SLOVENSKI STANDARD
SIST EN 16510-1:2018

01-september-2018

Nadomešča:
SIST EN 12809:2003
SIST EN 12815:2003
SIST EN 13229:2003
SIST EN 13240:2003

Stanovanjske grelne naprave na trdna goriva - 1. del: Splošne zahteve in preskusne metode

Residential solid fuel burning appliances - Part 1: General requirements and test methods

Häusliche Heizgeräte für feste Brennstoffe - Teil 1: Allgemeine Anforderungen und Prüfverfahren

Equipement de chauffage domestique - Partie 1 : Exigences et méthodes d'essai générales

Ta slovenski standard je istoveten z: **EN 16510-1:2018**

ICS:

97.100.30 Grelniki na trdo gorivo Solid fuel heaters

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EUROPEAN STANDARD

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EN 16510-1

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Supersedes EN 12809:2001, EN 12815:2001, EN 13229:2001, EN 13240:2001

English Version

Residential solid fuel burning appliances - Part 1: General requirements and test methods

Appareils de chauffage domestiques à combustion solide - Partie 1: Exigences générales et méthodes d'essai

Häusliche Feuerstätten für feste Brennstoffe - Teil 1: Allgemeine Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 24 March 2017.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This document (EN 16510-1:2018) has been prepared by Technical Committee CEN/TC 295 “Residential solid fuel burning appliances”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2019, and conflicting national standards shall be withdrawn at the latest by July 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document together with prEN 16510-2-1, prEN 16510-2-2, prEN 16510-2-3 and prEN 16510-2-4 will supersede EN 13240:2001, EN 13229:2001, EN 12815:2001, EN 12809:2001.

EN 13240:2001, EN 13229:2001, EN 12815:2001 and EN 12809:2001 will be totally superseded by the 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.

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: Appliances fired by wood pellets*.

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

EN 16510-1 should be used in conjunction with the appropriate Part 2. The Part 2-1 to 2-6 contain clauses to supplement or modify the corresponding clauses in this Part 1. Together Part 1 with the relevant Part 2 provides the requirements for each type of appliance. Regional / national specific regulations (for example on particulate matter emissions) may exist and these should be followed by the manufacturer.

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

1 Scope

This European Standard is applicable to residential solid fuel burning appliances.

This European Standard specifies requirements relating to the design, manufacture, construction, safety and performance (efficiency and emission) of appliances fired by solid fuel (hereafter referred to as "appliance(s)") and provides instructions for them. Furthermore, it also gives provisions for the evaluation of conformity i.e. initial type testing (ITT) and factory production control (FPC) and marking of these appliances.

This European Standard also covers CO, NOx, OGC and particulate matter (PM / PME – see Annex F) emission test methods, however this European Standard does not contain any values for the limit on these emissions.

Appliances receiving combustion air through ductwork from outside the external envelope, which is not air tight, are not considered roomsealed.This European Standard is not applicable to appliances with boiler parts in contact with fire or flue gases other than when the boiler parts are manufactured from steel or cast iron.

This European Standard is not applicable to appliances with a boiler intended for water systems having

— water temperatures above 110 °C and/or an operating pressure of more than 3 bar;

— direct contact with sanitary hot water.

This European Standard does not cover appliances to be operated with ventilating systems which are intended to operate with pressure below - 15 Pa in the room of installation of the appliance in relation to the outside atmosphere.

This European Standard does not cover appliances intended to carry the load of a chimney.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 303-5:2012, *Heating boilers — Part 5: Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW — Terminology, requirements, testing and marking*

EN 1561:2011, *Founding — Grey cast irons*

EN 1563:2011, *Founding — Spheroidal graphite cast irons*

EN 10025-1:2004, *Hot rolled products of structural steels — Part 1: General technical delivery conditions*

EN 10027-2, *Designation systems for steels — Part 2: Numerical system*

EN 10028-2, *Flat products made of steels for pressure purposes — Part 2: Non-alloy and alloy steels with specified elevated temperature properties*

EN 10028-3, *Flat products made of steels for pressure purposes — Part 3: Weldable fine grain steels, normalized*

EN 10029:2010, *Hot-rolled steel plates 3 mm thick or above — Tolerances on dimensions and shape*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels*

EN 10088-2, *Stainless steels — Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

EN 10111, *Continuously hot rolled low carbon steel sheet and strip for cold forming — Technical delivery conditions*

EN 10120, *Steel sheet and strip for welded gas cylinders*

EN 10216-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties*

EN 10222-4, *Steel forgings for pressure purposes — Part 4: Weldable fine grain steels with high proof strength*

EN 12619, *Stationary source emissions — Determination of the mass concentration of total gaseous organic carbon — Continuous flame ionisation detector method*

EN 12828, *Heating systems in buildings — Design for water-based heating systems*

EN 13384-2, *Chimneys — Thermal and fluid dynamic calculation methods — Part 2: Chimneys serving more than one heating appliance*

EN 14597, *Temperature control devices and temperature limiters for heat generating systems*

EN 14792, *Stationary source emissions — Determination of mass concentration of nitrogen oxides — Standard reference method: chemiluminescence*

EN 14793, *Stationary source emissions — Demonstration of equivalence of an alternative method with a reference method*

EN 15250, *Slow heat release appliances fired by solid fuel — Requirements and test methods*

EN 60335-2-102, *Household and similar electrical appliances — Safety — Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102)*

EN 60730-1, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1)*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 228-2:2003, *Pipe threads where pressure-tight joints are not made on the threads — Part 2: Verification by means of limit gauges (ISO 228-2:1987)*

EN ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1*)

EN ISO 9606-2, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys (ISO 9606-2)*

EN ISO 16948:2015, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen (ISO 16948:2015)*

EN ISO 16994:2016, *Solid biofuels — Determination of total content of sulfur and chlorine (ISO 16994:2016)*

EN ISO 18122:2015, *Solid biofuels — Determination of ash content (ISO 18122:2015)*

EN ISO 18123:2015, *Solid biofuels — Determination of the content of volatile matter (ISO 18123:2015)*

EN ISO 18125:2017, *Solid biofuels — Determination of calorific value (ISO 18125:2017)*

EN ISO 18134-1:2015, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method (ISO 18134-1:2015)*

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 7-2:2000, *Pipe threads where pressure-tight joints are made on the threads — Part 2: Verification by means of limit gauges*

ISO 331:1983,[1] *Coal — Determination of moisture in the analysis sample — Direct gravimetric method*

ISO 334:2013, *Solid mineral fuels — Determination of total sulfur — Eschka method*

ISO 501:2012, *Hard coal — Determination of the crucible swelling number*

ISO 562:2010, *Hard coal and coke — Determination of volatile matter*

ISO 609:1996, *Solid mineral fuels — Determination of carbon and hydrogen — High temperature combustion method*

ISO 687:2010, *Solid mineral fuels — Coke — Determination of moisture in the general analysis test sample*

ISO 1171:2010, *Solid mineral fuels — Determination of ash*

ISO 1928:2009, *Solid mineral fuels — Determination of gross calorific value by the bomb calorimetric method and calculation of net calorific value*

ISO 10849:1996, *Stationary source emissions — Determination of the mass concentration of nitrogen oxides — Performance characteristics of automated measuring systems*

ISO 19579:2006, *Solid mineral fuels — Determination of sulfur by IR spectrometry*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
accumulator
part of the appliance designed for accumulation of the heat released by the Kachelofen/Putzofen heat generator and which releases this heat slowly

3.2
accumulation heat output
quantity of useful heat released by an appliance with accumulator (i.e. the heat output from both the appliance and the accumulator) when burning the test fuel batch stated by the manufacturer and achieved under defined test conditions in accordance with this European Standard (see A.4.10)

3.3
accumulator load
quantity of heat which the fuel provides to the appliance for accumulation

1) ISO 331:1983 is withdrawn.

3.4
air grilles
components in the inlet and outlet openings to distribute and direct convection air flow

3.5
appliance enclosure
assembly consisting of walls and ceiling of non-combustible materials which is built on site to surround a Kachelofen/Putzofen heat generator and heat exchanger and to form a space from which hot convection air is emitted into the living space, e.g. by air grilles

3.6
appliance family
group of appliances of similar construction and/or performance characteristics where it is permissible to test only selected appliances in accordance with the requirements of this European Standard

3.7
appliance with boiler
heat generator consisting of a room heating component and a water heating component in one unit

3.8
ash content of the fuel
solid matter remaining after the complete combustion of solid fuel

3.9
ashpan
removable receptacle shaped to receive the residue falling from the firebed

3.10
ashpit
enclosed chamber designed to receive the residue or the ashpan

3.11
ashpit loss
part of the residue which is combustible

3.12
basic firebed
quantity of glowing embers (no visible flame) which ensures ignition of the test fuel to be charged, defined by mass of glowing embers or CO2-content in the flue gas

3.13
batch
1 fuel load, used during each cycle

3.14
batch charge (for slow heat release appliances)
proportion of the test load as specified by the manufacturer for slow heat release appliances that can be added at specified intervals during the test period of the burning rate performance test

3.15
boiler
vessel in which water is heated, intended for fitting in or forming an integral part of a solid fuel appliance

3.16
boiler flueway
portion of the flueway formed wholly or in part by the surfaces of the boiler

3.17
boiler waterways
space within a boiler which contains water

3.18
bottomgrate
part of the appliance at the base of the combustion chamber which supports the firebed through which the residue falls into the ashpan or ashpit and through which combustion air and/or combustion gases may be drawn

3.19
burning area
part of the combustion chamber floor limited by (front and lateral) firebars or a geometrically given zoning which is clearly evident for the operator to identify the fuel loading area(e.g. a vertical recess of at least 40 mm)

Note 1 to entry: A painting or a little step/vertical recess of e.g. 2 mm is not regarded as a geometrically given zoning.

3.20
burning rate
mass of test fuel burnt per unit of time as fired

3.21
charging door
door which covers the refuelling opening

3.22
combustion air
air supplied to the combustion chamber which is entirely or partially used to burn the fuel

3.23
combustion air control device
manual or automatic mechanism for setting the primary and/or secondary air in accordance with the burning rate required

3.24
combustion air inlet
integral component of the appliance e.g. for the connection of the combustion air pipe

3.25
combustion air selector
device for adjusting the primary and/or secondary air according to the type of fuel burnt

3.26
combustion chamber
part of the appliance in which the fuel is burnt

3.27
combustion chamber opening
aperture in the combustion chamber through which an appliance may be fuelled

3.28
combustion gas baffle
device to change the direction of flow of the combustion gases

3.29
combustion gases
compounds in gaseous form produced inside an appliance when fuel is burned

3.30
constant volume sampling
method to sample all exhaust gases of an appliance at constant flow rate

3.31
continuous burning appliance
heating appliance designed for slow burning over an extended period of time (e.g. overnight) and meeting the requirements of the slow combustion test

3.32
conveyor system
device for feeding the fuel from the hopper to the retort

3.33
cut-off device
mechanism to block the supply of flue when the appliance is not in use

3.34
cycle
period from reloading until basic fire bed is reached

3.35
damper
mechanism to change the resistance to flow of the combustion gasways

3.36
de-ashing
process of clearing a firebed and discharging the residue into the collecting receptacle

3.37
dilution ratio
volume ratio of the total diluted gas volume and the undiluted flue gas volume at standard conditions on dry basis

3.38
dilution tunnel
sampling duct to allow constant volume sampling of the appliance exhaust gases with dilution air

3.39
dilution tunnel gas flow rate
flow rate of the diluted gases in the dilution tunnel

3.40
draught regulator
internal inlet device for admission of air downstream of the firebed, enabling the flue draught to be controlled