
**Gas welding equipment — Rubber
and plastics hose and hose assemblies
for use with industrial gases up to
450 bar (45 MPa)**

*Matériel de soudage aux gaz — Tuyaux souples et flexibles en caoutchouc
et en plastique pour des gaz industriels jusqu'à 450 bar (45 MPa)*

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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 documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

This third edition cancels and replaces the second edition (ISO 14113:2007), of which it constitutes a minor revision with the following changes:

- correction of temperature value in [7.5](#);
- editorial revision.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 8 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

Gas welding equipment — Rubber and plastics hose and hose assemblies for use with industrial gases up to 450 bar (45 MPa)

1 Scope

This International Standard specifies requirements for rubber and plastics hose and hose assemblies for use with compressed, liquefied, and dissolved gases up to a maximum working pressure of 450 bar (45 MPa), within the ambient temperature range of $-20\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$.

This International Standard applies to hose assemblies used to connect industrial gas cylinders to manifolds or bundles prior to any pressure reduction stage.

This International Standard does not cover rubber or thermoplastic hoses for welding, cutting, and allied processes (see ISO 3821 and ISO 12170).

This International Standard does not apply to refrigerated liquefied gases or to liquefied petroleum gases (LPG).

2 Normative references

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

ISO 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 1307:2006, *Rubber and plastics hoses — Hose sizes, minimum and maximum inside diameters, and tolerances on cut-to-length hoses*

ISO 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1746:1998, *Rubber or plastics hoses and tubing — Bending tests*

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 4080:1991, *Rubber and plastic hoses and hose assemblies — Determination of permeability to gas*

ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

ISO 4672:1997, *Rubber and plastics hoses — Sub-ambient temperature flexibility tests*

ISO 7326:2006, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8031, *Rubber and plastics hoses and hose assemblies — Determination of electrical properties*

ISO 8033:2006, *Rubber and plastics hoses — Determination of adhesion between components*

ISO 15296, *Gas welding equipment — Vocabulary — Terms used for gas welding equipment*

ISO 11114-3, *Transportable gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 3: Autogenous ignition test in oxygen atmosphere*

ISO 30013:2011, *Rubber and plastics hoses — Methods of exposure to laboratory light sources — Determination of changes in colour, appearance and other physical properties*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 15296 and the following apply.

3.1 autogenous ignition temperature
temperature at which ignition of a sample occurs when subjected to oxygen pressure and heating and in the absence of a source of ignition other than the applied temperature

Note 1 to entry: The autogenous ignition temperature depends on the sample preparation, test apparatus, and test procedure employed.

3.2 burst pressure
pressure at which rupture of the hose occurs when tested to the relevant standard

[SOURCE: ISO 8330:2007, definition 2.1.21]

3.3 distance piece
length of metallic tubing at the end of a hose or hose assembly that serves to contain and cool the highest temperature gas that is formed by the effect of adiabatic compression, e.g. by the rapid opening of a cylinder valve

3.4 end fitting
sub-assembly of components enabling the hose to be safely connected to other pressurized equipment

3.5 hose assembly
length of hose with suitably attached end fittings

3.6 maximum working pressure
pressure to which a hose is designed to be subjected during service, including expected momentary surges

Note 1 to entry: This definition is consistent with that for a gas cylinder in ISO 10286:2007, A.2.4 maximum permissible operating pressure (the highest pressure permitted to be developed during service). ISO 10286:2007 defines "working pressure" as the "settled pressure ... at a uniform ... temperature of 15 °C in a full gas cylinder".

Note 2 to entry: Due to the peculiar characteristics of the acetylene cylinder, there is no clearly defined maximum working pressure for acetylene service. Applicable requirements for acetylene service are given in relevant clauses.

3.7 proof pressure
pressure applied during a non-destructive test and held for a specified period of time to prove the integrity of the construction

Note 1 to entry: It is expressed in bars.

[SOURCE: ISO 8330:2007, definition 2.1.104]