
**Transportable gas cylinders — Cylinder
valves for non-refillable cylinders —
Specification and prototype testing**

*Bouteilles à gaz transportables — Robinets pour bouteilles non
rechargeables — Spécifications et essais de prototype*

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ISO 13340:2001

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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 3.

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 member bodies casting a vote.

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

International Standard ISO 13340 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 58, *Gas cylinders*, Subcommittee SC 2, *Cylinder fittings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this standard, read "...this European Standard..." to mean "...this International Standard...".

Annex ZZ provides a list of corresponding International and European Standards for which equivalents are not given in the text.

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Foreword

The text of EN ISO 13340:2001 has been prepared by Technical Committee CEN/TC 23 "Transportable gas cylinders", the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 58 "Gas cylinders".

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 October 2001, and conflicting national standards shall be withdrawn at the latest by October 2001.

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

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1 Scope

This Standard specifies requirements for gas cylinder valves to be used with non refillable cylinders and the method of testing such valves for prototype approval.

NOTE : Non refillable gas cylinders are specified in prEN 12205:1998 and ISO/FDIS 11118:1999.

This Standard is not applicable to valves for breathing equipment, fire extinguishers and cryogenic equipment.

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 720-2	<i>Transportable gas cylinders - Gases and gas mixtures - Part 2 : Determination of flammability and oxidizing ability of gases and gas mixtures</i>
EN 849	<i>Transportable gas cylinders - Cylinder valves - Specification and type testing</i>
EN ISO 11114-1	<i>Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1 : Metallic materials</i> (ISO 11114-1:1997)
EN ISO 11114-2	<i>Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 2 : Non-metallic materials (ISO 11114-2:2000)</i>
ISO 188	<i>Rubber, vulcanized or thermoplastic - Accelerated ageing and heat-resistance tests</i>
ISO 1817	<i>Rubber, vulcanized - Determination of the effect of liquids</i>
ISO 5145:1990	<i>Cylinder valve outlets for gases and gas mixtures - Selection and dimensioning</i>

3 Terms and definitions

For the purposes of this standard, the following definitions apply :

3.1 working pressure (p_W)

settled pressure, at a uniform temperature of 15 °C, for a full gas cylinder

3.2 valve test pressure (p_{Vt})

for compressed gases:

$$p_{Vt} = 1,2 \times p_W$$

For liquefied gases and dissolved gases under pressure (for example, acetylene), p_{Vt} is at least equal to the minimum test pressure of the cylinder quoted in the relevant transportation regulation for that gas or gas group, taking account of the actual filling ratio to be used.

NOTE : Transportation regulations sometimes offer a choice of filling ratio together with appropriate minimum test pressures. Generally, p_{Vt} will be the highest of these minimum test pressures for the gas, but in circumstances where a lower filling ratio is to be used, p_{Vt} may be an appropriate lower test pressure.

3.3 single use operating mechanism

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a mechanism which when opened once will not reseal

4 Valve requirements

4.1 General

Valves shall operate satisfactorily over the full range of service temperatures, normally from - 20 °C to 65 °C. The range may be extended for short periods (e.g. during filling).

Where higher or lower service temperatures are required for longer periods, the purchaser shall specify accordingly.

Valves shall be capable of withstanding the mechanical stresses and chemicals they may experience during normal operation.

The valves shall be cleaned to meet the requirements of the intended service.

4.2 Description

The cylinder valve shall comprise :

- a body ;
- a valve operating mechanism and sealing device ;
- connection(s) for use (fill and discharge) ;
- a connection system, between the valve and gas cylinder ;

and may occasionally incorporate :

- a safety device against overpressurisation ;
- a dip tube ;
- a screw plug or cap on the outlet connection, to ensure leak tightness or protection ;
- an excess flow limiting device.

4.3 Materials

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Metallic and non-metallic materials in contact with the gas shall be chemically and/or physically compatible with the gas under all intended operating conditions (as specified in EN ISO 11114-1 and EN ISO 11114-2).

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Where valves may come into contact with oxygen or other oxidizing gases then compatibility of materials with these gases and ignition resistance of materials and lubricants, shall be established by an appropriate test procedure (see for example EN ISO 11114-3).

Valves for acetylene may be manufactured from copper based alloys if the copper content does not exceed 70 % (by weight). The manufacturer shall not use any procedure resulting in copper enrichment of the surface. The silver content of alloys shall be limited for acetylene valves. The acceptable limit varies between 43 % (by weight) and 50 % (by weight), depending on the composition of the alloy.

Non-metallic sealing materials for use with air, oxygen and oxygen enriched gases, shall be capable of withstanding an ageing sensitivity test in accordance with ISO 188.

Non-metallic sealing materials in valves for use with corrosive gases shall be tested in accordance with ISO 1817.

4.4 Design and construction

4.4.1 Valve body

The valve body shall be manufactured by a process that will ensure the reproducibility of the mechanical characteristics necessary to meet the requirements. The anisotropy of the material shall be considered.