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STANDARD

11546-1

First edition
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**Acoustics — Determination of sound
insulation performances of enclosures —**

Part 1:

Measurements under laboratory conditions
(for declaration purposes)

*Acoustique — Détermination de l'isolement acoustique des
enclassements —*

*Partie 1: Mesurages dans des conditions de laboratoire (aux fins de
déclaration)*



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.

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.

International Standard ISO 11546-1 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

ISO 11546 consists of the following parts, under the general title *Acoustics — Determination of sound insulation performances of enclosures*:

- *Part 1: Measurements under laboratory conditions (for declaration purposes)*
- *Part 2: Measurements in situ (for acceptance and verification purposes)*

Annex A forms an integral part of this part of ISO 11546. Annexes B, C and D are for information only.

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Acoustics — Determination of sound insulation performances of enclosures —

Part 1:

Measurements under laboratory conditions (for declaration purposes)

1 Scope

This part of ISO 11546 specifies laboratory methods for the determination of the sound insulation performance (insertion loss) of small machine enclosures.

It applies to a total enclosure only and not to the individual panels from which the enclosure is made.

NOTES

1 Sound insulation for enclosure panels such as wall elements, doors, windows, silencers, etc. should be measured in accordance with other relevant standards.

2 Related standards concern noise-attenuation measurements of enclosures *in situ* (ISO 11546-2) and cabins (ISO 11957).

The measurement methods specified in this part of ISO 11546 are based on International Standards in the series ISO 3740, ISO 9614 and ISO 11200 (see table 1). Depending on the method chosen, the sound insulation performance (insertion loss) of the enclosure is determined in terms of the reduction of sound power level or sound pressure level. Methods are given for measurements where the enclosure surrounds the actual sound source (machine). Where these methods are not practicable, alternative measurements can be performed using a reciprocity method (see definition 3.11 and subclause 7.2) or an artificial sound source.

This part of ISO 11546 is applicable without any restrictions to freestanding enclosures with volumes less than 2 m³. If the actual sound source is used, the sound insulation performance of enclosures with volumes exceeding 2 m³ can be determined provided that the requirements concerning maximum permissible volume in the standard used are fulfilled. The actual sound source method is applicable for any kind of enclosure design, for example enclosures fixed to the machine.

When the reciprocity method or the artificial sound source method is used, the maximum volume of the enclosure is limited to 2 m³. These methods are not applicable to close-fitting enclosures.

The wording "laboratory conditions" used in the title of this part of ISO 11546 indicates that test conditions and test environment (indoor or outdoor) fully conform to the respective International Standards given in table 1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11546. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11546 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.