

ANNEX I

Definitions applicable for Annexes II to V

For the purposes of Annexes II to V the following definitions shall apply:

Definitions related to heaters

- (1) ‘standby mode’ means a condition where the heater is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides only the following functions, which may persist for an indefinite time: reactivation function, or reactivation function and only an indication of enabled reactivation function, and/or information or status display;
- (2) ‘standby mode power consumption’ (P_{SB}) means the power consumption of a heater in standby mode, expressed in kW;
- (3) ‘average climate conditions’ mean the temperature conditions characteristic for the city of Strasbourg;
- (4) ‘temperature control’ means the equipment that interfaces with the end-user regarding the values and timing of the desired indoor temperature, and communicates relevant data to an interface of the heater such as a central processing unit, thus helping to regulate the indoor temperature(s);
- (5) ‘gross calorific value’ (GCV) means the total amount of heat released by a unit quantity of fuel when it is burned completely with oxygen and when the products of combustion are returned to ambient temperature; this quantity includes the condensation heat of any water vapour contained in the fuel and of the water vapour formed by the combustion of any hydrogen contained in the fuel;
- (6) ‘equivalent model’ means a model placed on the market with the same technical parameters set out in Table 1 or Table 2 (as applicable) of Annex II, point 5, as another model placed on the market by the same manufacturer;

Definitions related to boiler space heaters, boiler combination heaters and cogeneration space heaters

- (7) ‘fuel boiler space heater’ means a boiler space heater that generates heat by burning fossil fuels and/or biomass fuels, and which may be equipped with one or more additional heat generators using the Joule effect in electric resistance heating elements;
- (8) ‘fuel boiler combination heater’ means a boiler combination heater that generates heat by burning fossil fuels and/or biomass fuels, and which may be equipped with one or more additional heat generators using the Joule effect in electric resistance heating elements;
- (9) ‘type B1 boiler’ means a fuel boiler space heater incorporating a draught diverter, intended to be connected to a natural draught flue that evacuates the residues of combustion to the outside of the room containing the fuel boiler space heater, and drawing the combustion air directly from the room; a type B1 boiler is marketed as type B1 boiler only;
- (10) ‘type B1 combination boiler’ means a fuel boiler combination heater incorporating a draught diverter, intended to be connected to a natural draught flue that evacuates the residues of combustion to the outside of the room containing the fuel boiler combination heater, and drawing the combustion air directly from the room; a type B1 combination boiler is marketed as type B1 combination boiler only;

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- (11) ‘seasonal space heating energy efficiency in active mode’ (η_{son}) means
- for fuel boiler space heaters and fuel boiler combination heaters, a weighted average of the useful efficiency at rated heat output and the useful efficiency at 30 % of the rated heat output, expressed in %;
 - for electric boiler space heaters and electric boiler combination heaters, the useful efficiency at rated heat output, expressed in %;
 - for cogeneration space heaters not equipped with supplementary heaters, the useful efficiency at rated heat output, expressed in %;
 - for cogeneration space heaters equipped with supplementary heaters, a weighted average of the useful efficiency at rated heat output with supplementary heater disabled, and the useful efficiency at rated heat output with supplementary heater enabled, expressed in %;
- (12) ‘useful efficiency’ (η) means the ratio of the useful heat output and the total energy input of a boiler space heater, boiler combination heater or cogeneration space heater, expressed in %, whereby the total energy input is expressed in terms of *GCV* and/or in terms of final energy multiplied by *CC*;
- (13) ‘useful heat output’ (*P*) means the heat output of a boiler space heater, boiler combination heater or cogeneration space heater transmitted to the heat carrier, expressed in kW;
- (14) ‘electrical efficiency’ (η_{el}) means the ratio of the electricity output and the total energy input of a cogeneration space heater, expressed in %, whereby the total energy input is expressed in terms of *GCV* and/or in terms of final energy multiplied by *CC*;
- (15) ‘ignition burner power consumption’ (P_{ign}) means the power consumption of a burner intended to ignite the main burner, expressed in W in terms of *GCV*;
- (16) ‘condensing boiler’ means a boiler space heater or boiler combination heater in which, under normal operating conditions and at given operating water temperatures, the water vapour in the combustion products is partially condensed, in order to make use of the latent heat of this water vapour for heating purposes;
- (17) ‘auxiliary electricity consumption’ means the annual electricity required for the designated operation of a boiler space heater, boiler combination heater or cogeneration space heater, calculated from the electric power consumption at full load (*elmax*), at part load (*elmin*), in standby mode and default operating hours at each mode, expressed in kWh in terms of final energy;
- (18) ‘standby heat loss’ (P_{stby}) means the heat loss of a boiler space heater, boiler combination heater or cogeneration space heater in operating modes without heat demand, expressed in kW;

Definitions related to heat pump space heaters and heat pump combination heaters

- (19) ‘outdoor temperature’ (T_j) means the dry bulb outdoor air temperature, expressed in degrees Celsius; the relative humidity may be indicated by a corresponding wet bulb temperature;
- (20) ‘rated coefficient of performance’ (COP_{rated}) or ‘rated primary energy ratio’ (PER_{rated}) means the declared capacity for heating, expressed in kW, divided by the energy input, expressed in kW in terms of *GCV* and/or in kW in terms of final energy multiplied by *CC*, for heating provided at standard rating conditions;

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- (21) ‘reference design conditions’ means the combination of the reference design temperature, the maximum bivalent temperature and the maximum operation limit temperature, as set out in Annex III, Table 4;
- (22) ‘reference design temperature’ ($T_{designh}$) means the outdoor temperature, expressed in degrees Celsius, as set out in Annex III, Table 4, at which the part load ratio is equal to 1;
- (23) ‘part load ratio’ ($pl(T_j)$) means the outdoor temperature minus 16 °C divided by the reference design temperature minus 16 °C;
- (24) ‘heating season’ means a set of operating conditions describing per bin the combination of outdoor temperatures and the number of hours these temperatures occur per season;
- (25) ‘bin’ (bin_j) means a combination of an outdoor temperature and bin hours, as set out in Annex III, Table 5;
- (26) ‘bin hours’ (H_j) means the hours per heating season, expressed in hours per year, at which an outdoor temperature occurs for each bin, as set out in Annex III, Table 5;
- (27) ‘part load for heating’ ($Ph(T_j)$) means the heating load at a specific outdoor temperature, calculated as the design load multiplied by the part load ratio and expressed in kW;
- (28) ‘seasonal coefficient of performance’ ($SCOP$) or ‘seasonal primary energy ratio’ ($SPER$) is the overall coefficient of performance of a heat pump space heater or heat pump combination heater using electricity or the overall primary energy ratio of a heat pump space heater or heat pump combination heater using fuels, representative of the designated heating season, calculated as the reference annual heating demand divided by the annual energy consumption;
- (29) ‘reference annual heating demand’ (Q_H) means the reference heating demand for a designated heating season, to be used as the basis for calculating $SCOP$ or $SPER$ and calculated as the product of the design load for heating and the annual equivalent active mode hours, expressed in kWh;
- (30) ‘annual energy consumption’ (Q_{HE}) means the energy consumption required to meet the reference annual heating demand for a designated heating season, expressed in kWh in terms of GCV and/or in kWh in terms of the final energy multiplied by CC ;
- (31) ‘annual equivalent active mode hours’ (H_{HE}) means the assumed annual number of hours a heat pump space heater or heat pump combination heater has to provide the design load for heating to satisfy the reference annual heating demand, expressed in h;
- (32) ‘active mode coefficient of performance’ ($SCOP_{on}$) or ‘active mode primary energy ratio’ ($SPER_{on}$) means the average coefficient of performance of the heat pump space heater or heat pump combination heater using electricity in active mode, or the average primary energy ratio of the heat pump space heater or heat pump combination heater using fuels in active mode for the designated heating season;
- (33) ‘supplementary capacity for heating’ ($sup(T_j)$) means the rated heat output P_{sup} of a supplementary heater that supplements the declared capacity for heating to meet the part load for heating, if the declared capacity for heating is less than the part load for heating, expressed in kW;

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- (34) ‘bin-specific coefficient of performance’ ($COP_{bin}(T_j)$) or ‘bin-specific primary energy ratio’ ($PER_{bin}(T_j)$) means the coefficient of performance of the heat pump space heater or heat pump combination heater using electricity, or primary energy ratio of the heat pump space heater or heat pump combination heater using fuel specific for every bin in a season, derived from the part load for heating, declared capacity for heating and declared coefficient of performance for specified bins and calculated for other bins by interpolation or extrapolation, corrected where necessary by the degradation coefficient;
- (35) ‘declared capacity for heating’ ($P_{dh}(T_j)$) means the heating capacity a heat pump space heater or heat pump combination heater is able to deliver, for an outdoor temperature, expressed in kW;
- (36) ‘capacity control’ means the ability of a heat pump space heater or heat pump combination heater to change its capacity by changing the volumetric flow rate of at least one of the fluids needed to operate the refrigeration cycle, to be indicated as ‘fixed’ if the volumetric flow rate cannot be changed or ‘variable’ if the volumetric flow rate is changed or varied in series of two or more steps;
- (37) ‘design load for heating’ ($P_{designh}$) means the rated heat output (P_{rated}) of a heat pump space heater or heat pump combination heater at the reference design temperature, whereby the design load for heating is equal to the part load for heating with outdoor temperature equal to reference design temperature, expressed in kW;
- (38) ‘declared coefficient of performance’ ($COP_d(T_j)$) or ‘declared primary energy ratio’ ($PER_d(T_j)$) means the coefficient of performance or primary energy ratio at a limited number of specified bins;
- (39) ‘bivalent temperature’ (T_{biv}) means the outdoor temperature declared by the manufacturer for heating at which the declared capacity for heating equals the part load for heating and below which the declared capacity for heating requires supplementary capacity for heating to meet the part load for heating, expressed in degrees Celsius;
- (40) ‘operation limit temperature’ (TOL) means the outdoor temperature declared by the manufacturer for heating, below which the air-to-water heat pump space heater or air-to-water heat pump combination heater will not be able to deliver any heating capacity and the declared capacity for heating is equal to zero, expressed in degrees Celsius;
- (41) ‘heating water operation limit temperature’ ($WTOL$) means the outlet water temperature declared by the manufacturer for heating, above which the heat pump space heater or heat pump combination heater will not be able to deliver any heating capacity and the declared capacity for heating is equal to zero, expressed in degrees Celsius;
- (42) ‘cycling interval capacity for heating’ (P_{cyc}) means the integrated heating capacity over the cycling test interval for heating, expressed in kW;
- (43) ‘cycling interval efficiency’ (COP_{cyc} or PER_{cyc}) means the average coefficient of performance or average primary energy ratio over the cycling test interval, calculated as the integrated heating capacity over the interval, expressed in kWh, divided by the integrated energy input over that same interval, expressed in kWh in terms of GCV and/or in kWh in terms of final energy multiplied by CC ;

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- (44) ‘degradation coefficient’ (C_{dh}) means the measure of efficiency loss due to cycling of heat pump space heaters or heat pump combination heaters; if C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$;
- (45) ‘active mode’ means the condition corresponding to the hours with a heating load for the enclosed space and activated heating function; this condition may involve cycling of the heat pump space heater or heat pump combination heater to reach or maintain a required indoor air temperature;
- (46) ‘off mode’ means a condition in which the heat pump space heater or heat pump combination heater is connected to the mains power source and is not providing any function, including conditions providing only an indication of off mode condition and conditions providing only functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2004/108/EC of the European Parliament and of the Council⁽¹⁾;
- (47) ‘thermostat-off mode’ means the condition corresponding to the hours with no heating load and activated heating function, whereby the heating function is switched on but the heat pump space heater or heat pump combination heater is not operational; cycling in active mode is not considered as thermostat-off mode;
- (48) ‘crankcase heater mode’ means the condition in which a heating device is activated to avoid the refrigerant migrating to the compressor so as to limit the refrigerant concentration in oil when the compressor is started;
- (49) ‘off mode power consumption’ (P_{OFF}) means the power consumption of a heat pump space heater or heat pump combination heater in off mode, expressed in kW;
- (50) ‘thermostat-off mode power consumption’ (P_{TO}) means the power consumption of the heat pump space heater or heat pump combination heater while in thermostat-off mode, expressed in kW;
- (51) ‘crankcase heater mode power consumption’ (P_{CK}) means the power consumption of the heat pump space heater or heat pump combination heater while in crankcase heater mode, expressed in kW;
- (52) ‘low-temperature heat pump’ means a heat pump space heater that is specifically designed for low-temperature application, and that cannot deliver heating water with an outlet temperature of 52 °C at an inlet dry (wet) bulb temperature of – 7 °C (– 8 °C) in the reference design conditions for average climate;
- (53) ‘low-temperature application’ means an application where the heat pump space heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 35 °C;
- (54) ‘medium-temperature application’ means an application where the heat pump space heater or heat pump combination heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 55 °C;

Definitions related to water heating in combination heaters

- (55) ‘load profile’ means a given sequence of water draw-offs, as specified in Annex III, Table 7; each combination heater meets at least one load profile;
- (56) ‘water draw-off’ means a given combination of useful water flow rate, useful water temperature, useful energy content and peak temperature, as specified in Annex III, Table 7;

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- (57) ‘useful water flow rate’ (f) means the minimum flow rate, expressed in litres per minute, for which hot water is contributing to the reference energy, as specified in Annex III, Table 7;
- (58) ‘useful water temperature’ (T_m) means the water temperature, expressed in degrees Celsius, at which hot water starts contributing to the reference energy, as specified in Annex III, Table 7;
- (59) ‘useful energy content’ (Q_{tap}) means the energy content of hot water, expressed in kWh, provided at a temperature equal to, or above, the useful water temperature, and at water flow rates equal to, or above, the useful water flow rate, as specified in Annex III, Table 7;
- (60) ‘energy content of hot water’ means the product of the specific heat capacity of water, the average temperature difference between the hot water output and cold water input, and the total mass of the hot water delivered;
- (61) ‘peak temperature’ (T_p) means the minimum water temperature, expressed in degrees Celsius, to be achieved during water draw-off, as specified in Annex III, Table 7;
- (62) ‘reference energy’ (Q_{ref}) means the sum of the useful energy content of water draw-offs, expressed in kWh, in a particular load profile, as specified in Annex III, Table 7;
- (63) ‘maximum load profile’ means the load profile with the greatest reference energy that a combination heater is able to provide while fulfilling the temperature and flow rate conditions of that load profile;
- (64) ‘declared load profile’ means the load profile applied for conformity assessment;
- (65) ‘daily electricity consumption’ (Q_{elec}) means the consumption of electricity for water heating over 24 consecutive hours under the declared load profile, expressed in kWh in terms of final energy;
- (66) ‘daily fuel consumption’ (Q_{fuel}) means the consumption of fuels for water heating over 24 consecutive hours under the declared load profile, expressed in kWh in terms of GCV.

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(1) OJ L 390, 31.12.2004, p. 24.

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