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Stanovanjske grelne naprave na trdna goriva - 2-2. del: Kaminski vložki, vključno odprti kamini na trdna goriva

Residential solid fuel burning appliances - Part 2-2: Inset appliances including open fires

Häusliche Heizgeräte für feste Brennstoffe - Teil 2-2: Kamineinsätze einschließlich offene Kamine

iTeh STANDARD PREVIEW

Equipement de chauffage domestique - Partie 2-2: Foyers ouverts et insert

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ICS:

97.100.30 Grelniki na trdo gorivo Solid fuel heaters

oSIST prEN 16510-2-2:2013 **en,fr,de**

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Residential solid fuel burning appliances - Part 2-2: Inset appliances including open fires

Équipement de chauffage domestique - Partie 2-2 : Foyers
ouverts et insert

Häusliche Heizgeräte für feste Brennstoffe - Teil 2-2:
Kamineinsätze einschließlich offene Kamine

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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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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Foreword

This document (prEN 16510-2-2:2013) 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 13229:2001.

EN 13240:2001, EN 13229:2001, EN 12815:2001 and EN 12809:2001 will be totally superseded by EN 16510 series. The revision of these European Standards takes into account the comments received at their 5-year review.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive 89/106/EEC, 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.

Principally it is possible to add further parts 2 at a later stage in order to cover other residential solid fuel burning appliances such as pellet stoves or slow heat release appliances.

This Part 2-2 is to be used in conjunction with the latest edition of EN 16510-1 and its amendments. It was established on the basis of prEN 16510-1:2013.

This Part 2-2 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 inset appliances including open fires*.

When a particular subclause of Part 1 is not mentioned in this Part 2-2, that subclause applies as far as is reasonable. When this Part 2-2 states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

prEN 16510-2-2:2013 (E)

1 Scope

This Part 2-2 of EN 16510 is applicable to hand fed solid fuel fired inset appliances, with or without functional modification, that operate without fire doors or operate with fire doors either as closed only or as closed or open, and also includes open fires fired by solid fuel. The surround of these appliances are integrated with the building with the exception of free-standing appliances and those inset appliances which are installed into a fireplace recess or enclosure. These appliances provide heat into the space where they are installed. Additionally, where fitted with a boiler, they also provide domestic hot water and/or central heating.

The appliances covered by this Part 2-2 of EN 16510 provide heat into the space where they are installed. Additionally, where fitted with a boiler, they also provide domestic hot water and/or central heating. These appliances may burn either solid mineral fuels, peat briquettes, natural or manufactured wood logs or be multi-fuel in accordance with the appliance manufacturer's instructions.

This Part 2-2 of EN 16510 also covers 'Kachelofen' and 'Putzofen' inset appliances, having nominal heat outputs up to 15 kW in accordance with category Ic of prEN 16510-1:2013, Table 1.

This Part 2-2 of EN 16510 is not applicable to appliances with fan assisted combustion air or appliances that are mechanically fired.

Open fireplace components such as a bottomgrate with associated firefront which the manufacturer supplies for installation into an existing heat resistant, insulated firebox are not covered by this Part 2-2 of EN 16510.

2 Normative references

prEN 16510-1:2013, Clause 2, is applicable with the following modification.

Addition

DIN 51060, *Refractory ceramic raw materials and refractories — Definitions of the terms refractory, high refractory*
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3 Terms and definitions

prEN 16510-1:2013, Clause 3 is applicable.

4 Classification of appliances and system boundary for roomsealed appliances

prEN 16510-1:2013, Clause 4, is applicable.

5 Materials, design and construction

prEN 16510-1:2013, Clause 5, is applicable with the following modifications.

5.2.5 Flueways

prEN 16510-1:2013, 5.2.5, is applicable with the following modification.

Addition after 1st paragraph:

For Kachelofen or Putzöfen inset appliances the flueways shall be tight and shall have tight cleaning openings, which allow a proper cleaning. Metal flueways shall be made of steel as given in prEN 16510-1:2013, Table 3, with a minimum thickness of 2 mm or cast iron as given in prEN 16510-1:2013, Table 4, with a thickness of 4 mm or of austenitic stainless steel with a thickness of 1 mm. Fireclay bricks, plates or components of flueways shall comply with DIN 51060.

5.2.6 Ashpan and ash removal

prEN 16510-1:2013, 5.2.6, is applicable with the following modification.

Addition after 1st paragraph:

Kachelöfen or Putzöfen inset appliances designed to burn coal as well as wood shall be equipped with an ashpan having a minimum volume capacity of 0,8 dm³ per kW of nominal heat output. For Kachelöfen' or Putzöfen' insets which are specifically designed to burn wood logs and wood briquettes, and if they are equipped with an ashpan, the minimum volume capacity of this ashpan shall be 0,5 dm³ per kW of nominal heat output.

5.2.7 Bottomgrate

prEN 16510-1:2013, 5.2.7, is applicable with the following modification.

Addition after 1st paragraph and Note:

Grate devices fitted to Kachelöfen or Putzöfen inset appliances shall be easy to de-ash without undue effort.

6 Safety requirements

prEN 16510-1:2013, Clause 6, is applicable with the following modification.

Addition of the following new subclauses

6.101 Cut-off device for appliances without doors

If a cut-off device is fitted to an appliance without doors, it shall separate the appliance from the chimney. The cut-off device shall not hinder control or cleaning of the connecting parts, and the device shall maintain the position in which it is set.

The marking of the position of the operating handle shall enable identification of the position of the cut-off device. The cut-off device shall only be installed into the flue gas collector, flue spigot or flue gas connector and it shall separate the flueway from the chimney. The cut-off device shall only be used when the appliance is out to prevent heat loss from the room via the chimney and to prevent the fall of soot into the room when the chimney is swept.

6.102 Temperature at air grilles for Kachelöfen or Putzöfen inset appliances

For the test in compliance with A.4.7 and A.4.101 the temperature recorded at the central flow at a distance of 15 cm from outside of the air grilles shall not be greater than 85 °C when referenced to an ambient temperature of 25 °C.

7 Performance requirements

prEN 16510-1:2013, Clause 7, is applicable with the following modifications.

7.2.2 Carbon monoxide emission

prEN 16510-1:2013, 7.2.2, is applicable with the following modification.

Addition after 1st paragraph:

For Kachelöfen or Putzöfen inset appliances, when tested in accordance with A.4.7 and A.4.101 the mean carbon monoxide content of the dry flue gas shall not exceed 0,2 % related to 13 % O₂ when the test fuels corresponding to prEN 16510-1:2013, Table B.1, are burned.

prEN 16510-2-2:2013 (E)**7.3 Efficiency**

prEN 16510-1:2013, 7.3, is applicable with the following modification.

Addition after 1st paragraph:

For Kachelofen and Putzofen inset appliances the manufacturer's declared efficiency value shall be equal to or exceed 75 %.

For open fires without boiler the manufacturer's declared efficiency value shall be equal to or exceed 30 %.

For open fires with boiler the manufacturer's declared efficiency value shall be equal to or exceed 50 %.

For all other inset appliances that operate with firedoors closed the manufacturer's declared efficiency value shall be equal to or exceed 65 %.

7.4 Flue draught

prEN 16510-1:2013, 7.4, is applicable with the following modification.

Addition after last paragraph:

For appliances with open firebox, when measuring nominal heat output, water heating output and space heating output in accordance with A.4.7 the mean flue draught shall be 10 Pa and shall be kept within ± 1 Pa of this specified flue draught value. When testing for safety in accordance with A.4.9.3 the flue draught shall be (14_0^{+2}) Pa.

For Kachelofen and Putzofen inset appliances for the test at nominal heat output, the test of accumulation heat output, the safety-test with fir timber and the recovery test the flue draught shall be (15 ± 2) Pa.

For Kachelofen and Putzofen inset appliances for the slow combustion test the flue draught shall be (7 ± 2) Pa.

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7.6 Refuelling intervals at nominal heat output

prEN 16510-1:2013, 7.6, is applicable with the following modification.

Replacement of Table 8:

Table 8 — Minimum refuelling intervals or burning rate

Appliance type	Test fuel type (as detailed in Table B.1)	Minimum refuelling interval or burning rate	
		Appliance without firedoors	Appliance with firedoors closed
At nominal heat output			
Continuous burning appliance	Wood logs, lignite briquettes or peat briquettes	no requirements	1.5 h
	All other test fuels	1,5 h	4 h
Intermittent burning appliance	Wood logs, lignite briquettes or peat briquettes	no requirements	40 min
	All other test fuels	no requirements	1 h
Kachelöfen or Putzöfen inset appliance	Wood logs, lignite briquettes or peat briquettes	not applicable	(90 ⁺¹⁰ ₋₂₀) min
	All other test fuels	not applicable	4 h
At slow or reduced combustion			
Continuous burning appliance	Wood logs, lignite briquettes or peat briquettes	no requirements	3 h
	All other test fuels	10 h	12 h
Intermittent burning appliance	Wood logs, lignite briquettes or peat briquettes	no requirements	no requirements
	All other test fuels	10 h	10 h
Kachelöfen or Putzöfen inset appliance	Wood logs, lignite briquettes or peat briquettes	not applicable	burning rate to achieve (50 ± 10) % of nominal heat output
	All other test fuels	not applicable	burning rate to achieve at least 12 h

Addition of the following new subclause:

7.101 Accumulation heat output for Kachelofen or Putzofen inset appliances

The accumulation heat output shall be in accordance with the heat released when burning the test fuel load in kg given by the manufacturer when tested in accordance with A.4.101

8 Appliance instructions

prEN 16510-1:2013, Clause 8, is applicable.

9 Evaluation of conformity

prEN 16510-1:2013, Clause 9, is applicable.

10 Marking

prEN 16510-1:2013, Clause 10, is applicable.

Annex A (normative)

Test methods

A.1 Test environment

prEN 16510-1:2013, A.1, is applicable.

A.2 Test assembly

prEN 16510-1:2013, A.2, is applicable.

A.3 Measurement equipment

prEN 16510-1:2013, A.3, is applicable.

A.4 Test procedures

prEN 16510-1:2013, A.4, is applicable with the following modifications.

A.4.7 Performance test at nominal heat output

prEN 16510-1:2013, A.4.7, is applicable with the following modifications.

A.4.7.1 General

prEN 16510-1:2013, A.4.7.1, is applicable with the following modifications.

Addition before 1st paragraph:

In the case of Kachelöfen or Putzöfen inset appliances the performance test at nominal heat output shall consist of three parts:

- an ignition and a dry heating, if the appliance is made of ceramic materials;
- pre-test(s) period(s);
- a test period.

The dry heating period shall be of sufficient duration to ensure that the water content of ceramic materials does not effect the results of the weighing during the test period.

NOTE A dry heating period of 10 h or more is typical.

Replacement of Table A.2:

Table A.2 — Minimum duration and minimum number of test periods

Appliance	Fuel	Test period		
		Minimum duration closed	Minimum duration open	Minimum number
At nominal heat output				
Continuous burning	Wood, lignite briquettes, peat briquettes	1,5 h	-	2
Continuous burning	All other solid mineral fuel	4 h	1,5 h	2
Intermittent burning	Wood, lignite briquettes, peat briquettes	40 min	-	3
Intermittent burning	All other solid mineral fuel	1 h	-	2
Kachelofen or Putzofen inset appliances	Wood, lignite briquettes, peat briquettes	(90 ⁺¹⁰ ₋₂₀) min	-	3
Kachelofen or Putzofen inset appliances	All other solid mineral fuel	4 h	-	2
At slow or reduced combustion				
Continuous burning	Wood, lignite briquettes, peat briquettes	3 h	-	2
Continuous burning	All other solid mineral fuel	12 h	10 h	2
Intermittent burning	Wood, lignite briquettes, peat briquettes	-	-	
Intermittent burning	All other solid mineral fuel	10 h	10 h	2
Kachelofen or Putzofen inset appliances	Wood, lignite briquettes, peat briquettes	burning rate to achieve (50 ± 10) % of nominal heat output	-	3
Kachelofen or Putzofen inset appliances	All other solid mineral fuel	burning rate to achieve at least 12 h	-	2

A.4.7.3 Test period

prEN 16510-1:2013, A.4.7.3, is applicable with the following modification.

Addition before 5th paragraph:

In the case of Kachelöfen or Putzöfen inset appliances also measure and record the temperature of the test surround and at the air grilles either continuously or at regular intervals of not more than 1 min to ensure that the maximum temperatures achieved are recorded.

prEN 16510-2-2:2013 (E)**A.4.8 Slow combustion, reduced combustion and recovery test**

prEN 16510-1:2013, A.4.8, is applicable with the following modifications.

A.4.8.1 General

prEN 16510-1:2013, A.4.8.1, is applicable with the following modification.

Addition before 6th paragraph:

The duration of the test period or the burning rate requirements in the case of Kachelöfen or Putzöfen inset appliances shall be as specified in Table 8 and Table A.2.

A.4.8.2 Pre-test period

prEN 16510-1:2013, A.4.8.2, is applicable with the following modification.

Addition before 4th paragraph:

In the case of Kachelöfen or Putzöfen inset appliances reduce the heat output by reducing the setting of the primary air control in stages until the burning rate is either $(50 \pm 10) \%$ of the measured burning rate at nominal heat output for test wood logs and peat briquettes or approximately 33 % of the measured burning rate at nominal heat output for other test fuels.

A.4.8.3 Test period

prEN 16510-1:2013, A.4.8.3 is applicable with the following modifications.

Addition before 3rd paragraph:

In the case of Kachelöfen or Putzöfen inset appliances measure and record the temperature of the test surround either continuously or at regular intervals of not more than 81 min to ensure that the maximum temperatures achieved are recorded.

Addition before 7th paragraph:

For Kachelöfen or Putzöfen inset appliances using solid mineral test fuel, end the test when the mass of the basic firebed is the same as the basic limbed left at the end of the pre-test period.

Addition before 8th paragraph:

For Kachelöfen or Putzöfen inset appliances using wood logs and peat briquettes end the test when at least a sufficient firebed to allow recovery is available.

A.4.8.4 Recovery test period

prEN 16510-1:2013, A.4.8.4, is applicable with the following modification.

Addition after the last paragraph:

For Kachelöfen or Putzöfen inset appliances the following test procedure has to be followed.

At the end of the slow combustion test period, reset the appliance controls in accordance with the manufacturer's operating instructions to give the nominal heat output. Adjust the applied draught so that the static pressure in the measurement section is set to (15 ± 2) Pa. De-ash the firebed in accordance with A.4.3, and add a refuel charge if necessary as follows:

- when using solid mineral test fuels, the refuel charge shall be at least 33 % of the nominal heat output test charge;