SLOVENSKI STANDARD
SIST EN ISO 15848-1:2015

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Nadomešča:
SIST EN ISO 15848-1:2006

Industrijski ventili - Meritve, preskusi in postopki kvalificiranja pobeglih emisij - 1. del: Klasifikacijski sistem in kvalifikacijski postopki za preskušanje tipa ventilov (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 (ISO 15848-1:2015)

Industriearmaturen - Mess-, Prüf- und Qualifikationsverfahren für flüchtige Emissionen - Teil 1: Klassifizierungssystem und Qualifikationsverfahren für die Bauartprüfung von Armaturen (ISO 15848-1:2015)

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 (ISO 15848-1:2015)

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23.060.01	Ventili na splošno	Valves in general

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English Version

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

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 (ISO 15848-1:2015)

Industriearmaturen - Mess-, Prüf- und Qualifikationsverfahren für flüchtige Emissionen - Teil 1: Klassifizierungssystem und Qualifikationsverfahren für die Bauartprüfung von Armaturen (ISO 15848-1:2015)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 15848-1:2015) 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 15848-1:2015 has been approved by CEN as EN ISO 15848-1:2015 without any modification.

INTERNATIONAL STANDARD

ISO 15848-1

Second edition
2015-06-01

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).

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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 $mbar{\cdot}l{\cdot}s^{-1}$ 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 ≤ $1{,}78{\cdot}10^{-7}$ $mbar{\cdot}l{\cdot}s^{-1}{\cdot}mm^{-1}$ (10^{-5} $mg{\cdot}s^{-1}{\cdot}m^{-1}$);

— 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 ppmv[1)].

1) Parts per million volume is a unit deprecated by ISO. 1 ppmv = 1 ml/m^3 = 1 cm^3/m^3.

3.4
control valve
power operated device which changes the fluid flow rate in a process control system and which consists of a valve connected to an actuator that is capable of changing the position of a closure member in the valve in response to a signal from the controlling system

3.5
fugitive emission
chemical or mixture of chemicals, in any physical form, which represents an unanticipated or spurious leak from equipment on an industrial site

3.6
leakage
loss of the test fluid through the stem (or shaft) seal or body seal(s) of a test valve under the specified test conditions and which is expressed as a concentration or a leak rate

3.7
leak rate
mass flow rate of the test fluid, expressed in $mg \cdot s^{-1}$ per millimetre of stem diameter through stem seal system or volumic flow rate of the test fluid, expressed in $mbar \cdot l \cdot s^{-1}$ per millimetre of stem diameter through stem seal system

3.8
local leakage
measurement of the test fluid leakage using a probe at the leak source point

3.9
mechanical cycle of control valves
for linear/rotary control valves, test cycles performed at 50 % of stroke/angle with an amplitude of ±10 % of full stroke/angle

3.10
mechanical cycle of isolating valves
motion of a valve obturator moving from fully closed position to fully opened position, and returning to fully closed position

3.11
nominal size
DN
alphanumeric designation of size for components of a pipework system, which is used for reference purposes, comprising the letters DN followed by a dimensionless whole number which is indirectly related to physical size, in millimetres, of the bore or outside diameter of the end connections

Note 1 to entry: The nominal diameter is designated by the letters DN followed by a number from the following series: 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, etc.

Note 2 to entry: The number following the letters DN does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.

Note 3 to entry: Adapted from ISO 6708:1995, definition 2.1.

3.12
nominal pressure
PN
numerical designation relating to pressure, which is a convenient rounded number for reference purposes, comprising the letters PN followed by the appropriate reference number

Note 1 to entry: All equipment of the same nominal size (DN) designated by the same PN number have compatible mating dimensions.

Note 2 to entry: The maximum allowable working pressure depends upon materials, design, and working temperatures and is selected from the pressure/temperature rating tables in the appropriate standards.

Note 3 to entry: The nominal pressure is designated by the letters PN followed by the appropriate reference number from the following series: 2,5, 6, 10, 16, 20, 25, 40, 50, etc.

Note 4 to entry: Adapted from ISO 7268:1983, definition 2.1.

3.13
isolating valve
valve intended for use principally in the closed or open position which can be power actuated or manually operated

3.14
performance class
level of the performance of a test valve

Note 1 to entry: The performance classes are defined in Clause 6.

3.15
room temperature
temperature in the range of −29 °C to +40 °C

3.16
stem
shaft
valve component extending into the valve shell to transmit the linear/rotary motion from the actuating device to the valve obturator

3.17
stem seal
shaft seal
component(s) installed around the valve stem (or shaft) to avoid leakage of internal fluids to atmosphere

3.18
test pressure
pressure used for testing the valve which, unless otherwise specified, is the rated pressure specified at the test temperature and the shell material of a test valve in the relevant standards

3.19
test temperature
fluid temperature selected for the test as measured inside the test valve

Note 1 to entry: The test temperature is given in Table 5.

3.20
thermal cycle
change of the temperature from the room temperature to the specified test temperature and return to the room temperature

3.21
total leakage
collection of leakage of the test fluid at the leak source using an encapsulation method

3.22
type test
a test conducted to establish the performance class of a valve

4 Symbols and abbreviations

M_{alr}	predicted maximum leakage
SSA	stem (or shaft) seal adjustment