EESTI STANDARD EVS-EN 12952-11:2007

Veetorudega katlad ja abipaigaldised. Osa 11: Nõuded boileri ja abiseadmete limiteerimisüksustele

Water-tube boilers and auxiliary installations - Part 11: Requirements for limiting devices of the boiler and accessories

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 12952-11:2007 sisaldab rahvusvahelise standardi ingliskeelset teksti. Käesolev dokument on jõustatud 14.09.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 12952-11:2007 consists of the English text of the international standard . This document is endorsed on 14.09.2007 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard specifies requirements for limiters (or limiting devices) which are incorporated into safety systems for water-tube boilers as defined in EN 12952-1. A limiter (or limiting device) can be either: - a safety accessory as defined in the Pressure Equipment Directive, Article 1, clause 2.1.3, and needs to include the safety logic and final actuator, or - one element of a safety system, for example, a self-monitoring water level sensor used as part of a safety accessory as defined in the Pressure Equipment Directive, Article 1, clause 2.1.3. The overall boiler protection function shall be provided in association with additional safety logic (where appropriate) and a final actuator.	**Scope:** This European Standard specifies requirements for limiters (or limiting devices) which are incorporated into safety systems for water-tube boilers as defined in EN 12952-1. A limiter (or limiting device) can be either: - a safety accessory as defined in the Pressure Equipment Directive, Article 1, clause 2.1.3, and needs to include the safety logic and final actuator, or - one element of a safety system, for example, a self-monitoring water level sensor used as part of a safety accessory as defined in the Pressure Equipment Directive, Article 1, clause 2.1.3. The overall boiler protection function shall be provided in association with additional safety logic (where appropriate) and a final actuator.

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Võtmesõnad: boilers, heat exchangers, pr, protective measures, safety, safety circuits, safety devices, safety engineering, safety valves, specification (approval), specifications, steam boilers, steam generators, steam heaters, steam heating, tanks, testing, water-tube boilers

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Water-tube boilers and auxiliary installations - Part 11: Requirements for limiting devices of the boiler and accessories

Chaudières à tubes d'eau et installations auxiliaires - Partie 11: Exigences pour les dispositifs de limitation de la chaudière et de ses accessoires

Wasserrohrkessel und Anlagekomponenten - Teil 11: Anforderungen an Begrenzungseinrichtungen an Kessel und Zubehör

This European Standard was approved by CEN on 26 May 2007.

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 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 Management Centre has the same status as the official versions.

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Foreword

This document (EN 12952-11:2007) 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 January 2008, and conflicting national standards shall be withdrawn at the latest by January 2008.

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(s), 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 boiler feedwater and boiler water quality.*
— *Part 13: Requirements for flue gas cleaning systems.*
— *Part 14: Requirements for flue gas DENOX-systems using liquefied 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.

Although these Parts can 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 the standard to be satisfactorily fulfilled.

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

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

The types of limiters which shall be fitted to boilers are specified in EN 12952-7 and the design of the safety systems are specified in EN 50156-1.

A limiter (or limiting device) is one element of a water-tube boiler safety system. It comprises a sensor and monitoring elements to achieve the desired level of reliability.

In order to provide the necessary safety function, for example, to cut off the heat supply to the boiler in the event of a low water fault, the limiter is connected to other elements in the safety system such as actuators and safety logic circuits.

1 Scope

This European Standard specifies requirements for limiters (or limiting devices) which are incorporated into safety systems for water-tube boilers as defined in EN 12952-1.

A limiter (or limiting device) can be either:

— a safety accessory as defined in the Pressure Equipment Directive, Article 1, clause 2.1.3, and needs to include the safety logic and final actuator, or

— one element of a safety system, for example, a self-monitoring water level sensor used as part of a safety accessory as defined in the Pressure Equipment Directive, Article 1, clause 2.1.3. The overall boiler protection function shall be provided in association with additional safety logic (where appropriate) and a final actuator.

The design requirements and examination of functional capability for the limiters are covered in this European Standard.

For an explanation of the extent of the limiter (or limiting device) see Figure A.1.

2 Normative references

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

EN 298:2003, *Automatic gas burner control systems for gas burners and gas burning appliances with or without fans*

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

EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989*)

EN 60730-1:2000, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1:1999, modified)*

EN 61000-4-2:1995, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 2: Electrostatic discharge immunity test — Basic EMC publication (IEC 61000-4-2:1995)*

EN 61000-4-3:2006, *Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3:2006)*

EN 61000-4-4:2004, *Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test (IEC 61000-4-4:2004)*

EN 61000-4-5:2006, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test (IEC 61000-4-5:2005)*

EN 61000-4-6:1996, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 6: Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:1996)*

EN 61000-4-8:1993, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 8: Power frequency magnetic field immunity test; basic EMC publication (IEC 61000-4-8:1993)*

EN 61000-4-11:2004, *Electromagnetic compatibility (EMC) — Part 4-11: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11:2004)*

EN 61000-6-2:2005, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2:2005)*

EN 61508-3:2001, *Functional safety of electrical/electronic/programmable electronic safety-related systems — Part 3: Software requirements (IEC 61508-3:1998 + Corrigendum 1999)*

3 Terms and definitions

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

3.1
limiter
limiting device that, on reaching a fixed value (e.g. pressure, temperature, flow, water level) is used to interrupt and lock-out the energy supply

NOTE Limiting device comprises:

— a measuring or detection function and

— an activation function for correction, or shutdown, or shutdown and lockout, and which is used to carry out safety related functions as defined in the PED, as on its own or as part of safety (protective) system (e.g. sensors, limiters) (see also Figure 3.1). If this is achieved by multi channel systems, then all items or limiters for safety purposes are included within the safety (protective) system.

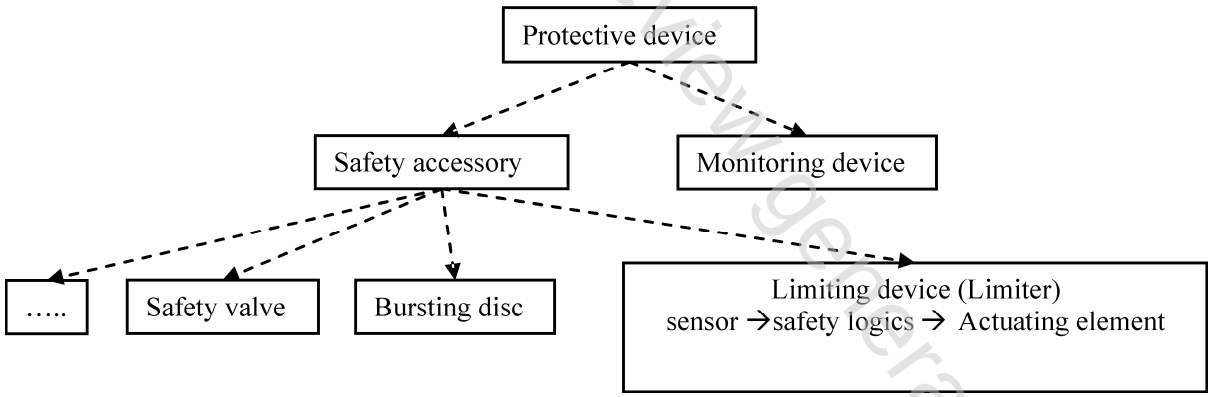

Figure 1 — Protective devices and safety accessories according to Directive 97/23/EC (PED)

3.2
actuating element
component which produces changes in other electrical circuits or volume flows (e.g. fuel, air) as a result of the effect of changes in signal

NOTE For example, a gas shut off valve is not an actuating element.

3.3
fail-safe
limiter is fail-safe if it possesses the capability of remaining in a safe condition or transferring immediately to another safe condition in the event of certain faults occurring

3.4
self-monitoring
regular and automatic determination that all chosen components of a safety system are capable of functioning as required