
**Gas cylinders — Refillable seamless
steel gas cylinders and tubes —
Acoustic emission examination (AT)
and follow-up ultrasonic examination
(UT) for periodic inspection and testing**

AMENDMENT 1

*Bouteilles à gaz — Bouteilles à gaz rechargeables en acier sans
soudure et tubes — Essais d'émission acoustique et examen
ultrasonique complémentaire pour l'inspection périodique et l'essai*

AMENDEMENT 1





COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

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
Website: www.iso.org

Published in Switzerland

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).

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).

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.

This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 4, *Operational requirements of gas cylinders*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 23, *Transportable gas cylinders*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

STANDARDSISO.COM : Click to view the full PDF of ISO 16148:2016/Amd 1:2020

Gas cylinders — Refillable seamless steel gas cylinders and tubes — Acoustic emission examination (AT) and follow-up ultrasonic examination (UT) for periodic inspection and testing

AMENDMENT 1

Clause 2

Replace:

ISO 6406, *Gas cylinders — Seamless steel gas cylinders — Periodic inspection and testing*

with:

ISO 18119, *Gas cylinders — Seamless steel and seamless aluminium-alloy gas cylinders and tubes — Periodic inspection and testing*

Clause 9, paragraph 1

Replace:

(See ISO 6406 or equivalent for the rejection criteria.)

with:

(See ISO 18119 or equivalent for the rejection criteria.)

A.1.4, Figure A.1, NOTE 2

Replace the second sentence with:

The depth (d) for notches 2 and 4 is a quarter of the depth of notch 1 ($d_2 = d_4 = \frac{1}{4} d_1$) for the same tube.

A.1.4

Delete list items e), f) and g).

A.1.5

Add a new subclause A.1.5 as follows:

A.1.5 Test criteria

- a) Any UT indications showing an amplitude that exceeds the DAC curve should be considered a potential for rejection. After the discontinuity has been located, it shall be evaluated by scanning in at least two directions. The signal amplitude as well as the circumferential and longitudinal

position of the discontinuity shall be recorded. A cylinder containing a potentially rejectable discontinuity shall be removed from the stack to allow access to the discontinuity location.

- b) It is possible to estimate the length of the discontinuity by reducing the gain so the signal peak at the maximum amplitude is less than 100 % and then moving the sensor parallel with the flaw until the signal amplitude drops to a value less than or equal to 50 % of the maximum amplitude. Record this point. The length of the flaw "X" is the distance between the reduced amplitude (e.g. 50 %) and the maximum amplitude.

Verification tests shall be performed on cylinders with a given notch to determine the value of "X".

- c) When the removal of a cylinder from service is indicated, the cylinder either shall be rendered unserviceable or examined in the critical zone where a discontinuity has been located with a method in accordance with ISO 18119.

STANDARDSISO.COM : Click to view the full PDF of ISO 16148:2016/Amd.1:2020