

**Transportable gas cylinders -
Specification for the design and
construction of refillable transportable
welded aluminium alloy gas cylinders**

Transportable gas cylinders - Specification for the design and construction of refillable transportable welded aluminium alloy gas cylinders

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12862:2000 sisaldab Euroopa standardi EN 12862:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 13.10.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12862:2000 consists of the English text of the European standard EN 12862:2000.</p> <p>This document is endorsed on 13.10.2000 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>Käsitlusala: This standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes and tests at manufacture of refillable transportable welded aluminium alloy gas cylinders of water capacities from 0,5 l up to and including 150 l for compressed, liquefied and dissolved gases. This standard includes requirements for spherical cylinders.</p>	<p>Scope: This standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes and tests at manufacture of refillable transportable welded aluminium alloy gas cylinders of water capacities from 0,5 l up to and including 150 l for compressed, liquefied and dissolved gases. This standard includes requirements for spherical cylinders.</p>
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English version

Transportable gas cylinders - Specification for the design and construction of refillable transportable welded aluminium alloy gas cylinders

Bouteilles à gaz transportables - Spécification pour la conception et la construction des bouteilles à gaz rechargeables transportables soudées en alliage d'aluminium

Ortsbewegliche Gasflaschen - Gestaltung und Konstruktion von wiederbefüllbaren ortsbeweglichen geschweißten Gasflaschen aus Aluminiumlegierung

This European Standard was approved by CEN on 8 April 2000.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 23 "Transportable gas cylinders", the secretariat of which is held by BSI.

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 2000, and conflicting national standards shall be withdrawn at the latest by November 2000.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard has been submitted for reference into the RID and/or the technical annexes of the ADR. Therefore in this context the standards listed in the normative references and covering basic requirements of the RID/ADR not addressed within the present standard are normative only when the standards themselves are referred to in the RID and/or the technical annexes of the ADR.

This Standard is primarily for industrial gases other than LPG but may also be applied for LPG. However for dedicated LPG cylinders, see prEN 13110:1997 - *Transportable refillable welded aluminium cylinders for LPG - Design and construction* prepared by CEN/TC 286 - *Liquefied petroleum gas equipment and accessories*.

Introduction

The purpose of this standard is to provide a specification for the design, manufacture, inspection and approval of refillable transportable welded aluminium alloy gas cylinders. The specifications given are based on knowledge of, and experience with, materials, design requirements, manufacturing processes and control during manufacture, of cylinders in common use in the countries of the CEN members.

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1 Scope

This standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes and tests at manufacture of refillable transportable welded aluminium alloy gas cylinders of water capacities from 0,5 l up to and including 150 l for compressed, liquefied and dissolved gases.

This standard includes requirements for spherical cylinders.

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 287-2	Approval testing of welders – Fusion welding – Part 2 Aluminium and aluminium alloys
EN 288-4:1992	Specification and approval of welding procedures for metallic materials - Part 4: Welding procedure tests for the arc welding of aluminium and its alloys
EN 910:1996	Destructive tests on welds in metallic materials - Bend tests
EN 962:1996	Transportable gas cylinders - Valve protection caps and valve guards for industrial and medical gas cylinders - Design, construction and tests
EN 970	Non-destructive examination of welds - Visual examinations
EN 1089-1:1996	Transportable gas cylinders - Gas cylinder identification (excluding LPG) - Part 1: Stampmarking
EN 1435	Non-destructive examination of welds – Radiographic examination of welded joints
EN 10002-1	Metallic materials - Tensile testing - Part 1: Method of test
EN 10003-1	Metallic materials - Brinell hardness test - Part 1: Test Method
EN 30042:1994	Arc-welded joints in aluminium and its weldable alloys - Guidance on quality levels for imperfections (ISO 10042:1992)

- EN ISO 7539-6:1995 Corrosion of metals and alloys – Stress corrosion testing – Preparation and use of pre-cracked specimens (ISO 7539-6:1989)
- EN ISO 11114-1:1997 Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials (ISO 11114-1:1997)
- EN ISO 13341:1997 Transportable gas cylinders - Fitting of valves to gas cylinders (ISO 13341:1997)
- EURONORM 6:1955 Bend test for steel
- EURONORM 12:1955 Bend test for steel sheet and strip less than 3 mm thick

3 Definitions and symbols

For the purposes of this standard the following definitions and symbols apply.

3.1 Definitions

3.1.1 yield stress: Value corresponding to the 0,2 % proof stress (non proportional elongation), $R_{p0,2}$.

3.1.2 solution heat treatment: A thermal treatment which consists of heating the products to a suitable temperature, holding at that temperature long enough to allow constituents to enter into solid solution and cooling rapidly enough to hold the constituents in solution.

3.1.3 quenching: Controlled rapid cooling in a suitable medium to retain the solute phase in solid solution.

3.1.4 artificial ageing: A heat treatment process in which the solute phase is precipitated to give an increased yield stress and tensile strength.

3.1.5 batch: A quantity of up to 200 cylinders, plus cylinders for destructive testing, of the same nominal diameter, thickness and design, made successively from the same cast and subjected to the same heat treatment for the same duration of time. The lengths of the cylinders in the heat treatment batch may vary by up to 12 %.

3.1.6 design stress factor (F) (variable): The ratio of equivalent wall stress at test pressure (p_h) to guaranteed minimum yield stress (R_e).