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**Ogrevalni kotli na trdna goriva - Imenska grelna moč do 50 kW - Zahteve in preskusne metode**

Residential independent boilers fired by solid fuel - Nominal heat output up to 50 kW - Requirements and test methods

Heizkessel für feste Brennstoffe - Nennwärmeleistung bis 50 kW - Anforderungen und Prüfungen

Chaudières domestiques à combustible solide destinées à être implantées dans le volume habitable - Puissance calorifique nominale inférieure ou égale à 50 kW - Exigences et méthodes d'essai

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**Ta slovenski standard je istoveten z: EN 12809:2001/A1:2004**

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**ICS:**

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
97.100.30	Grelniki na trdo gorivo	Solid fuel heaters

**SIST EN 12809:2003/A1:2005****en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12809:2001/A1**

September 2004

ICS 91.140.10

English version

**Residential independent boilers fired by solid fuel - Nominal heat output up to 50 kW - Requirements and test methods**

Chaudières domestiques à combustible solide destinées à être implantées dans le volume habitable - Puissance calorifique nominale inférieure ou égale à 50 kW - Exigences et méthodes d'essai

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This amendment A1 modifies the European Standard EN 12809:2001; it was approved by CEN on 18 June 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This amendment exists 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

**EN 12809:2001/A1:2004 (E)****Foreword**

This document (EN 12809:2001/A1:2004) has been prepared by Technical Committee CEN/TC 295 “Residential solid fuel burning appliances”, the secretariat of which is held by BSI.

This Amendment to the European Standard EN 12809:2001 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by May 2006.

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 the relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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

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## 1 Contents list

*Insert the title listing for a new Clause 9 after Clause 8 as follows:*

“Clause 9 Evaluation of conformity”

*Insert the title listings for new Tables 10 and 11 after existing Table 9 and before Table A.1 as follows:*

“Table 10 – Characteristics to take account of in deciding family of appliances

Table 11 – Performance characteristics to take account of in deciding family of appliances”

*Delete the existing contents listing of Table 9.*

*Delete the existing contents listing of Annex C and replace with the listing of Annex ZA as follows:*

“Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive”

*Insert a new title listing for Bibliography after new Annex ZA.*

## 2 Clause 2 Normative references

*Add the following new references:*

EN 50165 *Electrical equipment of non-electric appliances for household and similar purposes - Safety requirements*

ISO 2859 (all parts) *Sampling procedures for inspection by attributes.*“

## 3 Clause 3 Terms and definitions

*Delete the existing 3.27 and replace with the following:*

### “3.27

#### **flue gas connector**

duct through which flue gases are conveyed from the flue spigot of the appliance into the chimney flue”

*Add the following new definition:*

### “3.51

#### **integral fuel storage container**

enclosed area forming part of the appliance, but not connected directly to the fuel charging area, in which fuel is stored prior to it being physically transferred by the user to the fuel charging position”

## EN 12809:2001/A1:2004 (E)

**4 Clause 4 Materials, design and construction****4.1 Production documentation**

*Add the following new text after the first paragraph:*

“The parameters and characteristics considered in making the decisions in relation to either the family or range of appliances to be submitted for initial type testing (see 9.2.1) or further type testing where changes are made to an appliance (see 9.2.2) 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.”

**5 Clause 5 Safety**

*Add the following new subclause to cover electrical safety:*

**“5.6 Electrical safety**

The appliance shall comply with the electrical safety requirements of EN 50165 if mains operated electrical equipment is fitted as part of the appliance.”

**6 Clause 6 Performance****6.1 Refuelling interval at nominal heat output**

*Add a new 3<sup>d</sup> paragraph as follows:*

“The nominal load shall be calculated using the refuelling intervals, the minimum efficiencies related to the claimed nominal heat outputs and the calorific values of the fuels as detailed in A.4.2.”

**6.2 Efficiency at nominal heat output**

*Delete “Efficiency at nominal heat output” in clause heading of sub-clause 6.2 and replace with the following:*

**“Efficiency”.**

*Delete existing NOTE of sub-clause 6.2 and its accompanying text and replace with the following:*

“Some countries have existing national legislation which set limits for minimum efficiency under slow combustion, in these cases the minimum efficiency shall be measured during the slow combustion test in accordance with A.4.8 for appliances sold in that country”

**6.7 Carbon monoxide emission classes**

*Delete the existing clause title and the whole of the existing text and the accompanying NOTE of sub-clause 6.7 together with the whole of Table 9 and replace with the following:*

**“6.7 Carbon monoxide emission**

“When measured in accordance with A.4.7, the mean carbon monoxide concentration calculated to 13% oxygen (O<sub>2</sub>) content in the flue gas shall be less than or equal to the manufacturer’s declared value and shall not exceed 1,0%.

Some countries have existing national legislation which set limits for maximum carbon monoxide concentration levels under slow combustion, in these cases the carbon monoxide level shall be measured during the slow combustion test in accordance with A.4.8 for appliances sold in that country.”

## 7 Clause 7 Appliance instructions

### 7.2 Installation instructions

*Delete the existing indent 8 of sub-clause 7.2 and replace with the following:*

“ – the flue gas mass flow (in g/s) at nominal heat output if required by national/local regulation (or alternatively the nominal heat output and the appliance efficiency and mean CO<sub>2</sub> concentration when operating at nominal heat output should be given for all test fuel types);

## 8 Clause 8 Marking

*Delete the existing indent 3 of Clause 8 and replace with the following 2 indents:*

“ – the measured CO concentration at 13% oxygen content;  
– the model number and/or designation or type to enable the appliance to be identified;”

## 9 New Clause 9

*Add the following new clause:*

### “9 Evaluation of conformity

#### 9.1 General

The compliance of a residential independent boiler appliance with the requirements of this standard and with the stated values shall be demonstrated by:

- type testing;
- factory production control by the manufacturer, including product assessment.

For the purposes of testing, appliances may be grouped into families, where it is considered that the selected performance characteristic or characteristics, especially in respect of those detailed in Table 10 and Table 11, is/are common to all appliances within that family.

## EN 12809:2001/A1:2004 (E)

## 9.2 Type testing

### 9.2.1 Initial type testing

Initial type testing shall be performed to demonstrate conformity to this standard. In the case of an appliance already in production the appliance to be tested shall be chosen at random and be representative of general production and the manufacturer shall provide a written declaration to this effect.

In the case of a prototype the appliance tested shall be a model representative of the intended future production and the manufacturer shall provide a written declaration that this is the case. When the appliance goes into production a dimensional and constructional check shall be undertaken on the production appliance to confirm it is in agreement with the originally type tested prototype model. If the dimensions of the production appliance diverge by more than 1 % of the dimension or  $\pm 3$  mm whichever is the lesser from that of the prototype in relation to the firebox and/or combustion chamber and any other dimension considered to be critical to the safety and performance of the appliance (especially in respect of the characteristics of Table 10 and Table 11) then the production appliance itself shall be subjected to further type testing as detailed in 9.2.2.

Similarly, if there is a change to the construction materials used which will adversely alter the performance characteristics of the appliance especially as regards its safety and/or the meeting of the performance characteristics of Table 11 then the production appliance itself shall be subject to further type testing as detailed in 9.2.2. This requirement regarding re-testing shall be applied if during the subsequent production or at the start of a new production run such a change is made to dimensions and/or construction materials. To ensure that this takes place there shall be a dimensional/constructional check on a current production appliance over an ongoing period not exceeding 3 years to demonstrate conformity to type.

Where tests have been previously performed in accordance with the provisions of this standard (same product, same characteristic(s), test method, sampling procedure, system of attestation of conformity, etc.) then the results of these tests shall be taken into account in assessing continuing conformity to type.

For a family or range of appliance it shall be permissible to test only selected appliances across the family or range and to only verify selected constructional and performance characteristics on the others, subject to a clear decision being made that the appliances are part of a family or range of appliances. For the initial type test at least a sufficient number of the appliances shall be chosen from across the family or range so as to represent adequately the family or range. The chosen appliances shall be subjected to complete testing to fully verify their compliance with all of the constructional and performance characteristics in accordance with this standard. For the other appliances in the family or range not chosen for complete testing it shall be permissible to only verify selected constructional and/or performance characteristics to ensure their compliance with the requirements of this standard and/or to ensure they will perform the same as the fully type tested appliances of the family or range.

In selecting appliances for type testing from a product range based upon their nominal heat outputs as representing such a family then sufficient appliances from the range shall be chosen for test such that the ratio of nominal heat output between the appliances does not exceed the ratio of 1,6:1.

Further, in deciding that the appliances belong to a family or range due account shall be taken of the construction and performance characteristics of each appliance especially in respect of the list of characteristics detailed in Table 10 and Table 11. The list of characteristics in Table 10 and Table 11 is not definitive and other aspects may need to be considered in making this judgement. Where a range of appliances of the same firebox and output have differing canopies or external cladding both in size and materials of construction (eg where the hot surface would be likely to be closer to combustible surfaces or there is a change from a lower to a higher conductivity or emissivity material) then at least one appliance shall be chosen which will be the worst scenario case and will demonstrate the safety of the range as regards surface temperature and safety of adjacent combustible materials.

Where the manufacturer claims conformity to the standard for a family of appliances on a number of different fuel types a selection of tests shall be made which demonstrates the conformity of the family in respect of the safety (Clause 5) and performance (Clause 6) on these fuels on the appliances especially but not limited to the list of characteristics detailed in Table 10 and Table 11.



The parameters, characteristics examined and considerations taken into account in making the decisions in relation to the family or range of appliances shall be recorded and a copy included in the production documentation for each appliance of the family or range (see 4.1).

### 9.2.2 Further type testing

Whenever a change occurs in either the appliance design, the raw material, the supplier of the components, or the production process, which would significantly alter the performance characteristics of the appliance especially in respect of one or more of the list of characteristics detailed in Table 10 and Table 11, the type tests shall be repeated for the appropriate characteristic(s).

It shall be permissible for this further type testing to verify only selected constructional and/or performance characteristics to ensure their compliance with the requirements of this standard and/or with the fully type tested appliances of the family or range.

For a family or range of appliance it shall be permissible to test only selected appliances across the family or range and to verify only selected constructional and performance characteristics on the others, subject to a clear decision being made that the appliances are part of a family or range of appliances.

In deciding the constructional and/or performance characteristics to be verified or the appliances to be tested (in the case of a family or range of appliances) due account shall be taken of the performance characteristics detailed in Table 11 together with the list of characteristics detailed in Table 10. The list of characteristics in Table 10 and Table 11 is not definitive and other aspects may need to be considered in making this judgement.

Where tests have been previously performed in accordance with the provisions of this standard then these test results shall also be taken into account in making the decision.

The parameters and characteristics considered in making either the decisions in relation to the constructional and/or performance characteristics to be verified or the appliances to be tested (in the case of a family or range of appliances) shall be recorded and a copy included in the production documentation for each appliance (see 4.1).

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## EN 12809:2001/A1:2004 (E)

Table 10 – Characteristics to take account of in deciding family of appliances

<b>A Design, materials etc.</b> <input type="checkbox"/> Exterior design, dimensions, weight etc. <input type="checkbox"/> System for air convection/radiation <input type="checkbox"/> Ashpan <input type="checkbox"/> Materials <input type="checkbox"/> Assembling methods, welding etc. <input type="checkbox"/> Other issues _____ <input type="checkbox"/> Sketches/Drawings	<b>D Combustion air</b> <input type="checkbox"/> Cross sections of air ducts (primary/secondary) <input type="checkbox"/> Length of air ducts (primary/secondary) <input type="checkbox"/> Number of bendings (primary/secondary) <input type="checkbox"/> Air inlets in combustion chamber (primary/secondary) <input type="checkbox"/> Pre-heating of air <input type="checkbox"/> Air control system <input type="checkbox"/> Other issues _____
<b>B Combustion chamber</b> <input type="checkbox"/> Dimensions of combustion chamber <input type="checkbox"/> Flue baffle plate(s) arrangement <input type="checkbox"/> Refractory material/insulation <input type="checkbox"/> Front firebars/deepening plate <input type="checkbox"/> Temperature conditions <input type="checkbox"/> Firedoor arrangement, glass component/area <input type="checkbox"/> Bottom grate, de-ashing system <input type="checkbox"/> Other issues _____	<b>E Integral fuel storage container</b> <input type="checkbox"/> Size <input type="checkbox"/> Protection against transfer of heat <input type="checkbox"/> Insulation <input type="checkbox"/> Other issues _____
<b>C Flue ways</b> <input type="checkbox"/> Cross sectional area <input type="checkbox"/> Length of flue gas passages <input type="checkbox"/> Flue spigot <input type="checkbox"/> Pressure loss <input type="checkbox"/> Transfer of heat <input type="checkbox"/> Insulation <input type="checkbox"/> Other issues _____	<b>F Integral boiler</b> <input type="checkbox"/> Design, size of heating surface, heat output <input type="checkbox"/> Materials <input type="checkbox"/> Tapping sizes, position <input type="checkbox"/> Waterway dimensions, venting etc. <input type="checkbox"/> Strength, leaktightness of boiler shell <input type="checkbox"/> Other issues _____

Table 11 – Performance characteristics to take account of in deciding family of appliances

Performance characteristic	Requirement clauses in this EN
Fire safety	4.2, 4.8, 4.9, 4.10, 4.11, 4.15, 4.16, 4.18, 5.1, 5.2
Emission of combustion products	4.2, 4.8, 4.9, 4.12, 4.13, 4.14, 4.15, 5.5, 6.7
Surface temperature	4.2, 5.1, 5.2, 5.4
Electrical safety	5.6
Cleanability	4.10, 4.11, 4.17, 4.18
Maximum operating pressure (applicable only where the appliance is fitted with a boiler)	4.2 to 4.7, 5.3
Flue gas temperature	6.3
Mechanical resistance (to carry a chimney/flue)	4.2, 4.15
Thermal output/Energy efficiency	6.1, 6.2, 6.4, 6.5, 6.6

### 9.3 Factory production control (FPC)

#### 9.3.1 General

The manufacturer shall establish, document and maintain a permanent FPC system and identify areas of responsibility to ensure that the products placed on the market conform with the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product and shall comply with the requirements specified in 9.3.2 to 9.3.8.

NOTE A permanent FPC system conforming to the requirements of EN ISO 9001 or otherwise equivalent and made specific to the requirements of this standard, is considered to satisfy the above requirements.

The manufacturer shall carry out FPC tests to monitor the conformity of the product. Sampling, testing or assessment shall be undertaken in accordance with ISO 2859 (all parts). The results of inspections, tests or assessments requiring action shall be recorded, as shall any action taken. The action to be taken when control values or criteria are not met shall be recorded.

### 9.3.2 Raw materials and components

The specifications of all incoming raw materials and components shall be appropriate for the intended use and shall be documented, as shall the inspection and testing scheme for ensuring the conformity of these materials and components.

### 9.3.3 Control of inspection, measuring and test equipment

All weighing, measuring and testing equipment used to demonstrate conformance of the product shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

### 9.3.4 Process control

The manufacturer shall identify and plan the production processes, which directly affects the product characteristics and shall ensure that these processes are carried out under controlled conditions. Where the required product characteristics cannot be fully verified by subsequent inspection and testing of the product, then the production processes shall be carried out by operators specifically trained to undertake this work.

### 9.3.5 Product inspection, testing and evaluation

#### 9.3.5.1 General

The manufacturer shall establish and maintain documented procedures for in-process and final inspection and testing, as appropriate to the product type, to ensure that the stated values of all of the product characteristics are maintained.

At least the following product characteristics, their criteria and means of control shall be included in the factory production control scheme.

#### 9.3.5.2 Materials of construction

- a) Type – composition/specifications
- b) Thickness
- c) Dimensions
- d) Finish.

A supplier's declaration for material type and properties is accepted, provided that the supplier has an appropriate factory production control system to ensure the adequacy, consistency and accuracy of the material type and properties.

#### 9.3.5.3 Insulation material

- a) Specification of insulation material
- b) Density value - thermal conductivity

A supplier's declaration for material type and properties is accepted, provided that the supplier has an appropriate factory production control system to ensure the adequacy, consistency and accuracy of the material type and properties.