ICS 65.060.80 SLOVENSKÁ TECHNICKÁ NORMA August 2022

STN	**Lesnícke stroje Prenosné reťazové píly Bezpečnostné požiadavky a skúšanie Časť 1: Reťazové píly na lesné práce (ISO 11681-1: 2022)**	**STN EN ISO 11681-1** 47 9040

Machinery for forestry - Portable chain-saw safety requirements and testing - Part 1: Chain-saws for forest service (ISO 11681-1:2022)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/22

Obsahuje: EN ISO 11681-1:2022, ISO 11681-1:2022

Oznámením tejto normy sa ruší
STN EN ISO 11681-1 (47 9040) z novembra 2012

135347

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 11681-1

May 2022

ICS 65.060.80

Supersedes EN ISO 11681-1:2011

English Version

Machinery for forestry - Portable chain-saw safety requirements and testing - Part 1: Chain-saws for forest service (ISO 11681-1:2022)

Matériel forestier - Exigences de sécurité et essais des scies à chaîne portatives - Partie 1: Scies à chaîne pour travaux forestiers (ISO 11681-1:2022)

Forstmaschinen - Sicherheitstechnische Anforderungen und Prüfung für tragbare Kettensägen - Teil 1: Kettensägen für die Waldarbeit (ISO 11681-1:2022)

This European Standard was approved by CEN on 16 January 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.

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 11681-1:2022 E

Contents

Page

European foreword **3**

Annex ZA (informative) **Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered** **4**

European foreword

This document (EN ISO 11681-1:2022) 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 November 2022, and conflicting national standards shall be withdrawn at the latest by November 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 11681-1:2011.

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 11681-1:2022 has been approved by CEN as EN ISO 11681-1:2022 without any modification.

Annex ZA
(informative)

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

This European Standard has been prepared under a Commission's standardization request "M/396 mandate to CEN and CENELEC for Standardization in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC.

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

The relevant essential requirements of Directive 2006/42/EC	Clause(s)/ subclause(s) of this EN	Remarks/Notes
1.1.2. Principles of safety integration	4.1, 5.1.2, 5.1.3, 5.3	
1.1.3. Materials and products	4.17, 4.18, 5.1.3	
1.1.5. Design of machinery to facilitate its handling	4.2.1, 4.3.2, 4.4	
1.1.6. Ergonomics	4.2, 4.3, 4.4, 4.7, 4.11, 4.12, 4.18, 5.1.3	
1.1.7. Operating positions	5.1.3	
1.2.1. Safety and reliability of control systems	4.10, 4.11, 4.12, 4.19	
1.2.2. Control devices	4.5.1, 4.10, 4.11, 4.12, 5.1.3	
1.2.3. Starting	4.10	
1.2.4.1. Normal stop	4.11	
1.3.2. Risk of break-up during operation	4.2.1, 4.3.1, 4.3.2, 4.6	
1.3.4. Risks due to surfaces, edges or angles	4.9, 5.1.3	
1.3.6. Risks related to variations in operating conditions	-	Not covered
1.3.8. Choice of protection against risks arising from moving parts	4.3.1, 4.3.2, 4.13	
1.3.9. Risks of uncontrolled movements	4.14	
1.4.1. General requirements	4.3.1, 4.3.2, 4.13	
1.4.2.1. Fixed guards	4.3.1, 4.3.2, 4.13	
1.5.1. Electricity supply	4.15	

1.5.3. Energy supply other than electricity	5.1.3	
1.5.6. Fire	4.16, 4.17, 5.1	
1.5.8. Noise	4.22, 5.1.3	
1.5.9. Vibrations	4.21, 5.1.2, 5.1.3	
1.5.11. External radiation	4.23	
1.5.13. Emissions of hazardous materials and substances	4.8, 4.18, 5.1.3	
1.6.1. Machinery maintenance	-	Not covered
1.6.3. Isolation of energy sources	-	Not covered
1.7. Information	5.1.3	
1.7.1. Information and warnings on the machinery	4.11	
1.7.1.1. Information and information devices	5.2	
1.7.2. Warning of residual risks	5.2, 5.3	
1.7.3. Marking of machinery	5.2	
1.7.4. Instructions	5	
1.7.4.1. General principles for the drafting of instructions	5	
1.7.4.2. Contents of the instructions	5	1.7.4.2 (u): This standard does not provide presumption of conformity regarding the declaration of sound power level
1.7.4.3. Sales literature	-	Not covered

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.

INTERNATIONAL STANDARD

ISO 11681-1

Fourth edition
2022-03

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

Reference number
ISO 11681-1:2022(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **2**

3 Terms and definitions **3**

4 Safety requirements and/or protective measures **3**

4.1 General 3
4.2 Handles 3
4.2.1 Requirements 3
4.2.2 Verification 3
4.3 Hand protection 4
4.3.1 Protection at front handle 4
4.3.2 Protection at the rear handle 4
4.4 Balance 5
4.4.1 Requirements 5
4.4.2 Verification 5
4.5 Protection against injury by kickback 5
4.5.1 Chain brake 5
4.5.2 Non-manual chain brake 6
4.5.3 Kickback and chain stop angles 6
4.6 Chain catcher 6
4.6.1 Requirements 6
4.6.2 Verification 6
4.7 Spiked bumper 6
4.7.1 Requirements 6
4.7.2 Verification 6
4.8 Chip discharge 7
4.8.1 Requirements 7
4.8.2 Verification 7
4.9 Guide bar cover 7
4.9.1 Requirements 7
4.9.2 Verification 7
4.10 Engine starting device 7
4.10.1 Requirements 7
4.10.2 Verification 7
4.11 Engine stopping device 7
4.11.1 Requirements 7
4.11.2 Verification 7
4.12 Throttle control system 8
4.12.1 Dimensions 8
4.12.2 Operation 8
4.12.3 Throttle control latch 9
4.13 Drive sprocket guard 10
4.13.1 Requirements 10
4.13.2 Verification 10
4.14 Clutch 11
4.14.1 Requirements 11
4.14.2 Verification 11
4.15 Protection against contact with parts under high voltage 11
4.15.1 Requirements 11
4.15.2 Verification 11
4.16 Protection against contact with hot parts 11
4.16.1 Requirements 11

4.16.2 Verification ... 13
4.17 Fuel and oil systems ... 14
4.17.1 Requirements ... 14
4.17.2 Verification ... 14
4.18 Exhaust gases ... 15
4.18.1 Requirements ... 15
4.18.2 Verification ... 15
4.19 Chain lubrication ... 15
4.19.1 Requirements ... 15
4.19.2 Verification ... 16
4.20 Chain tensioning ... 16
4.20.1 Requirements ... 16
4.20.2 Verification ... 16
4.21 Vibration ... 16
4.21.1 Reduction by design at source and by protective measures ... 16
4.21.2 Vibration measurement ... 16
4.22 Noise ... 16
4.22.1 Reduction by design at source and by protective measures ... 16
4.22.2 Noise measurement ... 17
4.23 Electromagnetic immunity ... 17
4.23.1 Requirements ... 17
4.23.2 Verification ... 17

5 Information for use ... 17
5.1 Instructions ... 17
5.1.1 General ... 17
5.1.2 Technical data ... 17
5.1.3 Other information ... 18
5.2 Marking ... 20
5.3 Warnings ... 21
5.4 Test of labels ... 21
5.4.1 Preparation of test specimens and control specimens ... 21
5.4.2 Wipe resistance test ... 22
5.4.3 Adhesion test ... 22

Annex A (informative) **List of significant hazards ... 23**

Bibliography ... 25

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 (hand-held) powered lawn and garden equipment and 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 fourth edition cancels and replaces the third edition (ISO 11681-1:2011), which has been technically revised.

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

— the normative references in Clause 2 have been updated;

— requirements for kickback in 4.5.3.1 have been clarified;

— requirements and verification for throttle control system in 4.12 have been updated;

— a new subclause, 4.17.2.3 “Fuel feed lines strength and accessibility” has been added;

— 5.1.2 “Technical data”, has been updated;

— in 5.1.3, information on safe starting procedure has been added.

A list of all parts in the ISO 11681 series can be found on the ISO website.

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: players with regard to machinery safety:

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

— health and safety bodies (regulators, accident prevention organizations, 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 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.

INTERNATIONAL STANDARD **ISO 11681-1:2022(E)**

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

Part 1: Chain-saws for forest service

1 Scope

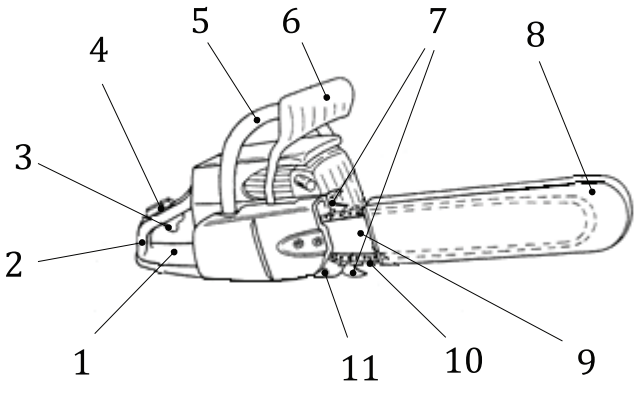
This document specifies safety requirements and measures for verification for the design, construction, transporting and commissioning of portable, combustion-engine, hand-held chain-saws. The chain-saws are intended to be used for forest work by only one operator, with the right hand on the rear handle and left hand on the front handle.

Dismantling and scrapping of the product is not covered by this document. 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 document 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^3, relevant to these machines when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Annex A).

This document is applicable to chain-saws manufactured after its date of publication.

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



Key

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

Figure 1 — Example of chain-saw

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 6531:2017, *Machinery for forestry — Portable chain-saws — Vocabulary*

ISO 6533:2020, *Forestry machinery — Portable chain-saw front hand-guard — Dimensions and clearances*

ISO 6534:2007, *Forestry machinery — Portable chain-saw hand-guards — Mechanical strength*

ISO 6534:2007/Amd 1:2012, *Forestry machinery — Portable chain-saw hand-guards — Mechanical strength — Amendment 1*

ISO 6535:2015, *Portable chain-saws — Chain brake performance*

ISO 7293:2021, *Forestry machinery — Portable chain saws — Engine performance and fuel consumption*

ISO 7914:2002, *Forestry machinery — Portable chain-saws — Minimum handle clearance and sizes*

ISO 7914:2002/Amd 1:2012, *Forestry machinery — Portable chain-saws — Minimum handle clearance and sizes — Amendment 1*

ISO 7915:2021, *Forestry machinery — Portable chain-saws — Determination of handle strength*

ISO 8334:2007, *Forestry machinery — Portable chain-saws — Determination of balance and maximum holding moment*

ISO 9518:2018, *Forestry machinery — Portable chain-saws — Kickback test*

ISO 10726:2020, *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 13772:2018, *Forestry machinery — Portable chain-saws — Non-manually actuated chain brake performance*

ISO 13772:2018/Amd 1:2020, *Forestry machinery — Portable chain-saws — Non-manually actuated chain brake performance — Amendment 1*

ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation*

ISO 13857:2019, *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 22867:2021, *Forestry and gardening machinery — Vibration test code for portable hand-held machines with internal combustion engine — Vibration at the handles*

ISO 22868:2021, *Forestry and gardening machinery — Noise test code for portable hand-held machines with internal combustion engine — Engineering method (Grade 2 accuracy)*

IEC 61032:1997, *Protection of persons and equipment by enclosures — Probes for verification*