

Protective clothing for users of hand-held chainsaws —

Part 4: Test methods for chainsaw protective gloves

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British Standard

ICS 13.340.40

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The UK participation in its preparation was entrusted by Technical Committee PH/3, Protective clothing, to Subcommittee PH/3/5, Clothing for protection against chainsaws, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible 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.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 14, an inside back cover and a back cover.

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Protective clothing for users of hand-held chainsaws - Part 4: Test methods for chainsaw protective gloves

Vêtements de protection pour les utilisateurs de scies à chaîne
tenues à la main – Partie 4: Méthodes d'essai pour les gants de
protection contre les scies à chaîne

Schutzkleidung für Benutzer von handgeführten Kettensägen – Teil
4: Prüfverfahren für Schutzhandschuhe für Kettensägen

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets", the secretariat of which is held by DIN.

The European Standards for "Protective clothing for users of hand-held chainsaws" are the following:

EN 381-1	Protective clothing for users of hand-held chainsaws - Part 1: Test rig for testing resistance to cutting by a chainsaw
EN 381-2	... - Part 2: Test methods for leg protectors
EN 381-3	... - Part 3: Test methods for footwear
EN 381-4	... - Part 4: Test method for chainsaw protective gloves
EN 381-5	... - Part 5: Requirements for leg protectors
EN 381-7	... - Part 7: Requirements for chainsaw protective gloves
EN 381-8	... - Part 8: Test methods for chainsaw protective gaiters
EN 381-9	... - Part 9: Requirements for chainsaw protective gaiters

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 January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

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 89/686/EEC.

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

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.

Introduction

This European Standard forms part of a series concerned with personal protective equipment designed to protect against the risks arising from the use of hand-held chainsaws. 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 cannot be adequate for left handed use.

No protective equipment can ensure a 100% protection against cutting from a hand-held chainsaw.

Nevertheless, experience has shown that it is possible to design protective equipment which offers a certain degree of protection.

Different functional principles can be applied in order to give protection.

These include:

- chain slipping: on contact the chain does not cut the material;
- clogging: fibres are drawn with the chain into the drive sprocket and block chain movement;
- 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.

1 Scope

This European Standard specifies the test specimens, pre-treatment and testing of gloves that are intended to provide protection against cuts by chainsaws. The method for measurement of protective coverage, the apparatus and the test method for assessing resistance to cutting, and the practical performance test for measuring the grip factor described in EN 381-7 are specified.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendments or revision. For undated references the latest edition of the publication referred to applies.

EN 381-1:1993	Protective clothing for users of hand-held chainsaws - Part 1: Test rig for testing resistance to cutting by a chainsaw
EN 381-7:1999	Protective clothing for users of hand-held chainsaws - Part 7: Requirements for chainsaw protective gloves
EN 420:1994	General requirements for gloves
EN ISO 3175:1995	Textiles - Evaluation of stability to machine dry-cleaning (ISO 3175:1995)
ISO 6330:1984	Textiles - Domestic washing and drying procedures for textile testing

3 Definitions

For the purposes of this European Standard, the following definition shall apply :

3.1 line of longest length of a glove

the perpendicular line joining the seam of the cuff (or equivalent position if no seam is present) with the tip of the second finger (or equivalent position in a mitt or one-finger mitt).

4 Test specimens

All specimens shall be of size 9 as defined in EN 420:1994 when this size is available. If a different size has to be used, it shall be as close to size 9 as possible and the number of specimens required shall be as follows according to related mandatory and optional requirements of EN 381-7:

- a) mandatory tests :
Four left-hand gloves for each pre-treatment applied.
- b) optional test :
 - Two left-hand gloves for each pre-treatment applied;
 - Two right-hand gloves for each pre-treatment applied.

5 Pre-treatment

Except in the specific cases detailed below, all the test specimens shall be washed and dried five times before testing.

This washing shall be according to procedure 2A of ISO 6330 : 1984 and the drying by tumble drying at a temperature not exceeding 70 °C (procedure E).

Exceptions to this treatment are permitted in the following cases :

- a) Where the hand protectors are marked as unsuitable for washing or dry cleaning, the outside of the hand protectors shall be completely immersed in water (20 °C) for 10 min and then allowed to line-dry with the opening downwards for at least 48 h at (20 ± 2) °C and (65 ± 5) % relative humidity;
- b) Where the hand protectors are marked as unsuitable for washing but suitable for dry cleaning;

In such cases the test specimens shall be dry cleaned five times before testing. The dry-cleaning shall be performed principally in accordance with the conditions described in 9.1 of EN ISO 3175:1995. No restorative finishing procedure shall be used;
- c) Where the hand protectors are marked as suitable for both washing and dry cleaning;

In such cases the test shall be carried out on both washed specimens and dry-cleaned specimens, (two sets of specimens) or, at the request of the manufacturer, first dry-cleaning and then washed on the same set of specimens;
- d) Where the hand protectors are marked as unsuitable for tumble drying.

In such cases the specimens shall be washed by the method described above, then line-dried with the opening downwards for at least 48 h at (20 ± 2) °C and (65 ± 5) % relative humidity (procedure A of ISO 6330 : 1984).

6 Checking of protective coverage

The coverage is measured on one glove from each pre-treatment used.

Fit the glove onto an appropriately sized hand. Mark and measure the dimensions of the protective area, compare the results with the requirements in clause 4 of EN 381-7:1999.

a) For design A (see figure 1)

- the length of the protection area measured between the cuff and the crotch between digit 3 and 4;
- the width of the protection area at the mid-point of the line of the longest length axis of the glove.

b) For design B (see figure 2)

- the length of the protection area as measured along the line of the longest length axis of the glove;
- the width of the protection area at the mid-point of the line of the longest length axis of the glove.

Record the measurement and check that the requirements given in EN 381-7 are fulfilled.