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KAVANDAMINE JA ARVUTAMINE

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12953-3:2016 sisaldab Euroopa standardi EN 12953-3:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 12953-3:2016 consists of the English text of the European standard EN 12953-3:2016.
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English Version

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

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Contents

Page

European foreword.....	5
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions	7
4 Symbols and abbreviations	8
5 General.....	8
5.1 Boilers	8
5.2 Hot-water boilers	8
5.3 Main welds.....	8
5.4 Weld factor	9
5.5 Thermal design of furnaces tubes.....	9
5.5.1 Design conditions.....	9
5.5.2 Furnace dimensions.....	11
5.5.3 Heat input	11
5.5.4 Additional operating conditions.....	12
5.6 Dimensions of pressure parts.....	12
5.7 Determination of pressures	12
5.7.1 Maximum allowable pressure	12
5.7.2 Calculation pressure	12
5.7.3 Safety valves set pressure	12
5.7.4 Hydrostatic test pressure.....	13
5.8 Allowances.....	13
5.8.1 Allowance for material supply tolerances and forming processes.....	13
5.8.2 Allowance for metal wastage	13
5.9 Additional material requirements for plates.....	13
5.10 Standardized fittings.....	14
5.11 Flanges	14
5.12 Design by analysis.....	14
5.13 Economizer and superheater.....	14
6 Calculation temperature and nominal design stress	14
6.1 Calculation temperature	14
6.2 Nominal design stress.....	15
7 Cylindrical shells	15
7.1 Shell thickness.....	15
7.1.1 Requirements	15
7.1.2 Required wall thickness including allowances	16
7.2 Basic calculation subjected to internal pressure	16
7.3 Boiler supports and lifting lugs.....	16
8 Openings and branches in cylindrical shells.....	16
8.1 General.....	16
8.1.1 Introduction	16
8.1.2 Requirements for the reinforcement of openings in shells	16
8.1.3 Effective lengths l_{rs} for calculation of efficiencies and of compensations.....	18
8.1.4 Condition of isolated openings.....	22
8.1.5 Requirements for design of branches.....	22
8.1.6 Requirements for design of reinforcing pads	22
8.1.7 General requirements for calculation of cross-sectional and pressure-loaded areas.....	23
8.2 Efficiency factor, alternative calculation method, maximum diameter of an un-reinforced opening	23

8.2.1	General	23
8.2.2	Allowable efficiency and maximum diameter of an unreinforced opening	24
8.2.3	Isolated openings	24
8.2.4	Adjacent openings	25
8.3	Design of openings and branches in shells (efficiency and reinforcement)	25
8.3.1	Symbols and abbreviations	25
8.3.2	Requirements for application	26
8.3.3	Design of isolated openings and branch connections	30
8.3.4	Design of adjacent openings and branch connections	32
9	Ends	33
9.1	Unstayed dish heads without openings	33
9.1.1	Unstayed dish heads under internal pressure	33
9.1.2	Limiting conditions	33
9.1.3	Unstayed dish heads under external pressure	35
9.2	Flat unstayed removable closures	36
9.3	Unstayed flat plates	37
10	Supported flat plates, stays and stiffeners	38
10.1	Breathing space for flat plates	38
10.2	Stayed flat surfaces	40
10.2.1	General	40
10.2.2	Radius of flange	40
10.2.3	Point of support	40
10.2.4	Thickness	41
10.2.5	Values of constant C_4	44
10.2.6	Stays for wet back reversal chambers	54
10.2.7	Stay tubes and bars	56
10.2.8	Loads on stay tubes and bar stays	56
10.2.9	Gusset stays	56
10.2.10	Weld attachments	58
10.2.11	Additional requirements for set-in end plates	58
10.2.12	Girder stays supporting the flat section of a reversal chamber	60
11	Design of isolated openings in boiler flat end plates	60
11.1	Unreinforced isolated openings	60
11.2	Branch openings	60
11.3	Manholes, headholes and handholes	62
12	Unpierced tubes and tube plates	63
12.1	Thickness of straight tubes subject to external pressure	63
12.2	Thickness of straight tubes subject to internal pressure	64
12.3	Wall thickness and ovality of elbows and tube bends	64
12.3.1	General	64
12.3.2	Departure from circularity of the tube bends	64
12.4	Smoke tubes	66
12.5	Pitch of tubes	70
12.6	Thickness of the tube plates within tube nests	70
13	Furnaces tubes, furnace components and reversal chambers of cylindrical form subject to external pressure	71
13.1	Furnaces tubes	71
13.1.1	Plain furnaces tubes	71
13.1.2	Corrugated furnaces tubes	71
13.1.3	Safety factors	72
13.1.4	Furnace components	72
13.1.5	Reversal chambers	72
13.2	Calculation length of composite furnaces tubes	73
13.3	Tolerances of furnaces tubes	74
13.4	Stiffeners	74

13.4.1	General.....	74
13.4.2	Stiffener sections made from bar or plate	75
13.4.3	Stiffeners located within the zone of peak heat flux	75
13.4.4	Bowling hoops	75
14	Access and inspection openings	78
14.1	General requirements	78
14.2	Types and minimum dimensions of access and inspection openings.....	79
14.3	Minimum gasket bearing width and clearance for access and inspection doors	81
14.4	Access and inspection openings in flat plates.....	81
14.5	Requirements for entry area into boilers with a shell outside diameter greater than 1 400 mm.....	81
14.6	Accessibility and arrangement of entry and inspection openings.....	81
Annex A	(informative) Calculation form for “Walker”-type reverse curve sections or corrugations.....	82
Annex B	(normative) Furnace calculation temperature.....	84
B.1	Calculation of the maximum and the middle furnace wall temperature.....	84
Annex C	(informative) Calculation of tube plate temperatures	87
C.1	General.....	87
C.2	Symbols.....	87
C.3	Calculation method.....	88
C.3.1	Radiation coefficients.....	88
C.3.2	Convection coefficients	92
C.3.3	Weighted average gas-side heat transfer coefficient.....	95
C.3.4	Tube plate thermal conductance.....	97
C.3.5	Water side heat transfer	98
C.3.6	Tube plate temperatures.....	98
C.4	Example of a calculation carried out using the method given in C.3	101
C.4.1	Design data assumed	101
C.4.2	Calculation of radiation coefficient	102
C.4.3	Calculation of convection coefficients	102
C.4.4	Calculation of weighted average gas-side heat transfer coefficient.....	102
C.4.5	Calculation of tube plate thermal conductance.....	102
C.4.6	Calculation of tube plate temperatures	103
Annex D	(normative) Economizer and superheater with water tube design connected to the shell boiler	104
D.1	General.....	104
D.2	Design of economizer and superheater connected to shell boilers.....	104
Annex E	(informative) Significant technical changes between this European Standard and the previous edition.....	106
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU aimed to be covered.....	107
Bibliography		108

European foreword

This document (EN 12953-3:2016) 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 November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

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 12953-3:2002.

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(s), see informative Annex ZA, which is an integral part of this document.

The informative Annex E lists the significant technical changes between this European Standard and the previous edition.

EN 12953, 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 involvement of an inspection body independent of the manufacturer*

Although these parts can 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 standard to be satisfactorily fulfilled.

NOTE A “Boiler Helpdesk” has been established in CEN/TC 269 which may be contacted for any questions regarding the application of the 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 organizations 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 requirements for the design and calculation of pressure parts of shell boilers as defined in EN 12953-1.

For other components such as water tube walls reference should be made to EN 12952 series.

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 1092-1:2007+A1:2013, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 10160, *Ultrasonic testing of steel flat product of thickness equal or greater than 6 mm (reflection method)*

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

EN 12953-1:2012, *Shell boilers — Part 1: General*

EN 12953-2:2012, *Shell boilers — Part 2: Materials for pressure parts of boilers and accessories*

EN 12953-4:2002, *Shell boilers — Part 4: Workmanship and construction of pressure parts of the boiler*

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

EN 12953-6:2011, *Shell Boilers — Part 6: Requirements for equipment for the boiler*

EN 12953-10:2003, *Shell boilers — Part 10: Requirements for feedwater and boiler water quality*

EN 13445-3:2014, *Unfired pressure vessels — Part 3: Design*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12953-1:2012, EN 12953-6:2011 and the following apply.

3.1

branch

nozzle, stub, stand pipe

3.2

cold start

starting the boiler from ambient pressure at room temperature to normal operating condition

3.3

warm start

starting the boiler from the hot stand-by condition

3.4

seam

generic term for welded joints, welded seams or welds