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Guidance on databases for human vibration

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National foreword

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Guidance on databases for human vibration

Recommandations relatives aux bases de données consacrées aux effets des vibrations sur l'homme

Leitfaden zu Datenbanken für Schwingungseinwirkungen auf den Menschen

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European foreword

This document (CEN/TR 17506:2020) has been prepared by Technical Committee CEN/TC 231 "Mechanical vibration and shock", the secretariat of which is held by DIN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Introduction

European legislation — especially the Physical Agents Directive 2002/44/EC (Vibrations at work) — requires that employers assess workplace risks to the health and safety of their employees. EU Machinery Directive (2006/42/EC), Annex I, 1.7.4.3, requires that manufacturers provide information on vibration emission in commercial documents.

There are different types of databases (declared values = emission values, magnitude vibration data = imission values, physiological or epidemiological data).

Generally magnitude vibration databases are splitted into two parts according to the type of exposure: hand-arm or whole-body vibration.

According to their content, databases are assumed to be for:

a) research (epidemiology, comparison of methods for vibration analysis);

b) control of exposure (risk assessment, reduced risk);

c) enforcement;

d) market surveillance;

e) compensation cases;

f) impact analysis for legal regulations;

g) performance of seat suspension systems.

According to their purpose, databases are elaborated for vibration experts, hygienists or machines users.

1 Scope

The purpose of this document is to give guidelines for elaborating databases on human vibration for different purposes (emission or immission) and types of exposure (hand-arm vibration or whole-body vibration).

This document is restricted to cases where vibration affects persons at work. It is mainly addressed to competent services for the assessment of vibration exposure at the workplace and to national authorities and industrial organizations.

It defines basic requirements to get databanks respecting quality criteria (information to be given regarding exposure, reference standards, machines, persons, key parts, data origin and traceability) taken into account the type of exposure (HAV, WBV).

Although this document has been mainly designed to facilitate the exchange of data between experts, a section explains the minimum information to be provided and precautions to be taken for databases opened to public. The way the data should be formatted to facilitate the exchange between developers of databases is covered.

Also this document provides proper terminology to qualify the different families of vibration sources e.g. tools, machines and working conditions (see Annex B). This document provides a method for classifying the quality of vibration data.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Requirements for databases

Vibration exposure data recorded in databases should follow the measurement methods recommended by EN ISO 5349-1 and EN ISO 5349-2 for hand-arm vibration, and series ISO 2631 and EN 14253 for whole-body vibration.

Declared values should be made in accordance with EN ISO 20643.

Annex A informs about the introduction to users of vibration database.

Annex B provides for the different categories of tools and mobile machines the corresponding standards on vibration declared values. Tables 1 and 2 list respectively tools and mobile machines main characteristics and measurement parameters. According to the object and quality of data, parameters are hierarchized into 3 types:

Type I:

a) Field measurement (e.g. a_{wmax} or a_{hv}): Basic data are provided to help employers for estimating vibration exposure at a workplace.