SLOVENSKI STANDARD
SIST EN 16509:2015

01-januar-2015

Premične plinske jeklenke - Majhne premične jeklenke iz jekla s prostornino do vključno 120 ml za enkratno polnjenje, ki vsebujejo stisnjeni ali utekočinjeni plin - Konstruiranje, izdelava, polnjenje in preskušanje

Transportable gas cylinders - Non-refillable, small transportable, steel cylinders of capacities up to and including 120 ml containing compressed or liquefied gases (compact cylinders) - Design, construction, filling and testing

Ortsbewegliche Gasflaschen - Nicht wiederbefüllbare, kleine ortsbewegliche nahtlose Flaschen aus Stahl mit einem Fassungraum bis zu 120 ml für verdichtete oder verflüssigte Gase (Kompaktflaschen) - Auslegung, Befüllung und Prüfung

Bouteilles à gaz transportables - Petites bouteilles transportables en acier, non rechargeables, de capacité inférieure ou égale à 120 ml et contenant des gaz comprimés ou liquéfiés (bouteilles compactes) - Conception, fabrication, remplissage et essais

Ta slovenski standard je istoveten z: **EN 16509:2014**

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23.020.30	Tlačne posode, plinske jeklenke	Pressure vessels, gas cylinders

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 16509

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English Version

Transportable gas cylinders - Non-refillable, small transportable, steel cylinders of capacities up to and including 120 ml containing compressed or liquefied gases (compact cylinders) - Design, construction, filling and testing

Bouteilles à gaz transportables - Petites bouteilles transportables en acier, non rechargeables, de capacité inférieure ou égale à 120 ml et contenant des gaz comprimés ou liquéfiés (bouteilles compactes) - Conception, fabrication, remplissage et essais

Ortsbewegliche Gasflaschen - Nicht wiederbefüllbare kleine ortsbewegliche Flaschen aus Stahl mit einem Fassungsraum bis einschließlich 120 ml für verdichtete oder verflüssigte Gase (Kompaktflaschen) - Auslegung, Bau, Füllung und Prüfung

This European Standard was approved by CEN on 23 August 2014.

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.

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

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Foreword

This document (EN 16509:2014) 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 April 2015 and conflicting national standards shall be withdrawn at the latest by April 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 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 and the technical annexes of the ADR.

NOTE These regulations take precedence over any clause of this standard. It is emphasized 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 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.

Introduction

The purpose of this European Standard is to provide a specification for the design, construction, inspection, testing and filling of non-refillable small cylinders and their closures - containing compressed or liquefied gases (hereinafter referred to as compact cylinders). In this standard the term “compact cylinders” refers to completed and filled cylinders as well as to such cylinders in the course of design, manufacture, filling, testing and marking.

The compact cylinders dealt with in this standard have been used internationally for decades. However, with the withdrawal of some national rules/standards, which regulated a particular category of these cylinders and the ongoing harmonization process within Europe, there is a need to specify these cylinders in comprehensive terms to ensure safety during transport and in use.

The specifications given are based on knowledge of, and experience with, materials, design requirements, manufacture including filling and control during manufacture, of compact cylinders in common use in the countries of the CEN member countries.

1 Scope

This European Standard sets out the minimum requirements relating to the material, design, construction, filling, testing and inspection at time of manufacture of non-refillable, transportable small steel cylinders and their closures of water capacities up to and including 120 ml containing non-toxic, non-flammable compressed or liquefied gases (hereinafter referred to as “compact cylinders”).

NOTE 1 Such cylinders are referred as “small receptacle containing gas (gas cartridges)” in RID/ADR.

NOTE 2 For cylinders with capacities greater than 120 ml, see EN 12205 or ISO 11118.

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.

ISO 11114-1, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 1: Metallic materials*

ISO 11114-2, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 2: Non-metallic materials*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
compact cylinder
filled non-refillable cylinder and its closure

3.2
operating temperature

3.2.1
minimum operating temperature
minimum ambient temperature to which the cylinder contents may be exposed during operation in °C

3.2.2
maximum operating temperature
maximum permissible temperature to which the filled compact cylinder may be exposed during operation in °C

3.3
burst pressure
highest pressure reached in a compact cylinder during the burst test in bar

3.4
working pressure
settled pressure of a compressed gas at a uniform reference temperature of 15 °C in a full compact cylinder in bar

3.5
filling ratio
ratio of the mass of gas contained in the compact cylinder to the mass of the water at 15 °C that would completely fill the cylinder

3.6
water capacity
volume of water required to completely fill an empty compact cylinder at 15 °C in millilitres

3.7
design pressure
calculated pressure in the compact cylinder filled to the maximum filling ratio for liquefied gases or filled to the maximum working pressure for compressed gases, at test temperature in bar

3.8
test pressure
required pressure applied during the pressure test in bar

3.9
batch
quantity of completed and pressure tested cylinder shells/ compact cylinders made consecutively by the same manufacturer using the same manufacturing techniques, to the same design, size and material specifications using the same heat treatment conditions (when applicable)

3.10
outer packaging
packaging used to contain several compact cylinders for shipment and complying with the relevant regulation

4 Requirements

4.1 General

To ensure that the compact cylinders are in compliance with this European Standard they shall be inspected, tested and approved in accordance with Clause 6 by an authorized inspection body (hereafter referred to as “the inspector”) recognized in the countries of use.

The design, materials and construction of compact cylinders shall be capable of withstanding the physical and chemical properties of the gas contents in accordance with EN ISO 11114-1 and EN ISO 11114-2 at the conditions specified by the manufacturer, whilst also fulfilling the requirements set down in this clause.

Compact cylinders shall be manufactured from the materials and in accordance with the processes specified in 4.3 and satisfy the tests as in Clause 5. Additionally the type approval requirements of Clause 6, the tests of Clause 7 and Clause 8 and the marking requirements of Clause 9 shall be met.

4.2 Design

4.2.1 General

The design of compact cylinders shall be based on experimental results and shall ensure that the compact cylinders meet all performance tests set out in this standard.

The compact cylinder shall be essentially cylindrical with an opening and a convex base or a second opening along the central cylinder axis.

The compact cylinder may be designed with or without an external threaded neck.

The compact cylinders shall be fitted with closures that satisfy the requirements of 4.3.2. The closure shall be gastight (see 5.8), and, once opened, render the compact cylinders non refillable.

4.2.2 Design drawing and specification

Fully dimensioned drawings and complete specifications of the compact cylinder shall be provided which include as a minimum the following information:

a) material specifications (shell and closure);

b) test temperature (°C) see 5.4;

c) minimum guaranteed burst pressure (bar);

d) design pressure (bar);

e) minimum thickness of the cylindrical shell (mm);

f) minimum guaranteed water capacity (ml);

g) nominal compact cylinder outside diameter (mm);

h) dimensions of neck and if any, the thread specification (mm);

i) nominal overall length of the compact cylinder (mm);

j) minimum and maximum operating temperature (°C) see 4.4;

k) method of construction;

l) design standard (i.e. EN 16509);

m) date and/or revision number of drawing;

n) manufacturers identity;

o) gas and gas specification;

p) nominal mass and mass tolerance of the gas filling (g);

q) maximum filling ratio for liquefied gases, (kg/l), or the working pressure for compressed gases (bar);

r) surface protection ; if any (e.g. zinc coated);

s) maximum opening force of the closure (N) see 5.9 (if applicable);

t) dimensions of closure and method of attachment.

4.3 Materials and construction

4.3.1 General

The materials used for compact cylinders and closures shall be suitable for the temperatures, pressures and the chemical and mechanical stresses anticipated within the prescribed operational limits, including prolonged operating periods. (e.g. ageing; pressure cycling resulting from temperature changes). All materials shall be