

INTERNATIONAL STANDARD

**ISO
12170**

First edition
1996-08-15

Gas welding equipment — Thermoplastic hoses for welding and allied processes

*Matériel de soudage aux gaz — Tuyaux souples en matière
thermoplastique pour le soudage et les techniques connexes*



Reference number
ISO 12170:1996(E)



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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.

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.

International Standard ISO 12170 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

Annexes A, B and C form an integral part of this International Standard.

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Gas welding equipment — Thermoplastic hoses for welding and allied processes

1 Scope

This International Standard specifies the requirements and relevant methods of measurement and testing of two types of thermoplastic hoses with maximum design working pressure of 1 MPa and of 2 MPa, used for flexible gas supply lines in specific fields of application as follows:

- small kits for brazing and welding in accordance with ISO 14112;
- air-aspirated blowpipes for welding and allied processes;
- miniature welding such as jewellery work, dental work excluding acetylene applications;
- arc welding with shielding gas.

NOTE 1 This International Standard does not exclude the use of rubber hoses in the same fields of application. Rubber hoses for these applications are covered by ISO 3821.

This standard does not apply to hoses for liquefied petroleum gases (LPG) in liquid phase or to acetylene. The hose manufacturer shall be consulted for compatibility of the hose to hydrogen application.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to

investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 37:1994, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties.*

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

ISO 176:1976, *Plastics — Determination of loss of plasticizers — Activated carbon method.*

ISO 188:1982, *Rubber, vulcanized — Accelerated ageing or heat-resistance tests.*

ISO 471:1995, *Rubber — Temperatures, humidities and times for conditioning and testing.*

ISO 1307:1992, *Rubber and plastics hoses for general-purpose industrial applications — Bore diameters, and tolerances on length.*

ISO 1402:1994, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing.*

ISO 1746:1983, *Rubber or plastics hoses and tubing — Bending tests.*

ISO 3821:1992, *Welding — Rubber hoses for welding, cutting and allied processes.*

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

ISO 4671:1984, *Rubber and plastics hose and hose assemblies — Methods of measurement of dimensions.*

1) To be published. (Revision of ISO 4672:1988)

ISO 4672:—¹⁾, *Rubber and plastics hoses — Sub-ambient temperature flexibility tests.*

ISO 8033:1991, *Rubber and plastics hose — Determination of adhesion between components.*

ISO 11758:1995, *Rubber and plastics hoses — Exposure to a xenon arc lamp — Determination of changes in colour and appearance.*

ISO 14112:1996, *Gas welding equipment — Small kits for gas brazing and welding.*

- b) reinforcement applied by any suitable method;
- c) an external cover consisting of a thermoplastic composition.

The total wall thickness of the hose shall be not less than 2,5 mm.

3.2 Manufacture

The lining and cover shall be of uniform thickness, concentric and free from air bubbles, porosity and other imperfections.

3 Materials

3.1 Construction

The hose shall comprise:

- a) an interior lining consisting of a thermoplastic composition;

4 Dimensions, tolerances and colours

4.1 Bore sizes and colours

The nominal internal diameters and colours shall comply with the values given in tables 1 and 2.

Table 1 — Bore sizes and colours of hoses for oxy-fuel gas blowpipes and air-fuel gas blowpipes

Dimensions in millimetres

Gases	Applications		Colour of cover
	Bore sizes for oxy-fuel gas blowpipes	Bore sizes for air-fuel gas blowpipes	
Hydrogen ¹⁾ or other combustible gases excluding acetylene	3,2 and 4		red
LPG ²⁾ or MPS ³⁾	3,2 and 4	3,2; 4; 5	orange
Oxygen ⁴⁾	3,2 and 4		blue
1) The manufacturer shall be consulted for compatibility of the hose to hydrogen applications. 2) Liquefied petroleum gases. 3) Methylacetylene-propadiene-mixtures. 4) Also for air/oxygen mixtures with an additional oxygen content of more than 20 %.			

Table 2 — Bore sizes and colours of hoses for arc welding applications

Dimensions in millimetres

Gases	Arc welding applications (with shielding gas)	Colour of cover
	Bore sizes	
Other non combustible gases and gas mixtures except oxygen ¹⁾	3,2; 4; 5; 6,3; 8 and 10	black
1) e.g. mixtures argon/carbon dioxide.		