



SLOVENSKI STANDARD
SIST EN 1439:1998

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Transportable refillable welded steel cylinders for liquefied petroleum gas (LPG) -
Procedure for checking before, during and after filling

Ortsveränderliche, wiederbefüllbare Flaschen aus geschweißtem Stahl für Flüssiggas -
Kontrollverfahren vor, während und nach dem Füllen

Bouteilles en acier soudé transportables et rechargeables pour gaz de pétrole liquéfié
(GPL) - Procédures de vérification avant, pendant et après remplissage

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Ta slovenski standard je istoveten z: EN 1439:1996

ICS:

23.020.30 V|æ } ^Á [• [á ^É] ä • \ ^ Pressure vessels, gas
b\ | ^ } \ ^ cylinders

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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Descriptors: gas cylinders, liquified petroleum gases, commercial butane, commercial propane, steels, welded construction, verification, conditioning, filling, setting-up conditions, marking

English version

**Transportable refillable welded steel cylinders for
liquefied petroleum gas (LPG) - Procedure for
checking before, during and after filling**

Bouteilles en acier soudé transportables et rechargeables pour gaz de pétrole liquéfié (GPL) - Procédures de vérification avant, pendant et après le remplissage

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This European Standard was approved by CEN on 1996-04-07. 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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by the 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 March 1997, and conflicting national standards shall be withdrawn at the latest by March 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.



Introduction

This European Standard gives guidance on checks to be made before, during and after filling transportable refillable welded steel liquefied petroleum gas (LPG) cylinders.

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.

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 trained specifically for the tasks.

1 Scope

This European Standard specifies the procedures to be adopted when checking transportable refillable welded steel LPG cylinders before, during and after filling.

This standard applies to transportable refillable welded steel LPG cylinders of water capacity from 0,5 l up to and including 150 l.

This standard does not apply to cylinders permanently installed in vehicles, or to the plant and filling equipment.

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2 Normative references (standards.iteh.ai)

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place 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 revisions. For undated references the last edition of the publication referred to applies.

EN 1440	Transportable refillable welded steel cylinders for liquefied petroleum gas (LPG) - periodic requalification.
prEN 1442	Transportable refillable welded steel gas cylinders for liquefied petroleum gas (LPG) - design and construction

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 commercial butane :

A mixture predominantly of butane with a limited amount of propane.

3.2 commercial LPG :

A product being either commercial butane or propane or possible mixtures of the two.

NOTE: See **annex B** for typical properties of commercial LPG.

3.3 commercial propane :

A mixture predominantly of propane with a limited amount of butane.

3.4 competent person :

A person who by a combination of training, experience and supervision is able to make objective judgements on the subject.

3.5 competent body :

A person or corporate body defined by the national authority which by combination of appropriate qualification, training, experience and resources is able to make objective judgements on the subject.

3.6 cylinder :

A transportable, refillable container with a water capacity from 0,5 l up to and including 150 l

3.7 filling ratio :

The ratio of LPG contained in the cylinder related to the water capacity of the cylinder.

NOTE: See **annex A** for maximum filling ratios.

3.8 reference temperature :

A temperature used for the calculation of filling ratio.

NOTE : See **annex A** for reference temperatures.

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3.9 filling to a level :

Filling the cylinder to a fixed level using an ullage gauge.

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3.10 filling by volume :

Filling the cylinder with a fixed volume of LPG.

3.11 filling by weight :

Filling the cylinder with LPG using a weighing machine.

3.12 filling plant :

An establishment where filling and routine maintenance of LPG cylinders takes place.

3.13 reconditioning :

Major repairs to cylinders which can include hot work, welding or de-denting carried out by specialists away from the filling line.

3.14 requalification :

Activities carried out at defined intervals, such as examining, measuring, testing or gauging the characteristics of a cylinder, comparing these with specified requirements as defined in EN 1440 and marking to attest conformity.

3.15 Routine maintenance :

The activity carried out to keep a cylinder in good order.

3.16 Requalification test station :

A place where cylinders are tested and requalified.

4 Segregation of cylinders prior to filling

4.1 General

Cylinders shall be checked and segregated into the following categories

Note: See **annex C**.

4.2 Cylinders suitable for filling

When the following conditions apply, cylinders shall be deemed suitable for filling:-

- a) the design code/specification is identifiable
- b) the tare weight or tare indication and water capacity is marked.
- c) the weight and identification of product (butane, propane or mixtures thereof) are indicated.
- d) cylinders are within the test date as determined from the marked manufacturers or requalification dates.
- e) the symbol of the requalification test station or inspection body is indicated.
- f) cylinders do not have defects as described in 4.4.
- g) cylinders are not leaking. (standards.iteh.ai)

4.3 Cylinders to be requalified

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When the following conditions apply, cylinders shall be set aside for requalification:

- a) cylinders which are out of test date or
- b) cylinders which cannot be confirmed to be within test date or
- c) cylinders which cannot be identified.

4.4 Cylinders requiring further assessment

Cylinders with the following defects shall be set aside for further assessment e.g. taring, reconditioning, or scrapping etc.

- a) cylinders which are intended to be filled by weight and where the tare weight or indication of tare weight is missing or illegible shall be re-assessed and have the tare weight or indication of the tare weight applied in accordance with prEN 1442.
- b) cylinders which are faulty or defective e.g. where there is damage to shrouds, carrying handles, foot-rings or where the cylinder is dented, fire damaged or corroded,
(See clause 5),

The foot ring area shall be inspected for visible corrosion.

- c) damaged/leaking valves shall be replaced with serviceable valves.

4.5 Leaking cylinders

These cylinders shall be made safe.

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5 Reassessment of cylinders

Cylinders which have been set aside (see clause 4.4 b)) shall be examined by a competent person who shall decide whether they are suitable for filling or shall be sent for reconditioning, or scrapping.

Rejection criteria guidelines for physical and material defects on the cylinder shell are contained in **tables 1, 2 and 3**.

NOTE: The diagram in **annex C** identifies at what stage in the procedure the reassessment takes place.

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Table 1

Defects	Description	Rejection Limit
Bulge	Visible swelling of the cylinder	All
Dent	A depression in the cylinder that has neither penetrated or removed metal and its width at any point is greater than 2% of the external cylinder diameter.	When the depth of the dent exceeds one fourth of its width at any point. Consideration of appearance and location also plays a part in the evaluation of dents.
Cut or gouge	A sharp impression where metal has been removed or re-distributed.	Where the original calculated wall thickness is known, where depth of cut or gouge is such that the undamaged inner wall is less than the minimum thickness. Where the original calculated wall thickness is not known - all are rejected.
Intersecting cut or gouge	The point of intersection of two or more cuts or gouges.	All
Dent containing cut or gouge	A depression in the cylinder within which there is a cut or gouge.	When the size of the dent or cut or gouge reaches the dimensions for rejection as an individual defect.
Crack	A split or rift in the cylinder shell.	All
Lamination	Lamination may show itself in the form of crack or bulge.	All