



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
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ILNAS-EN 166:2001

**Personal eye-protection -
Specifications**

Persönlicher Augenschutz -
Anforderungen

Protection individuelle de l'oeil -
Spécifications

11/2001



National Foreword

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EUROPEAN STANDARD ILNAS-EN 166:2001 **EN 166**
NORME EUROPÉENNE
EUROPÄISCHE NORM

November 2001

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English version

Personal eye-protection - Specifications

Protection individuelle de l'oeil - Spécifications

Persönlicher Augenschutz - Anforderungen

This European Standard was approved by CEN on 2 September 2001.

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



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Foreword

This document 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of an identical text or by endorsement, at the latest by May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

This European Standard replaces EN 166:1995.

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.

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 functional requirements for various types of personal eye-protectors and incorporates general considerations such as:

- designation;
- classification;
- basic requirements applicable to all eye-protectors;
- various particular and optional requirements;
- allocation of requirements, testing and application;
- marking;
- information for users.

The transmittance requirements for various types of filter oculars are given in separate standards (see clause 2).

This European Standard applies to all types of personal eye-protectors used against various hazards, as encountered in industry, laboratories, educational establishments, DIY activities, etc. which are likely to damage the eye or impair vision, with the exception of nuclear radiation, X-rays, laser beams and low temperature infrared (IR) radiation emitted by low temperature sources.

The requirements of this standard do not apply to eye-protectors for which separate and complete standards exist, such as laser eye-protectors, sunglasses for general use, etc. unless such standards make specific reference to this standard.

The requirements of this standard apply to oculars for welding and allied processes but do not apply to equipment for eye and face protection for welding and allied processes, requirements for which are contained in EN 175.

Eye-protectors fitted with prescription lenses are not excluded from the field of application. The refractive power tolerances and other special characteristics dependent upon the prescription requirement are specified in EN ISO 8980-1 and EN ISO 8980-2.

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.*

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

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

EN 169, *Personal eye-protection — Filters for welding and related techniques — Transmittance requirements and recommended utilisation.*

EN 170, *Personal eye-protection — Ultraviolet filters — Transmittance requirements and recommended use.*

EN 171, *Personal eye-protection — Infrared filters — Transmittance requirements and recommended use.*

EN 172, *Personal eye-protection — Sunglare filters for industrial use.*

EN 175, *Personal protection — Equipment for eye and face protection during welding and allied processes.*

EN 379, *Specification for welding filters with switchable luminous transmittance and welding filters with dual luminous transmittance.*

EN ISO 8980-1, *Ophthalmic optics — Uncut finished spectacle lenses - Part 1: Specifications for single-vision and multifocal lenses (ISO 8980-1:1996).*

EN ISO 8980-2, *Ophthalmic optics — Uncut finished spectacle lenses - Part 2: Specifications for progressive power lenses (ISO 8980-2:1996).*

EN ISO 8980-3, *Ophthalmic optics — Uncut finished spectacle lenses – Part 3 : Transmittance specifications and test methods (ISO 8980-3 :1999).*

3 Terms and definitions

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

3.1

visual centre

the point on the ocular corresponding to the intersection of the horizontal and vertical planes through the pupil of the appropriate head-form specified in clause 17 of EN 168:2001 when the eye-protector is fitted to it in accordance with the manufacturers instructions

4 Classification

4.1 Function of eye-protectors

The function of eye-protectors is to provide protection against:

- impacts of different severities;
- optical radiations;
- molten metals and hot solids;
- droplets and splashes;
- dust;
- gases;
- short circuit electric arc;

or any combination of these.

4.2 Types of eye-protectors

NOTE Refer to definitions given in EN 165.

4.2.1 Spectacles with or without lateral protection

4.2.2 Goggles

4.2.3 Face-shields

NOTE Face-shields normally incorporate a suitable headband, browguard, helmet, protective hood or other appropriate mounting device.

4.3 Types of ocular

4.3.1 Mineral oculars (glass)

4.3.1.1 Untoughened mineral oculars

4.3.1.2 Toughened mineral oculars, toughened chemically, thermally or by other processes to give superior resistance to impact in comparison with untoughened mineral oculars.

4.3.2 Organic oculars (plastic)

4.3.3 Laminated oculars

Oculars made in multiple layers joined together by a binder.

NOTE All types of oculars may be further classified into filtering types (for example according to EN 169, EN 170, EN 171, EN 172 and EN 379). They may also be classified as oculars with corrective effect and oculars without corrective effect. They may also have coatings on their surface(s) to give additional characteristics.

5 Designation of filters

The transmittance characteristics of a filter are represented by a scale number.

The scale number is a combination of the code number and the shade number of the filter, joined together by a dash.

The scale number for welding filters does not include a code number, it comprises the shade number only.

Table 1 gives the designation of the various types of filters specified in this European Standard.