
Industrial valves — Pressure testing of metallic valves

*Robinetterie industrielle — Essais sous pression des appareils de
robinetterie métalliques*

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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).

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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*.

This fourth edition cancels and replaces the third edition (ISO 5208:2008), which has been technically revised including the following changes:

- a new definition [2.12](#) of visually detectable leakage was added;
- Table 1 has been updated by differencing concentric and eccentric butterfly valves and by adding an optional high pressure closure test with gas;
- [4.12.4.1 a\)](#) has been updated to take into account nominal pressures PN 6 and lower.

Introduction

The purpose of this International Standard is the establishment of basic requirements and practices for pressure testing valves of various configurations that are used in general purpose, power generation, petroleum, and petrochemical or allied industry applications. The intent is to provide a consistent set of procedural requirements and acceptance criteria that can be considered in conjunction with valve specific standards appropriate for specific applications. Account has been taken of the valve testing requirement needs of EN 12266 and API 598 with requirements referenced for PN designated valves for the former and Class designated valves for the latter.

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WARNING — Persons using this International Standard should be familiar with normal testing practice. This International Standard does not purport to address all of the safety issues, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory requirements in particular, when using high pressure gas for testing.

1 Scope

This International Standard specifies examinations and tests that a valve manufacturer needs to act upon in order to establish the integrity of the pressure boundary of an industrial metallic valve and to verify the degree of valve closure tightness and the structural adequacy of its closure mechanism. This International Standard is intended to be applied in conjunction with the specific requirements of a valve product standard to the extent cited by the product standard as a normative reference. Where requirements of a product standard differ from those given in this International Standard, the requirements of the product standard apply.

This International Standard is not applicable to the safety aspects of pressure testing.

2 Terms and definitions

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

2.1

shell test

test at a pressure in excess of the *cold working pressure* (2.9) rating of a valve for the purpose of validating the soundness and strength of the valve pressure containing and retaining structures

Note 1 to entry: These structures include valve-actuating mechanisms that have a direct connection to the valve internals subject to fluid test pressure within the valve proper.

2.2

closure test

pressure test for the purpose of validating leakage through a valve's closure mechanism

2.3

test pressure

internal pressure (gauge), expressed in bar to which the valve under test is subjected

Note 1 to entry: Unless otherwise noted, gauge pressure is used throughout this International Standard.

Note 2 to entry: 1 bar = 10^5 Pa.

2.4

test fluid

pressurized liquid or gas used to test a valve

2.5

test fluid temperature

temperature of the test fluid, $> 5\text{ °C}$ and $\leq 40\text{ °C}$