SLOVENSKI STANDARD
oSIST prEN 16510-2-10:2025

01-marec-2025

Večnamenske peči za savno na polena iz naravnega lesa - Zahteve in preskusne metode

Multi-firing sauna stoves fired by natural wood logs - Requirements and test methods

Mehrfach befeuerbare Saunaöfen zur Verfeuerung von naturbelassenem Scheitholz - Anforderungen und Prüfverfahren

Appareils de chauffage domestiques à combustion solide - Partie 2-10 : Poêles de sauna à allumage multiple à bûches de bois naturelles.

Ta slovenski standard je istoveten z: **prEN 16510-2-10**

ICS:

97.100.30 Grelniki na trdo gorivo Solid fuel heaters

oSIST prEN 16510-2-10:2025 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 16510-2-10

January 2025

ICS

Will supersede EN 15821:2010

English Version

Multi-firing sauna stoves fired by natural wood logs - Requirements and test methods

Poêles de sauna à allumage multiple à bûches de bois naturelles - Exigences et méthodes d'essai

Mehrfach befeuerbare Saunaöfen zur Verfeuerung von naturbelassenem Scheitholz - Anforderungen und Prüfverfahren

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.

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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.

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

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

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European foreword

This document (prEN 16510-2-10:2024) 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 will supersede EN 15821:2010 as amended and corrected.

prEN 16510-2-10 includes the following significant technical changes with respect to EN 15821:2010:

— measurement methods for NO_X, hydrocarbon and particulate matter emissions for solid fuel burning appliances;

— specifications for classification of solid fuel burning appliances and system boundaries for room sealed appliances;

— Annex ZA updated according to requirements of M/577 and its amendments;

— Assessment and verification of constancy of performance – AVCP 3+ added;

— requirements for environmental sustainability added.

This document has been prepared under a standardization request given to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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 — 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*.

— Part 2-7: *Combination appliances fired by wood logs and pellets*.

— Part 2-10: *Multi-firing sauna stoves fired by natural wood logs*.

Other sections of Part 2 will be added to cover residential solid fuel burning appliances not included in parts 2-1 to 2-7 and in 2-10.

Subclauses and Figures which are additional to those in EN 16510-1:2022 are numbered starting with 1001. Annexes which are additional to those in EN 16510-1:2022 are numbered starting with JA.

1 Scope

This document is applicable to multi-firing sauna stoves for natural wood logs (in which the heating of stones are separated from and indirectly heated by the fire and the flue gases and which may be re-fuelled with several fuel loads).

The intended use of the appliances is space heating in residential buildings. The space heated is sauna room which is heated higher-than-normal room temperature for wellbeing and bathing purposes, for short period of time.

These multi-firing sauna stoves may be supplied either as an assembled appliance or as a manufacturer's pre-designed unit consisting of prefabricated components designed to be built on site in accordance with the manufacturer's specified assembly instructions.

These appliances can burn the following solid fuels as specified:

— wood logs;

This document is not applicable to:

— appliances that are mechanically fed

— appliances with fan assisted combustion air

— single-firing heat storage sauna stoves, in which the stones are directly heated by the fire and the flue gases, which pass through them

— one off installations

— appliances incorporating a boiler or connected to a water system

This document specifies procedures for assessment and verification of constancy of performance (AVCP) of characteristics of multi firing sauna stoves.

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.

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

EN 16510-1:2022, *Residential solid fuel burning appliances - Part 1: General requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16510-1:2022 and the following 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/

3.14
EN 16510-1:2022 definition 3.14 is replaced with following:

batch charge
proportion of the test load as declared in the operating manual that can be added at specified intervals during the test period of the performance test at nominal heat output

3.1001
sauna stove
stove that has a fully enclosed firebox with a firedoor which is normally closed, that distributes heat by radiation and/or convection and is also fitted with stones or other heat retaining material onto which water is poured to produce hot steam/vapour that rises from the hot sauna stones, and that may also provide hot water for washing when fitted with an optional open water vessel

3.1002
multi-firing sauna stove
sauna stove in which the stones are separated from and indirectly heated by the fire and the flue gases and which may be refuelled with several successive fuel loads also during sauna bathing

3.1003
test load
mass of test fuel declared in the operating instructions for the burning period

NOTE 1 to entry: The test load can be added as batch charges if this is indicated in the multi-firing sauna stove instructions.

3.1004
burning period
period when test load is burned in multi-firing sauna stove

4 Characteristics

4.1 Load bearing capacity

Some appliances with an upper outlet may be able to carry the load of a chimney. The max. load the appliance may carry shall be specified in the appliance installation instructions. The performance of the appliance in relation to the ability to carry a chimney shall be determined in accordance A.4.10.4 of this document.

If for an appliance with an upper outlet the ability to carry a chimney is specified the value of the maximum load is to be given in [kg] as an integer according to EN 16510-1:2022, Table 22, no. 57 (m_{chim}).

4.2 Protection of combustible materials

The performance of the appliance in relation to protection of combustible materials shall be determined in accordance with A.4.10.4 and A.2.1001, Figure A.1005 of this document. The protection measure(s) as specified shall not lead to an excess of the more than 65 K above ambient room temperature at the hottest point of any adjacent floor, or 140 K above ambient room temperature at the hottest point of any adjacent walls, ceiling 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.

When tested in accordance with A.4.10 and A.2.1001 of this document, the protection measure(s) as specified according to Table 1 shall be given as minimum distance to combustibles and if appropriate as material type and thickness of protective insulation material.

The protection measures as specified shall be given in [mm] or [cm] as an integer according to EN 16510-1:2022, Table 22, no. 33, 34, 35, 36, 37, 38, 39 and 41 (d_R, d_S, d_C, d_P, dF, d_L, d_B, s). Minimum distance to adjacent combustible materials on side (d_{PS}) will be given in [mm] or [cm] in appliances' technical datasheet and data plate.

Table 1 — Protection of combustible materials

Protection measure	**Declared clearance distance to combustible material or thickness of protective insulation material** [mm]	**Protective insulation material if any**
Minimum distance to combustible materials - bottom (d_B)		-
Minimum distance to combustible materials – ceiling (d_C)		-
Minimum distance to combustible materials – rear (d_R)		-
Minimum distance to combustible materials – side (d_S)		-
Minimum distance to combustible materials – side radiation area (d_L)		-
Minimum distance to adjacent combustible materials in front (e.g. sauna room benches) (d_P)		-
Minimum distance to adjacent combustible materials on free side (e.g. sauna room benches) (d_{PS})		-
Protective insulation material (s)		

4.3 Carbon monoxide emission (CO)

The performance of the appliance in relation to carbon monoxide emission at nominal heat output shall be determined in accordance A.4.7 of this document and with EN 16510-1:2022, 6.3.2.

The CO value if specified at nominal heat output is to be given in [mg/m^3] as an integer according to EN 16510-1:2022, Table 22, no. 17 (CO_{nom} (13 % O_2)).

4.4 Nitrogen oxides (NO_X) emissions

The performance of the appliance in relation to nitrogen oxides emissions at nominal heat output shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.3.3.

The NO_X value if specified at nominal heat output is to be given in [mg/m^3] as an integer according to EN 16510-1:2022, Table 22, no. 20 (NO_{xnom} (13 % O_2)).

4.5 Emission of organic gaseous compounds (OGC)

The performance of the appliance in relation to organic gaseous compounds emission at nominal heat shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.3.4.

The OGC value if specified at nominal heat output is to be given in [mg/m^3] as an integer according to EN 16510-1:2022, Table 22, no. 23 (OGC_{nom} (13 % O_2)).

4.6 Particulate matter (PM) emissions

The performance of the appliance in relation to particulate matter emissions at nominal heat output shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.3.5.

The particulate matter value if specified at nominal heat output is to be given in [mg/m^3] as an integer according to EN 16510-1:2022, Table 22, no. 26 (PM_{nom} (13 % O_2)).

4.7 Safety and accessibility in use

4.7.1 General

The data for the installation to a chimney are to be evaluated at nominal heat output. Specific data are to be evaluated at safety test heat output.

4.7.2 Flue gas outlet temperature at nominal heat output

The performance of the appliance in relation to flue gas outlet temperature at nominal heat output shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.2.1.

The value of the flue gas outlet temperature for the installation of the appliance to a chimney if specified is to be given in [°C] as an integer according to EN 16510-1:2022, Table 22, no. 47 (T_{snom}).

4.7.3 Minimum flue draught at nominal heat output

The performance of the appliance in relation to the minimum flue draught at nominal heat output shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.5.

For nominal heat output the flue static pressure shall be kept within (12 ± 2) Pa in all power ranges. Where this flue draught value of 12 Pa needs to be exceeded in order to obtain the declared specified nominal heat output, the required flue draught shall be clearly stated in the appliance's installation instructions.

The value of the minimum flue draught if specified at nominal heat output for the installation of the appliance to a chimney is to be given in [Pa] as an integer according to EN 16510-1:2022, Table 22, no. 29 (p_{nom}).

4.7.4 Flue gas mass flow at nominal heat output

The performance of the appliance in relation to the flue gas mass flow at nominal heat output shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.12.

The flue gas mass flow value if specified at nominal heat output for the installation of the appliance to a chimney is to be given in [g/s] with 1 decimal according to EN 16510-1:2022, Table 22, no. 50 ($\phi_{f,g\ nom}$).

4.7.5 Fire safety of installation to the chimney

The performance of the appliance in relation to the flue gas temperature (mean value) at safety test shall be determined in accordance with A.4.10.4 of this document.

The data for installation of the appliance to a chimney with regards to the fire safety if specified is to be given as the Tclass of the chimney required according to EN 16510-1:2022, 6.2.2 and EN 16510-1:2022, Table 22, no. 49.

4.8 Energy economy and heat retention

4.8.1 Space heat output at nominal heat output

The performance of the appliance in relation to space heat output at nominal heat output shall be determined in accordance with A.4.7 of this document.

The space heat output of the appliance if specified at nominal heat output is to be given in [kW] with 1 decimal according to EN 16510-1:2022, Table 22, no. 2 (P_{SHnom}).

For the proper performance of the appliance the following shall be considered as well for those essential characteristics and descriptive features assessed during the nominal heat output test (A.4.7 of this document).

Additional devices, such as flue gas outlet components, components built-in the flue ways, combustion air supply control devices, charging doors and ash-pit doors, flue bypass devices, internal flue gas diverters, front fire bars and/or draught regulators for the safety or function of the appliance may be present.

Some of these devices are optional, but if present their influence on the performance of the appliance shall be checked according to EN 16510-1:2022, 4.4.4, 4.4.6, 4.4.9, 4.4.11, 4.4.12, 4.4.13, 4.4.14, and 4.4.16.

4.8.2 Water heat output, if existing at nominal heat output

The performance of the appliance in relation to water heat output if existing at nominal heat output is according to the scope not applicable as this document does not apply to appliances with water-bearing parts or connection to a water system.

4.8.3 Efficiency at nominal heat output

The performance of the appliance in relation to efficiency at nominal heat output shall be determined in accordance with A.4.7 of this document.

The efficiency of the appliance if specified at nominal heat output is to be given in [%] as an integer according to EN 16510-1:2022, Table 22, no. 13 (η_{nom}).

4.8.4 Electric power consumption at nominal heat output, if existing

The performance of the appliance in relation to electric power consumption at nominal heat output shall be determined in accordance with A.4.7 of this document and EN 16510-1:2022, 6.11.

The electric power consumption of the appliance if specified at nominal heat output is to be given in [kW] with 3 decimals according to EN 16510-1:2022, Table 22, no. 43 (el_{max}).