

**Isiklikud silmakaitsevahendid. Laserite ja
lasersüsteemide justeerimisel kasutatavad
silmakaitsevahendid (laserite justeerimise
silmakaitsevahendid)**

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 208:2010 sisaldab Euroopa standardi EN 208:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 23.12.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 208:2010 consists of the English text of the European standard EN 208:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 23.12.2009.

The standard is available from Estonian standardisation organisation.

ICS 13.340.20

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute Estonian Standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: +372 605 5050; E-mail: info@evs.ee

English Version

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

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

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

This European Standard was approved by CEN on 21 November 2009.

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 CEN 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Requirements	4
3.1 Spectral transmittance of filters and frames	4
3.2 Luminous transmittance of filters	5
3.3 Resistance of filters and frames to laser radiation	5
3.4 Refractive values of filters and eye-protectors	6
3.5 Quality of material and surface of filters	6
3.6 Stability of filters and eye-protectors to ultraviolet radiation and to elevated temperature	6
3.7 Resistance of filters and frames to ignition by contact with hot surfaces	7
3.8 Field of vision of eye-protectors	7
3.9 Construction of filters	7
3.10 Construction of frames	7
3.11 Mechanical strength of eye-protectors.....	7
4 Testing	8
4.1 General.....	8
4.2 Spectral transmittance of filters and frames	9
4.3 Luminous transmittance of filters	9
4.4 Resistance of filters and frames to laser radiation	9
4.5 Refractive value of filters and eye-protectors	9
4.6 Quality of material and surface of filters	10
4.7 Stability to UV radiation and stability to elevated temperature	10
4.8 Resistance of filters and frames to ignition by contact with hot surfaces	10
4.9 Field of vision of eye-protectors	10
4.10 Determination of the protected range.....	10
4.11 Frames	10
4.12 Mechanical strength	10
5 Information supplied by the manufacturer	11
6 Marking	11
Annex A (informative) Principle	14
A.1 Class 2 lasers	14
A.2 Beam reduction and time base.....	14
A.3 Resistance to laser radiation	14
A.4 Example test report	16
Annex B (informative) Recommended use of laser adjustment eye-protectors	18
B.1 General.....	18
B.2 Continuous wave lasers.....	18
B.3 Pulsed lasers	19
Annex C (informative) Significant technical changes between this European Standard and the previous edition	21
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC.....	22
Bibliography	23

Foreword

This document (EN 208:2009) 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 June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

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 208:1998.

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.

The significant technical changes between this European Standard and the previous edition are detailed in Annex C.

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, 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 applies to laser adjustment filters and eye-protectors. These are filters and eye-protectors for use in adjustment work on lasers and laser systems as defined in EN 60825-1:2007 where hazardous radiation occurs in the visible spectral range of 400 nm to 700 nm. Filters specified in this European Standard reduce this radiation to values defined for lasers of class 2 (≤ 1 mW for CW (continuous wave) lasers).

This European Standard defines the requirements, test methods and marking. A guide is given in Annex B with regard to selection and use.

EN 207 applies to eye-protection against accidental exposure to laser radiation.

NOTE Before selecting eye protection according to this European Standard a risk assessment should first be undertaken (see Annex B).

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 166:2001, *Personal eye-protection — Specifications*

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

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

EN 207:2009, *Personal eye-protection equipment — Filters and eye-protectors against laser radiation (laser eye-protectors)*

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

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

3 Requirements

3.1 Spectral transmittance of filters and frames

When tested according to 4.2, the spectral transmittance values of the filters and the frames for the laser wavelength shall be as given in Table 1.