



NSAI
Standards

Irish Standard
I.S. EN ISO 11393-4:2019

Protective clothing for users of hand-held chainsaws - Part 4: Performance requirements and test methods for protective gloves (ISO 11393-4:2018)

I.S. EN ISO 11393-4:2019

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN ISO 11393-4:2019

Published:

2019-09-25

*This document was published
under the authority of the NSAI
and comes into effect on:*

2019-10-14

ICS number:

13.340.40

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN ISO 11393-4:2019 is the adopted Irish version of the European Document EN ISO 11393-4:2019, Protective clothing for users of hand-held chainsaws - Part 4: Performance requirements and test methods for protective gloves (ISO 11393-4:2018)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 11393-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2019

ICS 13.340.40

Supersedes EN 381-4:1999, EN 381-7:1999

English Version

Protective clothing for users of hand-held chainsaws - Part 4: Performance requirements and test methods for protective gloves (ISO 11393-4:2018)

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 (ISO 11393-4:2018)

Schutzkleidung für Benutzer von handgeführten
Kettensägen - Teil 4: Prüfverfahren und
Leistungsanforderungen für Schutzhandschuhe (ISO
11393-4:2018)

This European Standard was approved by CEN on 24 April 2019.

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

EN ISO 11393-4:2019 (E)

Contents	Page
European foreword.....	3
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment aimed to be covered.....	4

European foreword

This document (EN ISO 11393-4:2019) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective equipment" in collaboration with Technical Committee CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets" the secretariat of which is held by DIN.

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 March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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 381-4:1999 and EN 381-7:1999.

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

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 11393-4:2018 has been approved by CEN as EN ISO 11393-4:2019 without any modification.

Annex ZA (informative)

Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment aimed to be covered

This European Standard has been prepared under a Commission's standardization request to provide one voluntary means of conforming to essential requirements of Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment.

Once this standard is cited in the Official Journal of the European Union under that Regulation (EU) 2016/425, 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 Regulation (EU) 2016/425 and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Regulation (EU) 2016/425

Essential Requirements of Regulation (EU) 2016/425	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.1.1. Ergonomics	5.4	
1.1.2.1. Optimum level of protection	5.4	
1.1.2.2. Classes of protection appropriate to different levels of risk	5.3.1	
1.2.1. Absence of inherent risks and other nuisance factors	4.2.2, 4.3.2; 4.4	
1.2.1.1. Suitable constituent materials		Table 3
1.2.1.2. Satisfactory surface condition of all PPE parts in contact with the user	5.4	
1.2.1.3. Maximum permissible user impediment	5.4	Table 3
1.3.1. Adaptation of PPE to user morphology		Table 3
1.4. Manufacturer's instructions and information	11, 13	
2.2. PPE enclosing the parts of the body to be protected		Table 3

2.4. PPE subject to ageing	13 h)	
2.12. PPE bearing one or more identification markings or indicators directly or indirectly relating to health and safety	12	
3.3. Protection against mechanical injuries	5.2; 5.3.2	

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.

This page is intentionally left blank

INTERNATIONAL STANDARD

**ISO
11393-4**

Second edition
2018-09

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



Reference number
ISO 11393-4:2018(E)

© ISO 2018

ISO 11393-4:2018(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

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
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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

ISO 11393-4:2018(E)

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 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.

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.

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

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-