Trummelkatlad. Osa 3: Survedetailide kavandamine ja arvutamine

Shell boilers - Part 3: Design and calculation for pressure parts

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 12953-3:2002 sisaldab Euroopa standardi EN 12953-3:2002 ingliskeelset teksti. Käesolev dokument on jõustatud 18.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 12953-3:2002 consists of the English text of the European standard EN 12953-3:2002. This document is endorsed on 18.10.2002 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 Part of this European Standard specifies requirements for the design and calculation of pressure parts of shell boilers as defined in EN 12953-1.	**Scope:** This Part of this European Standard specifies requirements for the design and calculation of pressure parts of shell boilers as defined in EN 12953-1.

ICS 27.060.30, 27.100

Võtmesõnad: boilers, heat exchangers, pipes, reversing c, safety, safety engineering, safety requirements, sample surveys, specification (approval), specifications, steam boilers, steam generators, surveillance (approval), testing, tubes, wall thicknesses, water preheaters

EUROPEAN STANDARD

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Shell boilers - Part 3: Design and calculation for pressure parts

Chaudières à tubes de fumée - Partie 3: Conception et calcul des parties sous pression

Großwasserraumkessel - Teil 3: Konstruktion und Berechnung für drucktragende Teile

This European Standard was approved by CEN on 15 May 2002.

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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.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Contents

Foreword

This document (EN 12953-3:2002) 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 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 standard.

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 November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.

This 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 boiler.*

— *Part 8: Requirements for safeguards against excessive pressure.*

— *Part 9: Requirements for limiting devices, and of the boiler and accessories.*

— *Part 10: Requirements for boiler feedwater and boiler water quality.*

— *Part 11: Acceptance tests.*

— *Part 12: Requirements for firing systems for solid fuels for the boiler.*

— *Part 13: Operational Instructions.*

CR 12953-14: Guidelines for the involvement of an inspection body independent of the manufacturer.

Although these Parts can be obtained separately, it should be recognized that the Parts are inter-dependent. As such, the design and manufacture of shell boilers requires the application of more than one Part in order for the requirements of the standard to be satisfactorily fulfilled.

The Annex A of this European Standard is informative.

The Annex B of this European Standard is normative.

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

This Part of this European Standard specifies requirements for the design and calculation of pressure parts of shell boilers as defined in EN 12953-1.

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 12953-1:2001, *Shell boilers — Part 1: General.*

EN 12953-2, *Shell boilers — Part 2: Materials for pressure parts of boilers and accessories.*

EN 12953-4, *Shell boilers — Part 4: Workmanship and construction of pressure parts of the boiler.*

EN 12953-5:2002, *Shell boilers — Part 5: Inspection during construction, documentation and marking of pressure parts of the boiler.*

EN 12953-8, *Shell boilers — Part 8: Requirements for safeguards against excessive pressure.*

prEN 12953-10, *Shell boilers — Part 10: Requirements for boiler feedwater and boiler water quality.*

EN 13445-3, *Unfired pressure vessels - Part 3: Design*.

3 Terms and definitions

For the purposes of this European Standard the terms and definitions given in EN 12953-1 apply.

4 Symbols and abbreviations

For the purposes of this Part of this European Standard, the symbols given in EN 12953-1:2002, Table 4-1 shall apply. Throughout this standard, additional terminology and symbols have been included where necessary to meet the requirements of the specific text concerned. It should also be noted that in some clauses the same additional symbol is used in different formulae to represent different terms. However, in all such cases, the special meaning of each symbol is indicated for each formula.

5 General

5.1 Boilers

The requirements in this standard shall apply to boilers constructed throughout under the conditions specified herein and which are to be operated under normal operating conditions, with feedwater and boiler water in accordance with prEN 12953-10, and under adequate supervision. Where the risk of abnormal working conditions is foreseen, such as severe cyclic service, the design shall be given special consideration.

5.2 Hot-water generators

For directly fired hot-water generators the difference between the outlet temperature and the inlet temperature should not exceed 50 K. If the difference between these two temperatures is greater than 50 K, either internal or external mixing devices shall be used to limit the differential temperature within the boiler to 50 K.