SLOVENSKI STANDARD
oSIST prEN 16510-2-6:2021

01-april-2021

Stanovanjske grelne naprave na trdna goriva - 2-6. del: Grelniki prostorov, kaminski vložki in štedilniki z mehanskim dodajanjem lesnih peletov

Residential solid fuel burning appliances - Part 2-6: Mechanically by wood pellets fed roomheaters, inset appliances and cookers

Häusliche Feuerstätten für feste Brennstoffe - Teil 2-6: Mechanisch mit Holzpellets beschickte Raumheizer, Einsätze und Herde

Équipement de chauffage domestique - Partie 2-6 : Poêles, inserts et cuisinières à granulés de bois et à alimentation mécanique

Ta slovenski standard je istoveten z: **prEN 16510-2-6**

ICS:

97.100.30	Grelniki na trdo gorivo	Solid fuel heaters

oSIST prEN 16510-2-6:2021 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 16510-2-6

April 2021

ICS 97.100.30

English Version

Residential solid fuel burning appliances - Part 2-6: Mechanically by wood pellets fed roomheaters, inset appliances and cookers

Équipement de chauffage domestique - Partie 2-6 : Poêles, inserts et cuisinières à granulés de bois et à alimentation mécanique

Häusliche Feuerstätten für feste Brennstoffe - Teil 2-6: Mechanisch mit Holzpellets beschickte Raumheizer, Einsätze und Herde

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 295.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword

This document (prEN 16510-2-6:2021) has been prepared by Technical Committee CEN/TC 295 “Residential solid fuel burning appliances”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document together with EN 16510-1:2021 and EN 16510-2-1 will supersede EN 13240:2001 as amended and corrected.

This document has been prepared under a standardization request given to CEN/CENELEC by the European Commission and the European Free Trade Association.

For relationship with (EU) Regulation 305/2011, see informative Annex ZA, which is an integral part of this document.

The structure of EN 16510, *residential solid fuel burning appliances*, is as follows:

— Part 1, *General requirements and test methods*

— Part 2-1, *Roomheaters*

— Part 2-2, *Inset appliances including open fires*

— Part 2-3, *Cookers*

— Part 2-4, *Independent boilers of a nominal heat output up to 50 kW*

— Part 2-5, *Slow heat release appliances*

— Part 2-6, *Mechanically by wood pellets fed roomheaters, inset appliances and cookers*

Other sections of Part 2 will be added to cover residential solid fuel burning appliances not included in parts 2-1 to 2-6.

This Part 2-6 supplements or modifies the corresponding clauses in prEN 16510-1:2021, prEN 16510-2-2:2021 for inset pellet appliances and partially prEN 16510-2-3:2021 for cooking requirements and tests, so as to convert that publication into the European Standard: *Residential solid fuel burning appliances – Mechanically by wood pellets – fed roomheaters, inset appliances and cookers – Requirements and test methods*.

This document is expected to be used in conjunction with prEN 16510-1:2021, prEN 16510-2-2:2021 and partially prEN 16510-2-3:2021. This document refers to Clauses of prEN 16510-1:2021 or adapts Clauses by stating “with the following modification”, “with the following addition”, “is replaced by the following” or “shall not” applicable” in the corresponding Clause. This document adds Clauses or Subclauses to the structure of prEN 16510-1:2021 which are particular to this document.

Subclauses and Figures which are additional to those in prEN 16510-1:2021 are numbered starting with 601. Annexes which are additional to those in prEN 16510-1:2021 are numbered starting with FA.

1 Scope

This document is applicable to space heaters, inset appliances and cookers fired by wood pellets, mechanically fed up to 50 kW nominal heat output. These appliances typically use auxiliary energy which is measured in this document as well.

For inset pellet appliances and especially their testing, additional information from prEN 16510-2-2:2021 is relevant.

For pellet cookers and especially their testing, additional information from prEN 16510-2-3:2021 is relevant.

Non-mechanically fed appliances burning solid mineral fuels, peat briquettes and natural or manufactured wood logs are not included in this document, but are covered by prEN 16510-2-1:2021 to prEN 16510-2-5:2021.

NOTE 1 These appliances could have an integral fuel hopper or be combined with an external fuel hopper.

This document is used in conjunction with prEN 16510-1:2021.

The appliances covered by this document provide heat into the space where they are installed. They can be operated with either natural draught or fan-assisted combustion air. Where fitted with a boiler, they can also provide domestic hot water and/or central heating. These appliances burn wood pellets only, in accordance with the appliance manufacturer's instructions. They only operate with the firedoors closed.

NOTE 2 A fan-assisted appliance does still operate under negative pressure in the flue gas system.

This document specifies requirements relating to the design, manufacture, construction, safety and performance (efficiency and emissions), instructions and marking together with associated test methods and test fuels.

This document is not applicable to appliances:

— with boiler intended for water systems having water temperatures above 110°C and 3 bar;

— with boiler intended for water systems having direct contact with sanitary hot water;

— intended to be used with a pure horizontal exhaust (through the building wall);

— with flue gas condensation in the appliance;

— switching on / off for part load operation.

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. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15456, *Heating boilers - Electrical power consumption for heat generators - System boundaries - Measurements*

prEN 16510-1:2021, *Residential solid fuel burning appliances - Part 1: General requirements and test methods*

prEN 16510-2-2:2021, *Residential solid fuel burning appliances - Part 2-2: Inset appliances including open fires*

prEN 16510-2-3:2021 *Residential solid fuel burning appliances - Part 2-3: Cookers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 16510-1:2021 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.601
heat output control device
device to control the heat output of the appliance

3.602
ignition system
device used to ignite the fuel in the retort of the combustion chamber

Note 1 to entry: Ignition could be performed manually, automatically and by using, for example, a hot air blower, an electrical resistor or an electrical resistance for ignition.

3.603
standby operation
operation mode without heat demand, in which the system is launched immediately in the required mode as soon as the heat demand is required

3.604
back burning
state in which the fuel ignites in the direction of the supply fuel line and where combustion spreads to the fuel tank or hopper integrated

Note 1 to entry: Back burning could be caused by three key factors:

a) fuel ignition in the direction of the supply fuel line or hopper integrated;

b) propagation and ignition of hot flammable gas in the fuel supply line or the integrated hopper;

c) thermal conduction to the fuel supply line or the integrated hopper.

3.605
safety device against back burning
device to prevent back burning, including extinguishing systems

3.606
safety shutdown
process by which the fuel supply and / or the combustion air supply is stopped immediately as a response of a safety device or the detection of a fault in a safety device

4 Descriptive features

prEN 16510-1:2021, prEN 16510-2-2:2021 and prEN 16510-2-3:2021, Clause 4, shall be applicable as necessary with the following modification.

4.1 Designation of appliances

prEN 16510-1:2021, 4.1, shall be applicable with the following modification.

Replace Table 1 *by the following:*

Table 1 — Types of appliances

Type	Room-Sealed	Leakage declaration	Combustion air supply connection	Door closure	Tightness requirement
Type B	-	No	No specific requirement	No specific requirement	No specific requirement
Type BE	-	No	Yes	No specific requirement	Appliance intended to be supplied with combustion air via a combustion air duct. No specific requirements for tightness
Type BF	-	Yes	Yes	No specific requirement	The leakage is tested in accordance with 5.9 on delivery only. A leakage is measured and given in the instructions, no further requirement on the tightness.
Type CA	Yes	Yes	Yes	Mechanism to close the doors automatically	In accordance with 5.9 after closing the door without further action of the user, tested at 10 Pa
Type CM	Yes	Yes	Yes	Manually closed and locked door	In accordance with 5.9 after closing the door, tested at 10 Pa
Type CC	Yes	Yes	Yes	Manually closed and locked door controlled by an alarm or fail safe system	In accordance with 5.9 after closing the door, tested at 10 Pa
Type CM50	Yes	Yes	Yes	Manually closed and locked door	In accordance with 5.9 after closing the door, tested at 50 Pa
Type CC50	Yes	Yes	Yes	Manually closed and locked door controlled by an alarm or fail safe system	In accordance with 5.9 after closing the door, tested at 50 Pa

Type	Room-Sealed	Leakage declaration	Combustion air supply connection	Door closure	Tightness requirement
Type CC50+	Yes	Yes	Yes	Appliance with overpressure in combustion chamber Manually closed and locked door controlled by an alarm or fail safe system	In accordance with 5.9 after closing the door, tested at 50 Pa

4.4 Construction and materials

prEN 16510-1:2021, 4.4, shall be applicable with the following modification(s).

Add the following new clauses in 4.4

4.4.601 Retort

Where the retort is removable it shall be designed or marked to ensure correct assembly. If a de-ashing mechanism is fitted it shall be capable of de-ashing the fuel bed in the area of the retort.

The preferred design should allow de-ashing to be carried out with the ashpit door closed. The de-ashing operation should be possible without undue effort. If it is necessary to remove the ashpit door to de-ash the fire, the appliance should be designed such that there is no undue spillage of ash or fuel from the appliance during the de-ashing operation.

4.4.602 Heat output control device

The device shall be easily accessible and shall be permanently marked.

Their position in relation to their function shall be clearly recognizable.

4.4.5 Flueways

prEN 16510-1:2021, 4.4.5, shall be applicable with the following modification(s).

When an automatic cleaning system is installed, it shall clean the appliance's flueways such that there is no risk of blockage within the flueways due to build-up of soot.

4.4.6 Components built-in the flue ways

prEN 16510-1:2021, 4.4.6. shall not be applicable.

4.4.7 Ashpan and ash removal

prEN 16510-1:2021, 4.4.7, shall be applicable with the following modification(s).

A means of removing the residue from the appliance shall be provided.

Where an ashpan is provided, for appliances with internal hoppers, it shall be capable of containing the residue from two full charges of fuel in the hopper whilst retaining sufficient space above to allow adequate primary air flow through the bottom grate or fire bed.

For appliances with external hoppers, the size of ashpan shall be able to contain at least the ash from 12 h appliance running time at nominal heat output. If the manufacturer states a value for the possible running time greater than 12 h, it has to be verified by calculation if the value is correct.

If the ashpan resides in the appliance it shall be located in the ashpit in such a way that it allows the free passage of primary air and in such a position that does not obstruct any primary inlet control.

4.4.8 Bottomgrate

prEN 16510-1:2021, 4.4.8 shall not be applicable.

4.4.9 Combustion air supply

prEN 16510-1:2021, 4.4.9 shall not be applicable.

4.4.9.1 Primary combustion air control device

prEN 16510-1:2021, 4.4.9.1, shall be applicable with the following modification(s).

The appliance shall be fitted with either a thermostatically, electronically controlled primary air inlet control or a manual primary air inlet control. The adjusting control shall be clearly visible or permanently marked so that its operation is readily understandable. Where an appliance is designed for various sized pellets use a means shall be provided for the user to identify the correct set position of the primary air inlet control for each fuel size, if any.

Appliances fitted with a boiler shall be fitted with a water temperature actuated, thermostatically controlled fuel and air supply.

4.4.10 Damper

prEN 16510-1:2021, 4.4.10, shall be applicable with the following modification(s).

Add the following paragraph as last paragraph in 4.4.10.

The installation instructions shall give information on a possible installation of a damper in the flue gas ways.

If a flue damper is mounted or not forbidden in the installation instructions, it shall be ensured that the fan assistance does not lead to overpressure in the flue gas outlet even in case of closure of the damper.

A flue damper shall not be fitted to an appliance having a forced fan air supply and its mounting shall as well be forbidden in the installation instructions

4.4.11 Charging doors and ash-pit doors

prEN 16510-1:2021, 4.4.11 shall not be applicable.

4.4.14 Front firebars

prEN 16510-1:2021, 4.4.14 shall not be applicable.

4.4.15 Fossil solid fuel and peat briquettes burning appliances

prEN 16510-1:2021, 4.4.15 shall not be applicable.

4.6 Ability of the appliance to carry a chimney

prEN 16510-1:2021, 4.6, shall be applicable with the following modification(s).

Add the following:

Appliances with an upper outlet may be able to carry the load of the connecting flue pipes. The manufacturer shall clearly state the max. load the appliance may carry in the appliance installation instructions.

4.601 Additional requirements for cookers

prEN 16510-2-3:2021, 5.301 shall be applicable without 5.301.4.

5 Appliances Performance requirements in relation to safety

prEN 16510-1:2021, prEN 16510-2-2:2021 and prEN 16510-2-3:2021, Clause 5 shall be applicable as necessary with the following modifications.

5.2 Open operation of an appliance

prEN 16510-1:2021, 5.2 shall not be applicable.

5.4 Temperature rise in the fuel storage (other than the fuel hopper)

prEN 16510-1:2021, 5.4 shall not be applicable.

5.5 Temperature rise of the operating components

prEN 16510-1:2021, 5.5 shall be applicable with the following modification(s).

Add the following 2nd note and rename the first note "NOTE 1":

NOTE 2 The operating components are defined by the manufacturer in the user operating instructions.

5.9 Safety requirements of roomsealed appliances

5.9.1 Tightness related to CO-emission

prEN 16510-1:2021, 5.9.1, shall be applicable with the following modification(s).

Replace 5.9.1 by the following:

For appliances of type CA, CM and CC (see Table 1) the test according to A.4.11.2.2 is carried out at an overpressure of 10 Pa.

For appliances of type CA, CM and CC (see Table 1) the following requirements shall be met.

The mean value of CO concentration as measured in the combustion products of the appliance, given in ppm is measured during the test at nominal heat output according to A.4.7 and at part load heat output according to A.4.8 (combustion air control devices are set at the settings specified by the manufacturer).

The product of the CO concentration in the flue gas [ppm] (at 13 % O_2) and the leakage of the appliance [Nm^3/h] determined according to A.4.11.2.2, A.4.11.2.3 and A.4.11.2.4 shall not exceed the value of 2 400 [ppm Nm^3/h] at nominal heat output and at part load heat output (if specified by the manufacturer).

5.9.2 Overall tightness

prEN 16510-1:2021, 5.9.2, shall be applicable with following modification.

After 5.9.2 add the following subclause.

5.9.601 Tightness of type CM 50, CC 50 and CC 50+ (see Table 1)

For appliances of type CM50, CC50 and CC50+ (see Table 1) the test according to A.4.11.2.2 is carried out at an overpressure of 50 Pa.

For appliances of type CM50, CC50 and CC50+ (see Table 1) the following requirements shall be met.

The mean value of CO concentration as measured in the combustion products of the appliance, given in ppm is measured during the test at nominal heat output according to A.4.7 and at part load heat output according to A.4.8 (combustion air control devices are set at the settings specified by the manufacturer).

The product of the CO concentration in the flue gas [ppm] (at 13 % O_2) and the leakage of the appliance [Nm3/h] determined according to A.4.11.2.2, A.4.11.2.3 and A.4.11.2.4 shall not exceed the value of 2 400 [ppm Nm^3/h] at nominal heat output and at part load heat output (if specified by the manufacturer).

For CC50+ appliances the leakage shall not exceed 1 Nm^3/h.

Add the following new subclauses:

5.601 Safety test for spillage of combustion gas and discharge of embers

When operated under the test conditions described in A.4.7 to A.4.9 there shall not be any potentially harmful spillage of flue gases from the appliance into the room and embers shall not fall out.

5.602 Temperature in the fuel hopper

When tested during the temperature safety test in accordance with A.4.10.3 the temperature in any fuel hopper shall not exceed the ambient temperature by more than 65 K at normal use and 85 K at abnormal circumstances (see Annex FA).

For necessary measuring points see Annex FB.

5.603 Safety against back burning through the fuel conveyor system

The appliance shall have a safety system to ensure that the fuel shall not burn back from the retort to the fuel hopper. Operation of any of the safety systems shall stop the fuel supply (refer to Annex FB for examples).

5.604 Risk assessment of the appliance fired by wood pellets

A risk assessment of the appliance fired by wood pellets shall be performed by the manufacturer. EN ISO 12100, ISO/TR 14121-2 or CLC Guide 32 give information on how to carry out the risk assessment.

Completeness, correctness and plausibility of the risk analysis of the manufacturer shall be verified by a NB on the basis of the risks given below and using the guidance Annex FA. This verification is mainly a documental control and may influence the details (e.g. the detailed measuring points in the hopper) of the safety tests (A.4.10).

The risk assessment shall cover each relevant risk, especially the following:

— backburn into the hopper;

— combustion in the conveying system;

— malfunction of combustion air supply;

— blockage of the chimney;

— risk of explosion;

— single failure of electrical components.

For all electric hazards, LVD shall be followed.