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**Machinery for forestry — Portable chain-saw safety requirements and testing —**

**Part 1:  
Chain-saws for forest service**

*Matériel forestier — Exigences de sécurité et essais des scies à chaîne portatives —*

*Partie 1: Scies à chaîne pour travaux forestiers*



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Published in Switzerland

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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 11681-1 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 17, *Manually portable forest machinery*.

This third edition cancels and replaces the second edition (ISO 11681-1:2004), which has been technically revised. It also incorporates the Amendment ISO 11681-1:2004/Amd.1:2007.

ISO 11681 consists of the following parts, under the general title *Machinery for forestry — Portable chain-saw safety requirements and testing*:

- *Part 1: Chain-saws for forest service*
- *Part 2: Chain-saws for tree service*

## Introduction

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

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 type-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.

At the time of publication of this edition, it was not state of the art to require that starting of the machine would be always possible without causing movement of the saw chain. Such a requirement will be considered for inclusion in the next revision of this International Standard.



# Machinery for forestry — Portable chain-saw safety requirements and testing —

## Part 1: Chain-saws for forest service

### 1 Scope

This part of ISO 11681 gives safety requirements and measures for their verification for the design and construction of portable, combustion-engine, hand-held chain-saws, intended to be used for forest work by only one operator, by persons with the right hand on the rear handle and left hand on the front handle having read and understood the safety requirements provided in the instruction handbook and using the appropriate personal protective equipment (PPE). Methods for the elimination or reduction of hazards arising from the use of these machines and the type of information on safe working practices to be provided by the manufacturer are specified.

This part of ISO 11681 deals with all significant hazards, hazardous situations and hazardous events, with the exception of kickback and balance for machines with an engine displacement of more than 80 cm<sup>3</sup>, relevant to these machines when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer.

NOTE See Annex A for a list of significant hazards.

This part of ISO 11681 is applicable to chain-saws manufactured after its date of publication.

### 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 6531:2008, *Machinery for forestry — Portable chain-saws — Vocabulary*

ISO 6533, *Forestry machinery — Portable chain-saw front hand-guard — Dimensions and clearances*

ISO 6534, *Forestry machinery — Portable chain-saw hand guards — Mechanical strength*

ISO 6535, *Portable chain-saws — Chain brake performance*

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

ISO 7914, *Forestry machinery — Portable chain-saws — Minimum handle clearance and sizes*

ISO 7915, *Forestry machinery — Portable chain-saws — Determination of handle strength*

ISO 8334, *Forestry machinery — Portable chain-saws — Determination of balance and maximum holding moment*

ISO 9518, *Forestry machinery — Portable chain-saws — Kickback test*

ISO 10726, *Portable chain-saws — Chain catcher — Dimensions and mechanical strength*

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 13772, *Forestry machinery — Portable chain-saws — Non-manually actuated chain brake performance*

ISO 13849-1:2006, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13849-2, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation*

ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 14982:1998, *Agricultural and forestry machinery — Electromagnetic compatibility — Test methods and acceptance criteria*

ISO 22867, *Forestry and gardening machinery — Vibration test code for portable hand-held machines with internal combustion engine — Vibration at the handles*

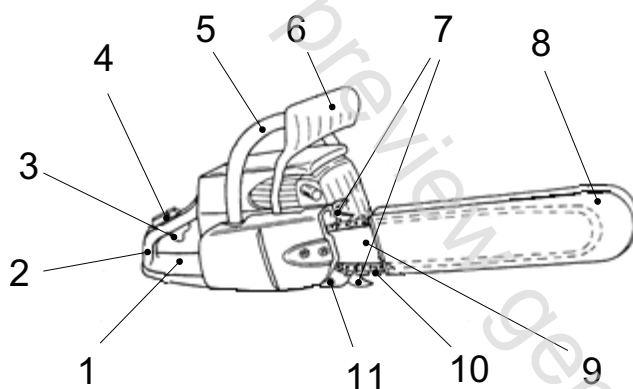
ISO 22868, *Forestry and gardening machinery — Noise test code for portable hand-held machines with internal combustion engine — Engineering method (Grade 2 accuracy)*

IEC 60745-1:2006, *Hand-held motor-operated electric tools — Safety — Part 1: General requirements*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6531 and ISO 12100 apply.

NOTE Figure 1 shows an example of a chain-saw within the scope of this part of ISO 11681.



#### Key

- 1 rear hand guard
- 2 rear handle
- 3 throttle trigger
- 4 throttle trigger lock-out
- 5 front handle
- 6 front hand guard
- 7 spiked bumper
- 8 guide-bar cover
- 9 guide bar
- 10 saw chain
- 11 chain catcher

Figure 1 — Example of chain-saw