SLOVENSKI STANDARD
SIST EN 13178:2000

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Osebno varovanje oči - Oprema za zaščito oči za uporabnike motornih snežnih sani

Personal eye-protection - Eye protectors for snowmobile users

Persönlicher Augenschutz - Augenschutzgeräte für Benutzer von Motorschlitten

Protection individuelle de l'oeil - Protecteurs de l'oeil destinés aux utilisateurs de motoneige

Ta slovenski standard je istoveten z: **EN 13178:2000**

ICS:

13.340.20	Varovalna oprema za glavo	Head protective equipment
97.220.20	Oprema za zimske športe	Winter sports equipment

SIST EN 13178:2000 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
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ICS 13.340.20

English version

Personal eye-protection - Eye protectors for snowmobile users

Protection individuelle de l'oeil - Protecteurs de l'oeil destinés aux utilisateurs de motoneige

Persönlicher Augenschutz - Augenschutzgeräte für Benutzer von Motorschlitten

This European Standard was approved by CEN on 1 March 2000.

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 Central Secretariat 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 Central Secretariat 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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

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 Directive(s).

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

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

1 Scope

This European Standard specifies requirements and test methods for eye protectors for snowmobile users. They adversely affect the wearer's vision, such as UV radiation, sunglare and fogging.

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 165, *Personal eye-protection - Vocabulary*

prEN 166:1998, *Personal eye-protection - Specifications*

prEN 167,1998, *Personal eye-protection - Optical test methods*

prEN 168,1998, *Personal eye-protection - Non-optical test methods*

prEN 174:1998, *Personal eye-protection - Ski goggles for downhill skiing*

EN 1836:1997, *Personal eye-protection - Sunglasses and sunglare filters for general use*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 165 apply.

4 Requirements

4.1 Design and manufacture

4.1.1 General requirements

The eye protectors shall be free from projections, sharp edges or other defects, which are likely to cause discomfort or injury during intended use or in the event of an accident.

Testing shall be done according to 5.1.

4.1.2 Materials

The manufacturer should not use frame materials that are known to cause irritation, toxic reaction, or other harm during wear in contact with skin in normal state of health or which may freeze to the skin at low temperatures.

Testing shall be done according to 5.1.

NOTE Reactions may be generated by excessive pressure, chemical irritation or allergy. Rare or idiosyncratic reactions may occur to any material and may indicate the need for the individual to avoid particular types of frames.

4.1.3 Sit and fit

Eye protectors shall sit reliably when used as intended and the goggles shall adapt to the contours of the face. The surfaces in contact with the face shall be made of soft flexible materials. The headband shall be designed to be flexible or adjustable and sit securely on the back of the head or the helmet. The headband shall withstand any stress, which occurs during proper use without tearing or being permanently deformed.

Eye protector models intended to be used with a helmet or with spectacles shall be designed to be compatible with them.

Testing shall be done according to 5.1.

4.1.4 Ventilation

Design features shall ensure that the inside of the eye protector is properly ventilated during driving. The ventilation of the complete device (e.g. with helmet if so designed) shall be good enough to reduce the fogging and low enough to avoid the harmful effect to the skin in the conditions specified in clause 5.

NOTE The necessary ventilation depends heavily on the driving speed, weather conditions and the wearer's influence (e.g. sweating).

Testing shall be done according to 5.1.

4.2 Optical requirements

4.2.1 Field of vision

Goggles shall have a field of vision with the following minimum values :

— vertical 55°

— horizontal 150° (130° in the case of eye protectors designed for prescription spectacle wearers).

Face shields shall have a field of vision with the following minimum values :

— vertical 55°

— horizontal 105°

Testing shall be done according to 5.2.

4.2.2 Ocular requirements

Table 1 - Requirements for oculars for eye protectors for snowmobile users

Refractive power	In accordance with 4.2 of EN 1836:1997
Transmittance	In accordance with table 2
Variation in luminous transmittance	In accordance with 4.1.2.1 of EN 1836:1997
Diffusion of light	Scattered light class 1 ≤ 1,0 cd/m²/lx (single lense eye protectors) Scattered light class 2 ≤ 2,0 cd/m²/lx (multiple lense eye protectors)
Quality of material and surface	In accordance with 4.4 of EN 1836:1997
Resistance to ultraviolet radiation	Permissible relative change in luminous transmittance ± 5% for filter category S0 ±10% for filter category S1 ±20% for other filter categories Diffusion of light Scattered light class 1 ≤ 1,0 cd/m²/lx (single lense eye protectors) Scattered light class 2 ≤ 2,0 cd/m²/lx (multiple lense eye protectors)

Table 2 - Transmittance of oculars for snowmobile users

Filter category	Requirements					
	Ultraviolet spectral range			Visible spectral range		Enhanced infrared absorption a)
	Maximum value of spectral transmittance $\tau(\lambda)$		Maximum value of solar UVA transmittance τ_{SUVA}	Range of luminous transmittance τ_V		Maximum value of solar infrared transmittance τ_{SIR}
	280 - 315 nm	> 315 - 350 nm	> 315 - 380 nm	From over %	To %	
S0	0,03 τ_V	0,3 τ_V	0,3 τ_V	80,0	100	τ_V
S1				43,0	80,0	
S2				18,0	43,0	
S3		0,15 τ_V	0,15 τ_V	8,00	18,0	
S4				3,00	8,00	

a) Only applicable to oculars claimed by the manufacturer to provide protection against infrared absorption.

4.3 Mechanical requirements

4.3.1 Impact resistance

The eye protector shall withstand the impact of a steel ball when tested in accordance with 5.9.

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 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 becomes detached from the frame, or if the ball passes through the housing or frame.

4.3.2 Resistance to corrosion

As in 7.1.6 of prEN 166:1998.

4.3.3 Resistance to fogging

Eye protectors shall remain free from fogging for a minimum of 15 s when tested in accordance with 5.10.

4.4 Optional requirements

4.4.1 Enhanced infrared absorption

If oculars are described as having enhanced infrared absorption, they shall comply with the last column of Table 2.

5 Testing

5.1 Visual inspection

Use visual inspection to evaluate the design and manufacture of the eye protector.

5.2 Field of vision

The testing procedure shall be in accordance with 6.1 of prEN 174:1998.

5.3 Refractive powers

The apparatus and testing procedure shall be as given in 3.2 of prEN 167:1998.

5.4 Transmittance

5.4.1 Luminous transmittance

The testing procedure shall be as given in 6.1.1.1 of EN 1836:1997.