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Mechanical vibration and shock — Resilient mounting systems —

Part 3: Technical information to be exchanged for application of vibration isolation to new buildings

Vibrations et chocs mécaniques — Systèmes de montage résilients —

Partie 3: Informations techniques à échanger pour l'application d'isolation vibratoire aux bâtiments neufs

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 108, *Mechanical vibration, shock and condition monitoring*.

ISO 2017 consists of the following parts, under the general title *Mechanical vibration and shock — Resilient mounting systems*:

— *Part 1: Technical information to be exchanged for the application of isolation systems*

— *Part 2: Technical information to be exchanged for the application of vibration isolation associated with railway systems*

— *Part 3: Technical information to be exchanged for application of vibration isolation to new buildings*

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Introduction

Some suppliers of shock and vibration isolators (resilient mounts) have experience covering a wide variety of applications. In most instances, they are willing to use their background information for solving the user's isolation problems. However, it is frequently difficult for the supplier to provide this service, because the customer, the user, or the producer of vibration source or receiver has not furnished sufficient information regarding the application.

On the other hand, the user (architect and construction operator) is sometimes handicapped in applying isolators properly because sufficient technical information is not furnished by the supplier. Consequently, the user will often conduct his own experimental evaluation of the isolator and may unknowingly duplicate work already carried out by the supplier.

This part of ISO 2017 is intended to serve as guide for the exchange of technical information regarding the application for vibrations and shocks isolation of buildings, between the customer and the supplier of resilient devices as required for their proper application.

For the purposes of this part of ISO 2017, a resilient device is defined as a flexible element or system used between the building and its supporting structure to attenuate the transmission of shock or vibration from the surrounding sources to the building.

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Mechanical vibration and shock — Resilient mounting systems —

Part 3: Technical information to be exchanged for application of vibration isolation to new buildings

1 Scope

This part of ISO 2017 establishes requirements to ensure appropriate exchange of information regarding the application of isolation of buildings from vibrations and shocks generated by man-made sources.

This part of ISO 2017 is applicable only during the design and construction of new buildings in areas affected by important vibrations which can be generated by single or multiple sources (railways, traffic, industrial activity, etc.) The isolation of these buildings serves to ensure the integrity of the structure and equipment inside (including sensitive equipment) and human comfort.

This part of ISO 2017 specifies the information to be exchanged between building owner, customer, and vibration isolation supplier. It gives appropriate responses to questions highlighted by the producer and user (why, what, when, and how to isolate mechanical systems).

This part of ISO 2017 does not include earthquake and wind-generated forces.

2 Normative references

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

ISO 2041, *Mechanical vibration, shock and condition monitoring — Vocabulary*

ISO 2631-2, *Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 2: Vibration in buildings (1 Hz to 80 Hz)*

ISO 4866, *Mechanical vibration and shock — Vibration of fixed structures — Guidelines for the measurement of vibrations and evaluation of their effects on structures*

ISO 7626-1, *Vibration and shock — Experimental determination of mechanical mobility — Part 1: Basic terms and definitions and transducer specification*

ISO 9688, *Mechanical vibration and shock — Analytical methods of assessing shock resistance of mechanical systems — Information exchange between suppliers and users of analyses*

ISO 10815, *Mechanical vibration — Measurement of vibration generated internally in railway tunnels by the passage of trains*

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

ISO 14837-1, *Mechanical vibration — Ground-borne noise and vibration arising from rail systems — Part 1: General guidance*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2041, ISO 7626-1, ISO 9688, ISO 10846-1, and ISO 14837-1 and the following apply.

3.1
vibration receiver
all structures or elements of structures responding to vibration energy emitted by an external source

[SOURCE: ISO 2017-1:2005, 3.3]

3.2
customer
user or purchaser of a product (building)

[SOURCE: ISO 2017-1:2005, 3.4, modified]

3.3
producer
party constructing the product that needs to be isolated from vibrations and which the *customer* (3.2) agrees to purchase

[SOURCE: ISO 2017-2:2007, 3.4, modified]

3.4
isolation supplier
party responsible for providing and installing an isolation system that will meet the requirements to reduce vibration as agreed upon with the *customer* (3.2) who agrees to purchase

Note 1 to entry: In certain cases, the producer and the supplier may be the same party.

Note 2 to entry: The customer, the producer, or the supplier may each mandate subcontractors to execute the work or to purchase elements.

[SOURCE: ISO 2017-1:2005, 3.6, modified]

3.5
base isolation
item or support arrangements that secure a structure to its supporting ground and provide protection from shock and/or vibration

[SOURCE: ISO 2017-2:2007, 3.6]

4 Purpose of vibration isolation (why isolate mechanical systems)

The purpose of vibration isolation is to reduce the vibrations and shocks felt by people, structures, and mechanical systems by taking action between the source and the receiver. In the case of high magnitude environmental vibrations, the purpose may include the assurance of the following:

a) structural integrity of new buildings;

b) comfort of people in temporary or permanent structures that may be subject to the vibration excitation;

c) functionality of sensitive equipment in these structures;

d) conformity with local, regional, and national requirements, if any.

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