SLOVENSKI STANDARD
SIST EN 1621-1:2013

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Nadomešča:
SIST EN 1621-1:1998

Varovalne obleke za zaščito motoristov pred mehanskimi vplivi - 1. del: Ščitniki sklepov za motoriste - Zahteve in preskusne metode

Motorcyclists' protective clothing against mechanical impact - Part 1: Motorcyclists' limb joint impact protectors - Requirements and test methods

Motorradfahrer-Schutzkleidung gegen mechanische Belastung - Teil 1: Gelenkprotektoren für Motorradfahrer - Anforderungen und Prüfverfahren

Motorcyclists' protective clothing against mechanical impact - Part 1: Motorcyclists' limb joint impact protectors - Requirements and test methods

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

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English Version

Motorcyclists' protective clothing against mechanical impact - Part 1: Motorcyclists' limb joint impact protectors - Requirements and test methods

Vêtements de protection contre les chocs mécaniques pour motocyclistes - Exigences et méthodes d'essai des protecteurs - Partie 1: Exigences et méthodes d'essai

Motorradfahrer-Schutzkleidung gegen mechanische Belastung - Teil 1: Gelenkprotektoren für Motorradfahrer - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 27 October 2012.

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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.

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Foreword

This document (EN 1621-1:2012) 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of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1621-1:1997.

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

The main technical changes with respect to the 1997 edition are listed below:

a) the scope has been restricted only to limb joint impact protectors;

b) requirements concerning innocuousness have been added;

c) requirements concerning the wet impact test (mandatory) and the high and low temperature impact tests (optional) have been added;

d) ergonomic requirements have been added.

EN 1621 consists of the following parts, under the general title *Motorcyclists’ protective clothing against mechanical impact:*

— *Part 1: Motorcyclists' limb joint impact protectors — Requirements and test methods* (the present document)

— *Part 2: Motorcyclists' back protectors — Requirements and test methods*

— *Part 3: Requirements and test methods for chest protectors*[1)]

— *Part 4: Motorcyclists' inflatable protectors — Requirements and test methods*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1) Under development.

Introduction

This European Standard is Part 1 of a standard containing requirements and test methods for motorcycle riders' impact protectors. Impact protectors meeting the requirements of this European Standard will provide some protection against injury caused by impacts with road surfaces in motorcycle accidents. They may also slightly reduce the injuries caused by impacts with objects such as other vehicles.

In order to encourage the adoption of certified protection by the highest possible number of users, two performance levels are specified for protectors. These are level 1 for protectors designed to give protection whilst having low ergonomic penalties associated with its use and level 2 for protectors providing an increased protection with respect to level 1. There may be, however, weight and restriction penalties associated with level 2 protection.

1 Scope

This European Standard specifies requirements and test methods for limb joint impact protectors incorporated or intended to be incorporated into motorcycle riders' clothing or used as separate items.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 340, *Protective clothing — General requirements*

EN ISO 105-E01, *Textiles — Tests for colour fastness — Part E01: Colour fastness to water (ISO 105-E01)*

EN ISO 11642, *Leather — Tests for colour fastness — Colour fastness to water (ISO 11642)*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
zone of protection
specific area of the protective equipment that is intended to provide protection to a part of the body and which is subject to specific testing

3.2
protector
arrangement of energy absorbing and/or impact spreading materials designed to offer some protection to the zones of protection

3.3
type A protector
protectors of smaller dimension; these are more commonly (although not exclusively) optimised for use with smaller riders

3.4
type B protector
protectors of larger dimension; these are more commonly (although not exclusively) optimised for use with larger riders

3.5
test area
area on which impact tests are performed; size and shape are defined by the template

3.6
template
auxiliary tool made of flexible material used to verify the minimum area of protection

4 Zones of protection and protectors

The following body regions are specified as zones of protection and protectors shall be categorised as follows:

a) shoulder: protector “S”;

b) elbow and forearm: protector “E”;

c) hip: protector “H”;

d) knee and upper tibia: protector “K”;

e) knee, upper and middle tibia: protector “K + L”;

f) leg below protector “K”: protector “L”.

The size of the zones of protection shall comply with 5.3, Table 1.

5 Requirements

5.1 General

Unless otherwise specified, all linear dimensions bigger than 50 mm in the whole text shall be provided with a deviation of ± 2 % and dimensions up to 50 mm with a deviation of ± 1 mm.

Limb joint protectors shall be provided with means of restraint capable of ensuring that the protector is maintained in position during use.

This requirement is not applicable for protectors to be inserted or incorporated into the garments.

Testing shall be carried out according to 6.4.

5.2 Innocuousness

5.2.1 The materials shall comply with the requirements for innocuousness of materials in EN 340, with the exception of the requirement concerning the colour fastness to perspiration which is replaced by 5.2.2.

5.2.2 The colour fastness to water of the constituent materials which could be likely to come into contact with the skin of the user shall be determined in accordance with 6.2 and shall be at least grade 4 of the Grey scale for the staining of any component of the multi-fibre reference fabric.

5.3 Minimum dimensions of zone of protection

Motorcyclist’s limb joint protectors shall provide a zone of protection with the minimum dimensions as specified in Table 1. Testing shall be carried out as described in 6.3.4.

In Table 1, the zones of protection are defined by the three dimensions r_1, r_2 and l, as illustrated in Figure1:

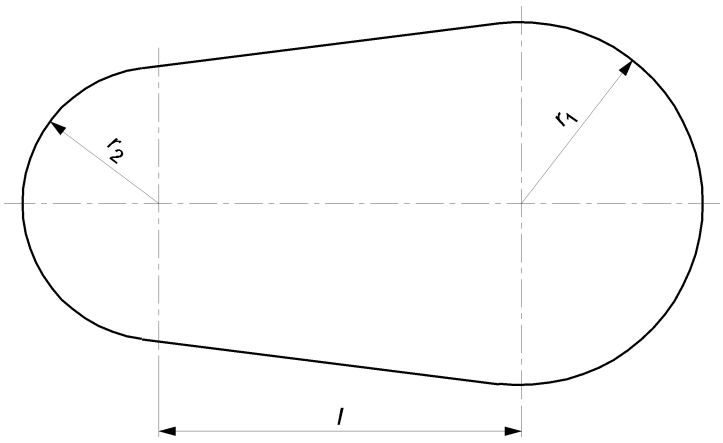

Figure 1 — Definition of the zone of protection by three key dimensions

Table 1 — Minimum dimensions of zone of protection

Protector	Type A protector mm			Type B protector mm		
	r_1	r_2	l	r_1	r_2	l
S	55	32	64	70	40	80
E	45	24	118	50	30	150
K	55	24	100	70	30	130
H	35	26	70	44	33	88
L	32	24	64	40	30	80
K + *L*	55	24	185	70	30	240

5.4 Impact attenuation

In terms of impact attenuation, this standard includes two performance levels. The degree of risk or hazards that a motorcyclist faces is closely linked to the type of riding and the nature of the accident. Level 1 performance is deemed as the minimum level required so that the protector provides useful protection in an accident and offers the protector with an optimum comfort level to suit all riding types. Where riders feel that their riding style exposes them to an increased accident risk, Level 2 has been provided, which offers increased performance. Level 2 may have an increased penalty for the weight and comfort.

When impact protection is tested in accordance with 6.3.4.2 (ambient impact test), 6.3.4.3 (wet impact test after hydrolytic ageing) and, if required, 6.3.4.4 (high temperature impact test) and/or 6.3.4.5 (low temperature impact test), the transmitted force shall conform to the values in Table 2. Level 1 or Level 2 can only be awarded provided that such level is achieved under all test conditions claimed.

Table 2 — Transmitted force and performance levels

	Level 1	Level 2
Overall mean value	≤ 35 kN	≤ 20 kN
Single strike area A[a]	≤ 35 kN	≤ 20 kN
Single strike area B[a] and C[a]	≤ 50 kN	≤ 30 kN
[a] Areas A, B and C correspond to the areas in Figure 3.		