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

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

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

*Partie 1: Système de classification et modes opératoires de
qualification pour les essais de type 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).

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 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 15848-1:2006) which has been technically revised. The main changes are the following:

- leak rate at the stem seal ([Table 1](#)) is expressed in $\text{mbar}\cdot\text{l}\cdot\text{s}^{-1}$ per mm stem diameter;
- flushing method is replaced by accumulation or suck through method to measure leak rate from stem seal with Helium ([Annex A](#));
- leakage is expressed in ppmv; leakage with methane is measured by sniffing;
- for tightness Class AH, leak rate $\leq 1,78\cdot 10^{-7} \text{ mbar}\cdot\text{l}\cdot\text{s}^{-1}\cdot\text{mm}^{-1}$ ($10^{-5} \text{ mg}\cdot\text{s}^{-1}\cdot\text{m}^{-1}$);
- the appropriate leak rate is given for Classes BH and CH;
- addition of [Table 3](#) which gives tightness classes for stem (or shaft) seals with methane;
- there is no correlation intended between the tightness classes when the test fluid is helium (Classes AH, BH, CH) and when the test fluid is methane (Classes AM, BM, CM);
- modification of the number of mechanical cycles for isolating valves;
- addition of [Table 4](#);
- addition of [Figures 3, 4, and 5](#);
- addition of type leak ([A.1.3.4](#), [B.1.4.2](#), [B.1.6.1](#));
- modification of [Figure B.2](#);
- modification of [B.1.6.1](#) on calibration procedures;
- deletion of Figure B.3;

- addition of [Table C.1](#) and modification of [Table C.2](#).

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 objective of this part of ISO 15848 is to enable classification of performance of different designs and constructions of valves to reduce fugitive emissions.

This part of ISO 15848 defines type test for evaluation and qualification of valves where fugitive emissions standards are specified.

The procedures of this part of ISO 15848 can only be used with the application of necessary precautions for testing with flammable or inert gas at temperature and under pressure.

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

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

1 Scope

This part of ISO 15848 specifies testing procedures for evaluation of external leakage of valve stem seals (or shaft) and body joints of isolating valves and control valves intended for application in volatile air pollutants and hazardous fluids. End connection joints, vacuum application, effects of corrosion, and radiation are excluded from this part of ISO 15848.

This part of ISO 15848 concerns classification system and qualification procedures for type testing of valves.

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 5208, *Industrial valves — Pressure testing of metallic valves*

EN 13185:2001, *Non-destructive testing — Leak testing — Tracer gas method*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

body seals

any seal in pressure containing part except stem (or shaft) seals

3.2

Class

convenient round number used to designate pressure-temperature ratings

Note 1 to entry: It is designated by the word “Class” followed by the appropriate reference number from the following series: Class 125, Class 150, Class 250, Class 300, Class 600, Class 900, Class 1 500, Class 2 500.

3.3

concentration

ratio of test fluid volume to the gas mixture volume measured at the leak source(s) of the test valve

Note 1 to entry: The concentration is expressed in ppmv¹⁾.

1) Parts per million volume is a unit deprecated by ISO. 1 ppmv = 1 ml/m³ = 1 cm³/m³.