

Forestry machinery — Vibration test code for portable hand-held machines with internal combustion engine — Vibration at the handles

ICS 65.060.80

National foreword

This British Standard reproduces verbatim ISO 22867:2004 and implements it as the UK national standard. It supersedes BS 6916-8:1988 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AGE/29, Forestry machinery, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 18, an inside back cover and a back cover.

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INTERNATIONAL STANDARD

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Forestry machinery — Vibration test code for portable hand-held machines with internal combustion engine — Vibration at the handles

*Machines forestières — Code d'essai des vibrations pour machines
portatives tenues à la main à moteur à combustion interne — Vibrations
au niveau des poignées*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 22867 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 17, *Manually portable forest machinery*.

This first edition cancels and replaces ISO 7505:1986 and ISO 7916:1989, of which it constitutes a technical revision.

Introduction

The determination of vibration characteristics is primarily used for

- manufacturer's declarations,
- comparing the data between machines in the 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 will ensure reproducibility of the determination of the vibration characteristics.

The 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 $< 80 \text{ cm}^3$ are used for various operations, including felling, bucking and delimbing;
- b) chain-saws with an engine displacement of $\geq 80 \text{ cm}^3$ are normally used for felling and bucking.

Delimbing will cause the saw to run at racing speed; therefore, racing is included only for saws with a $< 80 \text{ cm}^3$ engine.

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

For trimmers, the full load and the racing modes are integrated in one single mode due to the loading effect of the flexible line.

For brush-cutters, it is not possible to simulate the full load mode in a feasible way since there are no constant load conditions comparable to chain-saws. Since the operating mode "racing" is anyhow the worst case, it is used as representative.

In either case, transport and other tasks between operations will cause the machine to run at idling. Experience has lead to the conclusion that equal duration for the different working modes is a good estimation of daily exposure.

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CAUTION — Some of the tests specified in this International Standard involve processes that could lead to a hazardous situation. Any person performing tests in accordance with this International Standard shall be appropriately trained in the type of work to be carried out. All national regulatory conditions and health and safety requirements shall be followed.

1 Scope

This International Standard specifies a vibration test code for determining, efficiently and under standardized conditions, the magnitude of vibration at the handles of portable hand-held, internal-combustion-engine-powered forestry machines such as chain-saws, brush-cutters and grass-trimmers. The code is applicable to manufacturer's product controls as well as type tests. It is intended that the results obtained will be able to be used to compare different machines or different models of the same type of machine. Although the magnitudes measured are obtained in an artificial operation, they nevertheless give an indication of the values to be found in a real work situation.

2 Normative references

The following referenced documents are indispensable for the application 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 5347 (all parts), *Methods for the calibration of vibration and shock pick-ups*

ISO 6531, *Machinery for forestry — Portable hand-held chain-saws — Vocabulary*

ISO 7112, *Machinery for forestry — Portable hand-held brush-cutters and grass-trimmers — Vocabulary*

ISO 7293, *Forestry machinery — Portable chain saws — Engine performance and fuel consumption*

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

ISO 8893, *Forestry machinery — Portable brush-cutters and grass-trimmers — Engine performance and fuel consumption*

ISO 16063 (all parts), *Methods for the calibration of vibration and shock transducers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6531, ISO 7112 and ISO 8041 apply.