SLOVENSKI STANDARD
SIST EN 1938:2010

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Nadomešča:
SIST EN 1938:1999

Osebno varovanje oči - Zaščitna očala za voznike motornih koles in mopedov

Personal eye protection - Goggles for motorcycle and moped users

Persönlicher Augenschutz - Schutzbrillen für Motorrad- und Mopedfahrer

Protection individuelle de l'oeil - Lunettes-masques pour motocyclistes et cyclomotoristes

Ta slovenski standard je istoveten z: EN 1938:2010

ICS:

13.340.20	Varovalna oprema za glavo	Head protective equipment
43.140	Motorna kolesa in mopedi	Motor cycles and mopeds

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EUROPEAN STANDARD

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Personal eye protection - Goggles for motorcycle and moped users

Protection individuelle de l'oeil - Lunettes-masques pour motocyclistes et cyclomotoristes

Persönlicher Augenschutz - Schutzbrillen für Motorrad- und Mopedfahrer

This European Standard was approved by CEN on 19 June 2010.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 1938:2010) has been prepared by Technical Committee CEN/TC 85 “Eye protective equipment”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

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 1938:1998.

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

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

1 Scope

This European Standard specifies requirements and test methods for goggles for use by all motorcycle and moped drivers and passengers, intended for eye-protection during the use of motorcycle and moped, both on the road and for off-road sport or leisure use, subject to the following exclusion. The goggles for official races and competitions are not included within the scope of this standard.

2 Normative references

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

EN 165:2005, *Personal eye-protection — Vocabulary*

EN 167:2001, *Personal eye-protection — Optical test methods*

EN 168:2001, *Personal eye-protection — Non-optical test methods*

EN 1811, *Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin*

EN 1836:2005+A1:2007, *Personal eye-equipment — Sunglasses and sunglare filters for general use and filters for direct observation of the sun*

ISO 11664-1:2007, *Colorimetry — Part 1: CIE standard colorimetric observers*

ISO 11664-2:2007, *Colorimetry — Part 2: CIE standard illuminants*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 165:2005 and EN 1836:2005+A1:2007 apply.

4 Requirements

4.1 General

All the samples tested shall comply with the requirements of this European Standard.

Goggles can be provided with different oculars.

4.2 Design and manufacture

Goggles shall be free from projections, sharp edges or other defects which are likely to cause discomfort or injury during use. The verification of this requirement shall be made according to 5.11 and 5.12.

4.3 Materials

Any materials (or combination of materials) may be used, provided they meet the requirements of this European Standard.

No parts of the goggles which are in contact with the wearer shall be made of materials that are known to cause irritation, allergic or toxic reaction amongst a significant proportion of users.

Examples for documents which can be presented as evidence of chemical innocuousness are given in the note below.

NOTE The following list of documents is given for information and as examples of documents that can be examined when checking on the innocuousness of materials: materials specifications; safety data sheets relating to the materials; information relating to the suitability of the materials for use with food, in medical devices, or other relevant applications; information relating to toxicological, allergenic, carcinogenic, toxic to reproduction or mutagenic investigations on the materials; information relating to ecotoxicological and other environmental investigations on the materials.

The examination of documents or of the goggles shall determine whether the claim that the materials are suitable for use in the protective goggle is justified. Particular attention should be paid to the presence of plasticisers, unreacted components, heavy metals, impurities and the chemical identity of pigments and dyes.

All metallic materials which could come into prolonged contact with the skin (e.g. hinge, rim and bridge) shall be tested according to EN 1811 for nickel release. The release of nickel shall be less than 0,5 µg/cm^2/wk.

4.4 Sit and fit

Goggles shall be so designed and manufactured that they will sit securely in position on the face when used as intended, and will adapt to the shape of the wearer's face by means of contact surfaces made of soft flexible material.

The retaining strap shall be designed to be flexible or adjustable and sit securely when fitted according to the manufacturer's instructions. The retaining strap shall be capable of withstanding any stress which occurs during proper use without tearing or being permanently deformed.

The verification of this requirement shall be made according to 5.12.

4.5 Ventilation

Design measures shall exist ensuring that the inside of the goggles is ventilated during use. Such measures shall be outside the oculars' areas and shall not reduce the peripheral vision significantly. The verification of this requirement shall be made with a visual inspection according to 5.11.

When goggle are provided with opening to allow circulation of air, the vented portion shall be such that openings shall exclude spherical objects 1,5 mm in diameter or larger.

NOTE The necessary rate of air exchange and the design of the ventilation openings depend heavily on the weather, speed of driving and the individual conditions (e.g. sweating), which means that generally applicable requirements cannot be stipulated.

4.6 Optical requirements

4.6.1 Field of vision

The size of the field of vision is defined in conjunction with the appropriate head-form described in Clause 17 of EN 168:2001.

The goggles shall exhibit a minimum field of vision defined by the two ellipses in Figure 1 when placed and centred at a distance of 25 mm from the surface of the eyes of the appropriate head-form. The horizontal axis shall be parallel to and 0,7 mm below the height of the line connecting the centres of the two eyes. The plane of the ellipses shall be parallel to the back flat portion of the head-form.

The horizontal length of the ellipses shall be 32,0 mm, the vertical width of the ellipses shall be 25,0 mm. The centre distance (d) of the two ellipses shall be $d = c + 20$ mm, where c is the pupillary distance. The pupillary

distance is 64 mm for the medium head-form and 54 mm for the small head-form, or it may be specified differently by the manufacturer.

The test shall be carried out in accordance with 5.3.

Dimensions in millimetres

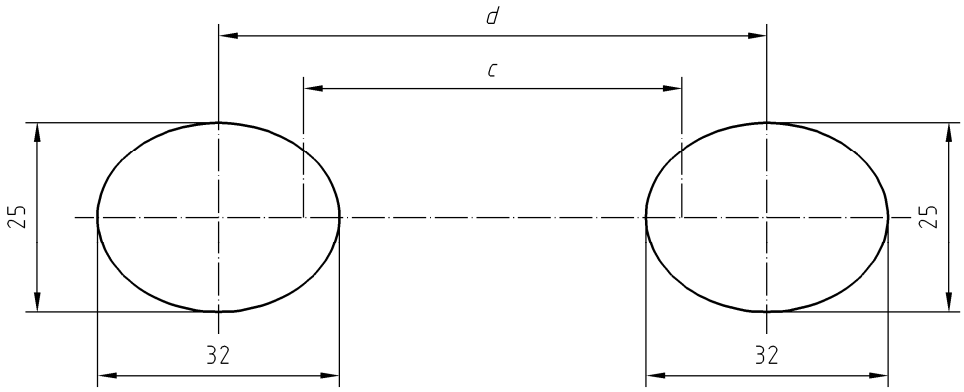

Figure 1 — Definition of the field of vision

4.6.2 Lens requirements

4.6.2.1 General

The lens requirements shall be as given in Table 1. The requirements apply to goggles with all the oculars declared by the manufacturer.

Table 1 — General requirements for lenses

	Spherical refractive power	Astigmatic refractive power	Difference in prismatic refractive power cm/m		
Permissible tolerances for refractive powers of mounted oculars	$\frac{D1+D2}{2}$ D,m^{-1}	|D1-D2| D,m^{-1}	Horizontal DΔ		Vertical DΔ
			Base out	Base in	
	± 0,12	0,12	1,00	0,25	0,25
Difference between the spherical powers of the left and right visual points	Less than 0,18 D,m^{-1}				
Luminous transmittance	According to 4.6.2.2				
Uniformity of luminous transmittance	According to 4.1.3.1 of EN 1836:2005+A1:2007				
Maximum reduced luminance coefficient	Single lens goggles: ≤ 1 cd/m²/lx Multiple lens goggles: ≤ 2 cd/m²/lx				
Quality of material and surface	According to 4.4 of EN 1836:2005+A1:2007				
Resistance to ultraviolet radiation	After the testing according to 5.7, the maximum reduced luminance coefficient shall not exceed the values shown in this table.				

4.6.2.2 Permissible transmittance and filter categories

There are three transmittance categories for oculars for goggles for motorcycle and moped users. The range of the luminous transmittance for these three categories is given by the values in Table 2. An overlap of the transmittance values of not more than ± 2 % (absolute) is permitted between the categories 0,1 and 2.

If the supplier declares a luminous transmittance value, the tolerance for the value is ± 3 % absolute for transmittance values.

When describing the transmittance properties of photochromic filters, two categories for transmittance values are generally used. These two values correspond to the faded state and to the darkened state of the filter.

In the case of gradient filters the transmittance value at the reference point is used to characterise the luminous transmittance / category of the oculars.

Table 2 also specifies the mandatory UV requirements for oculars for goggles for motorcycle and moped users.

Oculars for which the enhanced infrared absorption is claimed, shall meet the requirements of the last column of Table 2.

Table 2 — Permissible transmittance for oculars

Filter category	Mandatory requirements				
	Ultraviolet Spectral range			Visible Spectral range	Enhanced infrared absorption [a]
	Maximum value of spectral transmittance $\tau_F(\lambda)$		Maximum value of solar UVA transmittance $\tau_{SUVA}(\lambda)$	Range of luminous transmittance τ_V	Maximum value of solar infrared transmittance τ_{SIR}
	280 nm to 315 nm	315 nm to 350 nm	315 nm to 380 nm		
0	$0{,}1 \cdot \tau_V$	τ_V	τ_V	80 % to 100 %	τ_V
1	$0{,}1 \cdot \tau_V$	τ_V	τ_V	43 % to 80 %	τ_V
2	$0{,}1 \cdot \tau_V$	τ_V	τ_V	18 % to 43 %	τ_V

[a] Only applicable to goggles recommended by the manufacturer as a protection against infrared radiation.

In case of oculars with a luminous transmittance of less than 75 % the manufacturer shall include in the information to be supplied the warning: “Not suitable for night driving or twilight condition”.

4.6.2.3 Special transmittance requirements and claimed transmittance properties

If the oculars have special transmittance requirements and/or the claimed transmittance properties described in 4.1.3 and 4.1.4 of EN 1836:2005+A1:2007 then the oculars shall satisfy the requirements described in each corresponding clause of EN 1836:2005+A1:2007.

All oculars shall have a luminous transmittance value greater than or equal to 18 %.

4.6.2.4 Requirements for road driving

4.6.2.4.1 Recognition of signal lights

The goggles shall satisfy the requirement of the recognition of signal lights according to 4.1.3.2.3 of EN 1836:2005+A1:2007.

4.6.2.4.2 Spectral transmittance

The goggles shall satisfy the requirement of the spectral transmittance according to 4.1.3.2.2 of EN 1836:2005+A1:2007.

4.7 Non optical requirements

4.7.1 General

The requirements apply to goggles with all the oculars declared by the manufacturer. If the only difference between oculars is the colour, the compliance can be verified only on one type.

4.7.2 Impact resistance

The requirement is satisfied if the goggles withstand the impact of a steel ball, when tested in accordance with 5.8.

On so testing the following defects shall not occur:

a) ocular fracture: an ocular shall be considered to have fractured if it cracks through its entire thickness into two or more pieces, or if the ball passes through the ocular;

b) ocular deformation: an ocular shall be considered to have been deformed if a mark appears on the white paper on the opposite side to that struck by the ball;

c) ocular housing or frame fracture: an ocular housing or frame shall be considered to have failed if it separates into two or more pieces, or if it is no longer capable of holding an ocular in position, or if an unbroken ocular detaches from the frame.

4.7.3 Resistance to surface damage by fine particles

After the test described in 5.9 is made on the external face, the goggle's oculars shall have a reduced luminance coefficient of not more than 10 cd/m²/lx.

4.8 Optional requirements – Resistance to fogging

If resistance to fogging is claimed, then the oculars of the goggles shall remain free from fogging for a minimum of 30 s when tested in accordance with 5.10.

5 Testing

5.1 General

The testing schedule in Table 3 shall be applied to type testing of complete goggles for motorcycle and moped users. The sequence of testing 1 to 9 may be changed. At least 16 samples are required for testing. If additionally testing for optional requirements has to be done, more than 16 samples may be necessary.

All the samples shall pass the test.