
**Vacuum technology — Valves — Leak
test**

*Technique du vide — Vannes à vide — Essai d'étanchéité des vannes
à vide*

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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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.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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Introduction

Vacuum valves are the most common parts in vacuum systems. Valve manufacturers provide technical data for vacuum valves based on their own test methods and end users use these data to select valves. However, until the time of publication, there has been no International Standard specifying leak test methods for vacuum valves even though leak rate data are among the most fundamental. For example, the leak rate of the valve may vary in the time interval between gas filling and leak testing.

There are three different types of leak: a) real leaks, i.e. macroscopic cracks or holes allowing gases to pass through; b) virtual leaks, caused by outgassing of volatile material inside a vacuum system or trapped volume; c) permeation leaks, i.e. microscopic holes of diameter comparable to that of an atom, which occur throughout the construction material, e.g. in elastomers.

Virtual leaks are not measurable by the leak test method specified in this International Standard. Valve design and the materials used should therefore be chosen to minimize the risk of virtual leaks occurring.

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