



**International  
Standard**

**ISO 10297**

**Gas cylinders — Cylinder valves —  
Specification and type testing**

*Bouteilles à gaz — 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 2, *Cylinder fittings*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 23, *Transportable gas cylinders*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 10297:2014), which has been technically revised. It also incorporates the Amendment ISO 10297:2014/Amd.1:2017.

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The main changes are as follows:

- clarification of the Scope concerning different VIPR designs;
- addition of several new terms and definitions, e.g. VIPR types A, B and C for easy referencing of different design types;
- oxygen pressure surge test:
  - for VIPRs transferred from ISO 22435 and amended,
  - for RPVs transferred from ISO 15996 and amended,
  - reference for test equipment and procedure to ISO 11114-6,
- endurance test for specific VIPR designs transferred from ISO 22435 and amended;
- endurance test of the filling connection non-return valve transferred from ISO 22435 with clarification of the test procedure without changes to the acceptance criteria;
- acetylene decomposition test of VIPR designs transferred from ISO 22435 and amended;
- subclause 5.3 "Dimensions" removed;
- introduction of [Table 2](#) for giving the different leakage rates depending on the valve design;

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- [Table 4](#) (former Table 3) of test schedule amended;
- introduction of recommendations for flow capacity values and reference to CGA V-9 for the respective determination as an example;
- introduction of a valve spindle impact test for pin-index valves not permanently protected during transport and use;
- introduction of the hydraulic pressure test also in the closed position for manually operated valves;
- introduction of an additional tightness test for pressure relief valves located upstream of the valve operating mechanism;
- Annex D "Example of test schedule" removed;
- information on changes and/or material variants within a valve design moved to new [Annex F](#) and amended.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

This corrected version of ISO 10297:2024 incorporates the following corrections:

- in [5.5.4.2](#), the first sentence has been modified to adjust to the criteria for the hydraulic pressure test given in [5.4.1](#);
- in [6.4](#), third paragraph, the missing test number "no. 14" has been added;
- in [Annex A](#), third paragraph, the alternative value "or 40 J" has been added for the impact energy used in the impact test.

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## Introduction

This document has been written so that it is suitable to be referenced in the UN Model Regulations.

The term “pressure receptacle” is used within this document to cover instances where no differentiation is necessary between gas cylinders, bundles of cylinders, pressure drums and tubes.

In this document, the unit bar is used, due to its universal use in the field of technical gases. It should, however, be noted that bar is not an SI unit, and that the corresponding SI unit for pressure is Pa ( $1 \text{ bar} = 10^5 \text{ Pa} = 10^5 \text{ N/m}^2$ ).

Pressure values given in this document are given as gauge pressure (pressure exceeding atmospheric pressure) unless noted otherwise.

Any tolerances given in this document include measurement uncertainties.

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