

SLOVENSKI STANDARD

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Akustika in vibracije - Laboratorijsko merjenje vibro-akustičnih prenosnih lastnosti elastičnih elementov - 2. del: Neposredna metoda za določanje dinamične togosti elastičnih podpor za translatorno gibanje (ISO 10846-2:2008)

Acoustics and vibration - Laboratory measurement of vibro-acoustic transfer properties of resilient elements - Part 2: Direct method for determination of the dynamic stiffness of resilient supports for translatory motion (ISO 10846-2:2008)

Akustik und Schwingungstechnik - Laborverfahren zur Messung der vibro-akustischen Transfereigenschaften elastischer Elemente - Teil 2: Direktes Verfahren zur Ermittlung der dynamischen Steifigkeit elastischer Stützelemente bei Anregung in translatorischer Richtung (ISO 10846-2:2008)

Acoustique et vibrations - Mesurage en laboratoire des propriétés de transfert vibro-acoustique des éléments élastiques - Partie 2: Méthode directe pour la détermination de la raideur dynamique en translation des supports élastiques (ISO 10846-2:2008)

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Acoustics and vibration - Laboratory measurement of vibro-acoustic transfer properties of resilient elements - Part 2: Direct method for determination of the dynamic stiffness of resilient supports for translatory motion (ISO 10846-2:2008)

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Foreword

This document (EN ISO 10846-2:2008) has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 211 "Acoustics" the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2009, and conflicting national standards shall be withdrawn at the latest by February 2009.

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**Acoustics and vibration — Laboratory
measurement of vibro-acoustic transfer
properties of resilient elements —**

Part 2:

**Direct method for determination of the
dynamic stiffness of resilient supports for
translatory motion****(standards.iteh.ai)***Acoustique et vibrations — Mesurage en laboratoire des propriétés de
transfert vibro-acoustique des éléments élastiques —**Partie 2: Méthode directe pour la détermination de la raideur dynamique
en translation des supports élastiques*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 10846-2 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*, and ISO/TC 108, *Mechanical vibration, shock and condition monitoring*.

This second edition cancels and replaces the first edition (ISO 10846-2:1997), which has been technically revised.

ISO 10846 consists of the following parts, under the general title *Acoustics and vibration — Laboratory measurement of vibro-acoustic transfer properties of resilient elements*:

- *Part 1: Principles and guidelines*
- *Part 2: Direct method for determination of the dynamic stiffness of resilient supports for translatory motion*
- *Part 3: Indirect method for determination of the dynamic stiffness of resilient supports for translatory motion*
- *Part 4: Dynamic stiffness of elements other than resilient supports for translatory motion*
- *Part 5: Driving point method for determination of the low-frequency transfer stiffness of resilient supports for translatory motion*

Introduction

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

This part of ISO 10846 specifies a direct method for measuring the dynamic transfer stiffness function of linear resilient supports. This includes resilient supports with non-linear static load-deflection characteristics, as long as the elements show an approximate linearity for vibration behaviour for a given static preload. This part of ISO 10846 belongs to a series of International Standards on methods for the laboratory measurement of vibro-acoustic properties of resilient elements, which also includes documents on measurement principles, on an indirect method and on a driving point method. ISO 10846-1 provides guidance for the selection of the appropriate International Standard.

The laboratory conditions described in this part of ISO 10846 include the application of static preload.

The results of the method described in this part of ISO 10846 are useful for resilient supports that are used to prevent low-frequency vibration problems and to attenuate structure-borne sound in the lower part of the audible frequency range. However, for complete characterization of resilient elements that are used to attenuate low-frequency vibration or shock excursions, additional information is needed, which is not provided by this method.

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Acoustics and vibration — Laboratory measurement of vibro-acoustic transfer properties of resilient elements —

Part 2:

Direct method for determination of the dynamic stiffness of resilient supports for translatory motion

1 Scope

This part of ISO 10846 specifies a method for determining the dynamic transfer stiffness for translations of resilient supports, under specified preload. The method concerns the laboratory measurement of vibrations on the input side and blocking output forces and is called “the direct method”. The method is applicable to test elements with parallel flanges (see Figure 1).

Resilient elements, which are the subject of this part of ISO 10846, are those which are used to reduce

- the transmission of vibration in the lower part of the audible frequency range (typically 20 Hz to 500 Hz) to a structure which may, for example, radiate unwanted fluid-borne sound (airborne, waterborne or others), and
- the transmission of low-frequency vibrations (typically 1 Hz to 80 Hz), which may, for example, act upon human subjects or cause damage to structures of any size when vibration is too severe.

NOTE 1 In practice, the size of the available test rig(s) can restrict the use of very small or very large resilient supports.

NOTE 2 Samples of continuous supports of strips and mats are included in this method. Whether or not the sample describes the behaviour of the complex system sufficiently is the responsibility of the user of this part of ISO 10846.

Measurements for translations normal and transverse to the flanges are covered in this part of ISO 10846.

The direct method covers the frequency range from 1 Hz up to a frequency f_{UL} , which is usually determined by the test rig.

NOTE 3 Because of the large variety of test rigs and test elements, f_{UL} is variable. In this part of ISO 10846, the adequacy of the test rig is not defined for a fixed frequency range, but on the basis of measured data, as described in 6.1 to 6.4.