

Nederlandse norm

# **NEN-ISO 10302-1**

(en)

Acoustics - Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices - Part 1: Airborne noise measurement (ISO 10302-1:2011, IDT)

Vervangt NEN-ISO 10302:1997

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- ISO 10302-1:2011.IDT

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**Acoustics — Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices —**  
**Part 1:**  
**Airborne noise measurement**

*Acoustique — Mesurage du bruit aérien émis et des vibrations de structure induites par les petits équipements de ventilation —*  
*Partie 1: Mesurage du bruit aérien*



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## Foreword

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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 10302-1 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This first edition of ISO 10302-1 cancels and replaces ISO 10302:1996.

ISO 10302 consists of the following parts, under the general title *Acoustics — Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices*:

- *Part 1: Airborne noise measurement*
- *Part 2: Structure-borne vibration measurements*

## Introduction

This part of ISO 10302 specifies in detail methods for determining and reporting the airborne noise emissions of small air-moving devices (AMDs) used primarily for cooling electronic equipment, such as that for information technology and telecommunications.

To provide compatibility with measurements of acoustical noise emitted by such equipment, this part of ISO 10302 uses the noise emission descriptors and sound power measurement methods of ISO 7779. The descriptor of overall airborne noise emission of the AMD under test is the A-weighted sound power level. The one-third-octave-band sound power level is the detailed descriptor of the noise emission. Octave-band sound power levels may be provided in addition to the one-third-octave-band sound power levels.

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# Acoustics — Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices —

## Part 1: Airborne noise measurement

### 1 Scope

This part of ISO 10302 specifies methods for measuring the airborne noise emitted by small air-moving devices (AMDs), such as those used for cooling electronic, electrical, and mechanical equipment where the sound power level of the AMD is of interest.

Examples of these AMDs include propeller fans, tube-axial fans, vane-axial fans, centrifugal fans, motorized impellers, and their variations.

This part of ISO 10302 describes the test apparatus and methods for determining the airborne noise emitted by small AMDs as a function of the volume flow rate and the fan static pressure developed by the AMD on the test apparatus. It is intended for use by AMD manufacturers, by manufacturers who use AMDs for cooling electronic equipment and similar applications, and by testing laboratories. It provides a method for AMD manufacturers, equipment manufacturers and testing laboratories to obtain comparable results. Results of measurements made in accordance with this part of ISO 10302 are expected to be used for engineering information and performance verification, and the methods can be cited in purchase specifications and contracts between buyers and sellers. The ultimate purpose of the measurements is to provide data to assist the designers of electronic, electrical or mechanical equipment which contains one or more AMDs.

Based on experimental data, a method is given for calculating the maximum volume flow rate of the scaled plenum up to which this part of ISO 10302 is applicable.

### 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 3741, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for reverberation test rooms*

ISO 3744, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane*

ISO 3745, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for anechoic test rooms and hemi-anechoic test rooms<sup>1)</sup>*

1) To be published. (Revision of ISO 3745:2003.)

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