
Varovalne obleke za motoriste pred mehanskimi vplivi – 2. del: Ščitniki hrbta za motoriste – Zahteve in preskusne metode

Motorcyclists' protective clothing against mechanical impact - Part 2: Motorcyclists' back protectors - Requirements and test methods

Motorradschutzkleidung gegen mechanische Belastung - Teil 2: Rückenprotektoren - Anforderungen und Prüfverfahren

Vêtements de protection contre les chocs mécaniques pour motocyclistes - Partie 2: Protectors dorsaux - Exigences et méthodes d'essai

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ICS:

13.340.10	Varovalna obleka	Protective clothing
43.140	Motorna kolesa in mopedi	Motor cycles and mopeds

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1621-2

August 2003

ICS 13.340.10

English version

**Motorcyclists' protective clothing against mechanical impact -
Part 2: Motorcyclists' back protectors - Requirements and test
methods**

Vêtements de protection contre les chocs mécaniques pour
motocyclistes - Partie 2: Protecteurs dorsaux - Exigences
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Teil 2: Rückenprotektoren - Anforderungen und
Prüfverfahren

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 1621-2:2003) 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 February 2004, and conflicting national standards shall be withdrawn at the latest by February 2004.

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 Directives.

For the relationship with EU Directives, see informative annex ZA, which is an integral part of this standard.

Annex A is normative.

This European Standard is one of a series of standards as listed below:

EN 1621-1 *Motorcyclists' protective clothing against mechanical impact — Part 1: Requirements and methods of test for impact protectors*

EN 13595-1 *Protective clothing for professional motorcycle riders — Jackets, trousers and one-piece or divided suits — Part 1: General requirements*

EN 13595-2 *Protective clothing for professional motorcycle riders — Jackets, trousers and one-piece or divided suits — Part 2: Test method for determination of impact abrasion resistance*

EN 13595-3 *Protective clothing for professional motorcycle riders — Jackets, trousers and one-piece or divided suits — Part 3: Test method for determination of burst strength*

EN 13595-4 *Protective clothing for professional motorcycle riders — Jackets, trousers and one-piece or divided suits — Part 4: Test method for determination of impact cut resistance*

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.

Introduction

Motorcyclist's back protectors are devices worn within or on top of other protective clothing, covering at least the central part of the back from the waist to the neck. About 13% of motorcyclists injured in road accidents have an injury to this back region. However, only 0,8% of the injured riders suffer a fracture of the spine and less than 0,2% of injured riders have a serious back injury resulting in neurological damage. These serious injuries are usually caused by axial forces due to blows on the head, or bending and twisting forces on the back caused by blows to the shoulders, hips and other parts of the body. Back protectors do not provide protection from these forces. The majority of the more minor injuries are bruises and strains caused by direct blows, and back protectors can provide some protection against these. The scapula is often injured (1,3%), protection should extend to cover this area.

The performance requirements have been chosen as a best practical compromise between protection, comfort, and ergonomic requirements. Protectors that are too stiff or heavy will not be worn. The test methods are designed to provide information on protection against impacts against edges such as kerb stones. The force levels in the tests do not compare directly with the forces to which riders are exposed in accidents, but experiences have shown that products meeting the requirements of this European Standard reduce the incidence and severity of injuries.

Motorcyclists' back protectors are sometimes combined with a product such as a body belt or lumbar support designed to give support to the lower back in normal riding. These elements, within their limited size, can also provide some impact protection, in this case they are to be called 'lumbar protectors' and are also covered by this standard.

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1 Scope

This European Standard specifies the minimum coverage to be provided by motorcyclists' back protectors worn by riders in normal traffic situations. The standard contains the requirements for the performance of the protectors under impact and details of the test methods. Requirements for sizing, ergonomic requirements, and requirements for innocuousness, labelling and the provision of information are included.

The provision of this European Standard may not fully cover the needs of particular protectors (e.g. inflatable protector or other types of protector).

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 below. In the case of dated references, subsequent amendments to, or revisions of, any of these publications, apply to this European Standard only when incorporated into it by amendment or revision. In the case of undated references the latest edition of the publications referred to applies (including amendments).

EN 340, *Protective clothing — General requirements*.

EN 1621-1:1997, *Motorcyclists' protective clothing against mechanical impact — Part 1: Requirements and test methods for impact protectors*.

ISO 6487, *Road Vehicles — Measurement techniques in impact tests — Instrumentation*.

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*.

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3 Terms and definitions

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

3.1

general

3.1.1

motorcyclist's back protectors

motorcyclist's back protectors are specific devices worn on the back that are intended to reduce the severity of injuries caused by impacts

3.1.2

motorcyclist's lumbar protector

motorcyclist's back protector with dimensions limited to cover the lumbar region; intended to reduce the severity of injuries caused by impacts

3.1.3

zone of protection

the zone of protection is a specific area of the protective equipment that is intended to provide protection and this area is subject to specific testing

NOTE The minimum dimensions of the zones of protection will normally be marked on test specimens during the test procedures.

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3.2

body dimensions

the following body dimensions should be adequate for the designation of back protectors (see Figure 1)

3.2.1

waist to shoulder

the maximum vertical length measured posteriorly from the waist to the junction of the shoulder to the neck

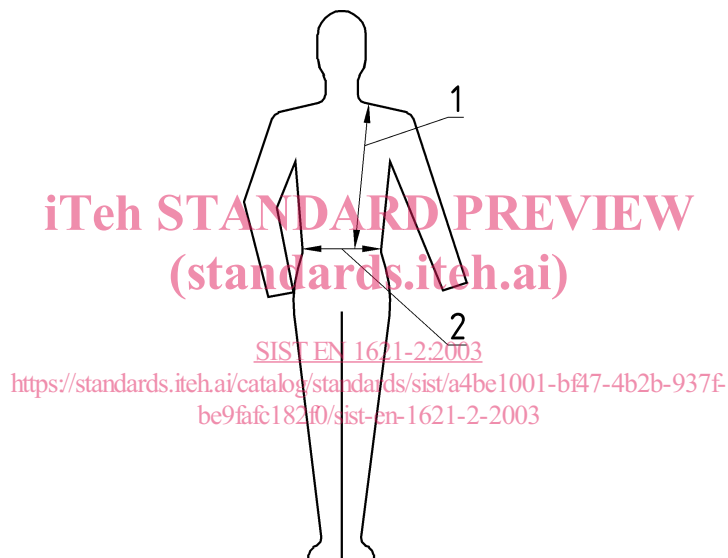
NOTE This is an indication of torso length.

3.2.2

waist line

the maximum horizontal girth measured during normal breathing with the subject standing upright and the tape measure passed around the body in the plane of the waist, 50mm above the supra-cristal plane which is at the level of the highest points of the iliac crests

NOTE The dimension of 50 mm refers to a subject of 1,78 m tall and should be scaled pro rata with the height of the actual subject.

**Key**

- 1 – Waist to shoulder
- 2 – Waist line

Figure 1 — Body dimensions

4 Requirements

4.1 General

Motorcyclists' back protectors shall meet an overall requirement that they are safe to use, comfortable to wear and fit for their purpose.

4.2 Innocuousness

Construction materials and incorporated substances shall not endanger those coming into contact with them. The manufacturer shall include in the information a declaration that to his knowledge no harmful substances are contained in the product. The manufacturer shall give guidance on the safe destruction and disposal of the products and of any hazards that could arise during mechanically disrupting or incinerating the product.

4.3 Minimum dimensions of zones of protection

Motorcyclists' back protectors shall have a minimum zone of protection which shall be related to the size of the user (see EN 340). The minimum dimensions of the zone of protection shall be determined from Tables 1 and 2.

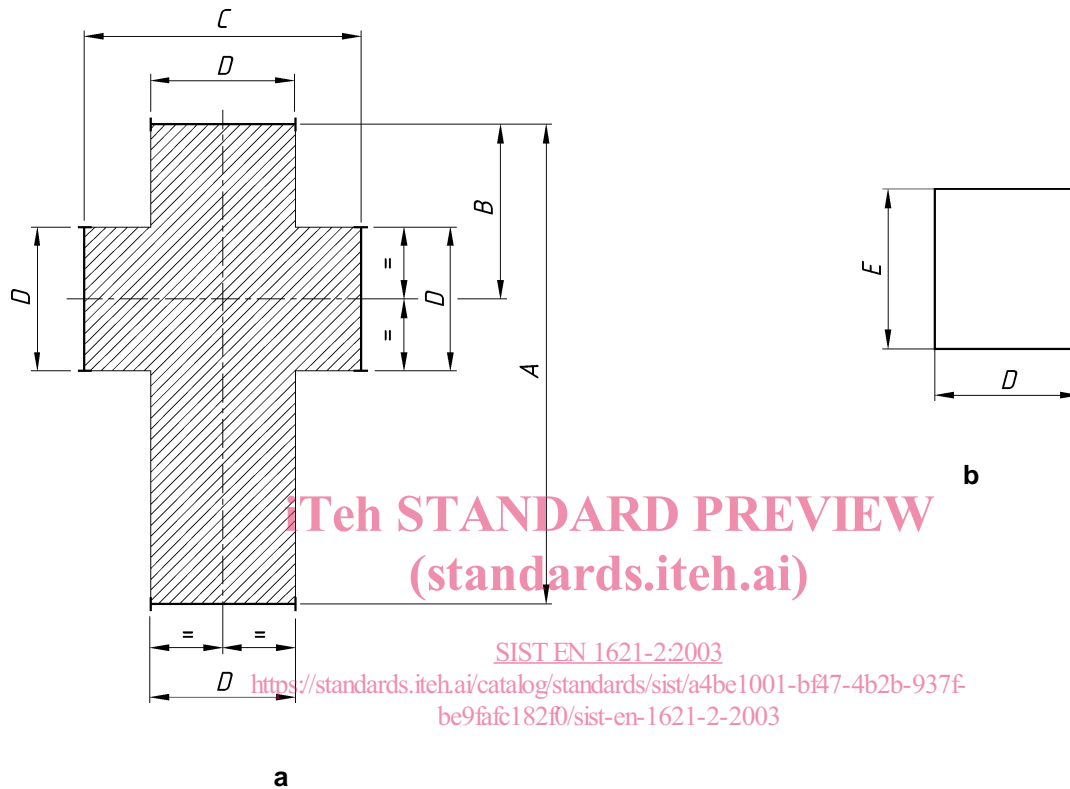


Figure 2 – Minimum dimensions of zones of protection

Table 1 — Dimensions of minimum zone of protection for back protector

Dimensions in Figure 2a			
A	B	C	D
72%	29%	44%	29%
All dimensions are referred to waist to shoulder length (100%) of the user			

Table 2 — Dimensions of minimum zone of protection for lumbar protector

Dimensions in Figure 2b	
E	D
32%	29%
All dimensions are referred to waist to shoulder length (100%) of the user	