



**SLOVENSKI STANDARD**  
**oSIST prEN 16510-2-4:2021**  
**01-april-2021**

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**Stanovanjske grelne naprave na trdna goriva - 2-4. del: Grelni kotli - Nazivna grelna moč do 50 kW**

Residential solid fuel burning appliances - Part 2-4: Independent boilers - Nominal heat output up to 50 kW

Häusliche Heizgeräte für feste Brennstoffe - Teil 2-4: Heizkessel für feste Brennstoffe - Nennwärmeleistung bis 50 kW

Equipement de chauffage domestique - Partie 2-4 : Chaudières domestiques à combustible solide - Puissance calorifique nominale inférieure ou égale à 50 kW

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**Ta slovenski standard je istoveten z: prEN 16510-2-4**

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**ICS:**

97.100.30      Grelniki na trdo gorivo      Solid fuel heaters

**oSIST prEN 16510-2-4:2021**      **en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 16510-2-4**

April 2021

ICS 91.140.65; 97.100.30

English Version

## Residential solid fuel burning appliances - Part 2-4: Independent boilers - Nominal heat output up to 50 kW

Équipement de chauffage domestique - Partie 2-4 :  
Chaudières domestiques à combustible solide -  
Puissance calorifique nominale inférieure ou égale à 50  
kW

Häusliche Heizgeräte für feste Brennstoffe - Teil 2-4:  
Heizkessel für feste Brennstoffe - Nennwärmeleistung  
bis 50 kW

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.

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

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**prEN 16510-2-4:2021 (E)****European foreword**

This document (prEN 16510-2-4:2021) 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 prEN 16510-1:2021 will supersede EN 12809:2001 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 – 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 2-4 supplements or modifies the corresponding clauses in EN 16510-1, so as to convert that publication into the European Standard: *Residential solid fuel burning appliances – Requirements and test methods for independent boilers – Nominal heat output up to 50 kW*.

This document is expected to be used in conjunction with EN 16510-1. 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 be 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 401. Annexes which are additional to those in EN 16510-1 are numbered starting with DA.

## 1 Scope

This document is applicable to hand and automatically fired residential independent boilers (hereafter called appliances) having a nominal heat outputs up to 50 kW.

The primary function of the appliance is to provide hot water for central heating and/or domestic use. In addition to their primary function of providing hot water these appliances also provide space heating to the place of installation. They are designed for use only with open vented systems at a working pressure not exceeding 2 bar.

The appliances can burn one or more types of the following solid fuels in accordance with the appliance manufacturer's instructions:

- wood logs;
- compressed untreated wood;
- wood pellets;
- lignite briquettes;
- solid mineral fuels;
- peat briquettes.

The appliances are operated closed and / or open.

The appliances are typed according to their tightness depending on their designation in accordance with a possible operation together with a room ventilation system.

This document is not applicable to appliances for hot water only production and having heat outputs of less than 5 kW.

This document is also not applicable for automatic stoking devices.

This document is used in conjunction with EN 16510-1 of which it is an integral part.

## 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.

prEN 16510-1:2021, *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 prEN 16510-1:2021 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/>

## 4 Descriptive features

prEN 16510-1:2021, Clause 4, shall be applicable with the following modifications.

**prEN 16510-2-4:2021 (E)****4.3 Product documentation**

prEN 16510-1:2021, 4.3 shall be applicable.

**4.4 Construction and materials**

prEN 16510-1:2021, 4.4 shall be applicable with the following addition.

Additional clauses in 4.4.

**4.4.401 Flue draught test point**

A test tapping for the measurement of the flue draught shall be provided either in the boiler flueway or in the flue gas connector.

If a draught regulator is incorporated, the test measurement point shall be taken before the draught regulator.

**4.4.402 Fan cut-out safety device**

If the appliance is fitted with a forced draught fan to provide combustion air, then a cut-out safety device shall be provided to switch off the fan in the event of a flue blockage (see 4.4.401).

**5 Appliances Performance requirements in relation to safety**

prEN 16510-1:2021, Clause 5, shall be applicable.

**6 Appliances Performance requirements in relation to the appliance operation**

prEN 16510-1:2021, Clause 6, shall be applicable with the following modification.

**6.4 Efficiency**

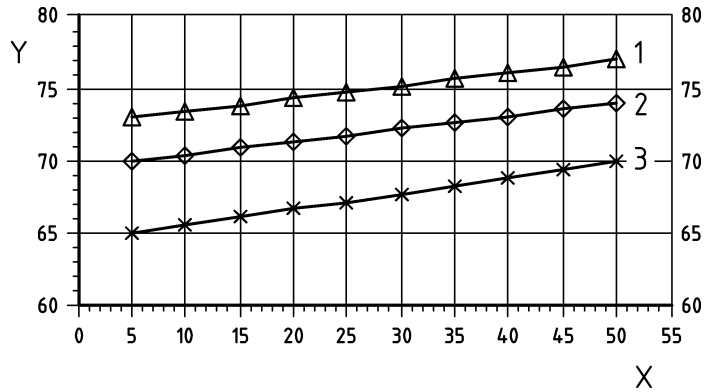
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prEN 16510-1:2021, 6.4, shall be applicable with the following modification.

*Addition after the 1<sup>st</sup> paragraph:*

The manufacturer's declared efficiency value shall be equal to or exceed the value given by the following Figure 401.





**Key**

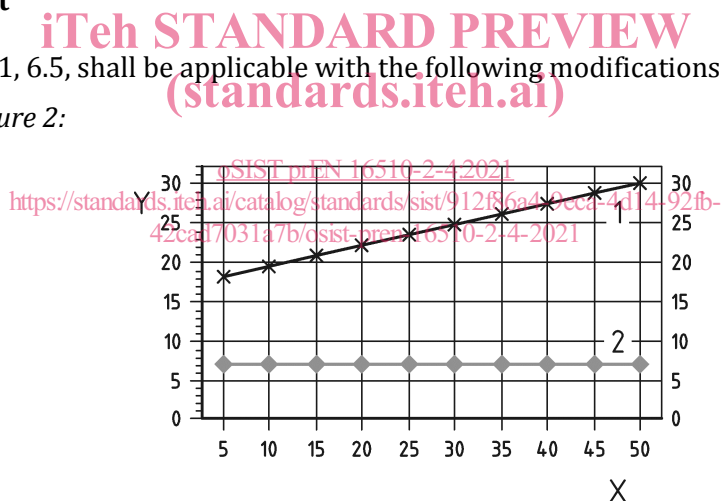
- X nominal heat output (kW)
- Y efficiency (%)
- 1 test fuels other than 2 or 3
- 2 bituminous coal, lignite briquettes & peat briquettes
- 3 wood logs

**Figure 401 — Efficiency at nominal heat output**

**6.5 Flue draught**

prEN 16510-1:2021, 6.5, shall be applicable with the following modifications.

Replacement of Figure 2:



**Key**

- X nominal heat output (kW)
- Y flue draught (Pa)
- 1 nominal heat output test
- 2 slow combustion test

**Figure 2 — Flue draught values**

Replacement of the final two paragraphs including Note 2:

When undertaking the nominal heat output test in accordance with A.4.7 the flue static pressure shall be set to the value based upon the claimed nominal heat output as given in Figure 2 or, if necessary, such higher value specified by the manufacturer and the mean value shall be within  $\pm 1$  Pa of this specified flue draught value. During the test, the individual measurements shall be kept within  $\pm 2$  Pa of this specified flue draught value.

**prEN 16510-2-4:2021 (E)**

NOTE 2 It is not allowed to set the value below that given in Figure 2 e.g. 19 Pa for a given value of 20 Pa.

For the slow combustion test in accordance with A.4.9 the static pressure shall be a target value of 6 Pa as given in Figure 1 and shall be kept within  $\pm 1$  Pa of this specified value.

For appliances having a fan assisted primary air supply, the static pressure in the measurement section shall be set to that value which gives the manufacturer's declared over-firebed pressure.

**6.6 Recovery test**

prEN 16510-1:2021, 6.6, shall be applicable with the following modification.

*Replacement of paragraph 2:*

Recovery shall be deemed satisfactory if a small part of the fuel is visibly ignited within 30 min with a flue draught of  $(6 \pm 1)$  Pa under the test conditions specified in A.4.9.4.

**6.7 Refuelling intervals**

prEN 16510-1:2021, 6.7, shall be applicable with the following modification.

*Replacement of Table 12:*

**Table 12 — Minimum refuelling intervals**

Appliance type	Test fuel type (as detailed in Table B.1) at nominal heat output	Minimum refuelling interval hours
Batch fed appliances	Wood logs or peat briquettes	2
	All other test fuels	4
Hopper fed appliances	Anthracite	10
<b>at slow combustion</b>		
Batch fed appliances	Wood logs or peat briquettes	10
	All other test fuels	15
Hopper fed appliances	Anthracite	48

*Addition of the following new subclause:*

**6.401 Fan cut-out safety device**

Where a safety cut-out device is provided for a fan supplying forced draught combustion air as specified in 4.4.402 then when tested in accordance with A.4.401, the safety device shall switch off the fan within 15 min following obstruction of the flue.

**7 Appliance instructions**

prEN 16510-1:2021, Clause 7, shall be applicable.

**8 Sustainable use of natural resources**

prEN 16510-1:2021, Clause 8, shall be applicable.

## **9 Assessment and verification of constancy of performance - AVCP**

prEN 16510-1:2021, Clause 9, shall be applicable.

## **10 Marking and technical datasheet**

prEN 16510-1:2021, Clause 10, shall be applicable.

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## Annex A (normative)

### Test methods

#### A.1 Test environment

prEN 16510-1:2021, A.1, shall be applicable.

#### A.2 Test assembly

prEN 16510-1:2021, A.2, shall be applicable.

#### A.3 Measurement equipment

prEN 16510-1:2021, A.3, shall be applicable.

#### A.4 Test procedures

prEN 16510-1:2021, A.4, shall be applicable with the following modification.

##### A.4.7 Performance test at nominal heat output

prEN 16510-1:2021, A.4.7, shall be applicable with the following modification.

##### A.4.7.1 General

prEN 16510-1:2021, A.4.7.1, shall be applicable with the following modifications.

*Deletion of the 2<sup>nd</sup> paragraph*

*Replacement of the 4<sup>th</sup> paragraph:*

The test may start from cold or may follow another test provided that the fire has been de-ashed in accordance with A.4.3 at the termination of that test. If the test is started from cold the pre-test period shall be preceded by an initial ignition and pre-test at nominal heat output. In either case the appliance is then operated for a further pre-test period or periods before commencing the test period. The duration of the pre-test period shall be sufficient to ensure that normal working conditions and a basic firebed are established.

*Addition of the following last paragraph:*

For appliances with fan assisted combustion air, the test shall be carried out with the fan operating continuously during the test period.

##### A.4.7.2 Ignition and pre-test period

prEN 16510-1:2019, A.4.7.2, shall be applicable with the following modifications.

*Addition after the 1<sup>st</sup> paragraph:*

For appliances using fan assisted combustion air supply, set the static pressure in the measurement section to that value which gives the appliance manufacturer's declared over-firebed pressure.