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Protective clothing for users of hand-held chainsaws —

Part 4: Performance requirements and test methods for protective gloves

Vêtements de protection pour utilisateurs de scies à chaîne tenues à la main —

Partie 4: Exigences de performance et méthodes d'essai pour les gants de protection

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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Designs and types ... **2**
4.1 Designs and types of gloves ... 2
4.2 Design A ... 3
4.2.1 Description ... 3
4.2.2 Specified protective area, left- and right-hand gloves ... 3
4.3 Design B ... 5
4.3.1 Description ... 5
4.3.2 Specified protective area, left- and right-hand gloves or mitts ... 5
4.4 Attachment of protective material ... 6
5 Performance requirements ... **6**
5.1 General ... 6
5.2 Protection against general mechanical risks ... 6
5.3 Protection against chainsaw cutting ... 7
5.3.1 Classification according to chain speed ... 7
5.3.2 Requirements for cut resistance ... 7
5.4 Ergonomic requirements ... 7
6 Test specimens ... **7**
7 Assessment of protective coverage ... **8**
8 Testing resistance to cutting by chainsaw ... **8**
8.1 Test rig ... 8
8.2 Chainsaw–protective glove mounting device ... 8
8.2.1 Left and right artificial hands ... 8
8.2.2 Base ... 9
8.3 Test procedure for chainsaw cut tests ... 9
8.3.1 General ... 9
8.3.2 Cleaning ... 10
8.3.3 Mounting of glove on artificial hand ... 10
8.3.4 Cutting ... 10
9 Ergonomic assessment and hand dexterity ... **14**
9.1 General requirements ... 14
9.2 Hand grip test ... 14
9.2.1 General ... 14
9.2.2 Apparatus ... 14
9.2.3 Test procedure ... 14
10 Test report ... **15**
11 Marking ... **15**
12 Pictogram ... **16**
13 Information to be supplied by the manufacturer ... **16**
Annex A (informative) **Chainsaw use and the selection of appropriate gloves** ... **18**

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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.

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).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets*, in collaboration with ISO Technical Committee TC 94, *Personal safety — Personal protective equipment*, Subcommittee SC 13, *Protective clothing*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 11393-4:2003), which has been technically revised. The main changes compared to the previous edition are as follows:

— in the Introduction, the term "hand-held chainsaws primarily constructed for cutting wood" has been added;

— the normative references have been updated;

— the terms and definitions 3.11, 3.12 and 3.13 have been added;

— in Clause 4, two types have been defined and 4.4 has been added;

— in 5.1, Table 3 has been revised;

— the original Clause 7 has been deleted and a new Clause 7 has been specified;

— in Clause 8, 8.2.2 has been added and 8.3 has been revised;

— in 9.2, a test procedure has been added;

— in 5.4 and Clauses 6, 8, 10, 11 and 12 the definitions have been specified;

— A.4 has been added.

A list of all parts in the ISO 11393 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.

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Introduction

This document forms part of a series concerned with personal protective equipment (PPE) designed to protect against the risks arising from the use of hand-held chainsaws primarily constructed for cutting wood.

In some areas of work with chainsaws, one third of injuries occur to the hands. However, with different working practices few hand injuries occur. Accidents occur due to a number of complex reasons, but a common factor is incorrect use of the chainsaw. The importance of correct training and proper use of a chainsaw in preventing accidents cannot be underestimated.

In some countries, chainsaw users adopt working practices that, together with training, make the use of chainsaw protective gloves unnecessary. These usually include the instruction to hold the chainsaw with both hands and to use the chain brake if it becomes necessary to stop cutting and clear away branches, etc.

All parts of the hand (palm, back and fingers) have been shown to be at risk when using a chainsaw. It is generally accepted for ergonomic and health and safety reasons that protecting the palm and the underside of the fingers is not practicable. Neither is it possible to adequately protect the back of the fingers unless a mitt is used. In this document, specifications for the protective coverage and performance of the back of the right-hand glove and the left-hand glove are given.

For certain operations, such as tree surgery from lifts or platforms, chainsaw operators may be assisted by other workers who also require protection from the chainsaw, particularly for their hands. The gloves specified in this document are suitable for these workers too.

Further information is provided in Annex A on risk analysis, glove ergonomics and selection.

No PPE can ensure a 100 % protection against cutting from a hand-held chainsaw. Nevertheless, experience has shown that it is possible to design PPE that offers a certain degree of protection. As far as is known, all chainsaws are designed for right-handed use and, therefore, all protective clothing designs and requirements have assumed right-handed use. Protection may not be adequate for left-handed use.

Different functional principles may be applied in order to give protection. These include:

a) chain slipping: on contact the chain does not cut the material;

b) clogging: fibres are drawn by the chain into the drive sprocket and block chain movement;

c) chain braking: fibres have a high resistance to cutting and absorb rotational energy, thereby reducing the chain speed.

Often more than one principle is applied in chainsaw protective clothing. It should be noted, however, that none has yet been shown to be fully effective in gloves.

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Protective clothing for users of hand-held chainsaws —

Part 4:
Performance requirements and test methods for protective gloves

1 Scope

This document specifies the performance requirements, test methods, design requirements, identification and marking information for gloves that offer protection against cutting by hand-held chainsaws.

Guidance on chainsaw use and the selection of gloves is given in Annex A.

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 7000, *Graphical symbols for use on equipment — Registered symbols*

ISO 11393-1:2018, *Protective clothing for users of hand-held chainsaws — Part 1: Test rig driven by a flywheel for testing resistance to cutting by a chainsaw*

EN 388:2016, *Protective gloves against mechanical risks*

EN 420:2009, *General requirements for gloves*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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
back of the hand
posterior surface of the hand between the wrist and the fingers

3.2
chainsaw protective glove
product that protects the *back of the hand* (3.1) against cutting by a hand-held chainsaw

3.3
crotch
deepest point between two fingers

3.4
cuff
portion of a glove that covers the wrist

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