BS EN 14140:2014
Incorporating corrigendum May 2015

BSI Standards Publication

LPG equipment and accessories — Transportable refillable welded steel cylinders for LPG — Alternative design and construction

National foreword

This British Standard is the UK implementation of EN 14140:2014 incorporating corrigendum May 2015. It supersedes BS EN 14140:2003 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PVE/19, LPG containers and their associated fittings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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30 June 2015	Implementation of CEN corrigendum May 2015. Subclause 5.3.1 modified.

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NORME EUROPÉENNE

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English Version

LPG equipment and accessories - Transportable refillable welded steel cylinders for LPG - Alternative design and construction

Équipements pour GPL et leurs accessoires - Bouteilles en acier soudé transportables et rechargeables pour gaz de pétrole liquéfié (GPL) - Autres solutions en matière de conception et construction

Flüssiggas-Geräte und Ausrüstungsteile - Ortsbewegliche, wiederbefüllbare, geschweißte Flaschen aus Stahl für Flüssiggas (LPG) - Alternative Gestaltung und Konstruktion

This European Standard was approved by CEN on 9 August 2014.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 14140:2014) has been prepared by Technical Committee CEN/TC 286 "Liquefied petroleum gas equipment and accessories", the secretariat of which is held by NSAI.

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 June 2015 and conflicting national standards shall be withdrawn at the latest by June 2015.

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 14140:2003+A1:2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This European Standard has been submitted for reference into:

- the RID [11]; and
- the technical annexes of the ADR [12].

NOTE These regulations take precedence over any clause of this European Standard. It is emphasised that RID/ADR/ADN are being revised regularly at intervals of two years which may lead to temporary non-compliances with the clauses of this European Standard.

The major changes to this revision include:

- restructure of standard;
- the addition of requirements for hot air balloon cylinders;
- an update on the terminology;
- the addition of requirements for over-moulded cylinders;
- the addition of the environmental checklist, Annex D.

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.

Introduction

This European Standard calls for the use of substances and procedures that may be injurious to health and/or the environment if adequate precautions are not taken. It refers only to technical suitability: it does not absolve the user from their legal obligations at any stage.

It has been assumed in the drafting of this European Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people.

This European Standard permits the use of new and higher strength steels and has the potential for cylinders to have a wall thickness thinner than the minimum wall thickness related to diameter, when compared with cylinders in accordance with EN 1442. These changes in technology are justified by requiring a series of performance tests, including impact testing, to demonstrate the adequacy of the calculated pressure thickness for service and transport considerations

Reference should also be made to EN 1439 and EN 1440, which requires the cylinder manufacturer to perform additional tests to determine the rejection limits for in-service damage and to include these limits in the documentation for the cylinder.

Protection of the environment is a key political issue in Europe and elsewhere around the world. Protection of the environment in this document is understood in a very broad sense. The phrase is used, for example, in relation to the total life-cycle aspects of a product on the environment, including expenditure of energy, and during all phases of its existence, from mining of raw materials, to fabrication, packaging, distribution, use, scrapping, recycling of materials, etc. Annex D comprises an environmental checklist which highlights the clauses of this European Standard that address environmental aspects.

It is recommended that manufacturers develop an environmental management policy. For guidance see EN ISO 14000 series, [6], [7] and [8]].

Provisions need to be restricted to a general guidance. Limit values are specified in national laws.

All pressures are gauged unless otherwise stated.

NOTE This European Standard requires measurement of material properties, dimensions and pressures. All such measurements are subject to a degree of uncertainty due to tolerances in measuring equipment etc. It may be beneficial to refer to the leaflet “measurement uncertainty leaflet" SP INFO 2000 27 [14].

1 Scope

This European Standard specifies the minimum requirements for the design, construction and testing during manufacture of transportable refillable welded steel Liquefied Petroleum Gas (LPG) cylinders, of water capacity from 0,5 l up to and including 150 l, exposed to temperatures of -20 °C to +65 °C. It allows alternative design and construction methods to those required in EN 1442, including coated cylinders, over-moulded cylinders and cylinders for hot air balloons.

This European Standard applies only to pressure receptacles with a circular cross-section.

This European Standard does not include the equipping of the cylinders with valves and other service equipment.

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 1439, *LPG equipment and accessories - Procedure for checking LPG cylinders before, during and after filling*

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

EN 10120, *Steel sheet and strip for welded gas cylinders*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 10272, *Stainless steel bars for pressure purposes*

EN 14717, *Welding and allied processes - Environmental check list*

EN 14894, *LPG equipment and accessories - Cylinder and drum marking*

EN ISO 643, *Steels - Micrographic determination of the apparent grain size (ISO 643)*

EN ISO 2409:2013, *Paints and varnishes - Cross-cut test (ISO 2409:2013)*

EN ISO 2812-2, *Paints and varnishes - Determination of resistance to liquids - Part 2: Water immersion method (ISO 2812-2)*

EN ISO 3231:1997, *Paints and varnishes - Determination of resistance to humid atmospheres containing sulfur dioxide (ISO 3231:1993)*

EN ISO 4136, *Destructive tests on welds in metallic materials - Transverse tensile test (ISO 4136)*

EN ISO 4624, *Paints and varnishes - Pull-off test for adhesion (ISO 4624)*

EN ISO 5173, *Destructive tests on welds in metallic materials - Bend tests (ISO 5173)*

EN ISO 6520-1, *Welding and allied processes - Classification of geometric imperfections in metallic materials - Part 1: Fusion welding (ISO 6520-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227)*