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ILNAS-EN 388:2003

Protective gloves against mechanical risks

Gants de protection contre les risques mécaniques

Schutzhandschuhe gegen mechanische Risiken

09/2003

National Foreword

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EUROPEAN STANDARD
NORME EUROPÉENNE
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English version

Protective gloves against mechanical risks

Gants de protection contre les risques mécaniques

Schutzhandschuhe gegen mechanische Risiken

This European Standard was approved by CEN on 2 July 2003.

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 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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Foreword

This document (EN 388:2003) 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.

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of an identical text or by endorsement, at the latest by March 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

This document supersedes EN 388:1994.

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 EC Directive(s)

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

The Annex A is normative and the Annex B is informative.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies requirements, test methods, marking and information to be supplied, for protective gloves against the mechanical risks of abrasion, blade cut, tear and puncture.

This standard is only applicable in conjunction with EN 420.

The test methods developed in this standard can also be applicable to arm protectors which are protective devices separate from the glove or the clothing.

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 or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 420, *General requirements for gloves*

EN ISO 12947-1, *Textiles - Determination of the abrasion resistance of fabrics by the Martindale method - Part 1: Martindale abrasion testing apparatus (ISO 12947-1:1998)*

EN ISO 13997, *Protective clothing — Mechanical properties — Determination of resistance to cutting by sharp objects (ISO 13997:1999).*

3 Terms and definitions

For the purposes of this European Standard the following terms and definitions apply:

3.1
protective glove against mechanical risks
glove that provides protection against at least one of the following mechanical risks: abrasion, blade cut and puncture

NOTE Tear resistance provides information on the mechanical resistance of the glove, but is not indicative of protection against a specific risk. Whilst a high value is normally considered as better, a low value is required in case of possible entanglement with moving machinery.

3.2
glove providing a specific protection
glove that is designed to provide an area of improved protection for the whole hand or part of it

3.3
glove series
single glove style or glove type with the same palm material up to the wrist line where the only variants are size**,** length, left/right hand and colour

3.4
arm
part of the body between the wrist and the shoulder

4 Requirements

The protective gloves according to this standard shall first meet all the applicable requirements of EN 420.

A protective glove against mechanical risks shall have a performance level of 1 or above for at least one of the properties (abrasion, blade cut, tear and puncture) classified according to the minimum requirements for each level shown in table 1.

NOTE Gloves meeting the requirements for resistance to puncture may not be suitable for protection against sharply pointed objects such as hypodermic needles.

Table 1 — Levels of performance

Test	Level 1	Level 2	Level 3	Level 4	Level 5
6.1 Abrasion resistance (number of cycles)	100	500	2000	8000	-
6.2 Blade cut resistance (index)	1,2	2,5	5,0	10,0	20,0
6.3 Tear resistance (N)	10	25	50	75	-
6.4 Puncture resistance (N)	20	60	100	150	-

5 Sampling and conditioning

5.1 Unless otherwise stated all specimens shall be taken from the palm of different gloves for classification purposes.

5.2 If relevant, additional areas of the protective glove shall be tested, e. g. for specific protection.

5.3 Conditioning of samples is as follows:

— Temperature (23 ± 2) °C;

— Relative Humidity (50 ± 5) %.

The period of conditioning is 24 h. Tests shall preferably be performed in the above mentioned environment.

5.4 If the test is performed in a different environment, it shall be started within 5 min after removal from the conditioning.

5.5 If special applications require testing in a different environment, it is the responsibility of the manufacturer or his authorized representative to arrange for additional tests and to present the results including a full description of the testing environment in the information supplied by the manufacturer (clause 8).

6 Test methods

6.1 Abrasion resistance

6.1.1 Principle

Circular specimens of material are abraded under known pressure with a cyclic planar motion in the form of a Lissajous figure, which is the result of the simple harmonic motions at right angles to each other.

The resistance to abrasion is measured by the number of cycles required for breakthrough to occur. Breakthrough is understood to mean when a hole is worn through the test specimen.