

**Veetorudega katlad ja abipaigaldised.
Osa 16: Nõuded kiht- ja keevkihiga
põletussüsteemile tahkel kütusel
töötava boileri puhul**

Water-tube boilers and auxiliary installations - Part
16: Requirements for grate and fluidized-bed firing
systems for solid fuels for the boiler

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12952-16:2003 sisaldab Euroopa standardi EN 12952-16:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 19.03.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12952-16:2003 consists of the English text of the European standard EN 12952-16:2002.</p> <p>This document is endorsed on 19.03.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This European Standard applies to atmospheric fluidized-bed and grate firing systems. These systems commence at the fuel bunkers and end at the ash extraction plant. For combination of various firing systems, the individual requirements of each system apply, especially those included in prEN 12952-8 and prEN 12952-9</p>	<p>Scope:</p> <p>This European Standard applies to atmospheric fluidized-bed and grate firing systems. These systems commence at the fuel bunkers and end at the ash extraction plant. For combination of various firing systems, the individual requirements of each system apply, especially those included in prEN 12952-8 and prEN 12952-9</p>
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ICS 27.040

Võtmesõnad: boilers, heat exchangers, plant, protective measures, safety, safety engineering, sample surveys, solid fuels, specification (approval), specifications, steam boilers, steam generation, steam generators, storage, surveillance (approval), tanks, water-tube boilers

ICS 27.040

English version

**Water-tube boilers and auxiliary installations - Part 16:
Requirements for grate and fluidized-bed firing systems for solid
fuels for the boiler**

Chaudières à tubes d'eau et installations auxiliaires - Partie
16: Exigences pour les équipements de chauffe à lit fluidisé
et à grille pour combustibles solides de la chaudière

Wasserrohrkessel und Anlagenkomponenten - Teil 16:
Anforderungen an Rost- und
Wirbelschichtfeuerungsanlagen für feste Brennstoffe für
den Kessel

This European Standard was approved by CEN on 4 November 2002.

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 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 Management Centre has the same status as the official versions.

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



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Foreword

This document (EN 12952-16:2002) 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 June 2003, and conflicting national standards shall be withdrawn at the latest by June 2003.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements EU Directive 97/23/EC [1].

For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

The European Standard EN 12952 concerning water-tube boilers and auxiliary installations 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: In-service boiler life expectancy calculations*
- *Part 5: Workmanship and construction of pressure parts of the boiler*
- *Part 6: Inspection during construction, documentation and marking of pressure parts of the boiler*
- *Part 7: Requirements for equipment for the boiler*
- *Part 8: Requirements for firing systems for liquid and gaseous fuels for the boiler*
- *Part 9: Requirements for firing systems for pulverized solid fuels for the boiler*
- *Part 10: Requirements for safeguards against excessive pressure*
- *Part 11: Requirements for limiting devices of the boiler and accessories*
- *Part 12: Requirements for feedwater and boiler water quality*
- *Part 13: Requirements for flue gas cleaning systems*
- *Part 14: Requirements for flue gas DENOX-systems*
- *Part 15: Acceptance tests*
- *Part 16: Requirements for grate and fluidized-bed firing systems for solid fuels for the boiler*

CR 12952-17, *Water-tube boilers and auxiliary installations — Part 17: Guideline for the involvement of an inspection body independent of the manufacturer.*

Although these parts may be obtained separately, it should be recognized that the parts are inter-dependent. As such, the design and manufacture of water-tube boilers requires the application of more than one part in order for the requirements of the European Standard to be satisfactorily fulfilled.

NOTE Parts 4 and 15 are not applicable during the design, construction and installation stages.

Annex A of this European Standard is informative.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

1.1 Firing systems

This Part of this European Standard applies to atmospheric fluidized-bed and grate firing systems of steam boilers and hot water generators. These systems commence at the fuel bunkers and end at the ash extraction plant. For combination of various firing systems, the individual requirements of each system apply, especially those included in EN 12952-8 and EN 12952-9.

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

Pressurized firing systems may require enhanced safety measures, which are not given in this European Standard.

1.2 Fuels

This European Standard covers the use of solid fuels. Pulverized fuel fired in an entrained air flow (burner) system is covered by EN 12952-9.

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. peat, oil shale);
- biomass solid fuels (e.g. wood, wood wastes [bark], pellets, energy plants [miscanthus], harvest wastes [straw] and briquettes);
- 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 groups, or fuels of unconventional or unknown quality may 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 specified and documented by the manufacturer.

Fuels on which the design is documented in the operating instructions (see 11.2). This 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 Operation

The requirements for operational equipment in clauses 4 to 11 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.

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 fuel for the boiler.*

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

annunciator

device to sense a non-standard or abnormal condition and initiate a visual and/or audible signal

3.2

back-up firing system

separate firing system to maintain safe ignition and stable combustion

3.3

basic fire

in the case of grate firing systems the layer of glowing fuel, fire bed, or flame of the fed fuel

NOTE The basic fire ensures safe ignition.

3.4

carrier gas

transport medium for pneumatic conveying

3.5

combustion air

total air supplied to the firing system for combustion

3.6

combustion process monitoring device

device which detects the presence of the fire, or the conditions required for a stable combustion process

3.7

firing system heat input

heat input into the combustion chamber. This normally is calculated as the mass flow of the fuel multiplied by its net calorific value

3.8

firing systems

the total equipment required for the combustion of fuels, including the installations for the storage in the boiler house, preparation and supply of fuels, the combustion air supply, the grate or fluidized bed, the flue gas discharge, and all related control and monitoring devices