BS EN 417:2012

BSI Standards Publication

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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National foreword

This British Standard is the UK implementation of EN 417:2012. It supersedes BS EN 417:2003, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GSE/24, Dedicated LPG appliances.

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

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Published by BSI Standards Limited 2012

ISBN 978 0 580 71867 0

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 2012.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 417

March 2012

ICS 23.020.30

Supersedes EN 417:2003

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

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

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

This European Standard was approved by CEN on 23 December 2011.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Foreword

This document (EN 417:2012) has been prepared by Technical Committee CEN/TC 181 “Dedicated liquefied petroleum gas appliances”, 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of an identical text or by endorsement, at the latest by September 2012, and conflicting national standards shall be withdrawn at the latest by March 2014.

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 417:2003.

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/or the technical annexes of the ADR.

The following is a list of technical changes made since the previous edition:

— addition of an internal leakage limiter mandatory for pierceable cartridges;

— possibility of an alternative marking for "butane" cartridges of type 200;

— addition of a reference to ADR [4] and RID [6];

— editorial modifications.

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, 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 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 2008/47/EC [2] 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 person in the organisation who is responsible for issuing type examination certificates.

The cartridges covered by this standard may fall under the scope of various directives, which are listed in the bibliography.

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 European 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 and/or di-methyl-ether or equivalent, 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 European Standard is not applicable for aerosol dispensers — manufactured, filled, tested and marked in accordance with Directive 2008/47/EEC.

This European Standard does not apply to appliances with an integral gas container which is not interchangeable, or to cartridges for filling such containers (e.g. lighters).

2 Normative references

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 document, 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 pieces 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 pieces 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 before any accessories are fitted

NOTE 1 Accessories are such as valves, etc.

NOTE 2 The total capacity is expressed in millilitres.

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
low pressure liquefied gas composed of one or more light hydrocarbons which are assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 only and which consists mainly of propane, propene, butane, butane isomers, butene with traces of other hydrocarbon gases

3.11
stenched liquefied petroleum gas
liquefied petroleum gas with the addition of an odorant 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

3.15
internal leakage limiter
internal device which limits the gas flow when the cartridge is pierced and not fitted to the gas appliance

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.

For the body of the cartridges the composition and the mechanical characteristics of the metal shall be detailed in a document provided by the material manufacturer.

4.1.2 The materials used for the container, the valve, any internal lining, external coatings, internal leakage limiter 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 greater than or equal to 40 mm shall reverse in form before any leak appears or rupture occurs. However, for three pieces construction cartridges with valves, with an outside diameter greater than or equal to 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 so as to ensure that it is compatible with the appliances designated on the cartridge (see 8.2).

4.2.8 The internal leakage limiter shall not disturb the correct operation of the cartridge and/or the appliance.

4.3 Pierceable cartridges

4.3.1 General

Pierceable cartridges shall not be fitted with valve cups.

Pierceable cartridges shall be fitted with an internal leakage limiter (an example of design is shown for information in Figure 6).

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

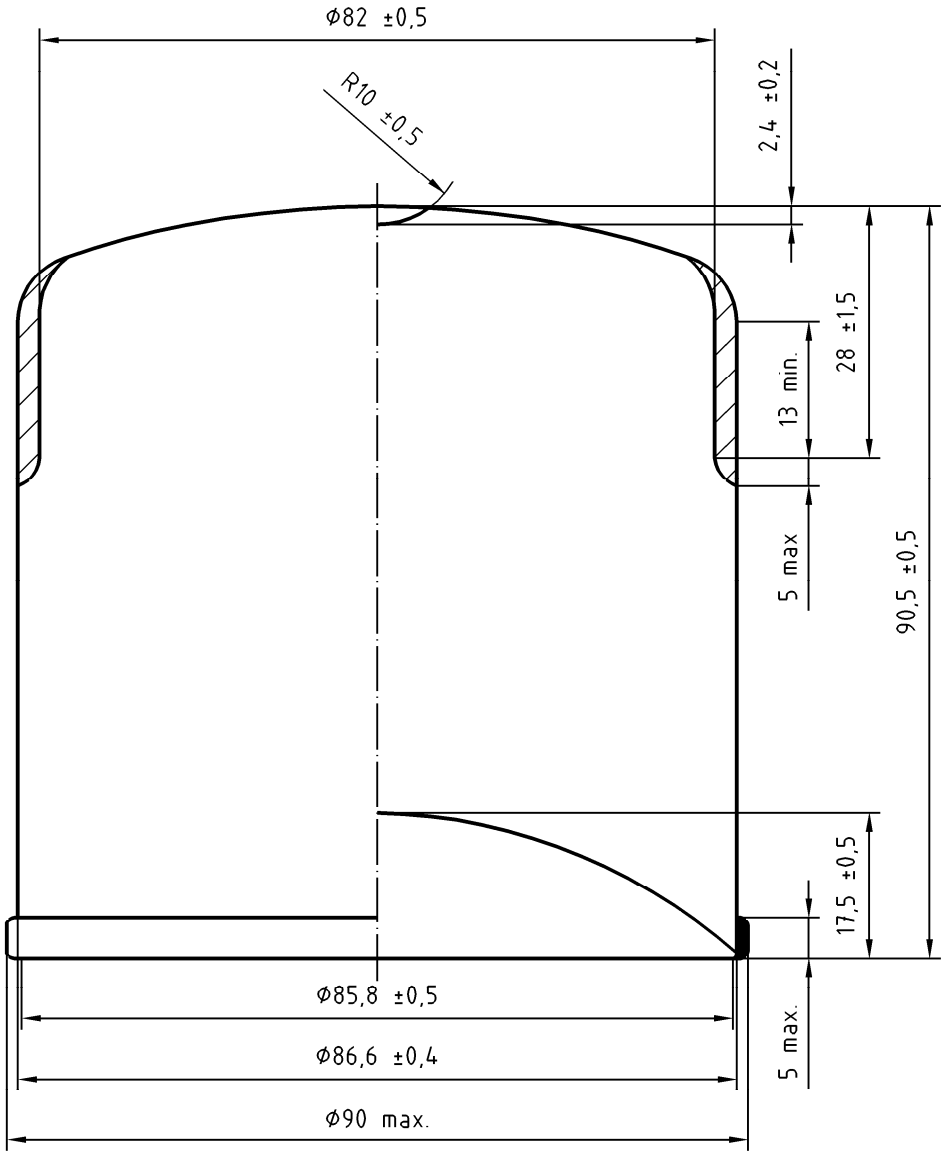


Figure 1 — Cartridge type 200

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

a) (86,6 ± 0,4) 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 pierced by appliances designed for type 200 cartridges.

4.4 Cartridges with valves

4.4.1 General requirements for every type of valve

Cartridges with valves shall be designed in such a way that it is not possible to operate the valve without the use of a special adaptor unless an adequate protection against inadvertent discharge is provided with and fitted on the cartridge.

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

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.

4.4.2 Cartridges fitted with threaded centre boss valve cups

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

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).

Type 3 and 4 are only admitted if:

a) The total mass of gas contained in the cartridge is less than 70 g,

b) The cartridge diameter is less than 50 mm.

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

4.4.3 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:

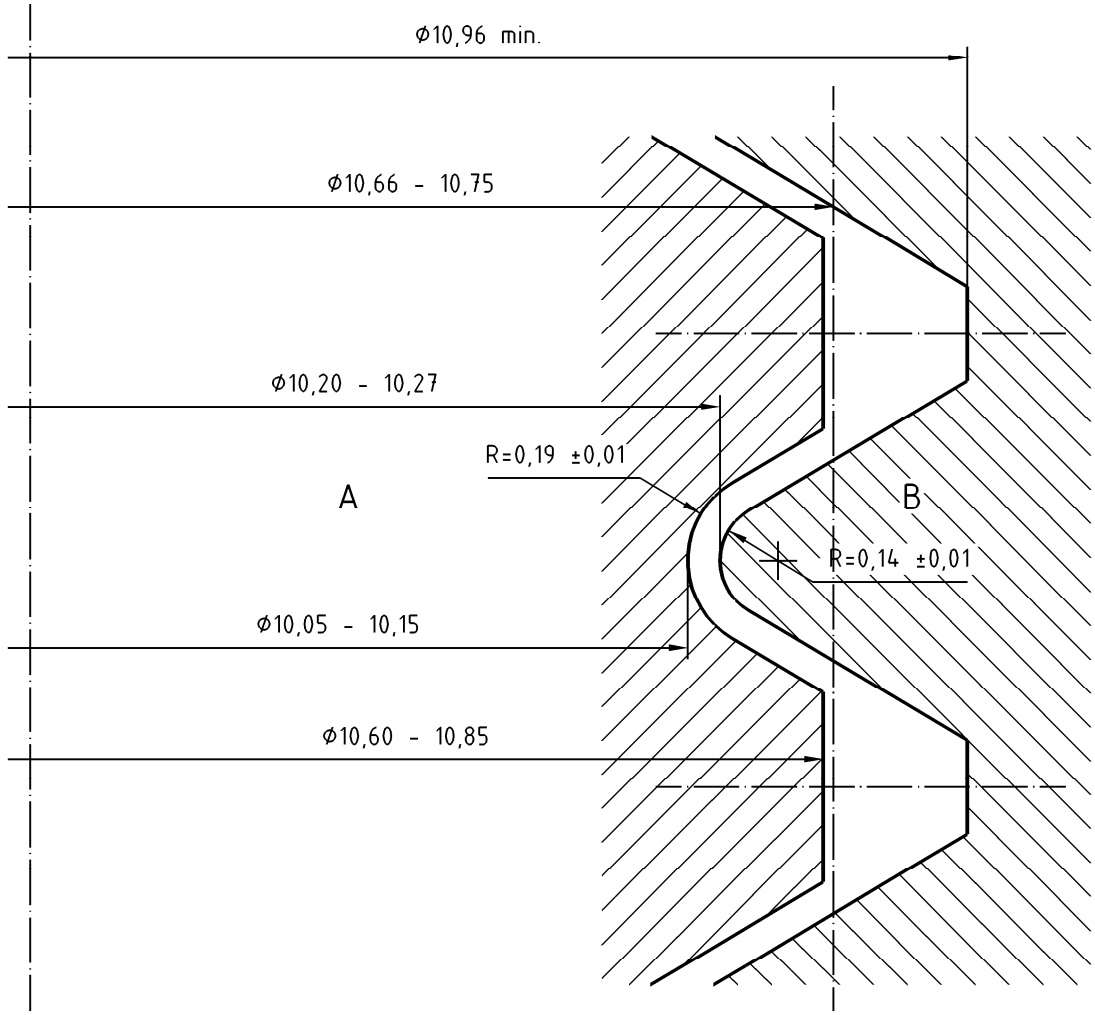
— 7/16 28 UNIFIED FORM SPECIAL — EXT. ;

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

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

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

Dimensions in millimetres



Key

A valve
B 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);

e) the raised portion shall be pierced with a circular hole of (3,45 ± 0,2) mm diameter, concentric with the major diameter of the thread (tolerance: 0,15 mm maximum), (see Figure 3);

f) the flat surface of the boss surrounding the raised area shall be square to the central axis of the thread (± 2°);

g) when the valve is crimped and the cartridge is filled with gas the flat surface of the boss surrounding the raised area shall be not less than 0,9 mm and not more than 1,4 mm above the plane of the top surface of the cup rim (see Figure 3) and shall be parallel to that plane (± 2°);

h) the upper surface(s) of the centre boss shall form the sealing surface(s) for an appliance screwed onto the valve;

i) the inner diameter of the swaged cup shall not be less than 23 mm and the outer diameter of the swaged cup shall not exceed 34 mm (see Figure 3). The inner and outer diameters of the swaged cup shall be concentric with the major diameter of the thread (tolerance: 0,3 mm maximum);

j) when the valve is crimped and the cartridge is filled with gas the horizontal clearance between the centre boss and the inner wall of the valve cup shall not be less than 5,8 mm and shall be maintained over a vertical distance of at least 8 mm below the plane of the flat surface of the centre boss surrounding the raised area (see Figure 3);

NOTE 1 The clearance dimensions between the major diameter of the valve cup boss thread and the inner diameter of the valve cup is a minimum dimension for the valve cup and a reference dimension for the maximum size of the corresponding part of the appliance.

NOTE 2 It is essential that any part of the appliance which makes contact with the cartridge or cartridge valve rim during assembly does not interfere with the safe sealing process of the cartridge to the appliance.

k) the inner diameter of the inner gasket shall be concentric with the major diameter of the thread (tolerance: 0,3 mm maximum). The inner diameter shall not be less than 2,5 mm and not greater than 2,9 mm when assembled in the valve;

l) the valve shall remain fully closed when the distance from the centre of the spigot seat to the flat surface of the boss surrounding the raised area is less than 1,85 mm (see dimension A in Figure 4). The valve shall be fully opened when the distance is more than 3,5 mm (see dimension B in Figure 4);

It shall be possible to depress the centre of the spigot seat at least 4,15 mm below the flat surface of the boss surrounding the raised area without damage to the valve or the valve-housing (see dimension C in Figure 4).

NOTE 3 When the appliance is attached to the cartridge, the cartridge valve is opened by a spigot on the appliance. The requirements specified in 4.4.3 should assist the appliance designer to establish the appropriate size of spigot to avoid leakage of gas when fitting the appliance to the cartridge. In addition, it is essential that when the appliance is fitted, the spigot does not extend more than 4,15 mm below the flat surface of the boss surrounding the raised area, as this can damage the valve possibly leading to unrestricted loss of gas.

Dimensions in millimetres

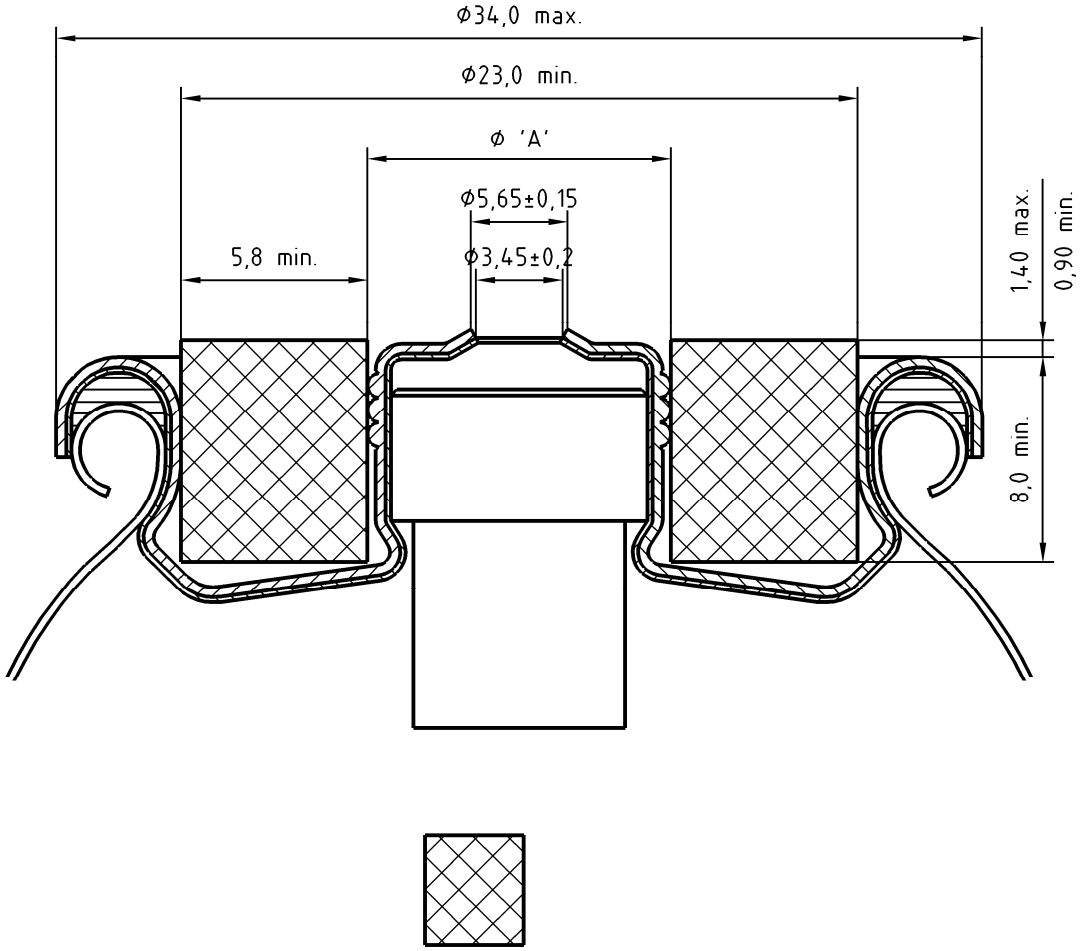
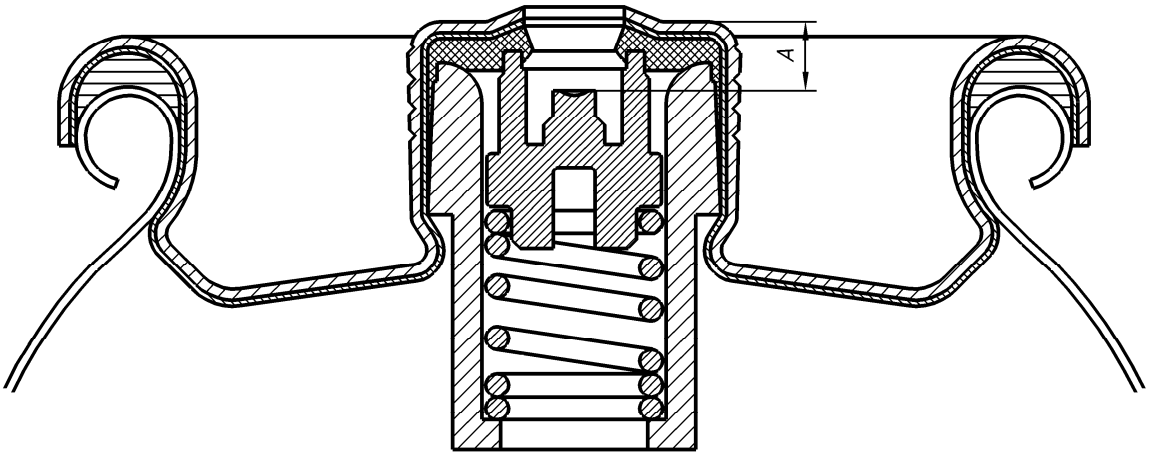
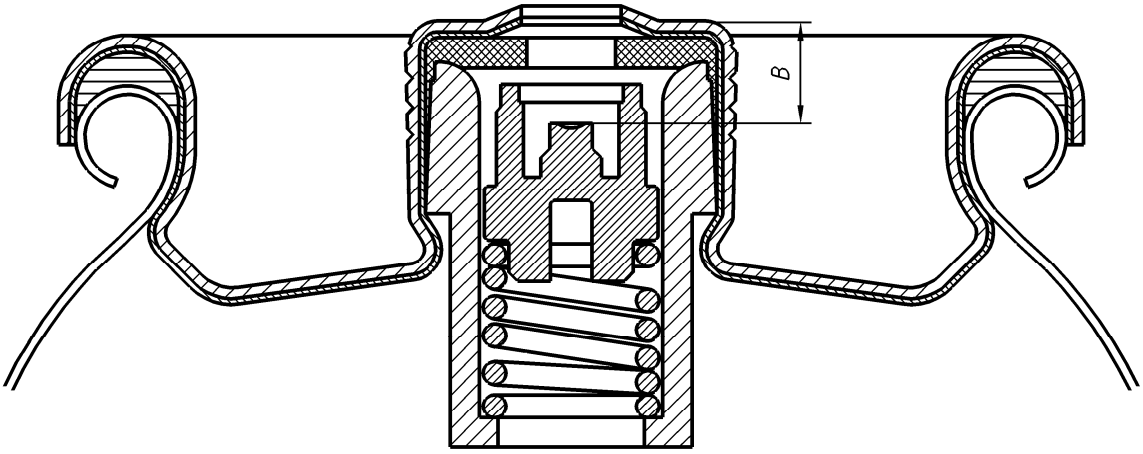


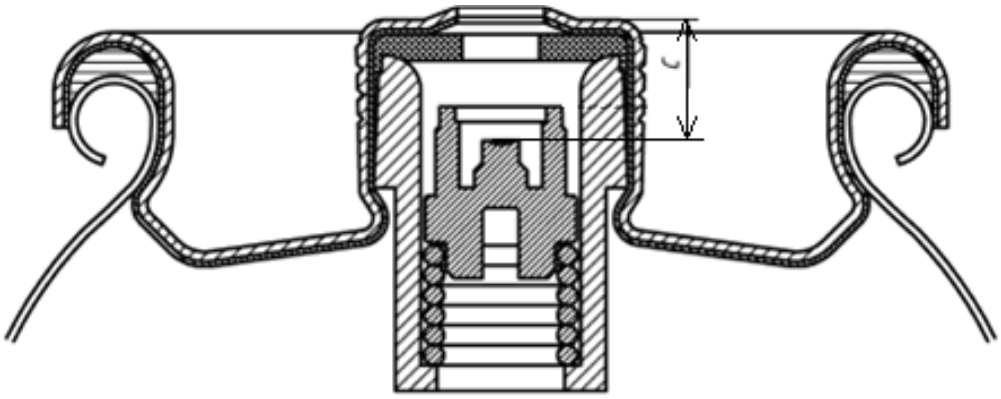
Figure 3 — Section of a threaded centre boss valve cup (type 1)



a) Valve fully closed



b) Valve fully opened



c) Valve fully depressed

Figure 4 — Dimensions related to valve opening and closing

4.4.4 Filled cartridges fitted with type 2 valves

Filled cartridges fitted with type 2 valves shall comply with 4.4.3 a), b) and c).

4.4.5 Filled cartridges fitted with type 3 and 4 valves

Filled cartridges fitted with type 3 and 4 valves shall comply with Annex A.

5 Requirements on the filling of gas cartridges

The cartridges shall be filled so that at 50 °C, the liquid phase does not exceed 95 % of their capacity.

6 Type testing

6.1 General

The conformity of a gas cartridge design type with the applicable provisions and this standard shall be assessed in accordance with the conformity assessments procedures of ADR and RID for non-UN pressure receptacles, or for gas cartridges.

The tests specified in 6.2 to 6.7 and 6.9 shall be performed on samples taken from 100 cartridges selected at random from a batch of filled cartridges produced in 1 h.

The test specified in 6.8 shall be performed on samples taken from 10 valves selected at random from a batch produced in 1 h.

6.2 Dimensions

The dimensions shall be checked on five cartridges.

6.3 Net capacity

This test shall be performed on five cartridges by weighing containers when empty and when filled with water.

The net capacity of each container shall be at least equal to the minimum net capacity indicated by the manufacturer.

6.4 Pressure strength

10 cartridges shall be subjected to a hydraulic test in accordance with the method indicated in B.1.

All cartridges shall comply with the requirements of 4.2.3, 4.2.4 and 4.2.5.

6.5 Gas tightness of cartridges

The requirements of 4.2.6 shall be verified on five samples in accordance with the following method:

— the cartridge is cooled to –20 °C and then immersed in a liquid at –20 °C. No bubbles shall be observed coming from the cartridge over a period of 3 min;

— when the test at –20 °C has been carried out, the cartridge is immersed in a liquid at 0 °C for 1 h. No bubbles shall be seen coming from the cartridge over a further period of 3 min;

— the cartridge is then left at an ambient temperature of about 20 °C for 1 h, then placed in a container of water. The assembly is brought to a temperature of 70 °C in a time not less than 30 min. No bubbles shall then be observed coming from the cartridge over a further period of 3 min.

6.6 Gas tightness of valves

This test is performed on five samples:

— the valve is subjected to 50 opening and closing operations at (20 ± 5) °C using the adaptor of an appliance designed for use with the cartridge;

— each operation consists of fully fitting and fully removing the adaptor from the cartridge;

— after these operations the cartridge is placed in a water bath at a temperature of $(50\ ^{+5}_{0})$ °C for 15 min. No bubbles shall be seen coming from the cartridge over a further period of 3 min.

6.7 Drop test

The test is carried out on 15 samples. If cartridges are marketed with a protective cover fitted to the valve, the tests are carried out with the protective cover fitted.

— The test is performed by dropping the cartridge from a height of 1,2 m onto a hard surface (concrete, thick steel plate, etc.); new cartridges shall be used for each test:

— five cartridges shall be dropped on the top;

— five cartridges shall be dropped on the base;

— five cartridges shall be dropped on the side.

After the test, carried out at an ambient temperature of (20 ± 5) °C, the cartridges are plunged into a water bath at (20 ± 5) °C. No signs of leakage shall be apparent for a period of 3 min.

If any of the cartridges fail the test, the test which caused the failure shall be repeated on five new cartridges. If after the re-test there are no failures, the result of the test is judged to be satisfactory.

6.8 Threaded centre boss valve – Mechanical strength torque test

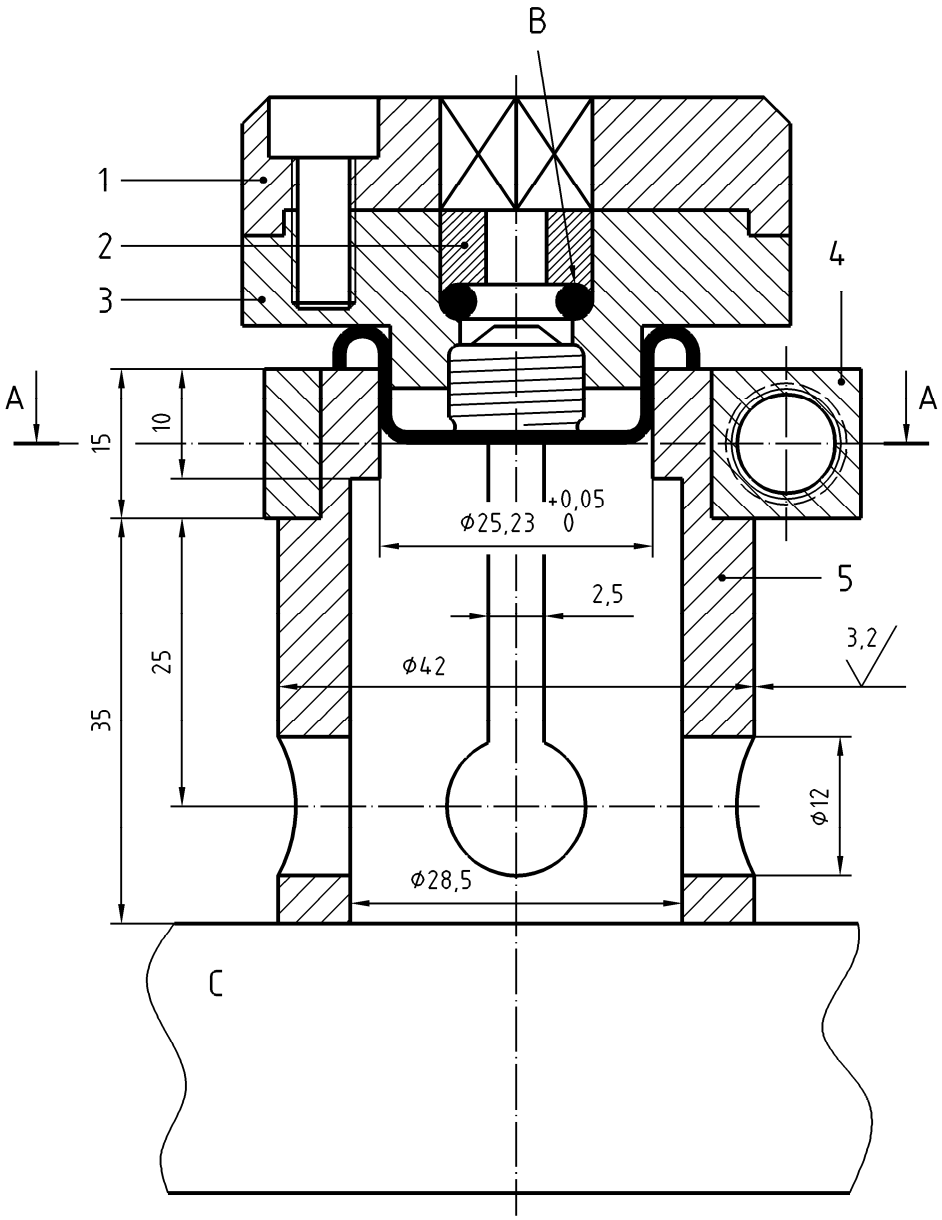
The test is performed on five valves, using the test adaptor and clamping device specified in Figure 5.

Each valve is fitted into the clamping device which is tightened to prevent rotation of the valve.

The test adaptor is screwed onto the valve and tightened to a torque of 15 N·m at a rate of approximately 1 N·m/s.

The valve shall not break.

Dimensions in millimetres

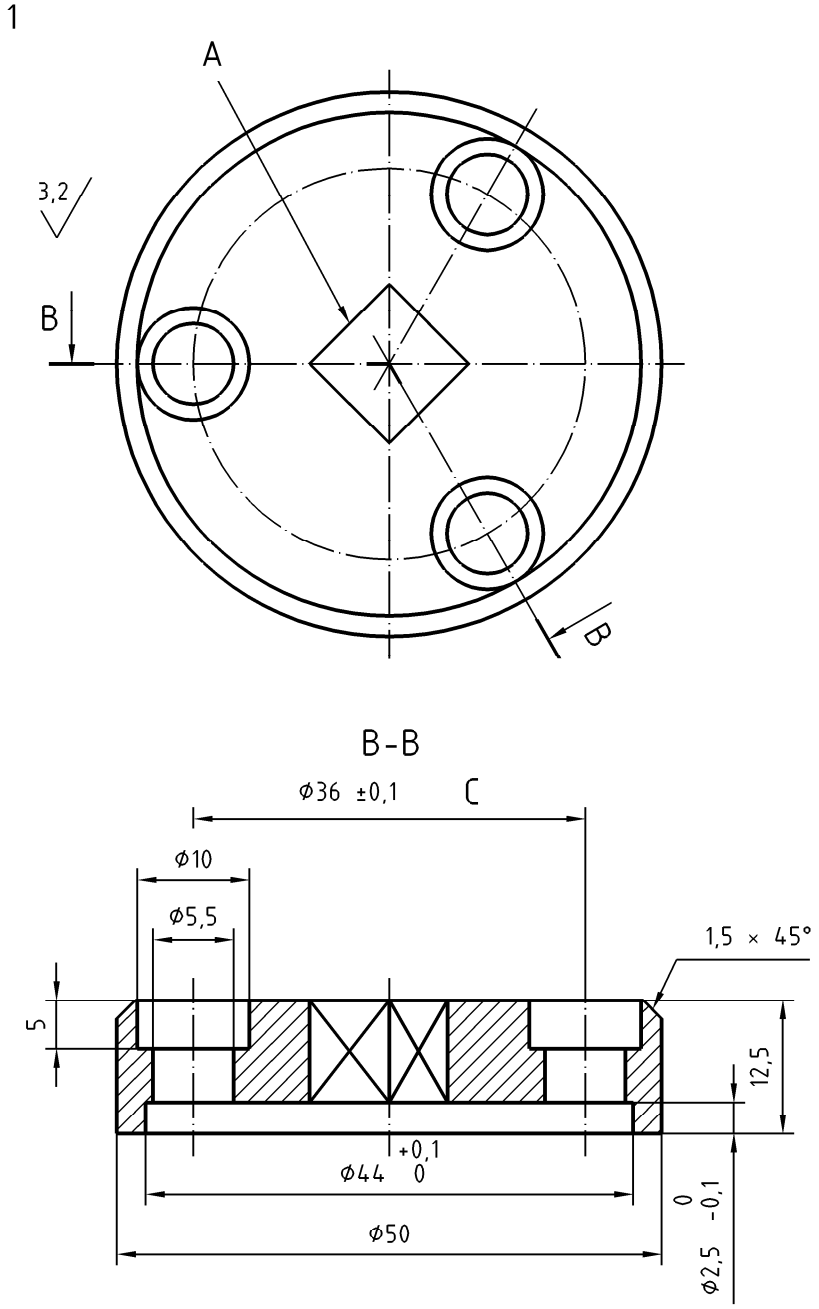


Key

B "O" Ring 8 x 3
hardness 70°

C base

a) General view

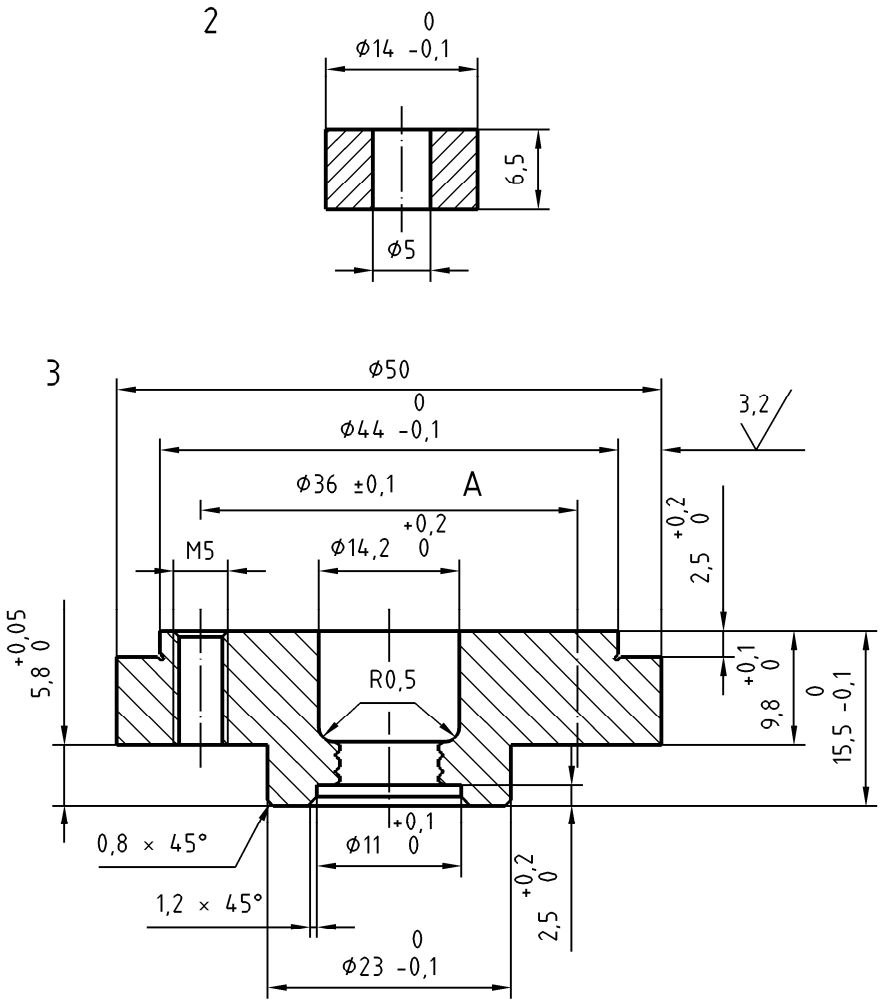


Key

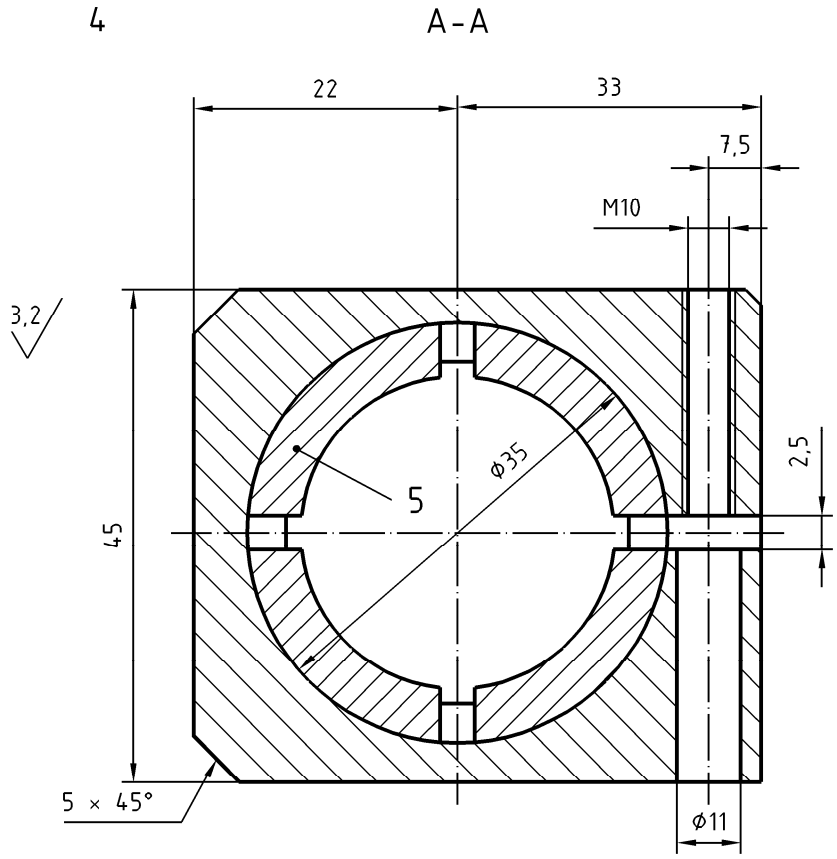
A square hole to suit torque tool

C 3 Holes 120°

b) Part 1



c) Parts 2 and 3



d) Part 4

Figure 5 — Test adaptor and clamping device for threaded valve mechanical strength torque test

6.9 Tightness control for internal leakage limiter

6.9.1 Normal use

The test is carried out on five filled samples as follows:

— At an ambient temperature of (20 ± 5) °C each sample is normally pierced (head up) using an appliance intended to operate with the cartridge.

— Each sample is vertically placed (head up) in a water containing vessel at (50 $^{+5}_{0}$) °C during 3 min.

— During the total testing time of 3 minutes, the leakage shall not exceed 70 cm^3/h.

6.9.2 Abnormal use

6.9.2.1 Abnormal connexions

The test is carried out on five filled samples as follows:

— At an ambient temperature of (20 ± 5) °C each sample is pierced (head up) at a distance such as the hole surface is internally tangent to a circle of 6 mm diameter (see Figure 6) using a testing as that described in Figure 7 for information.

— Each sample is vertically placed (head up) in a water containing vessel at ($50\ ^{+5}_{0}$) °C during 3 min.

— During the total testing time of 3 minutes, the leakage shall not exceed 70 cm^3/h.

6.9.2.2 Abnormal successive disconnexions

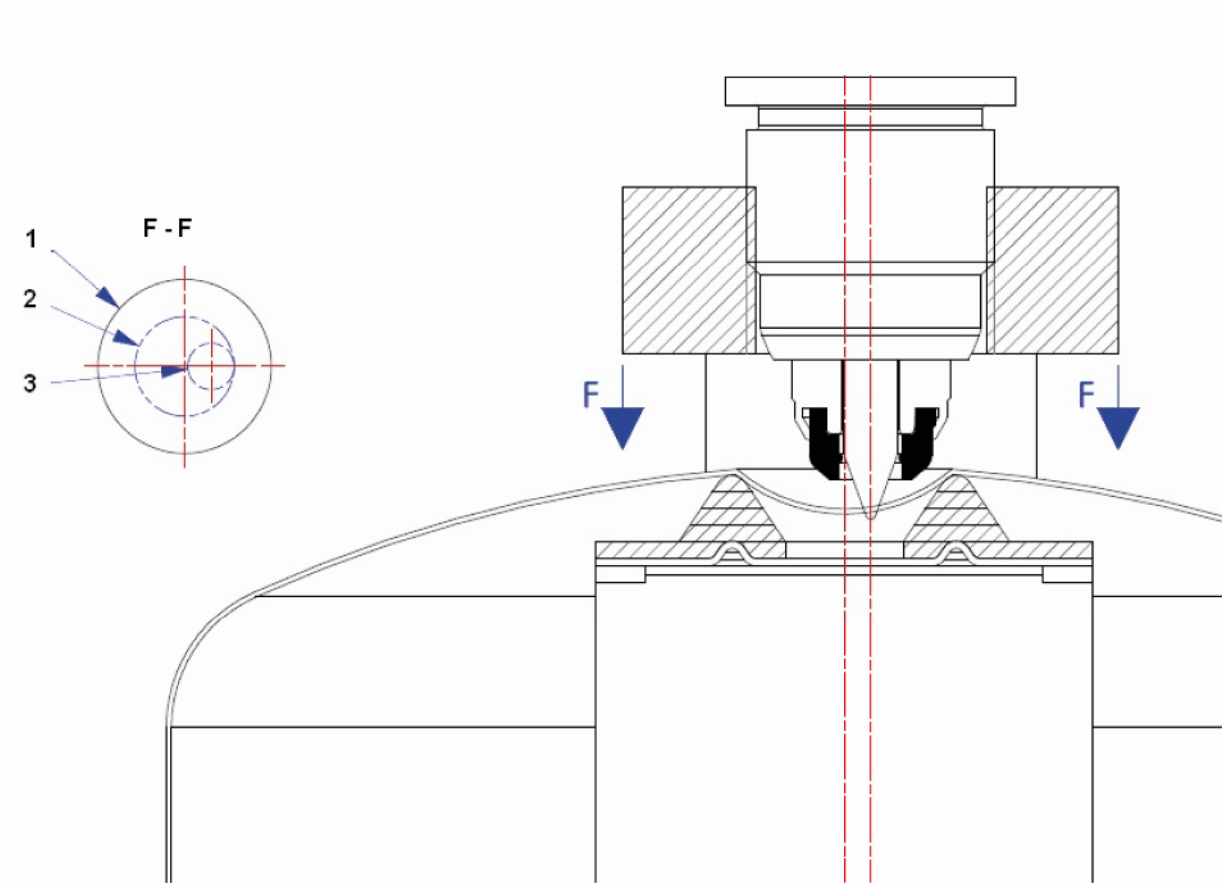
The test is carried out on five filled samples as follows:

— At an ambient temperature of (20 ± 5) °C each sample is normally pierced (head up) using an appliance intended to operate with the cartridge.

— Each sample is then connected a total of nine times and disconnected using the same appliance.

— Each sample is vertically placed (head up) in a water containing vessel at (20 ± 5) °C during 3 min.

— During the total testing time of 3 minutes, the leakage shall not exceed 70 cm^3/h.



Key

1 ∅ concave depression

2 ∅ 6 mm

3 perforation hole

Figure 6 — Hole position of abnormal connexion

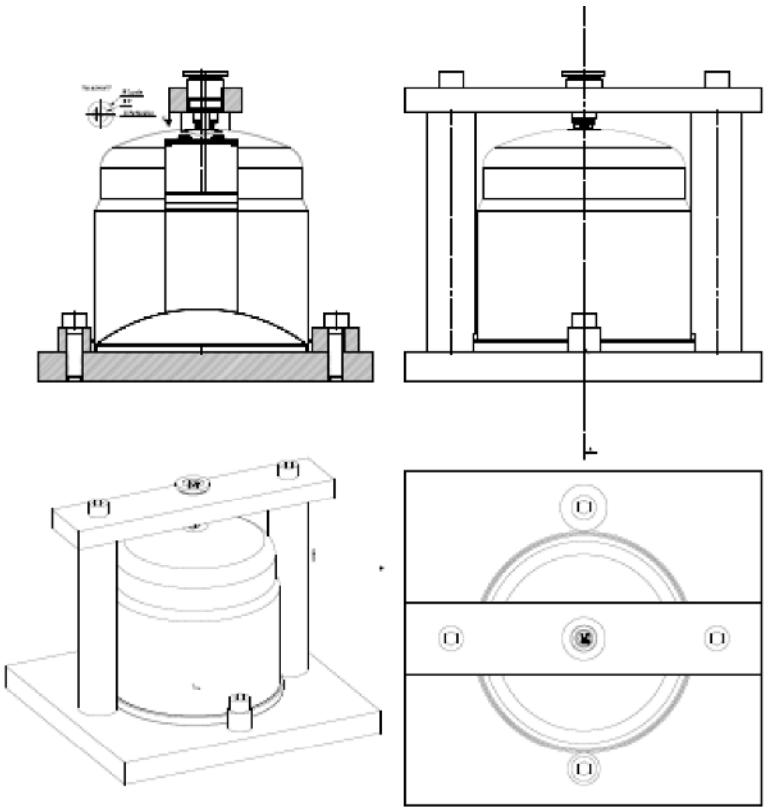


Figure 7 — Example of test device for abnormal piercing

7 Manufacturing and filling tests and examination

7.1 General

The following tests and examinations shall be performed in order to ensure the safety of the marketed product.

7.2 Tests and inspection performed by the cartridge manufacturer

7.2.1 Material examination

The manufacturer shall ensure that:

— the condition of internal and external surfaces of the walls of the cartridge do not have any defects which may be detrimental to safety;

— the characteristics of the material and the thicknesses of the walls are in accordance with the specifications of the type approval.

7.2.2 Pressure test

To check that cartridges meet the requirements of 4.2.3, 4.2.4 and 4.2.5, the manufacturer shall carry out tests on samples taken from either:

— one uniform batch of cartridges, i.e. consisting of containers manufactured with the same materials and the same manufacturing process in continuous production for half a day maximum;

— or, from a batch constituting hourly production.

Five containers shall be taken from every batch at random and subjected to the test described in B.2.

If any one of these containers does not satisfy the test, ten additional containers shall be taken at random from the same batch and subjected to the test described in B.2.

If any one of these containers does not satisfy the test, the entire batch shall be rejected.

If the manufacturer of the cartridge is also the filler then the pressure test shall be carried out only once, after filling.

7.3 Test performed by the valve manufacturer

The test shall be performed in accordance with 6.8 on a random sample of three valves taken from a batch constituting hourly production.

If any valve fails the test, 10 further samples taken from the same batch shall be tested. Any additional failure shall result in rejection of the batch.

Valves used for testing purposes shall be destroyed after the test.

7.4 Tests and inspection performed by the filler

7.4.1 The cartridge gas charge shall be verified on one cartridge, taken at least every 10 min. If the maximum charge specified in Clause 5 is exceeded, the gas charge of each cartridge filled since the last sampling shall be checked to eliminate over-filled cartridges.

NOTE The cartridge gas charge may also be verified using the techniques of statistical process control. In order to minimize the quantity of overfilled cartridges, it is recommended to verify the gas charge delivered by each filling head before filling commences. The weighing devices and manometers used in the filling of cartridges should be verified at least once per day.

7.4.2 The filler shall ensure that threaded centre boss valves comply with the requirements for mechanical strength (see 7.3) either by obtaining documented evidence from the manufacturer or by conducting the test in 6.8 on samples from each consignment of valves.

7.4.3 Each filled cartridge shall be immersed into a bath of hot water so that the pressure inside the container reaches at least 90 % of the pressure developed by the gas contained at 55 °C.

No leakage or visible deformation shall occur.

Defective cartridges shall be destroyed.

WARNING These tests are designed to subject cartridges to relatively high pressures, and to detect gross over-filling. It is essential that adequate precautions should be taken to safeguard operators carrying out these tests.

7.4.4 In order to check that cartridges meet the requirements of 4.2.3, 4.2.4 and 4.2.5, the filler shall carry out the following tests on samples taken from either:

a) one uniform batch of cartridges, i.e. filled cartridges of the same design and construction filled in continuous production for half a day maximum; or

b) a batch constituting hourly production.

Five cartridges shall be taken from every batch at random, emptied of gas, and subjected to the test described in B.2.

If a single one of these cartridges does not satisfy the test, ten additional cartridges shall be taken at random from the same batch, emptied of gas, and subjected to the test described in B.2.

If any one of these cartridges does not satisfy the test, the entire batch shall be rejected.

8 Marking

8.1 General

The markings on cartridges shall be durable, in characters which are easy to read (size, colour) and in the language(s) of the country where they will be marketed (see Annex C).

8.2 Marking applicable to all cartridges

NOTE Since the first edition of this European Standard, a number of Directives relating to the classification, marking and handling of cartridges covered by this standard have come into force, of which users of this standard should be aware. See bibliography for a non-exhaustive list of applicable directives.

Risk, safety phrases and hazard symbol(s) according to the appropriate current regulations:

a) "protect from direct sunlight";

b) "do not expose to temperatures exceeding 50 °C°';

c) name or mark of the company responsible for putting the product on the market;

d) commercial designation and type of the cartridge;

e) type of gas contained in letters not less than 3 mm high, (for example : butane or butane/propane mixture);

f) net weight of gas contained in grams;

g) indication (possibly coded) for identification of the filling batch;

h) brand and type of the appliance(s) intended to be used exclusively with the cartridge, in the form:

"this cartridge shall only be used with the XYZ [1)] category direct pressure butane [2)] appliances [3)]";

Alternatively, for type 200 cartridges marked "Butane" the marking may be:

“This cartridge may be used with any appliance category direct pressure butane complying with EN 521”

i) "this cartridge complies with EN 417", for cartridges complying with this standard;

j) "follow the instructions for use supplied with the appliance";

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1) For example : brand A, model B.

2) Type of gas corresponding to the gas category of the appliance(s) (butane, or propane, or butane-propane mixture).

3) The designation of a range is possible.

k) “UN 2037”;

l) "the Pi marking (directive 2010/35/CE)" followed by the identification number of the notified body.

8.3 Additional marking for cartridges with valves

8.3.1 General

In addition to the markings in 8.2, cartridges with valves shall also be marked with the following:

— "**WARNING**: DO NOT REFILL";

— "do not puncture/pierce or incinerate, even after use";

and the markings specified in 8.3.2 and 8.3.3 relating to the changing of the cartridge.

8.3.2 Cartridges with threaded centre boss valve

"Changing the cartridge: perform this operation in a well ventilated area, free from ignition sources. Close the appliance valve. Remove the cartridge from the appliance. Replace the connection seal if it is damaged or lost [4)]. Avoid cross-threading. Screw down hand tight only”.

8.3.3 Cartridges with other types of valve

"Changing the cartridge: perform this operation in a well-ventilated area, free from ignition sources. Close the appliance valve. Remove the cartridge from the appliance. Replace the connection seal if it is damaged or lost" [4)].

8.4 Additional marking for pierceable cartridges

In addition to the markings in 8.2, pierceable cartridges shall also be marked with the following:

— "changing a cartridge: perform this operation in a well ventilated area, free from ignition sources. Close the appliance valve. Ensure that the cartridge is empty (shake for liquid content). Completely unscrew the upper unit [5)]. Replace the connection seal if it is damaged or lost [4)]. Introduce the new cartridge into its support and screw in completely the upper unit [5)]";

— diagram showing how the cartridge is fitted to and removed from the appliance.

8.5 Additional marking for cartridges of diameter or height less than 40 mm

In addition to the markings in 8.2, cartridges of diameter or height less than 40 mm shall be marked with the following:

— "follow all fitting instructions supplied with the appliance";

and, in the case of cartridge with valve:

— "**WARNING**: DO NOT REFILL";

— "do not puncture/pierce or incinerate, even after use".

---

4) This advice is to be indicated only where it is applicable.

5) This sentence can be adapted according to the appliance design.

8.6 Optional marking

The following optional markings may appear on the cartridge:

— "store in a cool, dry place";

— "discard in a safe place".

Other markings may be added to the cartridges.

Annex A
(normative)

Cartridges with valves, mounted in a single layer, threaded centre boss valve cup

A.1 General

The objective of this annex is to define the specification for the valves, mounted in a single layer threaded centre boss valve cup (type 3 and type 4).

All the specifications of this standard are applicable for this type of valve (manufacturing and filling test, examination, marking, etc.), with the following indications:

A.2 Filled cartridges fitted with type 3 valves

Filled cartridges fitted with type 3 valves should comply with the following:

a) the valve cup component should be manufactured from a single layer of material;

b) at no point shall the thickness of the valve cup component be less than 0,18 mm nor greater than 0,46 mm.

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

c) the requirements specified in 4.4.3 c) to l).

A.3 Filled cartridges fitted with type 4 valves

Filled cartridges fitted with type 4 valves shall comply with A.2 a) and b).

Annex B
(normative)

Pressure strength test on finished cartridges — Test method

B.1 Type testing

B.1.1 Cartridges with valves

The cartridge is emptied of gas and filled with liquid at (20 ± 5) °C through the valve, removing the air contained (for example after machining a hole in the valve seat). A hydraulic pump is then connected to the cartridge through the adaptor of an appliance intended to be used with the cartridge.

A pressure gauge, sensitive to 0,1 bar [6)], with an indicator capable of retaining the indication of the maximum pressure reached when a pressure drop in the system occurs, is connected to the system. It shall be put under pressure parallel to a pressure recorder.

The cartridge, which is left free, except for the connection to the pump, without any constraint on the walls, is then put under pressure.

The pressure is increased at a rate, not exceeding 1 bar/s.

When the test pressure is reached, this pressure is maintained for 30 s.

The pressure is then increased until the concave base, if there is one, reverses (container of diameter greater than 40 mm) at the same time there is a sudden drop in pressure.

The pressure is increased again until the cartridge leaks or ruptures.

The performance of the cartridge in relation to the requirements of 4.2.3, 4.2.4 and 4.2.5 shall be recorded.

This test is also carried out with the pressure system connected to a hole drilled either in the bottom or in the cylindrical part of the cartridge opposite to the longitudinal joint (if any) in order to check the deformation of the top of the cartridge.

B.1.2 Pierceable cartridges

The cartridge is punctured to allow it to be filled with liquid at (20 ± 5) °C, removing the air contained.

A hydraulic pump is then connected to the cartridge through the adaptor of an appliance intended to be used with the cartridge. This adaptor modified as appropriate shall allow the greatest surface area of the cartridge to be visible and shall not restrict deformation of the walls.

The hydraulic pressure test is then performed as for the cartridges with valves.

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6) 1 bar : 10^5 N/m^2 : 10^5 Pa.

B.2 Testing during manufacture and filling

B.2.1 Preparation

B.2.1.1 Cartridges with valves

When the test is to be carried out by a cartridge manufacturer who is not the filler, i.e. on a cartridge which is not yet closed, the connection to the hydraulic pump circuit is made by a compression joint to the aperture designed for the fitting of the valve.

When the test is carried out by a filler on a cartridge which is closed during the filling process, the cartridge is emptied of gas and the connection to the hydraulic pump circuit is made either by connection to the valve or by a compression joint to a hole punctured opposite any longitudinal seam.

B.2.1.2 Pierceable cartridge

The cartridge is punctured and connected to the hydraulic pump circuit as described in B.1.2. The assembly of the cartridge to the hydraulic pump circuit shall not restrict any foreseeable deformation of the cartridge.

The cartridge manufacturer shall check the presence of the internal leakage limiter after the pressure strength test B.2.2.

B.2.2 Pressure strength test

A pressure gauge, sensitive to 0,2 bar, with an indicator capable of retaining the indication of the maximum pressure reached when a pressure drop in the system occurs, is connected to the system. It shall be put under pressure in parallel to a pressure recorder.

The pressure is then increased at a rate between 1 bar/s and 2 bar/s.

NOTE The pressure may be increased without maintaining constant pressure at the test pressure.

The performance of the cartridge in relation to the requirements of 4.2.3, 4.2.4 and 4.2.5 shall be recorded.

Annex C
(normative)

Translation of mandatory sentences

NOTE 1 Some of the translations are missing in this Annex. This is because the CEN TC 181 Secretariat has not received the relevant information from the CEN member countries concerned prior to the publication of this Standard. Queries concerning such information should be addressed to those CEN member countries.

NOTE 2 In the following sentences “butane” is given as example and may be replaced by “propane” or “butane-propane mixture

C.1 English

1) Protect from direct sunlight
2) Do not expose to temperatures exceeding 50 °C
3) This cartridge shall only be used with the XYZ category direct pressure butane appliances
3) bis This cartridge may be used with any appliance category direct pressure butane complying with EN 521
4) This cartridge complies with EN 417
5) Follow the instructions for use supplied with the appliance
6) **WARNING**: DO NOT REFILL
7) Do not puncture/pierce or incinerate, even after use
8) Changing the cartridge: perform this operation in a well ventilated area, free from ignition sources
9) Close the appliance valve
10) Remove the cartridge from the appliance.
11) Replace the connection seal if it is damaged or lost
12) Avoid cross threading. Screw down hand tight only
13) Ensure that the cartridge is empty (shake for liquid content)
14) Completely unscrew the upper unit
15) Introduce the new cartridge into its support and screw in completely the upper unit
16) Follow all fitting instructions supplied with the appliance
17) Store in a cool, dry place
18) Discard in a safe place

C.2 French

1) À protéger contre les rayons solaires
2) Ne pas exposer à des températures supérieures à 50 °C
3) Cette cartouche ne doit être utilisée qu'avec des appareils XYZ de catégorie pression directe butane
3) bis Cette cartouche peut être utilisée avec tout appareil à pression directe de catégorie butane conforme à l’EN 521
4) Cette cartouche est conforme à l'EN 417
5) Suivre les instructions du mode d'emploi fourni avec l'appareil utilisé
6) **ATTENTION** : NE PAS REMPLIR À NOUVEAU
7) Ne pas percer ou brûler même après usage
8) Changement de la cartouche : opérer dans un endroit très aéré et loin de toute source d'inflammation.
9) Fermer le robinet de l'appareil.
10) Démonter l'appareil de la cartouche.
11) Remplacer le joint de cet assemblage s'il est endommagé ou perdu
12) Éviter d'abîmer le filetage. Visser à fond sans forcer
13) S'assurer que la cartouche est vide (secouer pour entendre le bruit de liquide)
14) Dévisser complètement la partie supérieure

15) Mettre la nouvelle cartouche dans son support et revisser à fond la partie supérieure
16) Suivre toutes les instructions de montage fournies avec l'appareil
17) À stocker dans un endroit frais et sec
18) Déposer les cartouches vides dans un endroit sûr

C.3 German

1) Gegen direkte Sonneneinstrahlung schützen
2) Nicht einer Temperatur über 50 °C aussetzen
3) Diese Kartusche darf nur mit Geräten der Kategorie XYZ unmittelbarer Butandruck verwendet werden
3) bis Diese Kartusche darf mit jedem Gerät der Kategorie unmittelbarer Butandruck entsprechend EN 521 verwendet werden
4) Diese Kartusche entspricht der Norm EN 417
5) Bedienungsanleitung des zugehörigen Gerätes beachten
6) **WARNHINWEIS**: NICHT WIEDERBEFÜLLEN
7) Auch nach Gebrauch nicht durchstoßen oder verbrennen
8) Auswechseln der Kartusche: An einem gut durchlüfteten Ort ohne Zündquellen durchführen
9) Absperrventil des Gerätes schließen
10) Kartusche vom Gerät trennen
11) Die Dichtung der Verbindung ersetzen, wenn sie beschädigt oder verlorengegangen ist
12) Gewindebeschädigung vermeiden. Nur handfest bis zum Anschlag einschrauben
13) Sicherstellen, dass die Kartusche leer ist (schütteln, ob Flüssigkeitsgeräusch hörbar)
14) Die obere Einheit vollständig abschrauben
15) Die neue Kartusche in die Halterung einsetzen und die obere Einheit bis zum Anschlag einschrauben
16) Alle Montageanweisungen zum Gerät befolgen
17) Kühl und trocken lagern
18) An sicherem Ort entsorgen

C.4 Italian

1) Proteggere dalla luce solare diretta
2) Non esporre a temperature superiori a 50°C
3) Qusta cartuccia deve essere utilizzata unicamente con le apparecchiature XYZ a pressione diretta di butano
3) bis Questa cartuccia può essere utilizzata con tutte le apparecchiature a pressione diretta di butano conformi alla EN 521
4) Questa cartuccia è conforme alla norma EN 417
5) Attenersi alle istruzioni d'uso fornite con l'apparecchiatura
6) **ATTENZIONE**: NON RICARICARE
7) Non bucare/forare o bruciare nemmeno dopo l'uso
8) Sostituzione della cartuccia: eseguire la sostituzione in ambiente ben ventilato e privo di fonti di accensione
9) Chiudere la valvola dell'apparecchio
10) Rimuovere la cartuccia dall'apparecchio
11) Sostituire la guarnizione qualora risulti danneggiata o sia andata perduta
12) Evitare il danneggiamento della filettatura. avvitare a mano senza forzare
13) Assicurarsi che la cartuccia sia vuota (agitando per controllare che non contenga liquido)
14) Svitare completamente l'unità superiore
15) Mettere la nuova cartuccia nella sua sede ed avvitare completamente l'unità superiore
16) Seguire tutte le istruzioni di montaggio fornite con l'apparecchio
17) Conservare in luogo fresco e secco
18) Gettare la cartuccia in un luogo sicuro

C.5 Polish

1) Chronić przed bezpośrednim nasłonecznieniem

2) Nie wystawiać na temperaturę powyżej 50 °C
3) Pojemnik używać tylko z urządzeniami XYZ na butan
3) bis
4) Pojemnik zgodny z EN 417
5) Postępować zgodnie z instrukcją dołączoną do urządzenia
6) **UWAGA**: NIE NAPEŁNIAĆ POWTÓRNIE
7) Nie przekłuwać ani nie spalać, nawet po zużyciu
8) Wymianę pojemnika - wykonać w dobrze wentylowanym pomieszczeniu z dala od źródeł zapłonu
9) Zamknąć zawór urządzenia
10) Zdjąć pojemnik z urządzenia
11) Wymienić uszczelkę połączenia, jeśli jest uszkodzona lub zniszczona
12) Unikać uszkodzenia gwintu. Dokręcić delikatnie ręcznie do oporu
13) Upewnić się, że pojemnik jest pusty (potrząsnąć sprawdzając zawartość cieczy)
14) Całkowicie odkręcić górną część urządzenia
15) Włożyć nowy pojemnik do uchwytu i przykręcić skutecznie górną część
16) Przestrzegać instrukcji montażu dołączonej do urządzenia
17) Przechowywać w chłodnym i suchym miejscu
18) Usunąć puste pojemniki w bezpieczne miejsce

C.6 Spanish

1) Proteger de la luz solar
2) No exponer a temperaturas superiores a 50 ºC
3) Este cartucho se debe utilizar únicamente con aparatos XYZ de categoría presión directa butano
3) bis Este cartucho puede utilizarse con cualquier aparato de categoría presión directa butano conforme a la Norma EN 521
4) Este cartucho cumple la Norma EN 417
5) Síganse las instrucciones de uso suministradas con el aparato
6) **ATENCIÓN**: NO RELLENAR
7) No agujerear/perforar, ni quemar, incluso después de su uso
8) Sustitución del cartucho: realizar esta operación en una zona bien ventilada, y lejos de cualquier fuente de ignición
9) Cerrar la válvula del aparato
10) Desmontar el cartucho del aparato
11) Sustituir la junta de la conexión si está deteriorada o se ha perdido
12) Evitar dañar la rosca. Apretar a fondo sólo manualmente
13) Asegurarse de que el cartucho está vacío (agitar para comprobar el contenido de líquido)
14) Desenroscar completamente la parte superior
15) Colocar el cartucho nuevo en el soporte y roscarlo completamente a la parte superior
16) Síganse las instrucciones de montaje suministradas con el aparato
17) Almacenar en un lugar fresco y seco
18) Depositar los cartuchos vacíos en un lugar seguro

C.7 Dutch

1) Beschermen tegen direct zonlicht
2) Niet blootstellen aan temperaturen hoger dan 50 ° C
3) Dit patroon mag enkel worden gebruikt met directe druk butaan toestellen van categorie XYZ
3) bis Dit patroon mag worden gebruikt met elk directe druk butaan toestellen van categorie XYZ die voldoen aan EN 521
4) Dit patroon is in overeenstemming met EN 417
5) Volg de gebruiksinstructies op geleverd met het toestel

6) **WAARSCHUWING**: NIET HERVULLEN
7) Niet doorprikken/-boren of verbranden, zelfs na gebruik
8) Wisselen van patronen : voer deze bewerking uit in een goed geventileerde ruimte, vrij van

ontvlambronnen
9) Sluit het toestelventiel
10) Verwijder het patroon van het toestel
11) Vervang de afsluitring bij beschadiging of verlies
12) Vermijd de schroefdaad te beschadigen. Met de hand aanschroeven
13) Zorg ervoor dat het patroon leeg is (schudden om de vloeibare inhoud te horen)
14) Schroef het bovenste gedeelte volledig los
15) Plaats het nieuwe patroon in de steun en schroef het bovenste gedeelte volledig vast
16) Volg alle montage-instructies op, geleverd met het toestel
17) In een koele droge plaats bewaren
18) Verwijder het patroon op een veilige plaats

C.8 Czech

1) Chraňte před přímým slunečním zářením
2) Nevystavujte teplotám nad 50 °C
3) Tato nádoba musí být použita se spotřebičem na butan XYZ
3) bis Tato nádoba může být použita se spotřebičem na butan v souladu s EN 521
4) Tato nádoba vyhovuje EN 417
5) Dodržujte návod k použití dodávaný se spotřebičem
6) **UPOZORNĚNÍ:** znovu nenaplňovat
7) Neprorážet, nepropichovat nebo nespalovat ani po vyprázdnění
8) Výměna nádoby: tuto operaci provádějte v dobře větraném prostoru, ve kterém se nenachází žádné zápalné zdroje
9) Uzavřete ventil spotřebiče
10) Odšroubujte spotřebič od nádoby
11) Vyměňte těsnění, které je poškozené nebo ztracené
12) Vyvarujte se poškození závitu. Závitové spojení dotahujte pouze rukou
13) Ujistěte se, že nádoba je prázdná (zatřepáním prověřte, zda neobsahuje kapalnou fázi)
14) Úplně vyšroubujte horní díl
15) Nasaďte novou nádobu do držáku a zašroubujte horní díl na doraz
16) Dodržujte instrukce na montáž dodávané se spotřebičem
17) Skladujte v chladném a suchém místě
18) Odkládejte na bezpečném místě

C.9 Greek

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C.10 Hungarian

1) Védje a napsugárzás közvetlen hatásától!
2) Az 50 °C hőmérsékletet ne lépje túl!
3) Csak a(z) XYZ butángázzal üzemelő készülékekhez!
3) bis
4) A gáztároló megfelel az EN 417 követelményeinek.
5) Tartsa be a készülék használati utasításait
6) **FIGYELEM:** ÚJRATÖLTENI TILOS!
7) A gázpatront átvágni, kilyukasztani vagy hevíteni akkor sem szabad, ha üres!
8) A gázpatron cseréje: végezze ezt a műveletet egy jól szellőző, tűzbiztos helyen!
9) A készülék zárószelepét zárja el!
10) A készüléket vegye le a gázpatronról!
11) Cserélje le a sérült vagy hiányos tömítést!
12) A menetes részeket óvatosan csatlakoztassa. Csak szabadkézzel szorítsa!
13) Győződjön meg, hogy a gázpatron üres (rázással ellenőrizze, hogy nincs benne folyadék)!
14) A rácsavart felső részt teljesen csavarja ki!
15) Helyezze a gázpatront a tartójába és csavarja rá a felső részt ütközésig
16) Kövesse kivétel nélkül a készülékhez csatolt útmutató utasításait!
17) Száraz, hűvös helyen tárolja!
18) Tegye biztonságos helyre!

C.11 Portuguese

1) A proteger contra os raios solares
2) Não expor a temperaturas superiores a 50 ºC
3) Este cartucho apenas deve ser utilizado com aparelhos à pressão directa a XYZ butano
3) bis Este cartucho pode ser utilizado com todos os aparelhos à pressão directa do butano, conforme a EN 521
4) Este cartucho está conforme com a EN 417
5) Seguir as instruções de utilização fornecidas com o aparelho utilizado
6) ATENÇÃO: NÃO REUTILIZAR
7) Não furar ou aquecer mesmo depois da utilização
8) Troca do cartucho: executar esta operação num espaço bem ventilado e livre de fontes de ignição
9) Fechar a válvula do aparelho
10) Retirar o cartucho aparelho

11) Substituir a junta da ligação se esta estiver danificada ou se tenha perdido
12) Evitar danificar a rosca. Apertar totalmente sem forçar
13) Assegurar-se que o cartucho está vazio (agitar para ouvir o barulho do líquido)
14) Desapertar completamente a parte superior
15) Colocar o novo cartucho no seu suporte e voltar a apertar a fundo a parte superior
16) Seguir todas as instruções de montagem fornecidas com o aparelho
17) Armazenar em local fresco e seco
18) Depositar os cartuchos em local seguro

C.12 Swedish

1) Skyddas mot direkt solbestrålning
2) Får ej utsättas för temperaturer över 50 °C
3) Använd endast med XYZ butanapparater
3) bis Gasbehållaren får användas med apparater som uppfyller EN521 kategori butan
4) Denna behållare uppfyller EN417
5) Följ bruksanvisningen som levererats med gasapparaten
6) VARNING : Får ej återfyllas
7) Får ej punkteras eller brännas, inte ens efter användning
8) Byte av behållare : utför bytet i ett väl ventilerat utrymme, fritt från antändningskällor
9) Stäng apparatens ventil
10) Lossa gasapparten från behållaren
11) Byt packning om den är skadad eller saknas
12) Skada ej gängorna i förbandet
13) Kontrollera att behållaren är tom (skaka och lyssna efter vätska)
14) Skruva bort den övre enheten
15) För in den nya behållaren i hållaren och skruva in den □ver delen helt.
16) Följ apparatens bruksanvisning
17) Förvaras på svalt och torrt ställe
18) Bortkastas på säker plats

C.13 Danish

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C.14 Finnish

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C.15 Lithuanian

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C.16 Norwegian

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C.17 Slovakian

1) Chráňte pred priamym slnečným žiarením
2) Nevystavujte teplotám nad 50 °C
3) Táto nádoba sa musí používať iba s XYZ spotrebičom na bután
3) bis Táto nádoba sa môže používať so spotrebičom na bután akejkoľvek kategórie podľa EN 521
4) Tato nádoba vyhovuje EN 417
5) Dodržujte návod k používaniu dodávaný so spotrebičom
6) **UPOZORNENIE:** ZÁKAZ OPAKOVANÉHO PLNENIA
7) Neprepichujte, neprerážajte, nespaľujte ani po vyprázdnení
8) Výmena nádoby: túto operáciu vykonajte v dobre vetranom priestore, v ktorom sa nenachádzajú nijaké zápalné zdroje
9) Uzavrite ventil spotrebiča
10) Spotrebič odskrutkujte od nádoby
11) Vymeňte poškodené tesnenie alebo nahraďte stratené
12) Vyvarujte sa poškodeniu závitu. Závitové spoje doťahujte iba rukou
13) Presvedčte sa, že nádoba je prázdna (potrasením preverte, či neobsahuje skvapalnenú fázu)
14) Úplne odskrutkujte horný dielec
15) Novu nádobu vložte do držiaka a naskrutkujte horný dielec na doraz
16) Dodržujte inštrukcie na montáž dodávané so spotrebičom
17) Skladujte na chladnom a suchom mieste
18) Odkladajte na bezpečnom mieste

C.18 Estonian

1) Kaitsta otsese päikesevalguse eest
2) Vältida temperatuuri üle 50 °C
3) Seda gaasiballooni tohib kasutada ainult XYZ kategooria otserõhuga butaangaasiseadmes
3) bis Seda gaasiballooni tohib kasutada iga kategooria otserõhuga butaangaasiseadmes, mis vastab standardi EN 521 nõuetele
4) See gaasiballoon vastab standardi EN 417 nõuetele
5) Järgida gaasiseadmele kaasapandud kasutusjuhendit
6) **HOIATUS**: GAASIBALLOONI EI TOHI UUESTI TÄITA
7) Ka kasutatud gaasiballooni ei tohi läbi torkida või tühjaks põletada
8) Gaasiballooni vahetus tuleb teha õues/hästiventileeritavas ruumis, kus puuduvad süüteallikad
9) Sulgege gaasiseadme kraan
10) Eemaldage gaasiballoon gaasiseadme küljest
11) Asendage ühendusliitmiku tihend, kui see on katkine või puudub
12) Vältige keerme ülepingutamist. Pingutage liitmiku keere kinni ainult käega
13) Veenduge, et gaasiballoon on tühi (vedelgaasi olemasolu on arusaadav loksutades)
14) Avage täielikult seadme keermeskork
15) Sisestage uus gaasiballoon seadme pessa, pingutage täielikult keermeskork
16) Järgige kõiki gaasiseadmega kaasasolevaid paigaldusjuhendeid
17) Hoida kuivas ja jahedas kohas
18) Kasutusest kõrvaldada ohutusse kohta

C.19 Latvian

1) Sargāt no tiešas saules staru iedarbības!
2) Nepakļaut temperatūrai, kas pārsniedz 50 °C!
3) Šo gāzes balonu drīkst lietot tikai ar XYZ kategorijas tiešā spiediena butāna ierīcēm!
3) bis bis Šo gāzes balonu var lietot ar jebkuras kategorijas tiešā spiediena butāna ierīci atbilstoši EN 521
4) Šis gāzes balons atbilst EN 417
5) Ievērot lietošanas norādījumus, kas pievienoti ierīcei!

6) BRĪDINĀJUMS: NEUZPILDĪT!
7) Nedurt/neurbt un nededzināt pat pēc izlietošanas!
8) Mainot gāzes balonu: šo darbību veikt labi vēdināmās vietās, prom no aizdegšanās avotiem!
9) Aizvērt ierīces vārstu!
10) Nomontēt gāzes balonu no ierīces!
11) Nomainīt savienojuma blīvi, jā tā ir bojāta vai pazaudēta!
12) Izvairīties no vītnes apraušanas. Aizskrūvēt tikai ar roku!
13) Pārliecināties, ka gāzes balons ir tukšs (kratīt, lai noteiktu vai gāze balonā ir šķidrums)!
14) Pilnībā noskrūvēt augšējo bloku!
15) Jauno gāzes balonu ievietot turētājā un pilnībā ieskrūvēt augšējo bloku!
16) Ievērot visas montāžas instrukcijas, kas pievienotas ierīcei!
17) Uzglabāt vēsā un sausā vietā!
18) Izmest drošā vietā!

C.20 Slovenian

1) Zaščitite kartušo pred direktno sončno svetlobo!
2) Ne izpostavljajte kartuše temperaturam, višjim od 50 °C!
3) Uporabljajte kartušo samo za XYZ plinske naprave na butan!
3) bis Kartuša se sme uporabljati s prenosnimi aparati, ki delujejo s tlakom uparjenega plina in so skladni z EN 521
4) Ta kartuša je skladna z EN 417
5) Upoštevajte priložena navodila za uporabo!
6) OPOZORILO! Ni za ponovno polnjenje
7) Ne preluknjajte ali sežigajte kartuše, niti ko je prazna!
8) Zamenjajte kartušo v dobro prezračevanem prostoru, stran od virov vžiga!
9) Zagotovite, da je kartuša prazna (s tresenjem ugotovite, da v njej ni tekočine)!
10) Zaprite ventil na plinski napravi!
11) Popolnoma odvijte zgornji del!
12) Odstranite plinsko napravo s kartuše!
13) Upoštevajte priložena navodila za montažo!
14) Vstavite novo tesnilo, če je staro poškodovano ali izgubljeno!
15) Vstavite novo kartušo v podstavek in popolnoma privijte zgornji del!
16) Ne poškodujte navoja in privijajte brez prevelike sile!
17) Odložite prazno kartušo na varno in primerno mesto!
18) Hranite napravo in kartušo na hladnem in suhem mestu!

C.21 Icelandic

1)
2)
3)
3) bis
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18)

C.22 Maltese

1) tħallihx fix-xemx
2) tħallihx f'temperaturi li jaqbżu l-50 °C
3) dan il-bott tal-gass għandu jintuża biss ma' tagħmir ta' butan li jopera bi pressjoni diretta tal-kategorija XYZ
3) bis dan il-bott tal-gass jista' jintuża ma' kull kategorija ta' tagħmir ta' butan li jopera bi pressjoni diretta konformi ma' EN 521
4) dan il-bott tal-gass hu konformi ma' EN 417
5) segwi l-istruzzjonijiet għall-użu li hemm mat-tagħmir
6) **TWISSIJA**: TERĠAX TIMLIEH
7) ittaqqbux jew taħarqux, l-anqas wara li tużah
8) Bdil tal-bott tal-gass: agħmel din l-operazzjoni fil-miftuħ, fejn m'hemmx sorsi li jistgħu jieħdu n-nar
9) Agħlaq il-valv tat-tagħmir
10) Neħħi l-bott tal-gass mit-tagħmir
11) Ibdel il-"washer" jekk għandu l-ħsara jew intilef
12) Attent li ma trikkibx il-kamin. Issikka bl-idejn biss
13) Qis li l-bott tal-gass hu vojt (ċaqlaq biex tara fihx xi likwidu)
14) Ħoll għal kollox il-unit ta' fuq
15) Daħħal il-bott tal-gass ġdid f' postu u ssikka sewwa l-unit ta' fuq
16) segwi l-istruzzjonijiet tal-immuntar kollha li hemm mat-tagħmir
17) aħżen f'post frisk u niexef
18) armi f'post sigur

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[1] Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances and REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

[2] COMMISSION DIRECTIVE 2008/47/EC of 8 April 2008 amending, for the purposes of adapting to technical progress, Council Directive 75/324/EEC on the approximation of the laws of the Member States relating to aerosol dispensers

[3] DIRECTIVE 2010/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 June 2010 on transportable pressure equipment and repealing Council Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC

[4] ADR : *Agreement concerning the International Carriage of Dangerous Goods by Road*

[5] 'REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC'

[6] RID : Regulations concerning the International carriage of Dangerous goods by rail

[7] GHS : Globally Harmonized System of Classification and Labelling of Chemicals”

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