

Acoustics and vibration - Laboratory measurement of vibro-acoustic transfer properties of resilient elements - Part 1: Principles and guidelines

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 10846-1:2001 sisaldab Euroopa standardi EN ISO 10846-1:1998 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.06.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 10846-1:2001 consists of the English text of the European standard EN ISO 10846-1:1998.</p> <p>This document is endorsed on 18.06.2001 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This standard provides: a: The principles underlying parts 2 to 5 of this series of International Standards for determining the transfer properties of vibration isolators from laboratory measurements. b: Assistance in the selection of the appropriate standard of this series.</p>	<p>Scope:</p> <p>This standard provides: a: The principles underlying parts 2 to 5 of this series of International Standards for determining the transfer properties of vibration isolators from laboratory measurements. b: Assistance in the selection of the appropriate standard of this series.</p>
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Võtmesõnad: acoustic measurements, acoustics, determination, dynamic stiffness, generalities, mechanical properties, resilient devices, tests, vibration, vibration isolators

English version

Acoustics and vibration

**Laboratory measurement of vibro-acoustic transfer
properties of resilient elements**

**Part 1: Principles and guidelines
(ISO 10846-1 : 1997)**

Acoustique et vibrations – Mesurage
en laboratoire des propriétés de
transfert vibro-acoustique des élé-
ments élastiques – Partie 1: Principes
et lignes directrices
(ISO 10846-1 : 1997)

Akustik und Schwingungstechnik –
Laborverfahren zur Messung der
vibro-akustischen Transfereigen-
schaften elastischer Elemente –
Teil 1: Grundlagen und Übersicht
(ISO 10846-1 : 1997)

This European Standard was approved by CEN on 1998-11-08.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 10846-1 : 1997 Acoustics and vibration – Laboratory measurement of vibro-acoustic transfer properties of resilient elements – Part 1: Principles and guidelines,

which was prepared by ISO/TC 43 'Acoustics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 211 'Acoustics', the Secretariat of which is held by DS, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by May 1999 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 10846-1 : 1997 was approved by CEN as a European Standard without any modification.

Introduction

Passive vibration isolators of various kinds are used to reduce the transmission of vibrations. Examples are automobile engine mounts, elastic supports for buildings, elastic mounts and flexible shaft couplings for shipboard machinery and small isolators in household appliances.

This part of ISO 10846 serves as an introduction and a guide to parts 2 to 5 of ISO 10846, which describe laboratory measurement methods for the determination of the most important quantities which govern the transmission of vibrations through linear isolators, i.e. frequency-dependent dynamic stiffnesses.

This part of ISO 10846 provides the theoretical background, the principles of the methods, the limitations of the methods and guidance for the selection of the most appropriate standard of the series.

The laboratory conditions described in all parts of ISO 10846 include the application of static preload.

The results of the methods are useful for isolators which are used to prevent low-frequency vibration problems and to attenuate structure-borne sound. The methods are not sufficiently appropriate to characterize completely isolators which are used to attenuate shock excursions.

1 Scope

This part of ISO 10846 explains the principles underlying parts 2 to 5 of ISO 10846 for determining the transfer properties of vibration isolators from laboratory measurements, and provides assistance in the selection of the appropriate part of this series.

This part of ISO 10846 is applicable to vibration isolators which are used to reduce:

- a) the transmission of audiofrequency vibrations (structure-borne sound, 20 Hz to 20 kHz) to a structure which may, for example, radiate fluid-borne sound (airborne, waterborne, or other);
- b) the transmission of low frequency vibrations (typically 1 Hz to 80 Hz) which may, for example, act upon humans or cause damage to structures when vibration is too severe.

The data obtained with the measurement methods which are outlined in this part of ISO 10846 and further detailed in parts 2 to 5 of ISO 10846 can be used for:

- product information provided by manufacturers and suppliers;
- information during product development;
- quality control;
- computation of the transfer of vibrations through isolators.

The conditions for the validity of the measurement methods are

- a) linearity of the vibrational behaviour of the isolator (this includes elastic elements with non-linear static load-deflection characteristics as long as the elements show approximate linearity for vibrational behaviour for a given static preload);
- b) the contact interfaces of the vibration isolator with the adjacent source and receiver structures can be considered as point contacts.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 10846. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10846 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2041:1990, *Vibration and shock — Vocabulary*.