SLOVENSKI STANDARD
SIST EN ISO 10819:2013/oprA2:2020

01-julij-2020

Mehanske vibracije in udarci - Vibracije dlan-roka - Merjenje in vrednotenje prenosov vibracij z rokavice na dlan roke - Dopolnilo A2 (ISO 10819:2013/DAM 2:2020)

Mechanical vibration and shock - Hand-arm vibration - Measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand - Amendment 2 (ISO 10819:2013/DAM 2:2020)

Mechanische Schwingungen und Stöße - Hand-Arm-Schwingungen - Messung und Bewertung der Schwingungsübertragung von Handschuhen in der Handfläche - Änderung 2 (ISO 10819:2013/DAM 2:2020)

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 2 (ISO 10819:2013/DAM 2:2020)

Ta slovenski standard je istoveten z: **EN ISO 10819:2013/prA2**

ICS:

13.160	Vpliv vibracij in udarcev na ljudi	Vibration and shock with respect to human beings
13.340.40	Varovanje dlani in rok	Hand and arm protection

SIST EN ISO 10819:2013/oprA2:2020 **en,fr,de**

DRAFT AMENDMENT
ISO 10819:2013/DAM 2

ISO/TC **108**/SC **4** Secretariat: **DIN**

Voting begins on: **2020-05-05**

Voting terminates on: **2020-07-28**

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

AMENDMENT 2

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 2

ICS: 13.340.40; 13.160

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO 10819:2013/DAM 2:2020(E)

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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

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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*.

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

AMENDMENT 2

9.3.3

Replace the title with:

Lacks (gaps) in the vibration-reducing material

9.3.3.1

Replace the text with the following:

Antivibration gloves may be fabricated in which the vibration-reducing material placed in the thumb and finger sections of the gloves is not directly connected to the adjacent vibration-reducing material placed in the palm section. In some constructions of the gloves (for example in large nubs), the gaps can also lie in other areas. Likewise, these gaps should not be too large in relation to the material thickness. In cases, where the vibration-reducing material placed in the thumb and finger sections of the gloves is not directly connected to the adjacent vibration-reducing material placed in the palm section, the following requirements shall be met.

9.3.3.3

Replace the text with the following:

Lacks (gaps) between the thumb and finger sections and the palm vibration-reducing material

The lacks (gaps) in the vibration-reducing material such as those between the, thumb and finger sections and the adjacent palm vibration-reducing material section shall not be greater than the thickness of the palm vibration-reducing material section along the length of the lacks.

The evaluation shall follow the procedure defined in Annex C.

9.3.3.4

Replace the text with the following:

Securing of the vibration-reducing material in the thumb and finger sections

The vibration-reducing material in the thumb and finger sections shall be secured in the gloves so that the material does not slip or come out of position during normal use of the gloves.

9.3.3.5.

Add the following clause after 9.3.3.4:

9.3.3.5 Other lacks (gaps) in the vibration-reducing material

In some constructions of the gloves (for example in large nubs), the gaps can also lie in other areas. Likewise, these gaps should not be too large in relation to the material thickness.

The evaluation should follow the procedure defined in Annex C.

Annex C

Add the following annex after Annex B:

Annex C
(normative)

Test procedure for verification of the gaps (interspace) between the vibration-reducing material

C.1 General

Depending on the construction of the gloves, there may be gaps in the vibration-reducing material for improving dexterity. There could also be glove constellations with "open surfaces" on the outer coating of the gloves within the gripping surfaces.

NOTE 1 Open surfaces are for example nubs or other elevations on the surface.

NOTE 2 Gaps are regions or interspaces of significantly reduced vibration isolation properties.

Since the vibration transmission is determined in the palm of the hand, it shall be ensured that the vibration-reducing material properties meet minimal protection requirements at all points within the palm of the hand.

C.2 Measurement of the vibration-reducing material thickness within the gap areas and the grip area of the adapter

The material thickness is examined over the entire gripping surface by means of a defined pressure load test. The measurement shall be carried out on a solid and straight surface. A force of 4,5 N ± 0,4 N shall be applied to the gloves at specific points identified within the grip area of the hand-held adapter and within the gap areas.

For preparation and to identify the gaps, the material on the back of the glove (back of the hand) shall be removed.

As shown in Figure C.1, in the area where the adapter lies in the palm of the hand during the measurement of vibration transmissibility (grip area of the adapter), at least five measuring points shall be identified to determine the thickness of the vibration-reducing material. The measuring points shall be evenly distributed in the grip area of the adapter and shall be located on the vibration-reducing material.

During measurement, the glove shall be pressed flat against the bottom of the measuring device while exerting the required force without pressing in the immediate vicinity of the measuring point. As soon as the position of the probe tip has stabilized (e.g., after 5 s) the material thickness shall be determined. After a pause of 10 s, the process shall be repeated at the same measuring point. For the measurement of the thickness within the grip area of the adapter, five measurements shall be made at each of the five measuring points.

The arithmetic mean $\bar{M}$ of the 25 measurements i shall then be evaluated to determine the material thickness in the grip area of the adapter:

$$\bar{M} = \frac{1}{25}\sum_{i=1}^{25} M_i$$

In a similar manner, and as shown in Figure C.1, for each gap to be measured (e.g. between thumb and palm, between finger and palm), at least three measuring points with similar gap sizes shall be identified. At each of these measuring points, five measurements of the thickness shall be made, while maintaining the required force for 5 s, and allowing a pause of 10 s between each measurement.

The arithmetic mean $\bar{G}$ of the n measurements i shall then be calculated to determine the material thickness of each of the gap areas of the gloves:

$$\bar{G} = \frac{1}{n}\sum_{i=1}^{n} G_i$$

For a glove with an "open surface", an aluminum ring shall be placed around each measuring point and pressed towards the bottom in order to fix the glove. The aluminum ring shall have the following dimensions:

a) Outside diameter: 45 mm ± 1 mm;

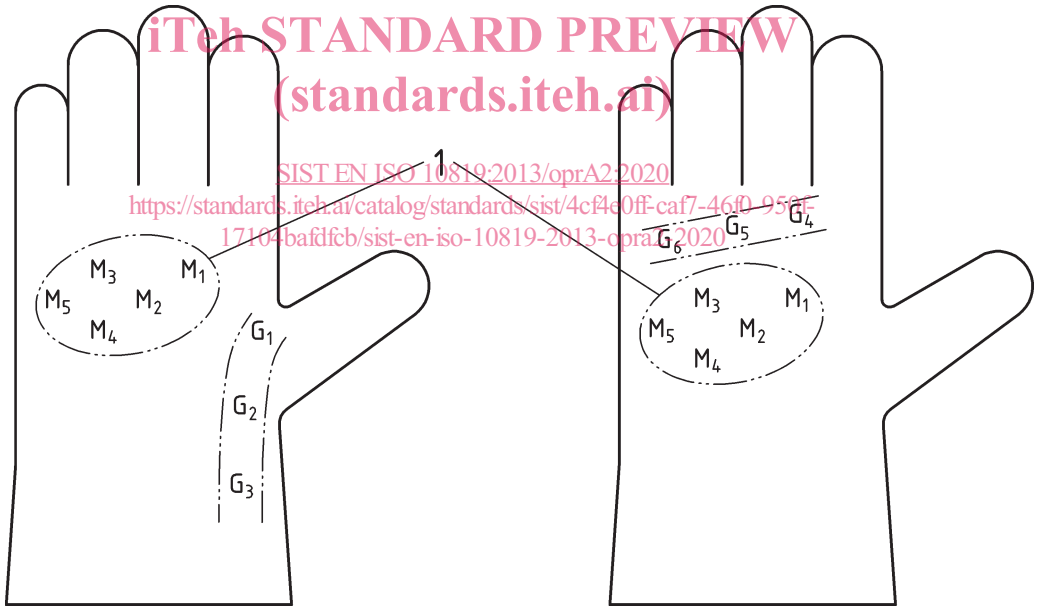
b) Inside diameter: 25 mm ± 0,5 mm;

c) Thickness: 2 mm ± 0,4 mm.

The surface texture of the material should not be altered by the ring. Only the inside (contact surface to the hand) should rest flat on the surface of the test setup.

NOTE 1 The way mechanical fastening of an open-surface glove with an aluminum ring can affect the measurement. Excessive stress on the ring can push out the material surface, which leads to an overestimation of the material thickness.

NOTE 2 In the example in Figure C.1, G_1 to G_3 and G_4 to G_6 each have n = 15



Key

1	Measuring area of the adapter (position of the adapter in accordance with 6.1.5)
M_1 to M_5	Measuring points of the vibration-reducing material in the grip area of the adapter
G_1 to G_3	Measuring points of the vibration-reducing material within the gaps between the thumb and the palm
G_4 to G_6	Measuring points of the vibration-reducing material within the gaps between the fingers and the palm

Figure C.1 — Position of the measuring points within the gaps and the grip area of the adapter

NOTE The measurement points should be within 10mm of the extremities of the vibration reducing material. Depending on the construction of the glove, additional measuring points may be required.

C.3 Example of a test setup