INTERNATIONAL STANDARD

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Gas tightness of equipment for gas welding and allied processes

Étanchéité aux gaz des appareils pour soudage aux gaz et techniques connexes

Reference number
ISO 9090 : 1989 (E)

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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9090 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes.*

Annex A forms an integral part of this International Standard.

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Gas tightness of equipment for gas welding and allied processes

1 Scope

This International Standard specifies the maximum external leakage rates which are acceptable for equipment used for welding, cutting and allied processes.

It applies to individual components which are used in the gas supply to a blowpipe from the connecting point of the hose (outlet of the cylinder valve or connecting point to a gas supply plant). It does not apply to gas supply plants.

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 listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2503 : 1983, *Pressure regulators for gas cylinders used in welding, cutting and allied processes.*

ISO 3821 : 1977, *Welding — Flexible hoses for gas welding and allied processes.*

3 Definition

For the purposes of this International Standard, the following definition applies.

external gas leakage: Undesired escape of gas to the atmosphere.

4 Expression of leakage

The maximum permissible external leakage rates which are specified in this International Standard are total leakage rates for a complete component including inlet connections.

These rates are given in cubic centimetres per hour[1)] of the gas for which the equipment was designed, corrected to standard conditions[2)], measured at room temperature.

NOTE — Connections that are necessary only for the test are excluded.

1) 1 $cm^3/h = 0{,}28 \times 10^{-9}\ m^3/s$

2) Standard conditions: 23 °C/1,013 bar (0,101 3 MPa).

5 Gas to be used for the tests

Devices to be used with helium shall be tested with helium and devices to be used with hydrogen shall be tested with hydrogen or helium.

Devices to be used with other gases shall be tested with dry oil-free air or nitrogen.

If the test is carried out with a gas other than the gas for which the equipment is designed, appropriate corrections shall be made (see annnex A).

6 Test pressure

6.1 Regulators

Regulators shall be tested at pressures p_1 and p_2 as defined in ISO 2503.

6.2 Other equipment

6.2.1 Type tests

Other devices shall be tested at the following pressures:

a) maximum working pressure as given by the manufacturer;

b) 10 % of the maximum working pressure.

6.2.2 Routine tests

All devices shall be tested at that pressure (of the two pressures specified in 6.2.1) which gave the most unfavourable results during the type tests.

7 Maximum permissible leakage rates

NOTE — The leakage rate for individual devices will be incorporated directly in the relevant standards for that device when they are revised.

7.1 Regulators

Regulators shall not have a total leakage rate greater than 10 cm^3/h.