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

**Part 2:  
Production acceptance test of valves**

*Robinetterie industrielle — Mesurage, essais et modes opératoires de  
qualification pour émissions fugitives —*

*Partie 2: Essais de réception en production des appareils de  
robinetterie*



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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](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 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.

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# 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 = 10<sup>5</sup> Pa; 1 MPa = 1 N/mm<sup>2</sup>), 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**

Class	Measured leakage ppmv	Remarks
A	≤50	Typically achieved with bellow seals or equivalent stem (shaft) sealing system for quarter turn valves
B	≤100	Typically achieved with PTFE based packings or elastomeric seals
C	≤200	Typically achieved with flexible graphite-based packings
NOTE Measured by sniffing method as defined in ISO 15848-1:2015, Annex B.		