

Second edition
2013-07-15

AMENDMENT 1
2019-01

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

AMENDMENT 1

*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*

AMENDEMENT 1

STANDARDSISO.COM : Click to view the full PDF of ISO 10819:2013/Amd 1:2019



Reference number
ISO 10819:2013/Amd.1:2019(E)

© ISO 2019

STANDARDSISO.COM : Click to view the full PDF of ISO 10819:2013/Amd 1:2019



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 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*.

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.

STANDARDSISO.COM : Click to view the full PDF of ISO 10819:2013/Amd 1:2019

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

AMENDMENT 1

Clause 2

Replace the last two normative references listed with the following:

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

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

6.1.1

Replace the text with the following:

Five adults with hand sizes between 7 and 10, as specified by EN 420+A1, shall serve as test subjects. The test subjects shall use their dominant hand for the glove vibration transmissibility tests.

6.1.3

Replace list item f) with the following:

f) Fitting of gloves — the size of the gloves shall be chosen according to EN 420+A1.

6.3.2

Replace Table 1 with the following table:

Table 1 — Required handle acceleration values

| Frequency f_i Hz | Acceleration PSD value P_{zz} (m/s ²) ² /Hz | Acceleration tolerance in the one-third octave band dB | One-third-octave accel- eration value m/s ² |
|--|--|--|--|
| 25 | 0,709 | ±2 | 2,03 |
| 31,5 | 0,893 | ±1 | 2,55 |
| 40 | 1,134 | ±1 | 3,23 |
| 50 | 1,417 | ±1 | 4,05 |
| 63 | 1,786 | ±1 | 5,10 |
| 80 | 2,268 | ±1 | 6,45 |
| 100 | 2,835 | ±1 | 8,09 |
| 125 | 3,543 | ±1 | 10,15 |
| 160 | 4,535 | ±1 | 12,88 |
| 200 | 5,669 | ±1 | 16,16 |
| 250 | 7,087 | ±1 | 20,27 |
| 315 | 8,521 | ±1 | 24,94 |
| 400 | 9,179 | ±1 | 29,04 |
| 500 | 9,179 | ±1 | 32,58 |
| 630 | 8,555 | ±1 | 35,29 |
| 800 | 7,069 | ±1 | 36,00 |
| 1 000 | 4,994 | ±1 | 33,95 |
| 1 250 | 2,905 | +2 -∞ | 29,05 |
| Unweighted acceleration (without 1 250 Hz) | | | 90,42 |
| Frequency-weighted acceleration | | | 4,91 |
| Frequency-weighted acceleration tolerance | | | ±0,50 |

9.3.4

Replace the text with the following:

9.3.4 Requirements within the European Union

Gloves that are designated as protective gloves against vibration according to this document that will be used in workplace environments in the European Union shall meet the minimal requirements for mechanical risks specified in EN 388 and the requirements specified in Annex B.

NOTE Further requirements can apply in the European Union.

Annex A

Add the following annex after Annex A.

Annex B
(normative)

Further requirements for protective gloves against vibration

B.1 General

The application of this annex is optional for gloves that are to be used outside the European Union. The requirements of this annex are compulsory only for protective gloves against vibration designated to be used in workplace environments in the European Union.

NOTE These specific requirements are derived from the general requirements for protective gloves given in EN 420+A1 and from the requirements for protective gloves against mechanical risks given in EN 388.

B.2 Information supplied by the manufacturer

Information supplied by the manufacturer for each type of protective glove against vibration shall be precise, legible and comprehensive, and shall be provided at least in the official language(s) of the country of destination.

Besides the information according to EN 420+A1, the information supplied by the manufacturer shall also include the following:

- a) the corrected arithmetic mean transmissibility combined for five test subjects as reported in Clause 10 i) 1);
- b) a warning that the use of a protective glove does not imply a sufficient protection against health risks due to vibration or other factors. In addition, the measured vibration attenuation results cannot be used to calculate daily vibration exposure values within a risk assessment, e.g. according to ISO 5349-1;
- c) the useful life in relation to the conditions of use; see B.5;
- d) if applicable, the shelf life or date of obsolescence; see B.5;
- e) if applicable, conditions under which the glove is able to absorb Chromium VI from the environment; see B.6.

Additionally, the following information should be provided:

- f) the limits of use, for example that a reduction in vibration should not be expected during the use with low-frequency tools (i.e. tools with main excitation below 150 Hz);
- g) how impairment of the glove's efficacy can be detected, for example when the outer material is damaged.

B.3 Marking

In addition to the marking according to EN 420+A1 (pictogram according to EN 388 with performance levels), the pictogram shown in Figure B.1 may be used for marking of protective gloves against vibration:



Figure B.1 — ISO 7000-3634

B.4 Mechanical properties

The following four mechanical properties shall be tested in accordance with EN 388:

- 1) abrasion resistance;
- 2) blade cut resistance (only for the surface material; see below);
- 3) tear resistance;
- 4) puncture resistance.

The methods for testing the abrasion resistance and the blade cut resistance specified in EN 388 are unsuitable for the entire protective glove against vibration. These tests shall therefore be performed only on the surface material of the glove. In case the design of the glove does not permit separation of the surface material, the manufacturer shall supply the latter separately.

NOTE 1 Although cut protection is often assured by the damping material, the ingress of moisture and dirt following damage to the surface can modify the material properties, and displacement of the damping material can impair the vibration attenuation properties.

Protective gloves against vibration shall have at least performance level 1 according to EN 388:2016, Table 1, for all four requirements, but performance level 2 is recommended. Protective gloves against vibration having only performance level 1 should be provided with the information that their use would be impaired with regard to their mechanical stability.

NOTE 2 The required performance level 1 is reasonable since the gloves are also exposed to mechanical influences when vibrating equipment is used.

B.5 Useful life and date of obsolescence

NOTE The vibration attenuation properties of protective gloves against vibration can be modified by ageing, absorption of moisture, the effect of temperature and creeping, and high contact pressures.