

---

---

## Gas tightness of equipment for gas welding and allied processes

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



This document is a preview generated by ERS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Expression of leakage</b> .....	<b>1</b>
<b>5 Gas to be used for the tests</b> .....	<b>2</b>
5.1 General.....	2
5.2 Type tests.....	2
5.3 Routine tests.....	2
<b>6 Test pressure</b> .....	<b>2</b>
6.1 Regulators.....	2
6.2 Other equipment.....	2
6.2.1 Type tests.....	2
6.2.2 Routine test.....	2
<b>7 Maximum permissible external gas leakage rates at the above defined pressures</b> .....	<b>2</b>
7.1 Regulators.....	2
7.2 Blowpipes.....	2
7.3 Safety devices.....	3
7.4 Quick action couplings.....	3
7.5 Devices with combined functions.....	3
7.6 Hose assembly.....	3
7.7 Other equipment.....	3
<b>8 Measurement of the leakage rate</b> .....	<b>3</b>
8.1 General.....	3
8.2 Principle of the method.....	3
8.3 Test apparatus for immersion method.....	3
8.4 Procedure.....	4
<b>Annex A (normative) Correction of measurements</b> .....	<b>5</b>
<b>Annex B (normative) Test methods for blowpipes</b> .....	<b>6</b>

## 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 (see [www.iso.org/directives](http://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 (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

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).

Official interpretations of TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

This second edition cancels and replaces the first edition (ISO 9090:1989), which has been technically revised. The main changes compared to the previous edition are as follows:

- the Scope has been clarified;
- [Clause 2](#) has been updated;
- a leakage requirement for unconnected female elements of a quick-action coupling has been added;
- the term “hose” has been replaced by “hose assembly” and the value for the leakage has been added;
- various types of blowpipes have been covered;
- in [6.2.1](#), b) the lower test pressure has been updated;
- the test methods for blowpipes have been moved to new [Annex B](#);
- hydrogen is not allowed anymore for leakage test; [Table A.1](#) has been updated accordingly.

# Gas tightness of equipment for gas welding and allied processes

## 1 Scope

This document specifies the maximum external gas leakage rates which are acceptable for equipment used for welding, cutting and allied processes and provides the procedures of measurement.

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 plant.

**NOTE** Specific requirements on the test method and conditions/procedure for measurement of the maximum external leakages can be given in individual standards, e.g. ISO 9012 for air-aspirated hand blowpipes. Concerning the method and the conditions to be applied, the individual standard takes precedence over this document. The maximum external leakages according to this document apply.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2503, *Gas welding equipment — Pressure regulators and pressure regulators with flow-metering devices for gas cylinders used in welding, cutting and allied processes up to 300 bar (30 MPa)*

ISO 15296, *Gas welding equipment — Vocabulary*

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 Expression of leakage

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

These rates shall be given in cubic centimetres per hour<sup>1)</sup> of the gas for which the equipment was designed, corrected to standard conditions<sup>2)</sup> measured at room temperature.

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

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

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