



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 40079-2021

**Classification system and qualification procedures for fugitive
emission type testing of valves**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the redrafting method to amend and adopt ISO 15848-1.2015 "Measurement, test and verification of leakage of fugitive media in industrial valves"

Part 1. The Classification and Appraisal Procedure of Valve Fugitiveness Test".

There are technical differences between this standard and ISO 15848-1.2015. These differences and their reasons are as follows.

a) Regarding normative reference documents, this standard has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows.

- * Replace ISO 5208 (see 5.1.1) with GB/T 13927 modified to adopt international standards;
- * Deleted EN13185.2001 (the necessary content has been elaborated in the standard);
- * Added reference to GB/T 21465 (see Chapter 3).

b) Deleted some terms in Chapter 3 of ISO 15848-1.2015, these terms have been stipulated in GB/T 21465, and added

Added the terms and definitions of "static test" and "mechanical cycle test" that appeared in the text.

c) Deleted Malr abbreviations that were not used in the text in Chapter 4 of ISO 15848-1.2015, and added CC, etc. in the text

Abbreviations.

d) Table 1, Appendix A.1.7, Appendix A.2.7, Table C.1 and Table C.2 in ISO 15848-1.2015 have been added or converted.

Pa.m3.s-1 is the allowable value and conversion relationship of the leakage rate unit to meet the usage habits of our country.

e) Modified the 6.6 valve product mark in ISO 15848-1.2015 ("ISO FE -ISO 15848-1" was changed to "GB FE

-GB/T 40079") and the test pressure unit (bar as the unit converted to MPa as the unit) to meet the needs of our country

habit.

This standard has made the following editorial changes.

---The standard name was revised to "Valve Fugitive Test Classification and Appraisal Procedure".

---Incorporated ISO 15848-1.2015 AI.2017.

--- The references are deleted, the original text does not quote the key content, only some concepts are cited, these concepts have been expressed in this standard.

This standard was proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Valve Standardization Technical Committee (SAC/TC188).

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Co., Ltd., Biwei Valve Co., Ltd., Ovike Group Co., Ltd., Teer Valve High-Tech Co., Ltd.

1 Scope

This standard specifies the type test requirements for valves for fugitive media, as well as the classification and identification procedures for fugitive tests.

This standard applies to shut-off valves and control valves whose media will produce volatile pollutant gases or hazardous fluid media.

The test procedure for the evaluation of the leakage of the seal and the valve body sealing part.

This standard does not apply to leakage at the end of the valve, as well as vacuum, corrosion and radiation conditions.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 13927 Industrial valve pressure test

GB/T 21465 Valve Terminology

3 Terms and definitions

The following terms and definitions defined in GB/T 21465 apply to this document.

3.1

Bodyseals

The seal of any pressure-bearing part on the valve except the stem seal.

3.2

Concentration

The ratio of the volume of the test medium to the volume of the gas mixture measured on the leak source of the test valve.

Note. The unit of concentration is a dimensionless unit (parts per million volume content or volume fraction is 1×10^{-6}), expressed in ppmv.

$1 \text{ ppmv} = 1 \text{ mL/m}^3 = 1 \text{ cm}^3/\text{m}^3$.

3.3

Control valve

A power operating device that can change fluid flow in a process control system.

Note. The device consists of a valve and its connected actuator. Among them, the actuator can change the position of the valve opening and closing parts according to the control system signal.

3.4

Fugitive emission

Unexpected or imperceptible leakage of any chemical or chemical mixture in any physical form from equipment in an industrial site.

3.5

Leakage

Under the specified test conditions, the process of escaping the test medium through the valve stem or valve body seal of the tested valve.

Note. Generally expressed by concentration or leakage rate.