INTERNATIONAL STANDARD

**ISO 21360-2**

First edition
2012-04-15



# Vacuum technology — Standard methods for measuring vacuum-pump performance —

## Part 2: Positive displacement vacuum pumps

*Technique du vide — Méthodes normalisées pour mesurer les performances des pompes à vide —*

*Partie 2: Pompes à vide volumétriques*

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

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.

ISO 21360-2 was prepared by Technical Committee ISO/TC 112, *Vacuum technology*.

This first edition of ISO 21360-2 cancels and replaces ISO 1607-1:1993 and ISO 1607-2:1989, which have been technically revised.

ISO 21360 consists of the following parts, under the general title *Vacuum technology — Standard methods for measuring vacuum-pump performance*:

— *Part 1: General description*

— *Part 2: Positive displacement vacuum pumps*

# Introduction

This part of ISO 21360 specifies methods for measuring the performance data of positive-displacement vacuum pumps. This part of ISO 21360 complements ISO 21360-1, which provides a general description of the measurement of performance data of vacuum pumps.

The methods described here are well known from existing national and International Standards. The aim in drafting this part of ISO 21360 was to collect together suitable methods for the measurement of performance data of positive-displacement vacuum pumps. This part of ISO 21360 takes precedence in the event of a conflict with ISO 21360-1.

# Vacuum technology — Standard methods for measuring vacuum-pump performance —

# Part 2: Positive displacement vacuum pumps



## 1 Scope

This part of ISO 21360 specifies methods for measuring the volume flow rate, base pressure, water vapour tolerance, power consumption, and the lowest start-up temperature of positive displacement vacuum pumps, which discharge gas against atmospheric pressure and with a usual base pressure $<$10 kPa.

In this part of ISO 21360, it is necessary to use the determinations of volume flow rate and base pressure specified in ISO 21360-1.

This part of ISO 21360 also applies to the testing of other types of pumps which can discharge gas against atmospheric pressure, e.g. drag pumps.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 21360-1:2012, *Vacuum technology — Standard methods for measuring vacuum-pump performance — Part 1: General description*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21360-1 and the following apply.

**3.1**
**gas ballast**
gas or air inlet into the swept volume of the pump

**3.2**
**water vapour tolerance**
$p_{H_2O}$
maximum water vapour pressure which can be conveyed by the pump without condensation in the pump

NOTE If there is no problem of water vapour condensation, e.g. when an oil and water separation unit is included, maximum water vapour pressure is acceptable.

**3.3**
**water vapour capacity**
mass of water which can be conveyed by the pump without condensation per time

**3.4**
**swept volume**
$V_{SW}$
input volume, which is conveyed by the pump during one cycle