

Machinery for forestry — Portable chain-saws — Safety requirements and testing —

Part 2: Chain-saws for tree service

The European Standard EN ISO 11681-2:1998, with the incorporation of amendment A1:2003, has the status of a British Standard

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National foreword

This British Standard is the official English language version of EN ISO 11681-2:1998, including amendment A1:2003. It is identical with ISO 11681-2:1998, including amendment 1:2003.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] <A1>. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by [A1] <A1>.

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.

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(including amendment A1:2003)

(ISO 11681-2:1998 + A1:2003)

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Foreword

The text of the International Standard ISO 11681-2:1998 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of an identical text or by endorsement, at the latest by October 1998, and conflicting national standards shall be withdrawn at the latest by October 1998.

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11681-2:1998 was approved by CEN as a European Standard without any modification.

Foreword to amendment A1

This document (EN ISO 11681-2:1998/A1:2003) 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 May 2004, and conflicting national standards shall be withdrawn at the latest by May 2004.

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

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

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NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZB for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of ISO 11681-2:1998 has been approved by CEN as EN ISO 11681-2:1998/A1:2003 without any modifications.

INTERNATIONAL STANDARD

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Machinery for forestry — Portable chain- saws — Safety requirements and testing — Part 2: Chain-saws for tree service

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

Partie 2: Scies à chaîne pour l'élagage des arbres



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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.

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.

International Standard ISO 11681-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 17, *Manually portable forest machinery*.

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

- *Part 1: Chain-saws for normal forestry work*;
- *Part 2: Chain-saws for tree service*.

Annex A, Annex B and Annex C form an integral part of this part of ISO 11681.

Descriptors: Agricultural machinery, forest equipment, portable equipment, accident prevention, operator protection, saws, chain-saws, specifications, safety requirements, tests, instructions for use, technical data sheets, marking.

Introduction

This part of ISO 11681 has been prepared for a special type of chain-saws used by trained persons for tree service work up in trees.

This part of ISO 11681 differs from ISO 11681-1¹⁾ as follows:

- Clause 1: **A1** the tree service chain-saws are limited in size by the maximum allowed dry mass of 4,3 kg;
- Clause 3: a definition of trained operator has been added and that for chain saws for tree service has been changed; **A1**
- subclause 4.1: the required handle dimensions have been altered;
- subclause 4.3: **A1** a requirement for the sideways balance, measured in accordance with a new Annex D, has been added with a limited holding moment of 6 N·m;
- subclause 4.4: the non-manual chain-brake system shall meet stricter requirements than those in ISO 13772 and the allowed kickback angle has been reduced to 25°; **A1**
- subclause 4.6: a permanently fixed spiked bumper is excluded;
- **A1** Text deleted **A1**
- subclause 4.12: the requirement has been modified to be valid for an engine-stopping device (instead of an ignition switch);
- subclause 4.13: the requirement for protection from contact with parts under high voltage has been enlarged to include a requirement for an ignition interruption or short-circuiting device on the low voltage side and a method to verify, by inspection and use of a finger probe, the protection of the operator from unintentional contact with parts under high voltage;
- subclause 4.16: the requirement for protection from hot parts has been enlarged to all parts of the machine and a reference to EN 563 has been added;
- **A1** Text deleted **A1**
- subclause 4.21: a requirement for an attachment point has been added;
- subclause 6.2: additional information is required;
- subclause 6.3: **A1** new safety warnings have been added along with a new Annex E;
- subclause 6.4: new markings on the saw and information at the point of sale are requested, examples of the symbols to be used are given in a new Annex F **A1**.

Machinery is to comply as appropriate with ISO/TR 12100 for hazards which are not covered by this part of ISO 11681.

1 Scope

This part of ISO 11681 specifies safety requirements and their verification for the design and construction of portable combustion-engined, hand-held chain-saws for tree service, designed for use by **A1** a trained operator for pruning and dismantling standing tree crowns.

It is applicable to chain-saws having a maximum mass of the saw equal to 4,3 kg, without guide bar and saw chain and with empty tanks **A1**.

It describes methods for the elimination or reduction of hazards arising from their use. In addition it specifies the type of information on safe working practices to be provided by the manufacturer. It does not, however, give any technical requirement to reduce noise and vibration hazards. Indeed, the different means available to reduce these hazards are a matter for the technical aids to which the manufacturer may resort, through specialized books or specific bodies.

The list of significant hazards which require action to reduce the risk is given in Annex A.

The environmental aspects are not covered.

This part of ISO 11681 is primarily applicable to machines which are manufactured after the publication date.

¹⁾ Equivalent to EN 608:1994.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11681. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11681 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7182:1984, *Acoustics — Measurement at the operator's position of airborne noise emitted by chain-saws*²⁾

ISO 3767-5:1992, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 5: Symbols for manual portable forestry machinery.*

ISO 3864:1984, *Safety colours and safety signs.*

ISO 6531:^[A1] 1999 ^[A1], *Machinery for forestry — Portable hand-held chain-saws — Vocabulary*³⁾.

ISO 6533:1993, *Forestry machinery — Portable chain-saw front hand-guard — Dimensions.*

ISO 6534:1992, *Portable chain-saws — Hand-guards — Mechanical strength.*

ISO 6535:1991, *Portable chain-saws — Chain brake performance.*

ISO 7293:1997, *Forestry machinery — Portable chain-saws — Engine performance and fuel consumption.*

ISO 7505:1986, *Forestry machinery — Chain-saws — Measurement of hand-transmitted vibration.*

ISO 7915:1991, *Forestry machinery — Portable chain-saws — Determination of handle strength.*

ISO 8334:1985, *Forestry machinery — Portable chain-saws — Determination of balance.*

ISO 9207:1995, *Manually portable chain-saws with internal combustion engine — Determination of sound power levels — Engineering method (grade 2).*

ISO 9518:^[A1] 1999 ^[A1], *Forestry machinery — Portable chain-saws — Kickback test*⁴⁾.

ISO 10726:1992, *Portable chain-saws — Chain catcher — Dimensions and mechanical strength.*

ISO/TR 12100-1:1992, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology*⁵⁾.

ISO/TR 12100-2:1992, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specifications*⁶⁾.

ISO 13772:1997, *Forestry machinery — Portable chain-saws — Non-manually actuated chain brake performance.*

IEC 60335-1:1991, *Safety of household and similar electrical appliances — Part 1: General requirements.*

EN 563:1994, *Safety of machinery — Temperatures of touchable surfaces — Ergonomics data to establish temperature limit values for hot surfaces.*

3 Definitions

^[A1] For the purposes of this document, the definitions given in ISO 6531, with the exception of the definition of 3.1, and the following apply ^[A1].

3.1

chain-saw for tree service

^[A1] specialised chain-saw of limited mass designed for use by a trained operator (see 3.2) for pruning and dismantling standing tree crowns ^[A1]

²⁾ Equivalent to EN 27182:1991.

³⁾ To be published. (Revision of ISO 6531:1982)

⁴⁾ To be published. (Revision of ISO 9518:1992)

⁵⁾ Equivalent to EN 292-1:1991.

⁶⁾ Equivalent to EN 292-2:1991.

[A1] 3.2**trained operator**

person who has competence and knowledge in:

- the use and particular hazards associated with using a chain-saw (for tree service work) manufactured in accordance with the requirements of this part of ISO 11681; and
- the precautions to be taken to limit these hazards, including the wearing of the recommended personal protective equipment (PPE) **[A1]**

3.3**vibration isolation system**

set of components (for example elastic buffers, springs) designed to reduce the transmission of vibrations generated by the engine and the cutting attachments, to the hands of the operator

NOTE Certain commonly used terms relating to chain-saws for tree service are given in Figure 1.

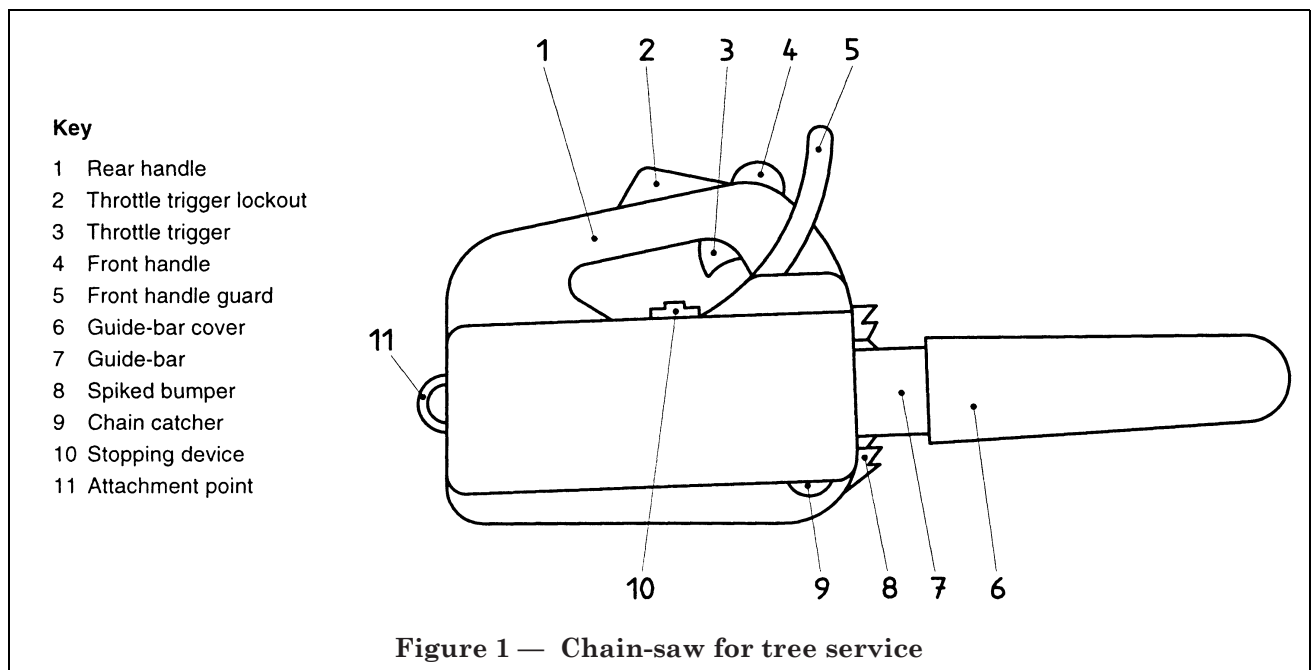


Figure 1 — Chain-saw for tree service

4 Safety requirements

The safe running of chain-saws depends on both the safety requirements as described in this clause and the safe environment associated with the use of personal protection equipment such as gloves, leg protection, boots, as well as eye and ear protection equipment. For protective clothing see EN 381⁷⁾.

4.1 Handles

Chain-saws shall have a handle for each hand. These handles shall be designed so that they can be fully gripped by an operator when wearing protective gloves, provide the necessary sureness of grip by their shaping and surface and conform to the dimensions and clearances given in Annex B.

The strength of both handles shall comply with ISO 7915.

The operator shall be able to stop the chain-saw with the stopping device (see 4.12) even in case of failure in the vibration isolation system.

⁷⁾ EN 381 (all parts), *Protective clothing for users of hand-held chain-saws*.