METSA- JA AIATÖÖ MASINAD. KÄESKANTAVATE SISEPÕLEMISMOOTORIGA MASINATE VIBRATSIOONIKATSETE EESKIRJAD. KÄEPIDEMETE VIBRATSIOONI MÕÕTMINE

Forestry and gardening machinery - Vibration test code for portable hand-held machines with internal combustion engine - Vibration at the handles (ISO 22867:2021)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 22867:2021 sisaldab Euroopa standardi EN ISO 22867:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 22867:2021 consists of the English text of the European standard EN ISO 22867:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.12.2021.	Date of Availability of the European standard is 15.12.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.160, 65.060.80

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN ISO 22867:2011

English Version

Forestry and gardening machinery - Vibration test code for portable hand-held machines with internal combustion engine - Vibration at the handles (ISO 22867:2021)

Machines forestières et machines de jardin - Code d'essai des vibrations pour machines portatives tenues à la main à moteur à combustion interne - Vibrations au niveau des poignées (ISO 22867:2021)

Forst- und Gartenmaschinen - Schwingungsmessnorm für handgehaltene Maschinen mit Verbrennungsmotor - Schwingungen an den Handgriffen (ISO 22867:2021)

This European Standard was approved by CEN on 27 September 2021.

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

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

Ref. No. EN ISO 22867:2021 E

European foreword

This document (EN ISO 22867:2021) has been prepared by Technical Committee ISO/TC 23 "Tractors and machinery for agriculture and forestry" in collaboration with Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry” the secretariat of which is held by AFNOR.

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 2022, and conflicting national standards shall be withdrawn at the latest by June 2022.

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.

This document supersedes EN ISO 22867:2011.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 22867:2021 has been approved by CEN as EN ISO 22867:2021 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the requirements of EU Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under Commission's standardization request "M/396 mandate to CEN and CENELEC for standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of the Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC amended by Directive 2009/127/EC

Relevant Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.5.9 Vibrations	4, 6, 7, 8, 9 and Annexes A to E	
2.2.1.1 Instructions	10 and Annexes A to E	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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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.

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 of 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 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 17, *Manually portable forest machinery,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 144, *Tractors and machinery for agriculture and forestry*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 22867:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the scope has been expanded to include hand-held edgers;

— Clause 9 (Information to be reported) has been amended to include “method used for in situ check of the instrumentation system”;

— the accelerometer position for pole-mounted powered pruners and long-reach hedge trimmers has been newly defined to better reflect handling of the machine in use;

— the engine speed tolerance for the operation mode “full load” for chain-saws has been broadened from 3,5 s^{-1} to 4,5 s^{-1}, to account for feasibility when cutting wood;

— hand-held edgers have been included in Annex B;

— the definition of the position of the accelerometer on the front handle of pole mounted pruners in Annex C has been improved and Figure C.1 has been modified accordingly;

— the definition of the position of the accelerometer on the front handle of long reach hedge trimmers in Annex D has been improved and Figure D.3 has been modified accordingly.

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.

Introduction

This document is a type-C standard as stated in ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organisations, market surveillance, etc.)

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e. g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document. The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or -B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

The vibration test code specified in this document is based on ISO 20643:2008, which gives general specifications for the measurement of the vibration emission of hand-held machinery. It differs from ISO 20643:2008 in the number of operators required to be involved in the test, with ISO 20643:2008 requiring at least three operators and this document only one. Another difference is that this document primarily positions the transducers next to the hand in the area between the thumb and the index finger, where they present the least disturbance to the operator gripping the machine.

The determination of vibration characteristics is primarily used for

— manufacturer's declarations,

— comparing data between machines in the machine family concerned,

— development work at the design stage, and

— the estimation of the vibration risk considering the specific conditions (parameters).

The use of this vibration test code ensures reproducibility of the determination of the vibration characteristics. Measurements made during particular operating modes are of interest for assessment of the vibration exposure, for example, over a typical working day.

The work cycles chosen for this test code are based on the following considerations of application:

a) chain-saws with an engine displacement of < 80 cm^3 are used for various operations, including felling, bucking and delimbing;

b) chain-saws with an engine displacement of ≥ 80 cm^3 are normally used for felling and bucking.

Delimbing causes the saw to run at racing speed; therefore, racing is included only for saws with an engine displacement < 80 cm^3.

For brush-cutters, grass-trimmers, hedge-trimmers and pole-mounted powered pruners, the cutting mode (full load) is estimated to be valid only for short periods, and racing and idling are the two dominant modes. Moreover, the cutting mode has also been found to be diverse and not able to be performed under repeatable conditions.

For grass-trimmers, the full-load and racing modes are integrated into a single mode, owing to the loading effect of the flexible line.

For brush-cutters, hedge-trimmers, edgers and pole-mounted powered pruners, it is not possible to simulate the full-load mode in a feasible way, since there are no constant load conditions comparable to those of chain-saws. Since the operating mode “racing” is the worst case, it is taken as being representative.

For garden-blowers, full load and idling are the two dominant modes.

In either of these cases, transport and other tasks between operations cause the machine to run at idling. Experience has led to the conclusion that equal duration for the different working modes is a good estimation of daily exposure. The values obtained are values intended to be representative of the average of typical vibration magnitudes in real-world use of the machines. However, the actual magnitudes varies considerably from time to time and depends on many factors, including operator, task and cutting attachment. The state of maintenance of the machine itself might also be of importance.