



BSI Standards Publication

Residential liquid fuel burning appliances

Part 1: General requirements and test methods

National foreword

This British Standard is the UK implementation of EN 1-1:2025. Together with BS EN 1-2:2025 it supersedes BS EN 1:1998, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/13/1, Fireplaces for liquid fuels.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Häusliche Feuerstätten für flüssige Brennstoffe - Teil 1: Allgemeine Anforderungen und Prüfverfahren

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European foreword

This document (EN 1-1:2025) has been prepared by Technical Committee CEN/TC 46 “Fireplaces for liquid fuels”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2025, and conflicting national standards shall be withdrawn at the latest by November 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1:1998 and EN 1:1998/A1:2007.

In relation to EN 1:1998 and EN 1:1998/A1:2007, the following technical changes have been made:

- completely revised according to the requirements of M/577;
- energy efficiency and energy class labelling and seasonal space heating efficiency added;
- requirements for environmental sustainability added.

The structure of EN 1, Residential liquid fuel burning appliances, is as follows:

- Part 1: *General requirements and test methods*;
- Part 2: *Flued oil stoves with vaporizing burners*;
- Part 3: *Flued oil stoves with vaporizing burners and boiler*;
- Part 4: *Flued ethanol stoves*.

EN 1-1 is used in conjunction with the appropriate Part 2, 3 or 4. The Parts 2, 3 and 4 contain clauses that supplement or modify the corresponding clauses in this Part 1. Part 1 together with Part 2, 3 or 4 provides the requirements for each type of appliance.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

The calculation of the energy efficiency classification is aligned with Commission Regulation (EU) 2015/1186, Annex II. Upon the revision of Regulation 2015/1186, the standard should be updated to reflect the new classification.

The calculation of the seasonal space heating energy efficiency is aligned with Commission Regulation (EU) 2024/1103, Annex II. Upon the revision of Regulation 2024/1103, the standard should be updated to reflect the new classification.

1 Scope

This document is applicable to residential liquid fuel burning appliances intended for space heating.

This document specifies requirements relating to the design, manufacture, construction, safety and performance (efficiency and emission) of appliances fired by liquid fuel (hereafter referred to as “appliance(s)”) and provides instructions for them. Furthermore, it also gives provisions for the evaluation of conformity, i.e. initial type testing (ITT) and factory production control (FPC) and marking of these appliances.

This document specifies the test methods for the determination of the smoke number, and CO, NO_x, and OGC emission test methods.

This document does not apply to:

- built-in appliances;
- appliances equipped with an atomizing burner;
- appliances incorporating a boiler or connected to a water system.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies.

EN 15456:2008, *Heating boilers — Electrical power consumption for heat generators — System boundaries — Measurements*

EN 15804:2012+A2:2019, *Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products*

EN 60335-2-102:2016, *Household and similar electrical appliances — Safety — Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

flue gas

product of combustion leaving the appliance by means of the flue gas outlet

3.2

flue gas mass flow

mass of flue gas drawn off from the appliance per unit of time

3.3

steady operating condition of the stove

operating condition of the appliance corresponding to a given heat input in which the flue gas temperature in the measuring sleeve (see Figure A.1) does not vary by more than 5 K over a period of 15 min

3.4

control device

component of the fuel regulator for adjusting the fuel flow from a closed to a maximum open position

3.5

maximum fuel flow position

control device setting with the maximum fuel flow to the burner

3.6

heating gas

combustion gas flowing inside the stove

3.7

minimum fuel flow position

control device setting with the minimum fuel flow to the burner

3.8

nominal heat output

specified maximum expected heat output of an appliance when the control device is set to maximum fuel flow position

Note 1 to entry: Indicated on the rating plate.

3.9

storage tank

part in the stove from which the burner is supplied with fuel

3.10

oil derivative

organic substance which is deposited onto the filter paper when determining the smoke number

3.11

fuel regulator

device which ensures an adjustable, constant flow of fuel to the burner

3.12

smoke number

SN

degree of blackening which the soot causes on white filter paper under the conditions specified in this document

3.13

combustion air limiter

device for limiting the combustion air supply

3.14

combustion air conveyor

device for conveying the combustion air supply

3.15**combustion chamber**

area in the appliance where combustion takes place

3.16**vaporizing burner**

burner in which combustion of the fuel occurs under the effect of heat and, together with the combustion air, forms a combustible fuel vapour/air mixture

3.17**heat input**

amount of heat supplied by the fuel on an hourly basis to the stove, calculated using the calorific value, H_i of the fuel

3.18**heat output**

quantity of useful heat released by the appliance

3.19**efficiency**

ratio of the heat output to the related heat input

Note 1 to entry: Efficiency is expressed as percentage.

3.20**ignition device**

built-in device for igniting the fuel vapour/air mixture

3.21 **NO_x emission**

content of NO_x in the dry flue gases measured as volume in ppm, calculated as NO_2 , expressed in mg/MJ

3.22**hydrocarbon emission**

OGC emission

mean OGC concentration calculated to 13 % oxygen (O_2) content in the flue gas

Note 1 to entry: Hydrocarbon emissions are measured in accordance with Annex E.

3.23**flue draught**

difference between the static pressure in the place of installation and the static pressure at the specified point in the measurement section

3.24**energy efficiency index**

EEI

basis for a labelling scheme of the appliances in relation to the appliance's efficiency

3.25**flue gas outlet temperature**

calculated temperature of the flue gas at the exit of the appliance

3.26

seasonal space heating energy efficiency

η_s

ratio between the space heating demand, supplied by a liquid fuel local space heater and the annual energy consumption required to meet this demand

3.27

part load heat output

heat output achieved when the control device is set to minimum fuel flow position

4 Descriptive features

4.1 Heat output

The nominal heat output, expressed in kilowatts, shall be:

- specified;
- verified during the tests;
- indicated on the rating plate.

The nominal heat output shall be rounded off to the nearest multiple of 500 W.

4.2 Construction and materials

The quality of the materials as well as the shape and dimensions of the components shall ensure that, provided the operational procedures are met and with the associated mechanical, chemical and thermal stresses which occur, the stoves will remain safe and operable over a given period.

The stove shall be fire-resistant and safe to operate, and shall be designed such that:

- no visible deformations following the performance tests according to A.5 occur;
- it can withstand the stresses arising during normal operation;
- the burner and the stove cannot become heated to create a hazard;
- dangerous accumulations of combustible gases (fuel mixed with air) in the combustion chamber and in the flues are prevented (for automatically operated burners only);
- gases cannot leak from the stove in dangerous quantities.

Non-combustible materials (materials according to the annex of Commission Decision (96/603/EU) or A1 materials according to EN 13501-1:2018) shall be used, except that it shall be permissible to use combustible materials for the following applications:

- components of accessories e.g. burner covers, if the parts are fitted outside of the burner;
- internal components of controls and safety equipment;
- operating handles;
- electrical equipment.

Components for covering, operation, control and safety devices and electrical accessories shall be arranged in such a way that their surface temperatures, under steady state conditions, do not exceed those specified either by the component manufacturer or in the component part standard.

NOTE Since the entire heat dissipating surfaces of the appliance including the flue spigot/socket and the flue gas connector are working surfaces there are no limits for their surface temperature.

4.3 Combustion chamber

The combustion chamber shall be properly sealed and fitted with a device (e.g. lid, door, etc.) which cannot be locked, and designed to compensate for any excess pressure.

4.4 Filter

The stove shall include at least one filter situated either before or inside the fuel regulator and a strainer in the filling orifice. The filter shall retain particles with a diameter of over 0,25 mm. The filter and strainer shall be easy to remove and clean.

4.5 Fuel regulator

Fuel regulators, or equivalent devices, shall maintain the flow of fuel reaching the burner at a constant value corresponding to the setting selected.

The closed and maximum open positions shall each have a limiting stop.

The minimum position shall be clearly marked and be sensed as a resistance that can be overcome mechanically.

4.6 Marking of operating settings

The control device for the fuel regulator shall have clearly visible and permanent markings.

4.7 Safety device

The stove shall have a safety device to prevent overflowing of the fuel from the burner.

4.8 Fan for the supply of combustion air

Irrespective of the operating setting of the stove, the supply of combustion air from the fan shall not create excess pressure in the combustion chamber. The operation of the fan shall be trouble free.

The function of the burner shall be linked with that of the fan. In the event of a failure of the fan, the flow of fuel to the burner shall be either totally interrupted or reduced to a flow such that the smoke number does not exceed the maximum permissible value for the operation of the burner without the fan.

If the fuel supply to the burner is completely cut off by an electric current failure, then for manually operated burners (without automatic ignition), when the current is restored, the fuel shall be readmitted to the burner manually. For automatically operated burners (automatic ignition), when the current is restored, the ignition without a blow-out shall be ensured.

4.9 Fuel lines

The fuel lines shall not be load-bearing parts of the construction.

The fuel lines shall be resistant to the fuel and shall not exceed the maximum permissible surface temperatures as specified. Removable fuel lines shall be connected by means of metal screw threads including at least four engaged threads. The sealing of the parts containing fuel shall be such that there is no leakage or seepage. It shall not be possible to remove any component in the fuel supply line to the burner without the use of a tool.

4.10 Storage tank

When the stove includes a storage tank, its effective output shall enable operation of the stove for

- at least 10 h in the case of nominal heat output ≤ 8 kW and
- at least 8 h in the case of a nominal heat output > 8 kW.

The filling orifice of the storage tank shall have a cap.

It shall be possible to cut off the supply of fuel from the storage tank to the burner by means of a shut-off device fitted before the fuel regulator. If it is a rotary device, closing shall be by turning in a clockwise direction.

To ensure that any fire external to the stove is not transmitted to the contents of the built-in storage tank or, if a fire does occur, its effects are limited by either the tank being made of non-combustible materials e.g. metal or be enclosed with non-combustible fire resisting materials or construction. Any fuel lines from the tank to the burner shall also be fire resistant.

The filling orifice of the built-in storage tank shall have a cap and shall be easily accessible and it shall be so arranged that when filling the tank with fuel it is not possible to ignite the fuel from any hot components.

4.11 Fuel-level indicator

Built-in storage tanks shall have a fuel-level indicator.

4.12 Drip tray

Any stove incorporating a built-in storage tank shall incorporate a drip tray, below the parts of the stove containing fuel, for the collection of any spillage, having an edge height of at least 10 mm (inside depth) and capacity of at least 1 dm³.

4.13 Flue gas outlet components

The flue outlet can be of the push-on or push-in type and shall have a circular cross-section at its end and permit the attachment of a flue gas pipe, the diameter of which complies with the applicable standards of the country in which the stove shall be installed.

It shall be possible to fit a flue pipe, having a diameter D in a length $D/4$, but at least 30 mm, onto or into the flue outlet.

4.14 Damper

Dampers or other movable devices for restricting the flow of flue gases are not permitted.

4.15 Draught regulators and combustion air limiters

Draught regulators (see Figure A.9) shall be able to be set in a permanent manner at the maximum draught as indicated in the installation instructions.

Draught regulators and combustion air limiters (see Figure A.10) built into the stove shall be fitted at the production process of the appliance and shall operate automatically.

One of these two devices shall be fitted if the stove has no fan for the supply of combustion air.

4.16 Assembly

The stove shall be supplied with all parts assembled; the flue outlets and burner rings may be built in subsequently. Non-removable parts shall be securely fitted in their position of use. For removable parts, see 6.2.

4.17 Maintenance

Parts which are removable to allow for maintenance and cleaning shall be readily accessible and designed so that they can be correctly reassembled in accordance with the appliance's instructions.

4.18 Additional requirements for appliances with automatic burners

The burner and control system in combination shall be such that, in the event of failure to ignite when starting, the burner will assume a safe condition (lock-out) and will require a manual reset of its sequencing control. In the event of a flame failure occurring when running, the appliance shall fail safe.

A temperature or pressure sensing device shall be provided on the appliance to start and stop the burner. In addition, a separately operating limiting device shall be provided to stop the burner before the temperature in the appliance exceeds safe limits.

Controls and safety devices shall be coupled so that operation of each occurs in the correct sequence and timing; coupling may be electrical or mechanical. The controls and safety devices shall:

- a) ensure that the start-up sequence is not able to commence unless the flame sensing equipment has confirmed the no-flame condition;
- b) establish satisfactory ignition of the fuel;
- c) maintain normal operation if the flame is satisfactorily established, and switch off ignitor;
- d) automatically vary the burner firing rate, where applicable;
- e) stop the burner when the demand for heat is satisfied;
- f) stop the fuel supply and lock-out system if flame is not satisfactorily established;
- g) provide means for a visible or audible indication that the unit is in a lock-out condition;
- h) ensure that any interruption of the electricity supply does not give rise to a dangerous condition.

If the control sequences are such that an attempt to re-ignite the burner can be made the burner shall either:

- i. ignite and burn in a safe manner whilst the surplus fuel is burnt off and the burner is returning to normal operation conditions; or
- ii. not ignite.

Manually operated dampers or other movable devices for restricting the flow of gases shall not be fitted. Automatically operated dampers, if fitted, shall be interlocked with the fuel supply and arranged so that the burner cannot operate with a closed flue.

4.19 Cleaning of heating surfaces

All surfaces in contact with the combustion products shall be able to be cleaned.

For appliances with an integrated water heat exchanger, the surfaces of the water heat exchanger that are in contact with flames or hot combustion gases shall be accessible for cleaning. Means shall be provided for cleaning the appliance outlet and flue connector. Advice on how this cleaning shall be carried out shall be given in the appliance operating instructions.

Where cleaning and servicing requires the use of special tools (e.g. special brushes), these shall be supplied with the appliance.

5 Performance and operating requirements

5.1 General

Under the test conditions given in Annex A, the requirements according to 5.2 to 5.16 shall be met:

5.2 Maximum fuel flow

With the control device in the maximum position, the heat output shall be equal to, or greater than, the nominal heat output.

5.3 Minimum fuel flow

With the control device in the minimum position, the average hourly fuel flow shall not exceed one third of the nominal flow at nominal heat output as specified. Stoves having a maximum flow of 0,200 kg/h in the minimum setting are excluded from this requirement.

If the control device of oil-fired heating appliances is reduced by hand, the maximal rate shall not be more than 50 % of the fuel rate per hour at nominal heat input.

5.4 Ignition

It shall be possible easily to light the burner from cold following the operating instructions.

5.5 Efficiency

5.5.1 General

The tests for efficiency shall be carried out burning the specified test fuels representing the recommended fuels listed in the operating instructions according to Annex A.

The efficiency expressed as % in an integer shall be greater than or equal to the specified efficiency value. The efficiency is determined at nominal heat output (in accordance with A.7.3.1) and if specified at part load heat output (in accordance with A.7.3.2).

5.5.2 Seasonal space heating efficiency

The seasonal space heating efficiency is calculated according to A.8.7.

5.5.3 Energy efficiency index (EEI)

The energy efficiency index (EEI) is calculated according to A.8.8.

5.5.4 Energy efficiency class

The energy efficiency shall be determined according to the following Table 1.

Table 1 — Energy efficiency classification based on the energy efficiency index (EEI)

Energy efficiency class	Energy efficiency index (EEI)
A++	$EEI \geq 130$
A+	$107 \leq EEI < 130$
A	$88 \leq EEI < 107$
B	$82 \leq EEI < 88$
C	$77 \leq EEI < 82$
D	$72 \leq EEI < 77$
E	$62 \leq EEI < 72$
F	$42 \leq EEI < 62$
G	$EEI < 42$

5.6 Appliance classes for efficiency and emissions

The requirements of Table 2 shall be fulfilled as appropriate to the appliance class.

Table 2 — Appliance classes

Appliance class	CO [mg/MJ]	OGC [mg/MJ]	NO _x [mg/kWh _{input}]	Efficiency at nominal heat output [%]		Smoke number	
				appliances < 4 kW	appliances ≥ 4 kW	Gas oil	Kerosene
1	≤ 20 ^a	≤ 6 ^a	≤ 120 ^a	≥ 72 ^a	≥ 72 ^a	≤ 1 ^a	≤ 1 ^a
2	≤ 400 ^b	—	≤ 120 ^a	≥ 72 ^a	≥ 72 ^a	≤ 2 ^b	≤ 2 ^b
3	≤ 400 ^b	—	≤ 120 ^a	≥ 72 ^a	≥ 72 ^a	≤ 3 ^b	≤ 2 ^b
^a Measured at nominal heat output and part load heat output only. ^b Measured in the whole heat output range.							

5.7 Flue gas temperature

During the tests according to A.7.2 and A.7.3, the flue gas temperature shall not be less than 90 K, nor more than 350 K, above the ambient temperature.

5.8 Fuel temperature

The position of the built-in storage tank and the fuel regulator in the appliance shall be such that the temperature of the fuel in the fuel tank does not exceed 20 K for oil or 15 K for kerosene above ambient temperature.

5.9 Protection of combustible materials

5.9.1 Floor temperature

When tested in accordance with A.7.3, the surface temperatures of the underside of the drip tray shall not exceed 45 K above ambient temperature when using fuel oil, or 35 K above ambient temperature when using kerosene.

The design of the appliance shall be such that the surface temperatures of the floor shall not exceed 60 K above ambient temperature.

This requirement is not applicable if it is specified that the appliance shall not be installed on combustible floor.

5.9.2 Wall temperature

When tested in accordance with A.7.3, the protection measure(s) as specified shall not lead to an excess of more than 60 K above room temperature at the hottest point of any adjacent walls or other structure constructed of combustible materials.

If necessary, the distances are increased until the temperature measured is below this value and the specification of the protection measures needs to be adapted accordingly.

This requirement is not applicable if it is specified that the appliance shall not be installed towards combustible walls.

5.10 Temperature of the operating components

During the tests according to A.7.3 the temperatures of the operation components on their contact surface shall not exceed ambient temperature by more than:

- 35 K for metals;
- 45 K for porcelain;
- 60 K for plastics.

This also applies to other similar materials.

These temperatures may be exceeded if the stove is supplied with an accessory with which it is possible to operate the adjustment devices easily and without the risk of burning.

5.11 Electrical safety

EN 60335-2-102:2016 shall apply with the following condition:

The tests described in Clause 19 of EN 60335-2-102:2016 shall not apply for safety relevant circuits when the mechanical components ensure that any failure or interruption of the electronic circuits does not affect the safe operation of the appliance.

5.12 Auxiliary electrical energy consumption

The auxiliary electrical energy consumption shall be measured in accordance with EN 15456:2008 at standby, nominal heat output (according to A.7.3.1) and at part load heat output (according to A.7.3.2) if specified.

The auxiliary electrical energy consumption at standby can be measured in accordance with IEC 62301:2011 as alternative methods which need to be validated against the reference method.

The values shall be given in the marking as e_{SB} , e_{max} and e_{min} , if part load is specified.

5.13 Emissions

5.13.1 General

The tests for emissions as well as efficiency shall be carried out burning the specified test fuels representing the recommended fuels listed in the operating instructions according to Annex A.

For nominal heat output follow A.7.3.1 and for part load heat output follow A.7.3.2. In addition, emissions shall be recorded in the transition tests according to A.7.2.3 and A.7.2.5.

5.13.2 Smoke number

The smoke number of the appliances at nominal heat output according to A.7.3.1 and part load heat output according to A.7.3.2 shall be given according to Table 2. In addition, the smoke number shall be recorded in the transition tests according to A.7.2.3 and A.7.2.5.

The flue gases shall not contain oil rest particles.

Under the test conditions of A.7.2.3, A.7.2.5 and A.7.4.1 for gas oil, the smoke number may be one more.

5.13.3 Carbon monoxide emission

At all heat output rates as specified the mean carbon monoxide concentration calculated to 13 % oxygen (O₂) content, (dry, 273 K, 101,3 kPa) in the flue gas shall be less than or equal to the specified value expressed in mg/MJ.

This value shall be calculated as the mean value from the tests as described in A.7.3.1, A.7.3.2 and A.7.4.2.

NOTE CEN/TR 1404:2024 gives advice on the measuring procedure of CO, CO₂ and O₂.

5.13.4 NO_x emissions

At all heat output rates as specified the mean NO_x concentration expressed as mg/m³ of NO₂ calculated to 13 % oxygen (O₂) content, (dry, 273 K, 101,3 kPa) in the flue shall be less than or equal to the specified value expressed in mg/kWh_{input}.

See also Annex D (normative) for measurement procedure.

5.13.5 Emission of organic gaseous carbon (OGC)

At all heat output rates as specified the mean organic gaseous carbon concentration as mg/m³ of C (Carbon) calculated to 13 % oxygen (O₂) content, (dry, 273 K, 101,3 kPa) in the flue gas shall be less than or equal to the specified value expressed in mg/MJ.

See also Annex E (normative) for measurement procedure.

5.14 Flue draught

The flue draught values, shall be taken as the values for the static pressure in the measurement section (see Figure A.2) when undertaking the nominal heat output test in accordance with A.7.3.1 and the part load heat output test in accordance with A.7.3.2.

The required flue draught shall be clearly stated in the appliance's installation instructions.

5.15 Flue gas mass flow

The flue gas mass flow shall be calculated according to A.8.6 for nominal heat output (A.7.3.1) and part load heat output (A.7.3.2), if any.

5.16 Space heat output

The space heat output value in kW as specified shall be demonstrated when measured in accordance with A.7.3.1 or A.7.3.2.

6 Marking and instructions

6.1 General

Instructions written in the language of the country of intended destination shall accompany the appliance and shall describe the installation, operation, maintenance and, if assembled on site, the assembly of the appliance. The instructions shall not be in contradiction to the requirements or test results according to this document.

6.2 Installation instructions

The installation instructions shall contain at least the following information:

- 1) statement to the fact that all local regulations, including those referring to national and European standards need to be complied with when installing the appliance;
- 2) type (model or number) of the appliance;
- 3) class of the appliance according to Table 2 with the number of this European standard like: flued oil stove EN 1-x – class x;
- 4) nominal output in kW, from ... (lowest) kW to ... (highest) kW or W;
- 5) correct installation of removable Parts;
- 6) horizontal assembly;
- 7) chimney connection;
- 8) safety clearances against combustible materials, and other protective measures that shall be taken to protect the building construction;
- 9) requirements for the supply of combustion air, for the simultaneous operation with other appliances and for the operation of exhaust air devices;

NOTE Extractor fans when operating in the same room or space as the appliance, can cause problems.

- 10) requirement that any air inlet grilles to be so positioned that they are not liable to blockage;
- 11) mass of the appliance in kg;
- 12) minimum flue draught (in Pa) for nominal heat output;
- 13) flue gas mass flow in g/s;
- 14) whether the appliance is suitable for installation in a shared flue system;
- 15) flue gas temperature directly downstream of the flue spigot/socket in °C, under nominal heat output conditions;

- 16) appliance shall be installed on floors with an adequate load-bearing capacity. If an existing construction does not meet this prerequisite, suitable measures (e.g. load distributing plate) shall be taken to achieve it;
- 17) advice on the need to provide access for cleaning the appliance, the flue gas connector and the chimney flue;
- 18) installation of the damper device, if applicable;
- 19) assembly of the appliance on-site, if applicable.

6.3 User operating instructions

The operating instructions shall contain at least the following information:

- 1) statement to the fact that all local regulations, including those referring to national and European standards need to be complied with when installing the appliance;
- 2) kind of fuel (appropriate commercial identification of the country of destination);
- 3) details of the method of refuelling the appliance and the maximum filling height and typical refuelling intervals at nominal heat output;
- 4) description of the correct instructions for safe and efficient operation of the appliance including the ignition procedure;
- 5) advice on the purity of the air;
- 6) advice on the measure to reignition after safety shutdown;
- 7) warning: "Don't ignite the flued oil stove in a warm condition";
- 8) advice on the maximum working pressure of fuel downstream the fuel regulating device from 30 kPa with integrated fuel container;
- 9) advice for flued oil stove with flue draught limiter with locking device that the release shall be carried out if the chimney to be used generates a flue draught that exceeds the maximum flue draught as specified;
- 10) operation of all adjusting devices, dampers and controls;
- 11) ventilation requirements for simultaneous operation with other heating appliances, where applicable;
- 12) correct operations for seasonal use and under adverse flue draught or adverse weather conditions;
- 13) advice on the need for regular maintenance by a qualified person;
- 14) advice on the adequate provision of combustion and ventilation air and on keeping air intake grilles; supplying combustion air, free from blockage;
- 15) instructions on simple fault finding and the procedure for the safe shut down of the appliance in event of malfunction e.g. overheating;

- 16) warning that parts of the appliance, especially the external surfaces, will be hot to touch when in operation and due care will need to be taken;
- 17) means of protection against risk of fire in and outside the heat radiation area;
- 18) need for regular cleaning of the appliance, of the flue gas connector and the chimney;
- 19) warning against any unauthorised modification of the appliance;
- 20) instructions on how to achieve slow combustion;
- 21) use of only recommended replacement parts;
- 22) advice about the actions to be taken in the event of a chimney fire;
- 23) whether the appliance is suitable for installation in a shared flue system.

6.4 Marking

Each appliance shall be permanently and legibly marked, with the minimum following information, in a place where it is accessible so that the information can be read when the appliance is in its final location:

- manufacturer's name or registered trade mark;
- type or model;
- class of the appliance according to Table 2 and the number of this document, i.e. flued oil stove EN 1-x:2025 – class x
- nominal output in kW, from ... (lowest) kW to ... (highest) kW or W;
- minimum clearance distances from combustibile materials, in mm, as appropriate;
- instruction "follow the user's instructions";
- kind of fuel (appropriate commercial identification of the country of destination);
- test marks, if applicable.

This information shall conform to the information of the installation and operating instructions.

If a label is used it shall be durable and abrasion proof. Under normal operating conditions, the label shall not discolour, thus making the information difficult to read. Self-adhesive labels shall not become detached as a result of moisture or temperature.

In addition, each residential liquid fuel burning appliance shall be marked with an energy label according to Annex F on the basis of the energy efficiency class determined according to 5.5.4. The label does not have to be permanent but shall be clearly visible to the customer on the appliance's front when being put on the market.

6.5 Production documentation

The parameters and characteristics considered when deciding the relation to either the family or range of appliances to be submitted for initial type testing shall be recorded. Where changes are made to an appliance in either the design, raw material, component supplier, or the production process, which would significantly alter the performance characteristics of the appliance shall be recorded. A copy of the

parameters and characteristics considered in making the decisions shall be included in the production documentation for each appliance. To identify the appliance, related documents and/or scaled assembly drawings shall be available showing the basic design and construction of the appliance. The documentation and/or the drawings shall include at least the following information:

- the specification of the materials used in the construction of the appliance;
- the specified nominal heat output in kW using recommended fuels;
- combustion chamber dimensions.

7 Environmental sustainability

7.1 General

All relevant elements of the performance related to the whole life cycle of the appliance shall be identified and enumerated on the basis on the information modules of EN 15804:2012+A2:2019.

The environmental sustainability information of an appliance shall cover the following life cycle stages as in detail described in the following:

- product stage (including transport);
- use stage;
- end-of-life stage (including transport);
- reuse and recycling potential.

The default scenarios as described in the following are developed with the aim of being realistic averages, based on experience. Other scenarios may be developed and have to be justified.

Any of the following default values of the scenarios in the following subclauses can be replaced by individual scenario values as specified. In this case the replacement has to be justified on the basis of individual business.

7.2 Calculation rules

7.2.1 Declared and functional unit

Declared unit: residential liquid fuel burning appliance considering the main components and the manufacturing process itself (e.g. bending, welding).

Functional unit: generation of 1 kW heat output, according to the reference use scenario as given in Table 6 and during the reference lifetime of the product. This shall be defined with a reference lifetime as derived in accordance with 7.2.2. The efficiency of the appliance shall be regarded.

7.2.2 Reference lifetime

The default value for the expected lifetime for all appliances is 20 years.