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Water-tube boilers and auxiliary installations - Part 7: Requirements for equipment for the boiler

Wasserrohrkessel und Anlagenkomponenten - Teil 7: Anforderungen an die Ausrüstung für den Kessel

Chaudières à tubes d'eau et installations auxiliaires - Partie 7: Exigences pour l'équipement de la chaudière

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This European Standard was approved by CEN on 8 September 2012.

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

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Contents

Foreword

This document (EN 12952-7:2012) 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of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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

This document supersedes EN 12952-7:2002.

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 97/23/EC, see informative Annex ZA, which is an integral part of this document.

Annex H provides details of significant technical changes between this European Standard and the previous edition.

The European Standard series 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 of the boiler;*

— *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 boiler feedwater and boiler water quality;*

— *Part 13: Requirements for flue gas cleaning systems;*

— *Part 14: Requirements for flue gas DENOX-systems using liquified pressurized ammonia and ammonia water solution;*

— *Part 15: Acceptance tests;*

— *Part 16: Requirements for grate and fluidized-bed firing systems for solid fuels for the boiler;*

— *CR 12952 Part 17: Guideline for the involvement of an inspection body independent of the manufacturer;*

— *Part 18: Operating instructions.*

Although these parts may be obtained separately, it should be recognised 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 this European Standard to be satisfactorily fulfilled.

NOTE 1 Part 4 and Part 15 are not applicable during the design, construction and installation stages.

NOTE 2 A "Boiler Helpdesk" has been established in CEN/TC 269 which may be contacted for any questions regarding the application of European Standards series EN 12952 and EN 12953, see the following website: http://www.boiler-helpdesk.din.de

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This part of this European Standard specifies the essential requirements for equipment and protective devices for a water-tube boiler plant as defined in EN 12952-1, to ensure the boiler operates safely within the allowable limits (pressure, temperature, etc.).

NOTE 1 Additional requirements specially needed for boilers without manual intervention are specified in Clause 7.

NOTE 2 Requirements for equipment for chemical recovery boilers are given in Annex A.

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 837-1, *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

EN 12952-1:2001, *Water-tube boilers and auxiliary installations — Part 1: General*

EN 12952-3:2011, *Water-tube boilers and auxiliary installations — Part 3: Design and calculation for pressure parts of the boiler*

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 12952-10:2002, *Water-tube boilers and auxiliary installations — Part 10: Requirements for safeguards against excessive pressure*

EN 12952-11:2007, *Water-tube boilers and auxiliary installations — Part 11: Requirements for limiting devices of the boiler and accessories*

EN 12952-12:2003, *Water-tube boilers and auxiliary installations — Part 12: Requirements for boiler feedwater and boiler water quality*

EN 12952-13, *Water-tube boilers and auxiliary installations — Part 13: Requirements for flue gas cleaning systems*

EN 12952-14, *Water-tube boilers and auxiliary installations — Part 14: Requirements for flue gas DENOX-systems using liquefied pressurized ammonia and ammonia water solution*

EN 12952-16:2002, *Water-tube boilers and auxiliary installations — Part 16: Requirements for grate and fluidized-bed firing systems for solid fuels for the boiler*

EN 12952-18, *Water-tube boilers and auxiliary installations — Part 18: Operating instructions*

EN 50156-1:2004, *Electrical equipment for furnaces and ancillary equipment — Part 1: Requirements for application design and installation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12952-1:2001, EN 12952-8:2002, EN 12952-9:2002, EN 12952-11:2007, EN 12952-12:2003 and EN 12952-16:2002 and the following apply.

3.1
Types of steam boilers and hot water generators

3.1.1
natural circulation steam boilers and hot water generators
steam boilers and hot water generators in which the water to be evaporated/heated circulates due to the differences in density

3.1.2
forced or assisted circulation steam boilers and hot water generators
steam boilers and hot water generators in which the water to be evaporated/heated is circulated by means of pumps

3.1.3
once-through steam boilers and hot water generators
steam boilers, with or without separating vessels, where the water flow is determined by the feedwater pump, and the water is evaporated completely or in a major portion during one single passage

Note 1 to entry: Hot water generators, where the water flow is effected by the circulating pump of the heating system and is heated during one single passage, e.g. once-through hot water generator where there is no contact between hot and cold water in the drum (two-way drum) once-through hot water generator with header distributing water from below.

3.1.4
waste heat steam boilers and hot water generators
boilers and generators utilising heat recovered from outside sources, e.g. gas turbines, blast furnaces

3.2
limits of steam boilers and hot water generators
boundaries of the steam and water spaces located between the shut-off devices of the steam boilers and hot water generators in the inlet, outlet, pressure retaining, overflow, and drain lines

Note 1 to entry: The bodies of the shut-off devices are considered to be within these limits.

3.3
steam boiler and hot water generating plant
plant consists of one or more water-tube boilers and their equipment as defined in EN 12952-1

3.4
heat supply system
assembly of components in which the energy of the fuel (including electrical and waste-heat energy) is supplied to the steam boilers and hot water generators

3.5
classification of pressure generation systems (Hot water generators)

3.5.1
internally pressurised systems
systems where the pressure is generated by the saturation pressure corresponding to the flow temperature

3.5.2
externally pressurised systems
systems where the pressure is generated by methods such as gas cushion or pressure pumps