

Trummelkatlad. Osa 12: Nõuded kihtpõletussüsteemidele tahke kütusel töötava boileri puhul

Shell boilers - Part 12: Requirements for grate firing
systems for solid fuels for the boiler

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12953-12:2007 sisaldab rahvusvahelise standardi ingliskeelset teksti.	This Estonian standard EVS-EN 12953-12:2007 consists of the English text of the international standard .
Käesolev dokument on jõustatud 29.01.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 29.01.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

Käsitlusala: This part of this European Standard specifies the requirements for internal or external grate firing systems commencing at the fuel bunkers and ending at the ash extraction plant. For combination of various firing systems, the individual requirements of each system also apply	Scope: This part of this European Standard specifies the requirements for internal or external grate firing systems commencing at the fuel bunkers and ending at the ash extraction plant. For combination of various firing systems, the individual requirements of each system also apply
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ICS 27.060.30, 27.100

Võtmesõnad: boilers, heat exchangers, installa, large waterspace boiler, plant, production, properties, quality, quality requirements, safety requirements, solid fuels, specification (approval), specifications, steam boilers, steam generators, tanks, testing, water-tube boilers

ICS 27.060.30; 27.100

English version

Shell boilers - Part 12: Requirements for grate firing systems for solid fuels for the boiler

Chaudières à tubes de fumée - Partie 12: Exigences pour les équipements de chauffe à grille pour combustibles solides de la chaudière

Großwasserraumkessel - Teil 12: Anforderungen an Rostfeuerungsanlagen für feste Brennstoffe für den Kessel

This European Standard was approved by CEN on 12 June 2003.

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Foreword

This document EN 12953-12:2003 has been prepared by Technical Committee CEN/TC 269 "Shell and water-tube boilers", the secretariat of which is held by DIN.

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 March 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

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) (Pressure Equipment Directive 97/23/EC) [1].

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

The European Standard EN 12953 concerning shell boilers consists of the following Parts:

- *Part 1: General*
- *Part 2: Materials for pressure parts of boilers and accessories*
- *Part 3: Design and calculation for pressure parts*
- *Part 4: Workmanship and construction of pressure parts of the boiler*
- *Part 5: Inspection during construction, documentation and marking of pressure parts of the boiler*
- *Part 6: Requirements for equipment for the boiler*
- *Part 7: Requirements for firing systems for liquid and gaseous fuels for the boilers*
- *Part 8: Requirements for safeguards against excessive pressure*
- *Part 9: Requirements for limiting devices of the boiler and accessories*
- *Part 10: Requirements for feedwater and boiler water quality*
- *Part 11: Acceptance tests*
- *Part 12: Requirements for grate firing systems for solid fuels for the boiler*
- *Part 13: Operating instructions*

CR 12953 Part 14: *Guideline for the involvement of an inspection body independent of the manufacturer (TR)*

Although these Parts may be obtained separately, it should be recognized that the Parts are interdependent. As such, the design and manufacture of shell boilers requires the application of more than one Part in order for the requirements of the European Standard to be satisfactorily fulfilled.

The annex A of this European Standard is informative.

This document includes a Bibliography.

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

1 Scope

1.1 Firing systems

This part of this European Standard specifies the requirements for internal or external grate firing systems commencing at the fuel bunkers and ending at the ash extraction plant. For combination of various firing systems, the individual requirements of each system also apply.

If several fuels are burnt simultaneously or if a fuel quality varies considerably (e.g. moisture content), additional safety measures can be necessary, especially with respect to limitation of the fuel flow into the firing system and ensuring proper air supply to the individual fuels.

1.2 Fuels

The solid fuels covered are:

- all coal qualities, e.g. lignite or brown coal, sub-bituminous or hard brown coal, bituminous coal or hard coal, pitch coal, anthracite, coke, coal culm, coal sludge;
- other fossil solid fuels (e.g. petrol coke peat, oil shale);
- biomass solid fuels (e.g. wood, wood wastes [bark], energy plants [miscanthus], harvest wastes [straw]);
- municipal waste solid fuels (e.g. garbage, sewage sludge, refuse derived fuels [RDF]);
- industrial waste solid fuels (e.g. petrol coke, soot, tyres, paper wastes, coated wood chips, spent wood, animal product wastes).

Fuel blends from two or more of these groups (see 4.1.7), or fuels of unconventional or unknown quality can require special safety measures which can be proved either by practical experience gained from comparable fuels, or by suitable tests, e.g. in accordance with EN 26184-1. Such measures should be documented by the manufacturer.

Fuels on which the design is based should be *specified* in the operating instructions (see 11.2). This should include the fuel data for 100 % input of the basic fuel and the data for any supplementary fuels together with their maximum thermal input percentage.

1.3 Operational equipment

The requirements for operational equipment in clauses 4 to 10 apply to steam boilers and hot water generators with permanent supervision by properly trained personnel familiar with the special conditions of the firing systems and the type of fuel.

Annex A contains the operational requirements for permanent supervision.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 12952-8:2002, *Water-tube boilers and auxiliary installations – Part 8: Requirements for firing systems for liquid and gaseous fuels for the boiler.*

EN 12952-9:2002, *Water-tube boilers and auxiliary installations — Part 9: Requirements for firing systems for pulverized solid fuels for the boiler.*

EN 12953-7, *Shell boilers — Part 7: Requirements for firing systems for liquid and gaseous fuels for the boiler.*

EN 26184-1, *Explosion protection systems — Part 1: Determination of explosion indices of combustible dusts in air (ISO 6184-1:1985)*.

prEN 50156-1, *Electrical equipment for furnaces and ancillary equipment — Part 1: Requirements for application design and installation*.

3 Terms and definitions

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

3.1

back-up firing system

separate firing system to maintain safe ignition and stable combustion. The lighting-up equipment can be used for this purpose

3.2

basic fire

layer of glowing fuel, fire bed or flame of the fed fuel. The basic fire can also perform the duty of the lighting-up equipment, or the back-up firing system (mostly air)

3.3

carrier gas

transport medium for pneumatic conveying

3.4

combustion air

total air supplied to the firing system for combustion

3.5

firing systems

can be distinguished in accordance with the type and structure of the fuel, the feeding procedure and the process of combustion. Fuel and air can be introduced in the combustion chamber in different ways to establish and maintain proper ignition and stable combustion. Combustion of the fuel is performed on grates

3.6

fuel bin

silo

dust-tight container for temporary storage of combustible solids in the boiler room

3.7

fuel bunker

open storage of solid fuel

3.8

fuel feeding system

device to transport fuel into the combustion chamber

NOTE This can be effected directly by feeders through ports in the furnace walls, by means of chutes or through the bottom grate

3.9

fuel handling plant

installation for conveying, mixing and distributing solid fuels to the individual fuel bunkers or fuel bins

3.10

grate firing system

fuel is burnt in a layer supported by a system of firebars which may have a cooling system

NOTE The firebars should be so spaced as to admit the undergrate combustion air supply in proper distribution. Other means of admitting and distributing the combustion air supply can be provided.