



SLOVENSKI STANDARD
SIST EN 208:1999/A1:2003

01-januar-2003

Personal eye-protection - Eye-protectors for adjustment work on lasers and laser systems (laser adjustment eye-protectors)

Persönlicher Augenschutz - Augenschutzgeräte für Justerarbeiten an Lasern und Laseraufbauten (Laser-Justierbrillen)

Protection individuelle de l'oeil - Lunettes de protection sur les lasers et sur les systemes laser (lunettes de réglage laser)

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SIST EN 208:1999/A1:2003

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Ta slovenski standard je istoveten z: EN 208:1998/A1:2002

ICS:

13.340.20 Varovalna oprema za glavo Head protective equipment

SIST EN 208:1999/A1:2003 en

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English version

Personal eye-protection - Eye-protectors for adjustment work on lasers and laser systems (laser adjustment eye-protectors)

Protection individuelle de l'oeil - Lunettes de protection sur les lasers et sur les systèmes laser (lunettes de réglage laser)

Persönlicher Augenschutz - Augenschutzgeräte für Justierarbeiten an Lasern und Laseraufbauten (Laserjustierbrillen)

This amendment A1 modifies the European Standard EN 208:1998; it was approved by CEN on 30 May 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant 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 amendment 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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This Amendment EN 208:1998/A1:2002 to the EN 208:1998 has been prepared by Technical Committee CEN/TC 85 "Eye protective equipment", the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN 208:1998 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2003, and conflicting national standards shall be withdrawn at the latest by February 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).

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.

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3.10 Frames

3.10.1 Filters shall not be interchangeable in the frame.

3.10.2 The frame shall be designed so that no laser radiation can penetrate from the side unintentionally. This requirement is met if for the horizontal angle range α from -50° (nasal side) to $+90^\circ$ (temporal side) the vertical angle β range is protected within the following limit angles in degree ($^\circ$).

The upward limit β_u of the protected range shall be:

$$\beta_u = 55 - 0,0013 \cdot (\alpha - 12)^2 - 1,3 \cdot 10^{-6} \cdot (\alpha - 12)^4$$

The downward limit β_l of the protected range shall be:

$$\beta_l = -70 + 10^{-5} \cdot (\alpha - 22)^2 + 2,3 \cdot 10^{-6} \cdot (\alpha - 22)^4$$

4.1 Spectral transmittance

The spectral transmittance shall be determined for normal incidence. Filters with angular-dependent transmittance (such as interference layers) for the wavelength range from 400 nm to 700 nm shall be measured at angles of incidence between 0° and 30° with polarized radiation and an orientation of the polarization direction giving the highest value of the spectral transmittance. The spectral transmittance specification of Table 1 shall be met at 0° . At other angles the spectral transmittance shall be within the range specified or lower than the value given in Table 1.

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4.3 Stability to laser radiation

Replace the last sentence by the following text:
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The diameter d_{63} of the laser beam during this test shall be $\geq 0,5$ mm for pulse durations < 1 ns.

The diameter d_{63} of the laser beam during this test shall be ≥ 2 mm in all other cases. A beam diameter d_{63} between 0,5 mm and 2,0 mm may be used if the irradiance $E(d)$ or radiant exposure $H(d)$ used at a diameter d is increased compared to the nominal value E_n or H_n , respectively by the factor given by the following formula:

$$E(d) / E_n = a_0 + a_1 \cdot e^{-d/a_2} \text{ or } H(d) / H_n = a_0 + a_1 \cdot e^{-d/a_2}$$

where the constants are in the case of filters consisting of

— glass or containing glass

$$a_0 = 0,769, \quad a_1 = 18,29, \quad a_2 = 0,4778.$$

— plastics

$$a_0 = 1, \quad a_1 = 5,66, \quad a_2 = 0,4498$$

In the case of rectangular beams, the dimensions specified apply to the shortest side of the rectangle.

NOTE The number of decimals of the coefficients was chosen to give a smooth transition at a 2 mm beam diameter. It should not be interpreted as a requirement for measurement accuracy.

4.10 Frames

4.10.1 It shall be tested by means of visual inspection whether the filters are interchangeable.

4.10.2 The test shall be carried out using the method given in 4.8. The zero values of the angles α and β are reached when the axis A, B and C of the test apparatus are perpendicular to each other.

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