

<b>STN</b>	<b>Mechanické kmitanie Meranie a hodnotenie expozície človeka prenosom kmitania na ruky Časť 3: Izolované a opakované otrasy s použitím frekvenčného rozsahu ISO 5349-1 (ISO 5349-3: 2025)</b>	<b>STN EN ISO 5349-3</b>  01 1406
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Mechanical vibration - Measurement and evaluation of human exposure to hand-transmitted vibration - Part 3: Isolated and repeated shocks using the frequency range of ISO 5349-1 (ISO 5349-3:2025)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/26

Rozpracovaná prekladom.

Obsahuje: EN ISO 5349-3:2025, ISO 5349-3:2025

**142261**

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Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2026  
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii  
v znení neskorších predpisov.



EUROPEAN STANDARD

**EN ISO 5349-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2025

ICS 13.160

English Version

**Mechanical vibration - Measurement and evaluation of  
human exposure to hand-transmitted vibration - Part 3:  
Isolated and repeated shocks using the frequency range of  
ISO 5349-1 (ISO 5349-3:2025)**

Vibrations mécaniques - Mesurage et évaluation de  
l'exposition des individus aux vibrations transmises à  
la main - Partie 3: Évaluation de chocs isolés ou répétés  
en utilisant la gamme de fréquences couverte par l'ISO  
5349-1 (ISO 5349-3:2025)

Mechanische Schwingungen - Messung und Bewertung  
der Einwirkung von Schwingungen auf das Hand-Arm-  
System des Menschen - Teil 3: Isolierte und  
wiederholte Stöße im Frequenzbereich der ISO 5349-1  
(ISO 5349-3:2025)

This European Standard was approved by CEN on 14 December 2025.

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**EN ISO 5349-3:2025 (E)**

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## **European foreword**

This document (EN ISO 5349-3:2025) has been prepared by Technical Committee ISO/TC 108 "Mechanical vibration, shock and condition monitoring" in collaboration with Technical Committee CEN/TC 231 "Mechanical vibration and shock" the secretariat of which is held by DIN.

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 June 2026, and conflicting national standards shall be withdrawn at the latest by June 2026.

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## **Endorsement notice**

The text of ISO 5349-3:2025 has been approved by CEN as EN ISO 5349-3:2025 without any modification.



# International Standard

**ISO 5349-3**

## **Mechanical vibration — Measurement and evaluation of human exposure to hand- transmitted vibration —**

### **Part 3: Isolated and repeated shocks using the frequency range of ISO 5349-1**

*Vibrations mécaniques — Mesurage et évaluation de l'exposition  
des individus aux vibrations transmises à la main —*

*Partie 3: Évaluation de chocs isolés ou répétés en utilisant la  
gamme de fréquences couverte par l'ISO 5349-1*

**First edition  
2025-12**

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Published in Switzerland

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**ISO 5349-3:2025(en)****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](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 4, *Human exposure to mechanical vibration and shock*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 231, *Mechanical vibration and shock*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 5349 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## ISO 5349-3:2025(en)

### Introduction

The risk estimation for hand-arm vibration injury is based on ISO 5349-1. The scope of the 2001 revision of that International Standard notes that “the time dependency for human response to repeated shock vibrations is not fully known” and the application of ISO 5349-1 to such vibration is to be “made with caution”.

Despite the lack of knowledge in this field, it is desirable to standardise methods for evaluating exposures of the hand and arm to isolated and repeated shocks (referred to here as hand-transmitted shock vibrations or HTS) from hand-held and hand-guided machinery and specifically provide a metric suitable for evaluating the peak amplitude of acceleration signals. This document gives guidance for evaluating HTS in the frequency range covered by ISO 5349-1.

**NOTE** European union regulations relating to machinery safety require (from 2027) manufacturers or suppliers to provide values for the “mean of the peak amplitude of the acceleration” from repeated HTS.

The objective for this document is to

- provide machine manufactures and users a method for evaluating HTS,
- support research on health effects from HTS, and
- encourage and enable
  - machine manufacturers to reduce HTS,
  - the development of mitigation measures on existing tools, and
  - the reduction of HTS exposures in the workplace.

The use of this document will contribute to the gathering of consistent HTS data to improve occupational safety. There is currently no clear evidence that HTS produces specific health effects beyond those associated with hand-transmitted vibration or presents an increased risk of developing other musculoskeletal injuries to the hand and arm such as repetitive strain injury and carpal tunnel syndrome. The systematic measurement and reporting of parameters relating to HTS may provide evidence of associations with individual health effects.

This document specifies the general requirements for the measurement and evaluation of human exposure to HTS. It builds on the requirements of ISO 5349-1 and measurement guidance in ISO 5349-2. It uses instrumentation that conforms to the requirements of ISO 8041-1. The current version ISO 8041-1:2017 does not require measurement of the peak value of acceleration for hand-transmitted vibration, however, the instrumentation conforming to ISO 8041-1, should provide some confidence in measurements of the metrics specified here.

This document is based on measurements in the frequency range covered by ISO 5349-1. It is recognised that the limited frequency range of ISO 5349-1 does not fully account for all the high-frequency components of HTS, particularly when the HTS is generated by percussive machinery. For this reason, an additional Technical Specification is being prepared that enables both hand-transmitted vibration (HTV) and HTS evaluations to include vibration frequencies higher than the upper frequency limit of ISO 5349-1<sup>[10]</sup>.

# Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration —

## Part 3: Isolated and repeated shocks using the frequency range of ISO 5349-1

### 1 Scope

This document specifies the general requirements for the measurement and evaluation of human exposure to hand-transmitted shock vibrations. For the purposes of this document, hand-transmitted shock vibration is any impactive or impulsive vibration that the machine or tool produces as a sequence of single events (isolated shock vibrations) linked by periods of no, or lower vibration.

This document specifies parameters for the evaluation of machinery emissions of hand-transmitted shocks in the frequency range covered by ISO 5349-1 (nominally the frequency range covered by the octave bands from 8 Hz to 1 000 Hz).

**NOTE** It is recognised that shock vibration often includes substantial high-frequency vibration energy. Therefore, reporting of information on hand-transmitted shock at higher frequencies than those specified in this document can be valuable.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 5349-1:2001, *Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 1: General requirements*

ISO 5349-2, *Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 2: Practical guidance for measurement at the workplace*

ISO 8041-1:2017, *Human response to vibration — Measuring instrumentation — Part 1: General purpose vibration meters*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

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