SLOVENSKI STANDARD
SIST EN 1621-4:2013

01-marec-2013

Varovalne obleke za zaščito motoristov pred mehanskimi vplivi - 4. del: Napihljive zaščitne blazine za motoriste (airbag) - Zahteve in preskusne metode

Motorcyclists' protective clothing against mechanical impact - Part 4: Motorcyclists' inflatable protectors - Requirements and test methods

Motorradfahrer-Schutzkleidung gegen mechanische Belastung - Teil 4: Aufblasbare Protektoren für Motorradfahrer - Anforderungen und Prüfverfahren

Vêtements de protection contre les chocs mécaniques pour motocyclistes - Partie 4 : Protecteurs gonflables pour motocyclistes - Exigences et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 1621-4:2013**

ICS:

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

SIST EN 1621-4:2013 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1621-4

January 2013

ICS 13.340.10

English Version

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Foreword

This document (EN 1621-4:2013) 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.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 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.

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

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

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

— Part 3: Motorcyclists' chest protectors — Requirements and test methods[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

Motorcyclists' inflatable protectors are devices either embedded within or worn on top of other clothing, which aim to reduce the severity of injuries in case of motorcycle accidents.

The protectors covered by this standard give protection only when inflated.

The performance requirements have been selected to provide the 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 mechanical impacts. The force levels in the tests do not relate directly to the forces riders are exposed to in accidents, but experiences have shown that products meeting the requirements of this European Standard may reduce the severity of injuries caused by impacts.

In order to encourage the adoption of certified protection by the highest possible number of users, two performance levels are specified for inflatable 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 covers requirements and test methods for mechanically activated inflatable protectors for motorcycle riders (in the following text called „protector“). It specifies the minimum level of protection, the minimum intervention time of inflated bag, and the minimum coverage to be provided by motorcyclists' protectors worn by riders. The requirements of this standard are applicable to various design of inflatable protectors and refers to all body areas and their combinations which are claimed to be protected. Inflatable protectors covered by this standard may be incorporated in motorcycle garments or equipped with by appropriate restraint systems and worn on their own.

This European Standard contains the requirements for the performance of the system during an accident and details of the test methods, requirements for sizing, ergonomics, innocuousness, labelling and the provision of information.

Inflatable protectors other than mechanically activated are not covered by this standard.

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 1621-1:2012, *Motorcyclists' protective clothing against mechanical impact — Part 1: Motorcyclists' limb joint impact protectors — Requirements and test methods*

EN 1621-2, *Motorcyclists' protective clothing against mechanical impact — Part 2: Motorcyclists' back protectors — Requirements and test methods*

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)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1621-1:2012 and the following apply.

3.1
inflatable motorcyclist's protector
specific device worn by motorcyclists, which will automatically inflate in the event of an accident

3.2
intervention time
sum of the activation time plus the inflation time in milliseconds

3.3
activation time
period of time used by the triggering system to fire the gas generator, corresponding to the interval of time from the beginning of the accident to the start of the inflation of the protector

3.4
inflation time
time period required for the airbag to be fully inflated

3.5
mechanical triggering system
system which is fired by the severance of a physical connection between motorbike and protector

3.6
trigger cable
mechanical connection between the inflatable device and the motorbike

3.7
activation force
force transmitted by the trigger cable to start the inflation process

3.8
activation energy
energy required by the mechanical trigger system to start the inflation process

3.9
duration time
time period whereby the operating pressure inside the airbag remains above the minimum operating pressure declared by the manufacturer

4 Requirements

4.1 General

Motorcyclists' protectors shall meet an overall requirement that they are safe to use, comfortable to wear and fit for their purpose. Table 1 gives a summary of the requirements.

Unless otherwise specified all values and linear dimensions shall be provided with a deviation of ± 2 %.

Table 1 — Summary of the requirements

Clause	Requirements		Test	Values
4.2	Innocuousness	Colour fastness to water	6.2.1	At least grade 4 of the Grey scale
		Protection from any hard components	6.2.2	≤ 35 kN
		Temperature exposure evaluation (where applicable)	6.7	Average value ≤ 48 °C. No single value shall exceed 55 °C
4.3	Minimum zone of protection		–	–
4.4	Intervention time		6.4	≤ 200 ms
4.5	Duration time		6.5	≥ 5 s
4.6	Retention of protective bag		–	–
4.7	Impact attenuation		6.6	Level 1: Overall mean value 4,5 kN Single strike ≤ 6 kN
				Level 2: Overall mean value 2,5 kN Single strike ≤ 3 kN
4.8	Sizing and size marking		–	–
4.9	Ergonomic requirements		6.7	All answers shall be “yes”
4.10	Trigger system function	Activation force of mechanical triggering system	6.8.1	≥ 30 N ≤ 250 N
		Activation energy of mechanical triggering system	6.8.2	< 5 J
		Breaking strength of the physical connection between bike and protector	6.8.3	≥ four times the activation force; in any case ≥ 400 N