INTERNATIONAL STANDARD

ISO 11680-1

Third edition
2021-10

Machinery for forestry — Safety requirements and testing for pole-mounted powered pruners —

Part 1: Machines fitted with an integral combustion engine

Matériel forestier — Exigences de sécurité et essais pour les perches élagueuses à moteur —

Partie 1: Machines équipées d'un moteur à combustion interne intégré

Reference number
ISO 11680-1:2021(E)

© ISO 2021



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

© ISO 2021 – All rights reserved

Contents

Page

Foreword ..... **v**
Introduction ..... **vii**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **2**
4 Safety requirements and/or protective measures **4**
4.1 General 4
4.2 Protection against contact with power driven components 4
4.2.1 Requirements 4
4.2.2 Verification 4
4.3 Handles 6
4.3.1 Requirements 6
4.3.2 Verification 6
4.4 Harness 6
4.4.1 Requirements 6
4.4.2 Verification 6
4.5 Cutting attachment 7
4.5.1 Saw-chain cutting attachment 7
4.5.2 Circular saw blade cutting attachment 7
4.5.3 Cutting attachment strength 8
4.6 Transport cover for cutting attachment 9
4.6.1 Requirements 9
4.6.2 Verification 9
4.7 Distance to cutting attachment 9
4.7.1 Requirements 9
4.7.2 Verification 10
4.8 Engine starting device 10
4.8.1 Requirements 10
4.8.2 Verification 10
4.9 Engine stopping device 10
4.9.1 Requirements 10
4.9.2 Verification 11
4.10 Throttle control 11
4.10.1 Throttle trigger 11
4.10.2 Operation 11
4.10.3 Throttle control latch 12
4.11 Clutch 12
4.11.1 Requirements 12
4.11.2 Verification 13
4.12 Tanks 13
4.12.1 Requirements 13
4.12.2 Verification 13
4.13 Protection against contact with parts of the machine under high voltage 13
4.13.1 Requirements 13
4.13.2 Verification 13
4.14 Protection against contact with hot parts 14
4.14.1 Requirements 14
4.14.2 Verification 14
4.15 Exhaust gases 15
4.15.1 Requirements 15
4.15.2 Verification 15
4.16 Vibration 15
4.16.1 Reduction by design at source and by protective measures 15

© ISO 2021 – All rights reserved

4.16.2 Vibration measurement 15
4.17 Noise 15
4.17.1 Reduction by design at source and protective measures 15
4.17.2 Noise measurement 15
4.18 Electromagnetic immunity 16
4.18.1 Requirements 16
4.18.2 Verification 16
4.19 Fuel feed line strength and accessibility 16
4.19.1 Requirements 16
4.19.2 Verification 16
4.20 Fuel tank structural integrity 16
4.20.1 Requirements 16
4.20.2 Verification 16

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 17
5.2 Markings and warnings 19
5.2.1 General requirements 19
5.2.2 Marking requirements 20
5.2.3 Warning requirements 21
5.3 Test of labels 21
5.3.1 Preparation of test specimens and control specimens 21
5.3.2 Wipe resistance test 21
5.3.3 Adhesion test 22

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

Annex B (normative) **Procedures for the evaluation of the strength and accessibility of fuel feed lines 25**

Annex C (normative) **Verification of protection against contact with hot parts 26**

Bibliography 28

© ISO 2021 – All rights reserved

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 third edition cancels and replaces the second edition (ISO 11680-1:2011), which has been technically revised.

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

— Clause 1, the scope has been broadened to include extended and telescopic machines;

— Clause 3, definitions for “cutting attachment”, “dry weight”, “extendable”, “hand-held” and “telescopic” have been added;

— Figure 1 has been amended to show different types of pole mounted powered pruners;

— Clause 4:

  — a new subclause, 4.2 “Protection against contact with power driven components”, has been added;

  — in 4.4, harness requirements have been reworded and amended;

  — in 4.5.2, the requirements for circular saw blade securing have been clarified;

  — in 4.7, the distance to the cutting attachment have been clarified;

  — in 4.10.2, the requirement to test the throttle trigger lockout function has been added;

  — in 4.12, the verification method for fuel tank ventilation system has been added;

  — in 4.14, the requirements for protection against hot surfaces have been reworded and amended;

© ISO 2021 – All rights reserved

- in 4.19, fuel feed line strength and accessibility requirements have been added;
- in 4.20, fuel tank structural integrity requirements have been added;

— Clause 5:

- in 5.1, the requirements for instructions have been revised;
- in 5.2, the marking and warning requirements have been rearranged.

A list of all parts in the ISO 11680 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.

© ISO 2021 – All rights reserved

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 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.

© ISO 2021 – All rights reserved

Machinery for forestry — Safety requirements and testing for pole-mounted powered pruners —

Part 1: Machines fitted with an integral combustion engine

1 Scope

This document specifies safety requirements and measures for their verification for the design and construction of portable, hand-held, pole-mounted powered pruners (hereafter named "machine"), including extendable and telescopic machines, having an integral combustion engine as their power source. These machines use a power transmission shaft to transmit power to a cutting attachment consisting of a saw-chain and guide bar, a reciprocating saw blade or a single-piece circular saw blade with a 205 mm maximum outside diameter. 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 or hazardous events with the exception of electric shock from contact with overhead electric lines (apart from warnings and advice for inclusion in the instructions), 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 portable, hand-held, pole-mounted powered pruners manufactured after its date of publication.

Brush cutters with a circular saw blade are not included in the scope of this document.

NOTE Brush cutter requirements are outlined in ISO 11806-1:2021.

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 7112:2018, *Machinery for forestry — Portable brush-cutters and grass-trimmers — Vocabulary*

ISO 7113:1999, *Portable hand-held forestry machines — Cutting attachments for brush cutters — Single-piece metal blades*

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

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 2021 – All rights reserved

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6531:2017, ISO 7112:2018, ISO 12100:2010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
pole-mounted powered pruner
machine whose power source is attached via a long shaft tube (pole) to a cutting attachment, designed to enable an operator to cut branches from a distance

Note 1 to entry: See Figure 1 for examples of pole-mounted powered pruners with integral combustion engine within the scope of this document.

© ISO 2021 – All rights reserved