

**MEHAANILINE VIBRATSIOON JA LÖÖGID. LABAKÄE-
KÄSIVARRE VIBRATSIOON. MEETOD KINNASTE
VIBRATSIOONIÜLEKANDE MÕÕTMISEKS JA
HINDAMISEKS PEOPESAST**

**Mechanical vibration and shock - Hand-arm vibration -
Measurement and evaluation of the vibration
transmissibility of gloves at the palm of the hand
(ISO 10819:2013 + ISO 10819:2013/Amd 1:2019 +
ISO 10819:2013/Amd 2:2021)**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN ISO 10819:2013+A1+A2:2022 sisaldab Euroopa standardi EN ISO 10819:2013 ja selle muudatuste A1:2019 ja A2:2022 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 10819:2013+A1+A2:2022 consists of the English text of the European standard EN ISO 10819:2013 and its amendments A1:2019 and A2:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 07.08.2013, muudatused A1 13.02.2019 ja A2 19.10.2022.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 07.08.2013, for A1 13.02.2019 and A2 19.10.2022.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümboolitega $\boxed{A_1}$ $\triangleleft A_1$. Muudatusega A2 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümboolitega $\boxed{A_2}$ $\triangleleft A_2$. Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A_1}$ $\triangleleft A_1$. The start and finish of text introduced or altered by amendment A2 is indicated in the text by tags $\boxed{A_2}$ $\triangleleft A_2$. The standard is available from the Estonian Centre for Standardisation and Accreditation.

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ICS 13.340.40; 13.160

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EUROPEAN STANDARD

EN ISO 10819 + A1 + A2

NORME EUROPÉENNE

July 2013, February 2019, October 2022

EUROPÄISCHE NORM

ICS 13.340.40; 13.160

Supersedes EN ISO 10819:1996

English Version

**Mechanical vibration and shock - Hand-arm vibration -
Measurement and evaluation of the vibration
transmissibility of gloves at the palm of the hand (ISO
10819:2013 + ISO 10819:2013/Amd 1:2019 + ISO
10819:2013/Amd 2:2021)**

Vibrations et chocs mécaniques - Vibrations main-bras
- Mesurage et évaluation du facteur de transmission
des vibrations par les gants à la paume de la main (ISO
10819:2013 + ISO 10819:2013/Amd 1:2019 + ISO
10819:2013/Amd 2:2021)

Mechanische Schwingungen und Stöße - Hand-Arm-
Schwingungen - Messung und Bewertung der
Schwingungsübertragung von Handschuhen in der
Handfläche (ISO 10819:2013 + ISO 10819:2013/Amd
1:2019 + ISO 10819:2013/Amd 2:2021)

This European Standard was approved by CEN on 29 May 2013. Amendment A1 was approved by CEN on 5 August 2018. Amendment A2 was approved by CEN on 31 August 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Foreword

This document (EN ISO 10819:2013) 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 January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

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This document supersedes EN ISO 10819:1996.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

The main changes to the first edition EN ISO 10819:1996 are stronger criteria for antivibration gloves and the addition of a method for measuring the material thickness.

To place anti-vibration gloves on the market of the European Union (EU), manufacturers or their authorised representatives established within the EU shall make sure that they cover all Basic Health and Safety Requirements (BHSRs) applicable to their products under the foreseeable conditions of use for which such Personal Protective Equipment (PPE) is intended (EU Directive 89/686/EEC on PPE). If the relevant harmonized European Standards do not cover all applicable BHSRs they have, in addition to the application of these standards, to assess the conformity to those BHSRs not covered by using other relevant technical specifications and test methods.

This European Standard EN ISO 10819 is intended to confirm the vibration reducing properties of gloves placed on the EU market as anti-vibration gloves.

To mark anti-vibration gloves with the CE conformity mark they must also satisfy the BHSRs of the PPE Directive using harmonised European Standards, such as EN 388 and EN 420. As such, manufacturers or their authorised representatives established within the EU shall make an application for type-examination to an approved inspection body (notified body).

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Endorsement notice

The text of ISO 10819:2013 has been approved by CEN as EN ISO 10819:2013 without any modification.

A1 Amendment A1 European foreword

This document (EN ISO 10819:2013/A1:2019) 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.

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The text of ISO 10819:2013/Amd 1:2019 has been approved by CEN as EN ISO 10819:2013/A1:2019 without any modification. **A1**

A₂ Amendment A2 European foreword

This document (EN ISO 10819:2013/A2:2022) 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 Amendment to the European Standard EN ISO 10819:2013 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2023, and conflicting national standards shall be withdrawn at the latest by April 2023.

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This document has been prepared under a standardization request M/571/C(2020) 7924 final given to CEN/CENELEC by the European Commission and the European Free Trade Association, and supports the essential health and safety requirements of Regulation (EU) 2016/425.

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Endorsement notice

The text of ISO 10819:2013/Amd 2:2021 has been approved by CEN as EN ISO 10819:2013/A2:2022 without any modification. **A₂**

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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.

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The committee responsible for this document is ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 4, *Human exposure to mechanical vibration and shock*.

This second edition cancels and replaces the first edition (ISO 10819:1996), of which it constitutes a technical revision. The main changes are stronger criteria for antivibration gloves and the addition of a method for measuring the material thickness.

A1 Amendment A1 foreword

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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*.

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A2 Amendment A2 foreword

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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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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).

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Introduction

Because of the growing demand to reduce health risks associated with exposure to hand-transmitted vibration, gloves with vibration-reducing materials are often used to attenuate vibration transmitted to the hands. These gloves normally provide little reduction in hand-transmitted vibration at frequencies below 150 Hz. Some gloves can increase the vibration transmitted to the hands at these low frequencies. Gloves with vibration-reducing materials that meet the requirements of this International Standard to be classified as an antivibration glove can be expected to reduce hand-transmitted vibration at frequencies above 150 Hz. These gloves can reduce but not eliminate health risks associated with hand-transmitted vibration exposure.

Field observations indicate that gloves with vibration-reducing materials can result in positive and negative health effects. Positive health effects can occur with gloves that reduce finger tingling and numbness and that keep the hands warm and dry. Negative health effects can occur with gloves that increase the vibration transmitted to the hands at low frequencies and that increase hand and arm fatigue because they increase the hand grip effort required to control a vibrating machine.

Gloves tested in accordance with the requirements of this International Standard are evaluated in a controlled laboratory environment. The actual vibration attenuation of a glove in a work environment can differ from that measured in a controlled laboratory environment.

Vibration transmissibility measurements made in accordance with the requirements of this International Standard are performed only at the palm of the hand. The transmission of vibration to the fingers is not measured. When evaluating the effectiveness of a glove with a vibration-reducing material used to reduce vibration transmitted to the hand, vibration transmission to the fingers should also be assessed. However, research subsequent to the publication of this International Standard is needed to develop a measurement procedure that can be used to measure the vibration transmissibility of gloves at the fingers.

The measurement procedure specified in this International Standard only addresses glove properties that can reduce health risks associated with hand-transmitted vibration in work environments. It does not address glove properties necessary to reduce other hand-related health and safety risks in work environments.

The measurement procedure specified in this International Standard can also be used to measure the vibration transmissibility of a material that is being evaluated for use to cover a handle of a machine or for potential use in a glove.

Mechanical vibration and shock — Hand-arm vibration — Measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand

WARNING — This International Standard defines a screening test procedure for measuring the vibration transmission through gloves with an embedded vibration-reducing material. Many factors not addressed in this International Standard can influence the transmission of vibration through these gloves. Therefore, use the vibration transmissibility values obtained in accordance with this International Standard with caution in the assessment of the vibration-reducing effects of gloves.

1 Scope

This International Standard specifies a method for the laboratory measurement, data analysis, and reporting of the vibration transmissibility of a glove with a vibration-reducing material that covers the palm, fingers, and thumb of the hand. This International Standard specifies vibration transmissibility in terms of vibration transmitted from a handle through a glove to the palm of the hand in one-third-octave frequency bands with centre frequencies of 25 Hz to 1 250 Hz.

The measurement procedure specified in this International Standard can also be used to measure the vibration transmissibility of a material that is being evaluated for use to cover a handle of a machine or for potential use in a glove. However, results from this test cannot be used to certify that a material used to cover a handle meets the requirements of this International Standard to be classified as an antivibration covering. A material tested in this manner could later be placed in a glove. When this is the case, the glove needs to be tested in accordance with the measurement procedure of this International Standard and needs to meet the vibration attenuation performance requirements of this International Standard in order to be classified as an antivibration glove.

NOTE ISO 13753^[1] defines a method for screening materials used for vibration attenuation on the handles of machines and for gloves.

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 5349-1, *Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 1: General requirements*

ISO 5805, *Mechanical vibration and shock — Human exposure — Vocabulary*

ISO 8041, *Human response to vibration — Measuring instrumentation*

IEC 61260, *Electroacoustics — Octave-band and fractional-octave-band filters*

EN 388:2016, *Protective gloves against mechanical risks*

EN 420+A1:2009, *Protective gloves — General requirements and test methods* ^{A1}