

Transportable gas cylinders — Cylinder valves — Specification and type testing

The European Standard EN ISO 10297:2006 has the status of a
British Standard

ICS 23.060.40; 23.020.30

National foreword

This British Standard is the official English language version of EN ISO 10297:2006. It is identical with ISO 10297:2006. It supersedes BS EN 849:1997 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee PVE/3, Gas containers, to Subcommittee PVE/3/1, Valve fittings for gas containers, which has the responsibility to:

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- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to v, a blank page, pages 1 to 27 and a back cover.

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This European Standard was approved by CEN on 19 October 2005.

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Foreword

This document (EN ISO 10297:2006) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with 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of an identical text or by endorsement, at the latest by July 2006, and conflicting national standards shall be withdrawn at the latest by July 2006.

This document supersedes EN 849:1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 and United Kingdom.

Endorsement notice

The text of ISO 10297:2006 has been approved by CEN as EN ISO 10297:2006 without any modifications.

INTERNATIONAL STANDARD

**ISO
10297**

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Transportable gas cylinders — Cylinder valves — Specification and type testing

*Bouteilles à gaz transportables — Robinets de bouteilles —
Spécifications et essais de type*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10297 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 2, *Cylinder fittings*.

This second edition cancels and replaces the first edition (ISO 10297:1999), which has been technically revised.

Introduction

Cylinder valves are fitted on gas cylinders used in, for example, industrial, medical and breathing applications. Such valves have to perform safely and reliably for at least the cylinder test period, often in hazardous situations.

Valves complying with this International Standard can be expected to perform satisfactorily under normal services conditions.

This International Standard pays particular attention to:

- suitability of materials;
- dimensions of inlet connections;
- dimensions of outlet connections;
- safety (mechanical strength, endurance, resistance to ignition);
- leakage;
- cleanliness;
- testing;
- identification.

NOTE For satisfactory service, valves are manufactured and batch tested to ISO 14246.

Transportable gas cylinders — Cylinder valves — Specification and type testing

1 Scope

This International Standard specifies valve design, production and marking requirements, and type test methods for valves intended to be fitted to gas cylinders which convey compressed, liquefied or dissolved gases.

This International Standard does not apply to valves for cryogenic equipment, for fire extinguishers or for liquefied petroleum gas (LPG).

Additional specific requirements for valves fitted with pressure-reducing devices (see ISO 22435 and EN 738-3), residual pressure-retaining devices and non-return devices (see ISO 15996), and bursting discs and pressure-relief devices (see ISO 4126 and prEN 14513) are not covered by this International Standard.

NOTE Requirements for valves for liquefied petroleum gas (LPG) are specified in ISO 14245 and EN 13152, and in ISO 15995 and EN 13153. Requirements for valves for cryogenic vessels are specified in ISO 21011. Further specific requirements for valves for breathing apparatus are specified in EN 144-1, EN 144-2 and EN 144-3.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 407, *Small medical gas cylinders — Pin-index yoke-type valve connections*

ISO 5145, *Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning*

ISO 8573-1, *Compressed air — Part 1: Contaminants and purity classes*

ISO 10156, *Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*

ISO 10286, *Gas cylinders — Terminology*

ISO 10692-1, *Gas cylinders — Gas cylinder valve connections for use in the microelectronics industry — Part 1: Outlet connections*

ISO 15001, *Anaesthetic and respiratory equipment — Compatibility with oxygen*

3 Terms, definitions and symbols

For the purposes of this document, the terms, definitions and symbols given in ISO 10286 and the following apply.

3.1 working pressure

p_w
 (compressed gases) settled pressure, at a uniform temperature of 15 °C, for a full gas cylinder with the maximum permissible charge of compressed gas

NOTE 1 In this International Standard, it corresponds to the maximum working pressure of the cylinders for which the valve is intended to be used.

NOTE 2 This definition does not apply to liquefied gases or dissolved gases (e.g. acetylene).

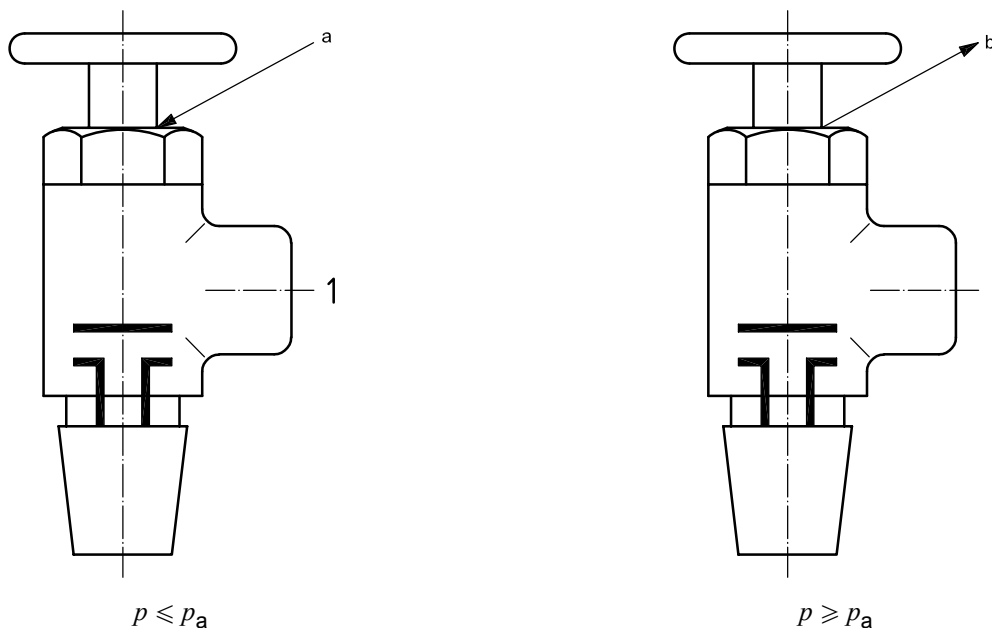
3.2 valve test pressure

p_{vt}
 pressure applied to a valve through a gas (or a liquid medium for hydraulic pressure test only) during type testing

3.3 external leak tightness

leak tightness to atmosphere (leakage in and/or leakage out) when the valve is open

NOTE See Figure 1.



Key

1 connection to customer equipment (closed)

a Leakage in.

b Leakage out.

p = internal pressure

p_a = atmospheric pressure

Figure 1 — External leak tightness

3.4 internal leak tightness

leak tightness across the valve seat (leakage in and/or leakage out) when the valve is closed