

**Veetorudega katlad ja abipaigaldised.  
Osa 14: Nõuded vedelgaasi DENOX  
süsteemile rõhu all ammooniumile ja  
ammooniumi vesilahusele**

Water-tube boilers and auxiliary installations - Part  
14: Requirements for flue gas DENOX-systems  
using liquified pressurized ammonia and ammonia  
water solution

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12952-14:2004 sisaldab Euroopa standardi EN 12952-14:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.09.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12952-14:2004 consists of the English text of the European standard EN 12952-14:2004.</p> <p>This document is endorsed on 23.09.2004 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><b>Käsitlusala:</b></p> <p>This draft European Standard covers the safety requirements regarding the storage and use of:- liquefied pressurized ammonia for steam boiler plants; - liquid ammonia water solution for the reduction of NOx in the flue gas from boiler plants. Annex A summarizes the operational aspects.</p>	<p><b>Scope:</b></p> <p>This draft European Standard covers the safety requirements regarding the storage and use of:- liquefied pressurized ammonia for steam boiler plants; - liquid ammonia water solution for the reduction of NOx in the flue gas from boiler plants. Annex A summarizes the operational aspects.</p>
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ICS 27.040, 27.060.30

Võtmesõnad:

ICS 27.040; 27.060.30

English version

**Water-tube boilers and auxiliary installations - Part 14:  
Requirements for flue gas DENOX-systems using liquified  
pressurized ammonia and ammonia water solution**

Chaudières à tubes d'eau et installations auxiliaires - Partie  
14: Exigences pour les systèmes de dénitrification (DENOX)  
des fumées utilisant l'ammoniac liquéfié sous pression et  
l'ammoniaque liquide

Wasserrohrkessel und Anlagenkomponenten - Teil 14:  
Anforderungen an Rauchgas-DENOX-Anlagen die flüssiges  
Ammoniak und Ammoniakwasserlösung einsetzen

This European Standard was approved by CEN on 24 March 2004.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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



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## Contents

	page
Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions .....	6
4 Installations for the storage of liquefied pressurized ammonia .....	6
4.1 Plant design.....	6
4.2 Materials .....	6
4.3 Design of storage vessel .....	9
4.4 Manufacture.....	10
4.5 Tests and inspections prior to commissioning .....	12
4.6 Piping systems for ammonia .....	13
4.7 Electrical equipment.....	14
4.8 Equipment of storage vessels .....	14
4.9 Evaporator station .....	15
5 Installations for the storage of liquid ammonia.....	16
5.1 Plant design.....	16
5.2 Materials .....	16
5.3 Design of storage vessel .....	18
5.4 Manufacture.....	18
5.5 Testing and inspection prior to commissioning .....	19
5.6 Pipe systems for ammonia .....	19
5.7 Electrical equipment.....	20
5.8 Equipment .....	20
5.9 Production of ammonia vapour.....	21
Annex A (informative) Operational aspects .....	23
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive for Pressure Equipment .....	24
Bibliography .....	25

## Foreword

This document (EN 12952-14:2004) 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 December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

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 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 12952-17: 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 interdependent. As such, the design and manufacture of boilers requires the application of more than one Part in order for the requirements of the standard to be satisfactorily fulfilled.

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

The annex A of this European Standard is informative.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This draft European Standard covers the safety requirements regarding the storage and use of:

- liquefied pressurized ammonia for steam boiler plants;
- liquid ammonia water solution for the reduction of NO<sub>x</sub> in the flue gas from boiler plants.

Annex A summarizes the operational aspects.

## 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 287-1, *Qualification test of welders — Fusion welding — Part 1: Steels.*

EN 764:1994, *Pressure equipment — Terminology and symbols — Pressure, temperature, volume.*

EN 764-7, *Pressure equipment — Part 7: Safety systems for unfired pressure equipment.*

EN 1011-1, *Welding — Recommendations for welding of metallic materials — Part 1: General guidance for arc welding.*

EN 1011-2, *Welding — Recommendations for welding of metallic materials — Part 2: Arc welding of ferritic steels.*

EN 1011-3, *Welding — Recommendations for welding of metallic materials — Part 3: Arc welding of stainless steels.*

EN 1043-1, *Destructive tests on welds in metallic materials — Hardness testing — Part 1: Hardness test on arc welded joints.*

EN 1043-2, *Destructive tests on welds in metallic materials — Hardness testing — Part 2: Micro hardness testing on welded joints.*

EN 1563, *Founding — Spheroidal graphite cast irons.*

EN 1712, *Non-destructive examination of welds — Ultrasonic examination of welded joints — Acceptance levels.*

EN 1713, *Non-destructive examination of welds — Ultrasonic examination — Characterization of indications in welds.*

EN 1714, *Non-destructive examination of welds — Ultrasonic examination of welded joints.*

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature.*

EN 10025, *Hot rolled products of non-alloy structural steels — Technical delivery conditions*

EN 10028-3, *Flat products made of steels for pressure purposes — Part 3: Weldable fine grain steels, normalized.*

EN 10028-7, *Flat products made of steels for pressure purposes — Part 7: Stainless steels.*

EN 10204:1991, *Metallic products — Types of inspection documents.*

EN 10213-2, *Technical delivery conditions for steel castings for pressure purposes — Part 2: Steel grades for use at room temperature and elevated temperatures.*

EN 10216-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties.*

EN 10216-2, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties.*

EN 10216-3, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes.*

EN 10217-1, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties.*

EN 10222-4, *Steel forgings for pressure purposes — Part 4: Weldable fine grain steels with high proof strength.*

EN 10228-3, *Non-destructive testing of steel forgings — Part 3: Ultrasonic testing of ferritic or martensitic steel forgings.*

EN 12266-1:2003, *Industrial valves — Testing of valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements.*

EN 12952-2, *Water-tube boilers and auxiliary installations — Part 2: Materials for pressure parts of boilers and accessories.*

EN 12952-3:2001, *Water-tube boilers and auxiliary installations — Part 3: Design and calculation for pressure parts.*

EN 12952-5, *Water-tube boilers and auxiliary installations — Part 5: Workmanship and construction of pressure parts of the boiler.*

EN 13445-1:2002, *Unfired pressure vessels — Part 1: General.*

EN 13445-2, *Unfired pressure vessels — Part 2: Materials.*

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

EN 13445-4, *Unfired pressure vessels — Part 4: Fabrication.*

EN 13445-5, *Unfired pressure vessels — Part 5: Inspection and testing.*

EN 13480-3, *Metallic industrial piping — Part 3: Design and calculation.*

EN 20898-2, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread (ISO 898-2:1992).*

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

EN 60079-10, *Electrical apparatus for explosive gas atmospheres — Part 10: Classification of hazardous areas (IEC 60079-10:2002).*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs (ISO 898-1:1999).*

EN ISO 5817, *Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections (ISO 5817:2003).*