SLOVENSKI STANDARD

SIST EN 417:2004

01-maj-2004

Nadomešča:

SIST EN 417:1998

Kartuše za utekočinjene naftne pline za enkratno uporabo, z ventilom ali brez njega, za prenosne aparate - Izvedba, nadzor, preskušanje in označevanje

Non-refillable metallic gas cartridges for liquefied petroleum gases, with or without a valve, for use with portable appliances - Construction, inspection, testing and marking

Metallische Einswegkartuschen für Flüssiggas mit oder ohne Entnahmeventil zum Betrieb von tragbaren Geräten - Herstellung, Prüfung und Kennzeichnung

Cartouches métalliques pour gaz de pétrole liquéfiés, non rechargeables, avec ou sans valve, destinées a alimenter des appareils portatifs - Construction, contrôle, essais et marquage

Ta slovenski standard je istoveten z: **EN 417:2003**

ICS:

23.020.30	Tlačne posode, plinske jeklenke	Pressure vessels, gas cylinders

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EUROPEAN STANDARD

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EN 417

May 2003

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Supersedes EN 417:1992

English version

Non-refillable metallic gas cartridges for liquefied petroleum gases, with or without a valve, for use with portable appliances - Construction, inspection, testing and marking

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This European Standard was approved by CEN on 13 February 2003.

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 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 Management Centre 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword

This document (EN 417:2003) has been prepared by the Task Force CEN/BT/TF 114, "Non-refillable metallic cartridges" the secretariat of which is held by AFNOR.

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 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

In order to avoid a sudden change in the rule of operation of EN 417, the CEN/BT/TF 114 decided that specifications related to single layer valves be moved to an informative annex (annex A) and remain in force during a transitional period of five years after the publication of the revised standard.

Annex C is normative. Annexes A and B are informative.

This document supersedes EN 417:1992.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This standard covers “non-refillable metallic cartridges for liquefied petroleum gases, with or without a valve, for use with portable appliances”.

It has become necessary to establish a specific standard for these cartridges, as the European Directive 75/324/EEC concerning aerosol generators does not cover the essential functions of cartridges for liquefied petroleum gas, i.e. containing a gas suitable for the operation of the appliance and supplying the appliance in a gas tight fashion, taking account of its geometry and the heating that might occur.

The safety of the user therefore depends on the use of cartridges complying with this standard, which in consequence, will be marked, inspected and tested in accordance with the requirements of this standard.

This standard also defines the tests to be used as a basis for type examination and describes a procedure which can serve as a guide to the organizations responsible for issuing type examination certificates.

This standard does not apply to appliances with an integral gas container which is not interchangeable, or to cartridges for filling such containers.

1 Scope

This European Standard specifies material, construction, inspection and marking requirements for non-refillable metallic gas cartridges with or without a valve for use with portable appliances which comply with the requirements of EN 521.

This standard is applicable to cartridges with a total capacity of between 50 ml and 1 000 ml, designed to contain stenched liquefied petroleum gas or stabilized mixtures of liquefied petroleum gas with propadiene and/or methyl acetylene, where the pressure developed by the contents of the cartridge at 50 °C does not exceed 13,2 bar.

However, stenching of these gases is optional for cartridges with a total capacity not exceeding 150 ml.

This standard is not applicable to aerosol dispensers — manufactured, filled, tested and marked in accordance with the Directive 75/324/EEC.

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 521, *Specifications for dedicated liquefied petroleum gas appliances - Portable vapour pressure liquefied petroleum gas appliances*

3 Terms and definitions

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

3.1
gas cartridge
non-refillable container filled once only with gas or a mixture of gases for fuelling portable gas appliances which burn the gas or gases in use

3.2
pierceable gas cartridge
cartridge without a valve

NOTE The gas supply is obtained by piercing the cartridge by means of a specific device which is part of the portable appliance with which the cartridge is to be used.

3.3
two piece gas cartridge with valve
cartridge constructed of two pieces with an aperture at the top end into which a male or female valve is fitted

NOTE The gas supply is obtained by the connection of the portable appliance to the valve.

3.4
three piece gas cartridge with valve
cartridge constructed of three pieces with an aperture at the top end into which a male or female valve is fitted

NOTE The gas supply is obtained by the connection of a portable appliance to the valve.

3.5
total capacity
internal volume of the empty gas cartridge at 20 °C, expressed in millilitres, before any accessories are fitted, such as valves, etc.

3.6
net capacity
volume, expressed in millilitres, which is available to receive the contents when the gas cartridge is sealed and fitted with its accessories

3.7
test pressure
pressure that is equal at a temperature of 50 °C to 1,5 times the pressure which would be developed by gas with which the cartridge will be filled, or 10 bar, whichever is the greater

3.8
burst pressure
minimum pressure which causes leakage from the gas cartridge

3.9
volume for the liquid phase
volume occupied by the liquid phase of the gas or gases within the gas cartridge

3.10
liquefied petroleum gas
mixture of liquefied hydrocarbon gases comprising principally butanes, butenes, propane and propene

3.11
stenched liquefied petroleum gas
liquefied petroleum gas with the addition of an odourant detectable in the gas/air mix

3.12
female valve
valve designed so that the spigot fitting of an appropriate appliance enters into the valve to open it

3.13
male valve
valve fitted with a stem protruding from the centre of the valve which, when depressed, opens the valve

3.14
valve cup
support of the valve destined to be fixed to the cartridge

4 Materials, design and construction

4.1 Materials

4.1.1 The body of the gas cartridge and the valve cup where applicable, with the exception of the sealing material, shall be made of metal.

4.1.2 The materials used for the container, the valve, any internal lining, external coatings and seals shall be compatible with the gases to be contained by the cartridge and shall withstand the reasonably foreseeable mechanical, thermal and chemical conditions which may occur during use and storage.

Gas cartridges designed to contain mixtures of liquefied petroleum gas and methylacetylene shall not be manufactured from materials containing more than 70 % copper.

4.2 Design and construction – General

4.2.1 Gas cartridges shall be constructed from one or more parts, these being assembled by welding, brazing, crimping, etc.

4.2.2 Gas cartridges with an outside diameter of 40 mm and above shall be provided with a concave base.

4.2.3 Gas cartridges shall be so designed and constructed that they do not leak or show visible permanent deformation when subjected to an internal pressure equal to the test pressure.

4.2.4 Gas cartridges shall be so designed and constructed that they do not leak or burst until a pressure 1,2 times the test pressure has been reached or passed.

4.2.5 The concave form of the base of gas cartridges with an outside diameter exceeding 40 mm shall reverse in form before any leak appears or rupture occurs. However, for three piece construction cartridges with valves, with an outside diameter exceeding 40 mm, either the concave form of the base shall reverse or the domed top shall permanently extend before any leak appears or any rupture occurs.

4.2.6 Gas cartridges shall be so designed and constructed that they do not leak at temperatures from – 20 °C to + 70 °C.

4.2.7 The dimensions of the cartridge shall be such as to ensure that it is compatible with the appliances designated on the cartridge (see 8.2).

4.3 Pierceable cartridges

4.3.1 General

Pierceable cartridges shall not be fitted with valve cups.

4.3.2 Type 200 cartridges

For type 200 cartridges, (inside diameter 86 mm, containing approximately 190 g of gas), the dimensions in Figure 1 shall be maintained.

Dimensions in millimetres

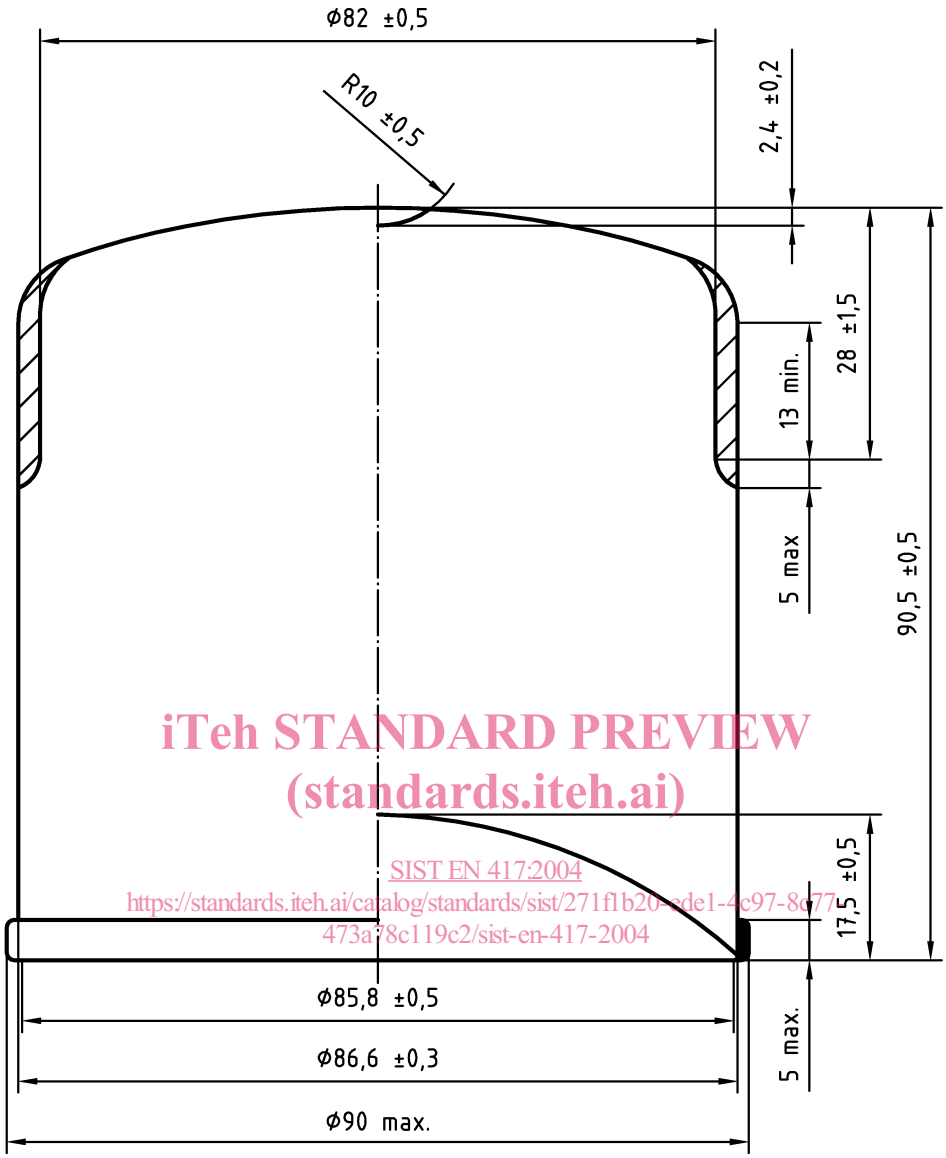

Figure 1 — Cartridge type 200

Across the whole height of the hatched area (except for the rounded edges top and bottom), the diameter shall be :

a) (86,6 ± 0,3) mm; or

b) (82 ± 0,5) mm; or

c) the design shall be such that the diameter alternates between the dimensions in a) and b) above.

NOTE In this area, each cartridge manufacturer should choose the shape that is best suited to ensure the safety of the connection of the cartridge to the appliance, according to the characteristics of the appliances likely to be fuelled by his cartridges.

4.3.3 Other pierceable type cartridges

Other capacities, dimensions and shapes of pierceable cartridges are permitted, provided that they cannot be fitted into and be pierced by appliances designed for type 200 cartridges.

4.4 Cartridges with valves

4.4.1 Valve design

4.4.1.1 General requirements for every type of valve

Cartridges with valves shall be either:

a) of such a design that it is not possible to operate the valve without the use of a special adaptor b; or

NOTE The connection on the appliance with which the gas cartridge is designed to be used may be considered as a special adaptor.

b) provided with adequate protection against inadvertent discharge.

The valves shall be of such a design that, under conditions of normal use, they close when the special adaptor is removed or the valve released. Valves which close by means of internal gas pressure only are not permitted.

After 50 opening and closing operations, the valve shall not show signs of leakage or other defects (see 6.6).

The valve cup, if any, shall be free from burrs and sharp edges.

4.4.1.2 Cartridges fitted with threaded centre boss valve cups

4.4.1.2.1 The valve cup shall be made from carbon or alloy steel of suitable uniform quality, which may be coated, (e.g. hot-dipped tinplate).

4.4.1.2.2 The valve or closure shall be one of the following types:

— type 1: Female valve (see 3.12) mounted in a double layer, threaded centre boss valve cup;

— type 2: Male valve (see 3.13) mounted in a double layer, threaded centre boss valve cup;

— type 3: Female valve (see 3.12) mounted in a single layer, threaded centre boss valve cup (see annex A);

— type 4: Male valve (see 3.13) mounted in a single layer, threaded centre boss valve cup (see annex A).

NOTE For wishing to avoid a sudden change in the rule of operation of EN 417, the CEN/BT/TF 14 decided that specifications related to single layer valves (type 3 and 4) be moved in an informative annex (annex A) and remain in force during a transitional period of five years after the publication of the revised standard.

4.4.1.2.3 The valve shall not break when a torque of 15 N·m is applied as indicated in 6.8.

4.4.1.3 Filled cartridges fitted with type 1 valves

Filled cartridges fitted with type 1 valves shall comply with the following:

a) the valve cup component shall be manufactured from a double layer of material;

b) the thickness of the valve cup shall be between 0,30 mm and 0,57 mm;

NOTE Special attention is drawn to the material thickness at the root of the thread.

c) the centre boss of the valve cup shall be externally threaded for at least four and a half full threads with the following external screw thread:

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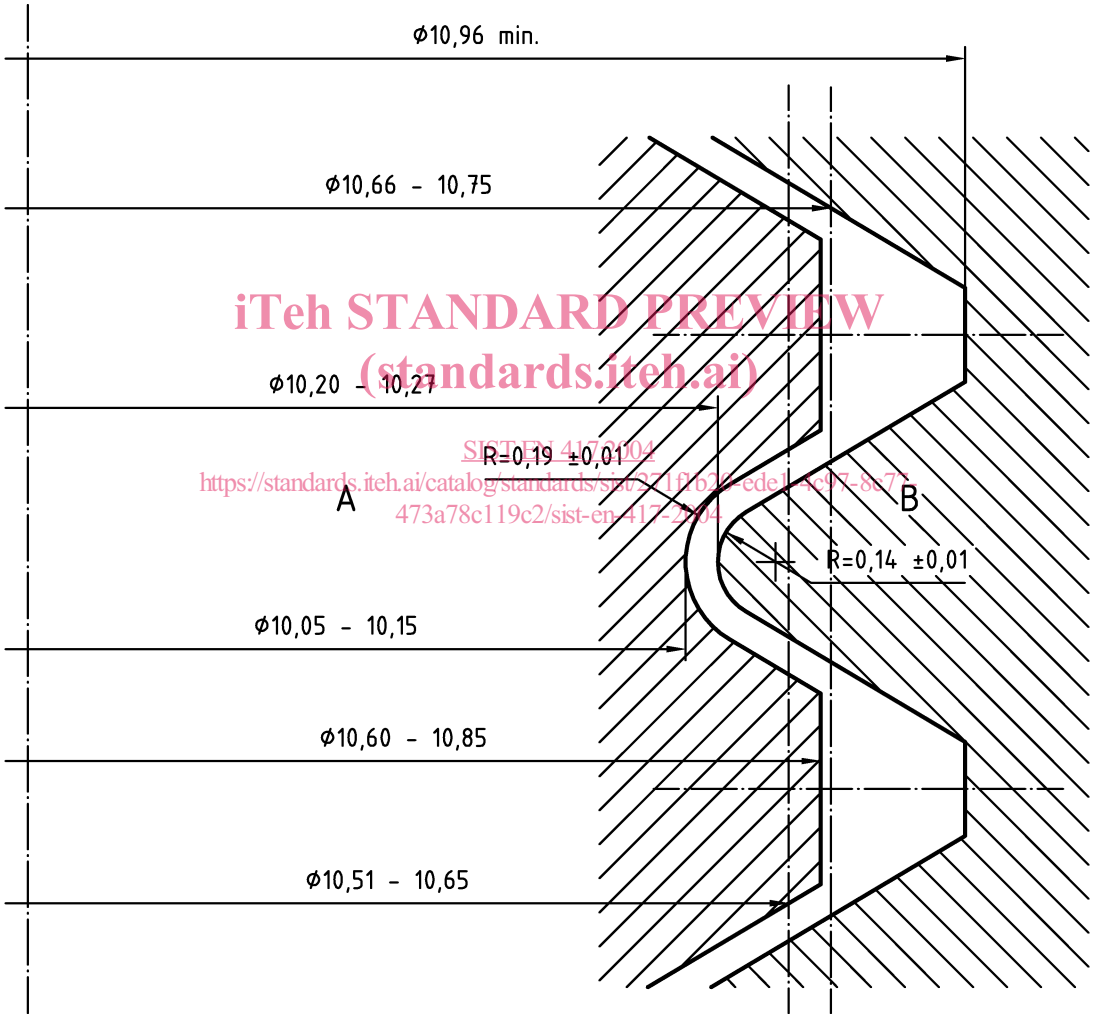
— Major diameter 10,60 mm to 10,85 mm;

— Minor diameter 10,05 mm to 10,15 mm;

— Effective diameter 10,51 mm to 10,65 mm;

— The thread shall be a rolled thread (see Figure 2);

Dimensions in millimetres



Key

1 Valve
2 Adaptor

Figure 2 — Thread tolerances of the valve and of the adaptor

d) the top surface of the centre boss shall be raised at an angle of 25° to the horizontal over an area defined by a circle of (5,65 ± 0,15) mm which is concentric with the major diameter of the thread tolerance: 0,15 mm maximum (see Figure 3);