
Varovalna obleka za poklicne voznike motornih koles - Jopiči, hlače in enodelne ali večdelne obleke - 1. del: Splošne zahteve

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

Schutzkleidung für professionelle Motorradfahrer - Jacken, Hosen und ein- oder mehrteilige Anzüge - Teil 1: Allgemeine Anforderungen

Vêtements de protection pour les motocyclistes professionnels - Vestes, Pantalons et combinaisons une ou deux pièces - Partie 1: Exigences générales

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 13595-1

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ICS 13.340.10

English version

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

Vêtements de protection pour les motocyclistes
professionnels - Vestes, Pantalons et combinaisons une ou
deux pièces - Partie 1: Exigences générales

Schutzkleidung für professionelle Motorradfahrer - Jacken,
Hosen und ein- oder mehrteilige Anzüge - Teil 1:
Allgemeine Anforderungen

This European Standard was approved by CEN on 6 April 2002.

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

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

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Foreword

This document EN 13595-1:2002 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 January 2003, and conflicting national standards shall be withdrawn at the latest by January 2003.

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.

Annexes A, B and C are normative.

This standard is part of a series of standards specifying requirements for particular items of clothing or particular performance levels and hazards. EN 13595 comprises four parts:

Part 1: General requirements;

Part 2: Test method for determination of impact abrasion resistance;

Part 3: Test method for determination of burst strength;

Part 4: Test method for determination of impact cut resistance.

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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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

EN 13595-1:2002 (E)**Introduction**

The only protection a motorcyclist involved in a road traffic accident has against injury is the clothing he or she is wearing at the time. Motorcyclists' clothing is generally worn as an extension of normal clothing, providing protection against ambient conditions of wind, water and cold, but motorcycle clothing performing the requirements of this standard also provides some protection from injury in the event of an accident. It is intended not to hinder a rider from controlling his machine. It should be of an acceptable appearance to the wearer.

This European Standard is primarily concerned with the protection provided by clothing against injury in accidents. The hazards to which motorcyclists are exposed vary widely depending on the physical environment such as the nature of the road track or mountainside, the climatic environment, the traffic environment, the speed at which the motorcycle is being ridden and the skill of the rider. It is impractical to obtain total clothing performance against every combination of hazard existing. Therefore this standard contains the requirements for single characteristics of single items of clothing or simple combinations of garments.

This standard is part of a series of standards specifying requirements for particular items of clothing or particular performance levels and hazards. Further Parts will be issued in due course.

1 Scope

This European Standard specifies general requirements for professional motorcycle riders jackets, trousers and one-piece or divided suits which are intended to protect the wearer against mechanical injury, it does not apply to motor sport competition events organised by Federation. It also specifies appropriate test methods.

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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 amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 340, *Protective clothing — General requirements.*

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

prEN 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.*

ISO 105, *Textiles — Tests for colour fastness.*

ISO 3377:1975, *Leather — Determination of tearing load.*

ISO 3635:1981, *Size designation of clothes — Definitions and body measurement procedure.*

ISO 4045:1977, *Leather — Determination of pH.*

ISO 4674:1977, *Fabrics coated with rubber or plastics — Determination of tear resistance.*

ISO 11642:1993, *Leather — Tests for colour fastness — Colour fastness to water.*

3 Terms and definitions

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

3.1

high trousers (including salopettes)

trousers with protective material around the full circumference of the torso to a height of at least 100 mm above the waist of the wearer

3.2

long jackets

jackets with protective material around the full circumference of the torso to a height of at least 100 mm below the waist of the wearer

3.3

protectors

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

3.4

professional rider

person who is employed to provide or contracts to perform for reward, the services requiring the riding of a motorcycle

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Examples are:

- a) the delivery of letters, packets or other small freight;
- b) the transport of passengers by motorcycle;
- c) emergency medical treatment;
- d) vehicle breakdown support.

3.5

structural strong layer(s), (SSL)

layer or layers of material that confer the mechanical properties on a garment that allow it to resist damage and thereby provide protection in an accident. In a leather suit these are the double or single layers of hide sewn together with strong seams. In a fabric suit the same function may be performed by one, or by several layers. These may or may not include the outermost layer

4 Performance levels and principle of zoning

4.1 Performance levels

Two performance levels are specified for clothing providing protection against road surface impacts. These are as follows:

LEVEL 1: Clothing designed to give some protection whilst having the lowest possible weight and ergonomic penalties associated with its use;

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LEVEL 2: Clothing providing a moderate level of protection, higher than that provided by level 1. There are, however, weight and restriction penalties in providing this level of protection.

4.2 Principle of zoning

See C.1

5 Requirements

5.1 General

5.1.1

The performance level marked on the garment and in the manufacturer's information to the user shall be determined by the lowest performance level achieved in testing according to 5.4, 5.5 and 5.6.

5.1.2

Clothing which includes cleaning instructions shall conform to with the requirements specified in 5.2, 5.4, 5.5 and 5.6 after at least five recommended cleaning cycles recommended by manufacturers.

NOTE It is not necessary to carry out repeat testing after cleaning for garments where only trivial surface cleaning treatments which are considered not to affect the performance of the garment are recommended, for example wiping with a damp sponge.

The change in linear dimensions of the clothing material shall not exceed $\pm 3\%$ when cleaned five times and tested in accordance with EN 340.

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5.2 Tear strength

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When tested in accordance with ISO 3377:1975, the minimum tear strength of leather shall be 100 N.

When tested in accordance with ISO 4674:1977, the minimum tear strength of non-leather materials, excluding elasticated and knitted fabrics, shall be 70 N.

Where several separate layers are present, these requirements apply to the strongest layer.

5.3 Impact energy absorption

Protectors (see 3.3) shall be present in zone 1. The location and fixation of these protectors shall meet the requirements of 7.2 when assessed using the method described in annex B, B.3.4.

5.4 Abrasion resistance

When tested in accordance with the method described in prEN 13595-2, the abrasion resistance of the full thickness of the clothing in the various zones shall meet the minimum requirements given in Table 1 for the appropriate performance level.

Table 1 — Minimum requirements for abrasion resistance

Zones	Abrasion resistance requirements	
	s	
	Level 1	Level 2
1 and 2	4,0	7,0
3	1,8	2,5
4	1,0	1,5

The removable protector shall be put outside the pocket.

5.5 Impact cut resistance

When tested in accordance with the method described in EN 13595-4, the impact cut resistance of the full thickness of the clothing in the various zones shall meet the minimum requirements given in Table 2 for the appropriate performance level.

Table 2 — Minimum requirements for impact cut resistance

Zone	1 & 2	3	4
Impact speed of knife [m/s]	2,8	2,0	2,0
Maximum knife penetration [mm]; Level 1	25	30	35
Maximum knife penetration [mm]; Level 2	15	25	30

5.6 Burst strength

When tested in accordance with the method described in EN 13595-3, the seams, slide fasteners and materials in the various zones shall meet the minimum burst strength requirements given in Table 3 for the appropriate performance level.

Table 3 — Minimum burst strength requirements

Zone	2 & 1	3	4	Linings
Requirement [kPa]; Level 1	700	500	400	200
Requirement [kPa]; Level 2	800	600	450	200

5.7 Dye fastness

Clothing shall not be manufactured from material containing dyes which will readily migrate when the clothing becomes wet with water. When tested in accordance with ISO 11642:1993 or ISO 105 the change in colour of any component of the multi-fibre reference fabric shall be not worse than Grey Scale rating 3.

5.8 pH of leather

When tested in accordance with ISO 4045:1977, leather and/or leather fabric material shall have a pH of between 3,5 and 9,5 and if the pH is less than 4 the difference figure shall be less than 0,7.

EN 13595-1:2002 (E)**6 Fit and ergonomics**

Clothing shall be sized in accordance with EN 340 or shall be made-to-measure.

When tested in accordance with the method described in annex A, the assessor shall be able to carry out all the defined critical movements while wearing the test garment and all responses given by the assessor to the questions detailed in Table A.1 shall be positive.

7 Restraint

When tested in accordance with the methods described in annex B, the clothing shall meet the following requirements, as appropriate.

7.1 Clothing restraint

All restraint systems (belts, velcro, etc.) shall be correctly closed before clothing restraint is tested.

Divided suits joined at the waist (i.e. with a slide fastener) shall have no more than a 200 mm gap horizontally between the ends of the fastener on the abdomen. The jacket and trousers shall remain joined when the test force is applied.

Divided suits with a long jacket or with high trousers (including salopettes) shall be joined or restrained so that no gap opens vertically between the two parts of the suit when the test force is applied.

Arm sleeves shall not slide up the test cone more than 60 mm when the test force is applied. Ready-made garments shall have available adjustment to fit wrists 10 mm smaller and 10 mm greater in circumference than the test cone.

Trouser ankles shall not slide up the test cone more than 100 mm when the test load is applied not on the ankle but on the knees. Ready-made garments shall have available adjustment to fit ankles 10 mm smaller and 10 mm greater in circumference than the test cone for pants that are wear inside or outside the motorcycle boots. This test should be made performed at least on one size for each different model.

7.2 Impact protector restraint

When tested according to B.3.4 shall not be displaced by more than 20 %.

8 Design and zoning

When examined in accordance with the method described in annex C, the clothing shall meet the following design criteria:

Protectors to provide shock absorption conforming to EN 1621-1 shall be present in zone 1.

All stiched structural seams in zones 1, 2 and 3 shall have at least one row of stitches that is protected by at least a layer of basic material. This can be checked by cutting across the seams as necessary, other seams shall meet the impact abrasion test requirement in 5.4.

Slide fasteners, if present, shall be mounted below the outer surface of the garment and shall have a layer of leather or fabric behind them. Where assembly samples have been submitted for testing, these shall be identical to the construction found in the garment.

The lining shall not be attached to, but shall slide freely against the outer shell of the clothing in zones 1 and 2.

The total area of materials and constructions present in zone 3 to provide elasticity or ventilation but which only meet zone 4 requirements shall not exceed 30 cm² in any single area and 50 cm² total area in a jacket or trousers or 100 cm² total area in a suit.

The length of free ends of projections on the outer surface of the clothing shall be less than 50 mm.

9 Marking and information to be supplied

9.1 General

The information specified in 9.2, 9.3 and 9.4, in the official language(s) of the destination country, shall be supplied with each item of clothing.

9.2 Marking

Each item of clothing shall be marked with the following information, which shall be permanently attached to the garment and remain perfectly legible. If the user information includes cleaning instructions the labelling shall be visually examined after it has been cleaned five times using the cleaning treatment recommended in those instructions. The labelling shall still be perfectly legible after these cleaning treatments.

- a) A means of identifying either the manufacturer or his authorised representative within the EC, for example a trade mark.
- b) The product's commercial name, style code or other means of identification.
- c) The size designation.
- d) A brief description of the level of protection offered.
- e) A warning that no item of clothing can offer full protection.
- f) Care instructions (care label symbols including negative symbols where appropriate).
- g) The number of this European Standard, EN 13595-1.

9.3 Packaging

Where provided, the packaging which immediately contains the clothing shall be marked with the information specified in 9.2 a), b), c) and d), and shall indicate where the wearer information and instructions for use can be found.

9.4 Wearer information and instructions for use

The following information shall be supplied by the manufacturer for example on a leaflet accompanying the item of clothing.

- a) The name and full address of the manufacturer or his authorised representative and, where possible, including the trade mark of the manufacturer.
- b) The product name, style or other means of identification.
- c) Information on how to select a garment of the correct size.
- d) Information on the various performance levels available and an explanation of how to select a garment offering the most suitable level of protection.
- e) Information on specific hazard against which protection is given.