceed the following values:
  - Fuel boiler space heaters and fuel boiler combination heaters using gaseous fuels: 56mg/kWh fuel input in terms of GCV;
  - Fuel boiler space heaters and fuel boiler combination heaters using liquid fuels: 120mg/kWh fuel input in terms of GCV;

- Cogeneration space heaters equipped with external combustion using gaseous fuels: 70mg/kWh fuel input in terms of GCV;
- Cogeneration space heaters equipped with external combustion using liquid fuels: 120mg/kWh fuel input in terms of GCV;
- Cogeneration space heaters equipped with internal combustion using gaseous fuels: 240mg/kWh fuel input in terms of GCV;
- Cogeneration space heaters equipped with internal combustion using liquid fuels: 420mg/kWh fuel input in terms of GCV;
- Heat pump space heaters and heat pump combination heaters equipped with external combustion using gaseous fuels: 70mg/kWh fuel input in terms of GCV;
- Heat pump space heaters and heat pump combination heaters equipped with external combustion using liquid fuels: 120mg/kWh fuel input in terms of GCV;
- Heat pump space heaters and heat pump combination heaters equipped with internal combustion using gaseous fuels: 240mg/kWh fuel input in terms of GCV;
- Heat pump space heaters and heat pump combination heaters equipped with internal combustion using liquid fuels: 420mg/kWh fuel input in terms of GCV;

## **B. Information Requirements**

From 26 September 2015 the following product information on heaters shall be provided:

- (a) the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:
- for boiler space heaters, boiler combination heaters and cogeneration space heaters, the technical parameters set out in Table 1, measured and calculated in accordance with Annex III;
  - for heat pump space heaters and heat pump combination heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III;
  - any specific precautions that shall be taken when the heater is assembled, installed or maintained;
  - for type B1 boilers and type B1 combination boilers, their characteristics and the following standard text: "This natural draught boiler is intended to be connected only to a flue shared between multiple dwellings in existing buildings that

evacuates the residues of combustion to the outside of the room containing the boiler. It draws the combustion air directly from the room and incorporates a draught diverter. Due to lower efficiency, any other use of this boiler shall be avoided and would result in higher energy consumption and higher operating costs.’;

- for heat generators designed for heaters, and heater housings to be equipped with such heat generators, their characteristics, the requirements for assembly, to ensure compliance with the ecodesign requirements for heaters and, where appropriate, the list of combinations recommended by the manufacturer;
- information relevant for disassembly, recycling and/or disposal at end-of-life;

(b) the technical documentation for the purposes of conformity assessment pursuant to Article 4 shall contain the following elements:

- the elements specified in point (a);
- for heat pump space heaters and heat pump combination heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model;

(c) the following information shall be durably marked on the heater:

- if applicable, ‘type B1 boiler’ or ‘type B1 combination boiler’;
- for cogeneration space heaters, the electrical capacity

Table 1

**Information requirements for boiler space heaters, boiler combination heaters and cogeneration space heaters**

Model(s): [information identifying the model(s) to which the information relates]							
Condensing boiler: [yes/no]							
Low-temperature (**) boiler: [yes/no]							
B1 boiler: [yes/no]							
Cogeneration space heater: [yes/no]				If yes, equipped with a supplementary heater: [yes/no]			
Combination heater: [yes/no]							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output</b>	$P_{rated}$	x	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	x	%
For boiler space heaters and boiler combination heaters: Useful heat output				For boiler space heaters and boiler combination heaters: Useful efficiency			
At rated heat output and high-temperature regime (*)	$P_4$	x,x	kW	At rated heat output and high-temperature regime (*)	$\eta_4$	x,x	%
At 30 % of rated heat output and low-temperature regime (**)	$P_1$	x,x	kW	At 30 % of rated heat output and low-temperature regime (**)	$\eta_1$	x,x	%
For cogeneration space heaters: Useful heat output				For cogeneration space heaters: Useful efficiency			
At rated heat output of cogeneration space heater with supplementary heater disabled	$P_{CHP100 + Sup0}$	x,x	kW	At rated heat output of cogeneration space heater with supplementary heater disabled	$\eta_{CHP100 + Sup0}$	x,x	%
At rated heat output of cogeneration space heater with supplementary heater enabled	$P_{CHP100 + Sup100}$	x,x	kW	At rated heat output of cogeneration space heater with supplementary heater enabled	$\eta_{CHP100 + Sup100}$	x,x	%
For cogeneration space heaters: Electrical efficiency				Supplementary heater			
At rated heat output of cogeneration space heater with supplementary heater disabled	$\eta_{el,CHP100 + Sup0}$	x,x	%	Rated heat output	$P_{sup}$	x,x	kW
At rated heat output of cogeneration space heater with supplementary heater enabled	$\eta_{el,CHP100 + Sup100}$	x,x	%	Type of energy input			
Auxiliary electricity consumption				Other items			
At full load	$el_{max}$	x,xxx	kW	Standby heat loss	$P_{stby}$	x,xxx	kW
At part load	$el_{min}$	x,xxx	kW	Ignition burner power consumption	$P_{ign}$	x,xxx	kW
In standby mode	$P_{SB}$	x,xxx	kW	Emissions of nitrogen oxides	$NO_x$	x	mg/kWh

For combination heaters:							
<b>Declared load profile</b>				<b>Water heating energy efficiency</b>	$\eta_{wh}$	x	%
Daily electricity consumption	$Q_{elec}$	x,xxx	kWh	Daily fuel consumption	$Q_{fuel}$	x,xxx	kWh
Contact details	Name and address of the manufacturer or its authorised representative.						
(*) High-temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet							
(**) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature (at heater inlet)							

Table 2

**Information requirements for heat pump space heaters and heat pump combination heaters**

Model(s): [information identifying the model(s) to which the information relates]							
Air-to-water heat pump: [yes/no]							
Water-to-water heat pump: [yes/no]							
Brine-to-water heat pump: [yes/no]							
Low-temperature heat pump: [yes/no]							
Equipped with a supplementary heater: [yes/no]							
Heat pump combination heater: [yes/no]							
Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.							
Parameters shall be declared for average climate conditions.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	<i>Prated</i>	x	kW	Seasonal space heating energy efficiency	$\eta_s$	x	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature $T_j$				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature $T_j$			
$T_j = - 7 \text{ °C}$	<i>Pdh</i>	x,x	kW	$T_j = - 7 \text{ °C}$	<i>COPd or PERd</i>	x,xx or x,x	– or %
$T_j = + 2 \text{ °C}$	<i>Pdh</i>	x,x	kW	$T_j = + 2 \text{ °C}$	<i>COPd or PERd</i>	x,xx or x,x	– or %
$T_j = + 7 \text{ °C}$	<i>Pdh</i>	x,x	kW	$T_j = + 7 \text{ °C}$	<i>COPd or PERd</i>	x,xx or x,x	– or %
$T_j = + 12 \text{ °C}$	<i>Pdh</i>	x,x	kW	$T_j = + 12 \text{ °C}$	<i>COPd or PERd</i>	x,xx or x,x	– or %
$T_j = \text{bivalent temperature}$	<i>Pdh</i>	x,x	kW	$T_j = \text{bivalent temperature}$	<i>COPd or PERd</i>	x,xx or x,x	– or %
$T_j = \text{operation limit temperature}$	<i>Pdh</i>	x,x	kW	$T_j = \text{operation limit temperature}$	<i>COPd or PERd</i>	x,xx or x,x	– or %
For air-to-water heat pumps: $T_j = - 15 \text{ °C}$ (if <i>TOL</i> < - 20 °C)	<i>Pdh</i>	x,x	kW	For air-to-water heat pumps: $T_j = - 15 \text{ °C}$ (if <i>TOL</i> < - 20 °C)	<i>COPd or PERd</i>	x,xx or x,x	– or %
Bivalent temperature	<i>T<sub>biv</sub></i>	x	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	x	°C
Cycling interval capacity for heating	<i>Pcyc</i>	x,x	kW	Cycling interval efficiency	<i>COPcyc or PERcyc</i>	x,xx or x,x	– or %
Degradation co-efficient (**)	<i>Cdh</i>	x,x	—	Heating water operating limit temperature	<i>WTOL</i>	x	°C

Power consumption in modes other than active mode				Supplementary heater			
Off mode	$P_{OFF}$	x,xxx	kW	Rated heat output (*)	$P_{sup}$	x,x	kW
Thermostat-off mode	$P_{TO}$	x,xxx	kW	Type of energy input			
Standby mode	$P_{SB}$	x,xxx	kW				
Crankcase heater mode	$P_{CK}$	x,xxx	kW				
Other items							
Capacity control	fixed/variable			For air-to-water heat pumps: Rated air flow rate, outdoors	—	x	m <sup>3</sup> /h
Sound power level, indoors/outdoors	$L_{WA}$	x/x	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	x	m <sup>3</sup> /h
Emissions of nitrogen oxides	$NO_x$	x	mg/kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	x			<b>Water heating energy efficiency</b>	$\eta_{wh}$	x	%
Daily electricity consumption	$Q_{elec}$	x,xxx	kWh	Daily fuel consumption	$Q_{fuel}$	x,xxx	kWh
Contact details	Name and address of the manufacturer or its authorised representative.						
(*) For heat pump space heaters and heat pump combination heaters, the rated heat output $P_{rated}$ is equal to the design load for heating $P_{designh}$ , and the rated heat output of a supplementary heater $P_{sup}$ is equal to the supplementary capacity for heating $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$							