BS EN ISO 15848-2:2015

Industrial valves — Measurement, test and qualification procedures for fugitive emissions
National foreword

This British Standard is the UK implementation of EN ISO 15848-2:2015. It supersedes BS EN ISO 15848-2:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PSE/18/1, Industrial valves, steam traps, actuators and safety devices against excessive pressure - Valves - Basic standards.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Amendments issued since publication

Date Text affected

This European Standard was approved by CEN on 7 February 2015.

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Foreword

This document (EN ISO 15848-2:2015) has been prepared by Technical Committee ISO/TC 153 “Valves” in collaboration with Technical Committee CEN/TC 69 “Industrial valves” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

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This document supersedes EN ISO 15848-2:2006.

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Endorsement notice

The text of ISO 15848-2:2015 has been approved by CEN as EN ISO 15848-2:2015 without any modification.
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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 (see www.iso.org/directives).

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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 153, Valves, Subcommittee SC 1, Design, manufacture, marking and testing.

This second edition cancels and replaces the first edition (ISO 15848-2:2006) which has been technically revised. The main changes are the following:

— tightness classes (Table 1) are the following: A: 50 ppmv; B: 100 ppmv; C: 200 ppmv

— if the reading exceeds the values of the required tightness class according to Table 1 or Table 2, the test is considered as having failed. Then, a corrective action is proposed and agreed with the purchaser or the lot of valves is rejected.

ISO 15848 consists of the following parts, under the general title Industrial valves — Measurement, test and qualification procedures for fugitive emissions:

— Part 1: Classification system and qualification procedures for type testing of valves

— Part 2: Production acceptance test of valves
Introduction

The aim of this part of ISO 15848 is to establish standard practice for the evaluation of production valves, the design of which has been successfully type-tested according to ISO 15848-1.
Industrial valves — Measurement, test and qualification procedures for fugitive emissions —

Part 2:
Production acceptance test of valves

1 Scope
This part of ISO 15848 specifies test procedures for the evaluation of external leakage of valve stems or shafts and body joints of isolating valves and control valves intended for application with volatile air pollutants and hazardous fluids.

End connection joints, vacuum application, effects of corrosion, and radiation are excluded from this part of ISO 15848.

The production acceptance test is intended for standard production valves where fugitive emissions standards are specified.

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 15848-1:2015, Industrial valves — Measurement, test and qualification procedures for fugitive emissions — Part 1: Classification system and qualification procedures for type testing of valves

3 Terms and definitions
For the purposes of this document, the terms and definitions given in ISO 15848-1 and the following apply.

3.1 production acceptance test
test carried out on production valves to verify conformance with the requirements of this part of ISO 15848

4 Preparation of test valves

4.1 Valve selection
The sampling percentage shall be subject to an agreement between the manufacturer and the purchaser, with a minimum of one valve of the lot, and shall be selected at random from each production lot of valves per valve type, pressure class, and nominal size.

4.2 Preconditioning
This part of ISO 15848 is applicable to valves, the design of which has been successfully type-tested according to ISO 15848-1. The selected valves shall have been successfully tested according to the relevant production test standards and the purchaser’s specifications, prior to the acceptance test specified in this part of ISO 15848.
The packing shall be dry before production test.

4.3 Stem (or shaft) seal adjustment

Compression of stem (or shaft) seal(s) shall be initially adjusted according to the manufacturer’s instructions.

5 Test conditions

5.1 Test fluid

The test fluid shall be helium gas with a minimum purity of 97 % by volume.

5.2 Leakage measurement

Leakages shall be measured by sniffing method in accordance with ISO 15848-1:2015, Annex B, and shall be expressed in ppmv.

5.3 Test pressure

The test pressure shall be 6 bar (1 bar = 0,1 MPa = 10⁵ Pa; 1 MPa = 1 N/mm²), unless otherwise agreed by the manufacturer and the purchaser.

5.4 Test temperature

The test temperature shall be at room temperature as defined in ISO 15848-1.

6 Test procedure and evaluation of test results

6.1 Measurement of stem (or shaft) seal leakages

The procedure for measuring the leakage of stem or shaft seals is as follows.

a) Half open the test valve and pressurize to the level specified in 5.3. Measure the stem seal leakage using the sniffing method in accordance with ISO 15848-1:2015, Annex B.

b) Then, fully open and close the pressurized test valve five times.

c) Half open the test valve after the mechanical cycles and measure the stem seal leakages as in a).

d) If the reading exceeds the values of the required tightness class according to Table 1, the test shall be considered as having failed. A corrective action shall be proposed and agreed with the purchaser or the lot of valves shall be rejected.

Table 1 — Tightness classes for stem seals

<table>
<thead>
<tr>
<th>Class</th>
<th>Measured leakage ppmv</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤50</td>
<td>Typically achieved with bellow seals or equivalent stem (shaft) sealing system for quarter turn valves</td>
</tr>
<tr>
<td>B</td>
<td>≤100</td>
<td>Typically achieved with PTFE based packings or elastomeric seals</td>
</tr>
<tr>
<td>C</td>
<td>≤200</td>
<td>Typically achieved with flexible graphite-based packings</td>
</tr>
</tbody>
</table>

NOTE Measured by sniffing method as defined in ISO 15848-1:2015, Annex B.
6.2 Measurement of leakage of body seal(s)

The procedure for measuring the leakage of body seals is as follows.

a) Half open the test valve and pressurize to the level specified in 5.3. After the test pressure has been stabilized, detect leakage of the body seal(s) in accordance with ISO 15848-1:2015, Annex B.

b) If the reading exceeds the value of the required tightness class according to Table 2, the test shall be considered as having failed. A corrective action shall be proposed and agreed with the purchaser or the lot of valves shall be rejected.

<table>
<thead>
<tr>
<th>Measured leakage ppmv</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤50</td>
</tr>
</tbody>
</table>

**Table 2 — Leakage from body seals**

NOTE Measured by the sniffing method as defined in ISO 15848-1:2015, Annex B.

7 Marking

Only those valves which have been tested, classified, and qualified in accordance with ISO 15848-1, and which comply with the requirements of this part of ISO 15848 shall be marked.

8 Certification of compliance

If requested by the purchaser, the manufacturer shall provide a certificate of compliance that this production acceptance test has been completed successfully.
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