



BSI Standards Publication

Eye and face protection – Test methods

Part 1: Geometrical optical properties

National foreword

This British Standard is the UK implementation of EN ISO 18526-1:2020. It is identical to ISO 18526-1:2020. It supersedes BS EN 167:2002, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PH/2/1, Sunglasses and Sports Vision.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 580 92458 3

ICS 13.340.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2020.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD

EN ISO 18526-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2020

ICS 13.340.20

English Version

Eye and face protection - Test methods - Part 1: Geometrical optical properties (ISO 18526-1:2020)

Protection des yeux et du visage - Méthodes
d'essai - Partie 1: Propriétés optiques
géométriques (ISO 18526-1:2020)

Augen- und Gesichtsschutz - Prüfverfahren
- Teil 1: Geometrisch optische
Eigenschaften (ISO 18526-1:2020)

This European Standard was approved by CEN on 24 January 2020.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 18526-1:2020) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective equipment" in collaboration with 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 September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 18526-1:2020 has been approved by CEN as EN ISO 18526-1:2020 without any modification.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Preparatory information	1
5 General test requirements	2
6 Geometrical optical test methods	2
6.1 Test method for refractive power and prismatic power for plano lenses.....	2
6.1.1 Principle.....	2
6.1.2 Apparatus.....	2
6.1.3 Calibration of the apparatus.....	3
6.1.4 Procedure.....	3
6.2 Test method for the prism imbalance of complete eye protectors or lenses covering both eyes.....	5
6.2.1 Principle.....	5
6.2.2 Apparatus.....	5
6.2.3 Procedure.....	6
6.2.4 Test report.....	7
6.3 Spatial deviations.....	7
6.3.1 Principle.....	7
6.3.2 Apparatus.....	7
6.3.3 Procedure.....	8
6.3.4 Test report.....	9
7 Uncertainty of measurement	9
Annex A (normative) Application of uncertainty of measurement	10
Annex B (informative) Method of variable distance for the calibration of telescope (see 6.1.3)	13
Bibliography	15

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Personal protective equipment*, Subcommittee SC 6, *Eye and face protection*.

This first edition of ISO 18526-1, together with ISO 18526-2, cancels and replaces ISO 4854:1981 which has been technically revised.

A list of all parts in the ISO 18526 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The family of documents comprised of the ISO 16321 series, the ISO 18526 series and the ISO 18527 series was developed in response to the worldwide stakeholders' demand for minimum requirements and test methods for eye and face protectors traded internationally. ISO 4007 gives the terms and definitions for all the various product types. The test methods are given in the ISO 18526 series, while the requirements for occupational eye and face protectors are given in the ISO 16321 series. Eye protectors for specific sports are mostly dealt with by the ISO 18527 series. A guidance document, ISO 19734, for the selection, use and maintenance of eye and face protectors is under preparation.

Eye and face protection – Test methods —

Part 1: Geometrical optical properties

1 Scope

This document specifies the reference test methods for determining the spherical, cylindrical, and prismatic refractive power properties of unmounted and mounted plano lenses (non-corrective lenses) for eye and face protectors.

This document does not apply to any eye and face protection product requirement standards for which other test methods are specified.

Other test methods can be used provided they have been shown to be equivalent and include uncertainties of measurement no greater than those required by the reference method.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

ISO 4007, *Personal protective equipment — Eye and face protection — Vocabulary*

ISO 18526-4:2020, *Eye and face protection — Test methods — Part 4: Headforms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4007 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Preparatory information

Before testing, refer to the appropriate product's requirements standard for the information needed to apply the tests in this document, for example:

- the number of test samples¹⁾;
- preparation of test samples;
- the selection of test samples (if included in this document);

1) For the purpose of this document, “test sample” is taken to be the object under test, e.g. “lens”, “filter” or “complete protector” as specified in the requirement standards.