

This is a preview of "BS EN 16728:2016". [Click here to purchase the full version from the ANSI store.](#)

BS EN 16728:2016



BSI Standards Publication

LPG equipment and accessories — Transportable refillable LPG cylinders other than traditional welded and brazed steel cylinders — Periodic inspection

bsi.

...making excellence a habit.™

This is a preview of "BS EN 16728:2016". [Click here to purchase the full version from the ANSI store.](#)

This British Standard is the UK implementation of EN 16728:2016. Together with BS EN 1440:2016, it supersedes BS EN 1440:2008+A1:2012, which is withdrawn.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.

© The British Standards Institution 2016.
Published by BSI Standards Limited 2016

ISBN 978 0 580 85892 5

ICS 23.020.30

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

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2016.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

This is a preview of "BS EN 16728:2016". Click here to purchase the full version from the ANSI store.

EUROPÄISCHE NORM

March 2016

ICS 23.020.30

Supersedes EN 1440:2008+A1:2012

English Version

LPG equipment and accessories - Transportable refillable LPG cylinders other than traditional welded and brazed steel cylinders - Periodic inspection

Équipements pour GPL et leurs accessoires - Bouteilles transportables et rechargeables pour GPL autres que celles en acier soudé et brasé - Contrôle périodique

Flüssiggas-Geräte und Ausrüstungsteile - Ortsbewegliche, wiederbefüllbare Flaschen für Flüssiggas (LPG), ausgenommen geschweißte und hartgelötete Stahlflaschen - Wiederkehrende Inspektion

This European Standard was approved by CEN on 2 January 2016.

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

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Requirements for periodic inspection	8
4.1 General	8
4.2 Steel and aluminium cylinders	8
4.3 Over-moulded cylinders	8
4.4 Composite cylinders	8
4.5 Rejected cylinders	9
5 Inspections and tests	10
5.1 General	10
5.2 External visual inspection	10
5.2.1 Preparation for external visual inspection	10
5.2.2 Inspection procedure	10
5.2.3 Rejection criteria	11
5.3 Proof pressure test	11
5.3.1 General	11
5.3.2 Hydraulic proof pressure test	11
5.3.3 Pneumatic proof test and leak test	12
5.4 Check of the internal condition of the cylinder	13
5.4.1 Welded aluminium and steel cylinders of alternative design and construction	13
5.4.2 Check of the internal condition of composite cylinders	14
5.5 Inspection of cylinder threads	14
5.5.1 General	14
5.5.2 Internal threads	14
5.5.3 External threads	15
5.5.4 Damaged threads	15
5.6 Inspection of valves	15
6 Final operations	15
6.1 General	15
6.2 Valving	15
6.3 Tare mass	15
6.4 Marking	15
6.5 Purging	16
7 Repair of cylinders	16
8 Records	16
Annex A (normative) Specific requirements for external visual inspection for welded steel LPG cylinders in accordance with EN 14140 or equivalent standard	17
A.1 General	17
A.2 Procedure for establishing rejection criteria carbon steel cylinders	17
A.3 Rejection criteria for stainless steel cylinders	19

This is a preview of "BS EN 16728:2016". [Click here to purchase the full version from the ANSI store.](#)

Annex B (normative) Specific requirements for external visual inspection of welded aluminium LPG cylinders.....	22
Annex C (normative) Specific requirements for visual inspection of composite LPG cylinders	25
C.1 Establishment of rejection criteria	25
C.1.1 General	25
C.1.2 Procedure	25
C.2 Examples of rejection criteria.....	25
C.2.1 Cylinders without a metallic liner	25
C.2.2 Cylinders with a metallic liner	30
Annex D (informative) Conditions for 15-year periodic inspection interval of welded steel cylinders manufactured before 1st January 2015	33
D.1 General	33
D.2 Concept of control.....	33
D.3 Conditions	33
Annex E (informative) Guidance on conditions for 10-year periodic inspection interval of composite cylinders.....	35
Annex F (normative) Specific Periodic inspection procedure for over-moulded cylinders (OMC)	36
F.1 General	36
F.1.1 Introduction.....	36
F.1.2 Valve	36
F.1.3 Marking and records	36
F.2 Periodic inspection	36
F.2.1 General	36
F.2.2 External visual inspection	37
F.2.2.1 General	37
F.2.2.2 Sampling	37
F.2.2.2.1 General	37
F.2.2.2.2 Peeling and corrosion test	37
F.2.2.2.3 Adhesion tests of the polyurethane material.....	38
F.2.2.3 Test frequency	38
F.2.3 Burst test.....	38
F.2.4 Rejection criteria and annual production sampling.....	38
F.2.5 Periodic inspection tests reports and records.....	40
F.3 Lifetime	40
Annex G (informative) Example of an Over-Moulded Cylinder.....	42
Bibliography	44

This is a preview of "BS EN 16728:2016". [Click here to purchase the full version from the ANSI store.](#)

European foreword

This document (EN 16728:2016) 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 September 2016, and conflicting national standards shall be withdrawn at the latest by September 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 in conjunction with EN 1440:2016 supersedes EN 1440:2008+A1:2012 and deals with the periodic inspection requirements for transportable refillable LPG cylinders that are not covered by EN 1440.

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 [1] and the technical annexes of the ADR [2].

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

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.

This is a preview of "BS EN 16728:2016". [Click here to purchase the full version from the ANSI store.](#)

Introduction

The primary objective of the periodic inspection of transportable refillable liquefied petroleum gas (LPG) cylinders is that, on the completion of the tests, the cylinders may be re-introduced into service for a further period of time.

The new designs of LPG cylinders have led to the development of alternative methods of inspection.

This European Standard has been prepared to reflect the current methodology for periodic inspection of LPG cylinders, and is based on extensive operating experience.

This European Standard calls for the use of substances and procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Protection of the environment is a key political issue in Europe and elsewhere, for CEN/TC 286 this is covered in CEN/TS 16765 [3], and this Technical Specification should be read in conjunction with this standard.

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.

Where judgements are called for, it has been assumed that they are made by competent persons who have been specifically trained for the tasks.

This is a preview of "BS EN 16728:2016". [Click here to purchase the full version from the ANSI store.](#)

1 Scope

This European Standard specifies procedures for periodic inspection and testing, for transportable refillable LPG cylinders with a water capacity from 0,5 l up to and including 150 l.

This European Standard is applicable to the following:

- welded steel LPG cylinders manufactured to an alternative design and construction, see EN 14140 or equivalent standard;
- welded aluminium LPG cylinders, see EN 13110 or equivalent standard;
- composite LPG cylinders, see EN 14427 or equivalent standard;
- over-moulded cylinders designed and manufactured according to EN 1442 or EN 14140, see Annex F.

NOTE The requirements of RID/ADR take precedence over those of this standard in the case of cylinders complying with that regulation, including pi marked cylinders.

This European Standard does not apply to cylinders permanently installed in vehicles.

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 837-1:1996, *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

EN 837-3:1996, *Pressure gauges — Part 3: Diaphragm and capsule pressure gauges — Dimensions, metrology, requirements and testing*

EN 1442, *LPG equipment and accessories — Transportable refillable welded steel cylinders for LPG — Design and construction*

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

EN 12816, *LPG equipment and accessories — Transportable refillable LPG cylinders — Disposal*

EN 13110, *LPG equipment and accessories — Transportable refillable welded aluminium cylinders for liquefied petroleum gas (LPG) — Design and construction*

EN 14140:2014, *LPG equipment and accessories — Transportable refillable welded steel cylinders for LPG — Alternative design and construction*

EN 14427:2014, *LPG equipment and accessories — Transportable refillable fully wrapped composite cylinders for LPG — Design and construction*

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

EN 14912, *LPG equipment and accessories — Inspection and maintenance of LPG cylinder valves at time of periodic inspection of cylinders*