



BSI Standards Publication

Eye and face protection for occupational use

Part 1: General requirements

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

National foreword

This British Standard is the UK implementation of EN ISO 16321-1:2022+A1:2025. It is identical to ISO 16321-1:2021, incorporating amendment 1:2024. It supersedes BS EN ISO 16321-1:2022, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee PH/2/2, Industrial eye protectors.

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

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

This publication has been prepared under a mandate given to the European Standards Organizations by the European Commission and the European Free Trade Association. It is intended to support requirements of the EU legislation detailed in the European Foreword. A European Annex, usually Annex ZA or ZZ, describes how this publication relates to that EU legislation.

For the Great Britain market (England, Scotland and Wales), if UK Government has designated this publication for conformity with UKCA marking (or similar) legislation, it may contain an additional National Annex. Where such a National Annex exists, it shows the correlation between this publication and the relevant UK legislation. If there is no National Annex of this kind, the relevant Annex ZA or ZZ in the body of the European text will indicate the relationship to UK regulation applicable in Great Britain. References to EU legislation may need to be read in accordance with the UK designation and the applicable UK law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.

For the Northern Ireland market, UK law will continue to implement relevant EU law subject to periodic confirmation. Therefore Annex ZA/ZZ in the European text, and references to EU legislation, are still valid for this market.

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 24596 7

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 May 2022.

Amendments/corrigenda issued since publication

Date	Text affected
31 March 2025	Implementation of ISO amendment 1:2024 with CEN endorsement A1:2025

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

EUROPÄISCHE NORM

March 2025

ICS 13.340.20

English Version

Eye and face protection for occupational use - Part 1: General requirements - Amendment 1 (ISO 16321- 1:2021/Amd 1:2024)

Protection des yeux et du visage à usage professionnel
- Partie 1: Exigences générales - Amendement 1 (ISO
16321-1:2021/Amd 1:2024)

Augen- und Gesichtsschutz für berufliche
Anwendungen - Teil 1: Allgemeine Anforderungen -
Änderung 1 (ISO 16321-1:2021/Amd 1:2024)

This amendment A1 modifies the European Standard EN ISO 16321-1:2022; it was approved by CEN on 17 July 2024.

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 CEN-CENELEC 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 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, Türkiye 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 16321-1:2022) 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 October 2022, and conflicting national standards shall be withdrawn at the latest by April 2025.

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 supersedes EN 166:2001, EN 169:2002, EN 170:2002, EN 171:2002, EN 172:1994, EN 379:2003+A1:2009.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Regulation 2016/425.

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

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

The following referenced documents are indispensable for the application of this document. For undated references, the latest edition of the referenced document (including any amendments) applies. For dated references, only the edition cited applies. However, for any use of this document 'within the meaning of Annex ZA, the user should always check that any referenced document has not been superseded and that its relevant contents can still be considered the generally acknowledged state-of-art.

When an IEC or ISO standard is referred to in the ISO standard text, this shall be understood as a normative reference to the corresponding EN standard, if available, and otherwise to the dated version of the ISO or IEC standard, as listed below.

NOTE The way in which these referenced documents are cited in normative requirements determines the extent (in whole or in part) to which they apply.

Undated normative references in the ISO standard	Clause(s) of the ISO standard	Equivalent dated standard	
		EN	ISO or IEC
ISO 4007	Clause 2 & 3	EN ISO 4007:2018	ISO 4007:2018
ISO 11664-1	Clause 2 & 4.3.1.1	EN ISO 11664-1:2011	ISO 11664-1:2007
ISO 11664-2	Clause 2 & 4.3.1.1	EN ISO 11664-2:2011	ISO 11664-2:2007
ISO 16321-1	Clause 1, 2, & 4.1	EN ISO 16321-1:2020	ISO 16321-1:2020
ISO 18526-1	Clause 2	EN ISO 18526-1:2020	ISO 18526-1:2020
ISO 18526-2	Clause 2	EN ISO 18526-2:2020	ISO 18526-2:2020

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

ISO 18526-4	Clause 2	EN ISO 18526-4:2020	ISO 18526-4:2020
ISO 18526-4	Clause 2, 6.3 & 7	EN ISO 18526-4:2020	EN ISO 18526-4:2020

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 16321-1:2021 has been approved by CEN as EN ISO 16321-1:2022 without any modification.

European foreword to Amendment 1

This document (EN ISO 16321-1:2022/A1:2025) 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 Amendment to the European Standard EN ISO 16321-1:2022 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2025, and conflicting national standards shall be withdrawn at the latest by March 2028.

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 standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 16321-1:2021/Amd 1:2024 has been approved by CEN as EN ISO 16321-1:2022/A1:2025 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the essential requirements of Regulation 2016/425 aimed to be covered

This European Standard has been prepared under a Commission’s standardization request (mandate M/571) to provide one voluntary means of conforming to essential requirements of Regulation 2016/425 C(2020) 7924 final.

Once this standard is cited in the Official Journal of the European Union under that Regulation 2016/425, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Regulation 2016/425 and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Annex II of Regulation 2016/425

Essential Requirements of Regulation 2016/425	Clause(s)/subclause(s) of this EN	Remarks/Notes
1.1.1 Ergonomics	4.3; 7.2	
1.1.2 Level and classes of protection	6.2; 6.3.1; 6.3.2; 6.3.3; 6.3.4; 6.6; 7.1;7.4; 7.10; 7.11; 7.14; 7.15; 7.16; 7.17; 7.18; 7.19; 7.20; 7.21	
1.2.1 Absence of risks and other 'inherent' nuisance factors	5.2, 6.1	
1.2.1.1 Suitable constituent materials	4.2	
1.2.1.2 Satisfactory surface condition of all PPE parts in contact with the user.	4.3	
1.2.1.3 Maximum permissible user impediment	5.1; 5.2; 5.3; 5.5; 6.1; 6.5; 6.7; 7.3	
1.3.1 Adaptation of PPE to user morphology	4.3; 4.5; 5.1; 7.2	
1.3.2 Lightness and design strength	4.1; 7.4; 7.5; 7.6; 7.7; 7.8, 7.12	
1.4 Manufacturer's instructions	9	

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

and information		
2.2 PPE "enclosing" the parts of the body to be protected	7.9; 7.13	
2.3 PPE for the face, eyes and respiratory system	4.3; 5; 6.1; 6.5; 6.7; 7.9; 7.13	
2.9 PPE incorporating components which can be adjusted or removed by the user	4.3	
2.12 PPE bearing one or more identification markings or indicators directly or indirectly relating to health and safety	8	
2.14 "Multi risk" PPE	6; 7	This standard describes multiple types of risks. The EHSR is covered by the appropriate combination of requirements, associated with the risks corresponding to the intended use of the eye/face protector
3.1.1 Impact caused by falling or ejected objects and collision of parts of the body with obstacle	7.1; 7.4; 7.9; 7.10; 7.11	This standard does not cover requirements concerning prevention of injuries caused by collision of the face with obstacles.
3.6.1 PPE constituent materials and other components	6.3.2; 6.6; 7.5; 7.14; 7.19; 7.4; 7.10.2; 7.11.2	
3.6.2 Complete PPE ready for use	6.3.2; 7.19	
3.9.1 Non-ionising radiation	6; 7.1; 8; 9	
3.10.2 Protection against cutaneous and ocular contact	7.15; 7.16; 7.17; 7.18; 7.20	

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

Table ZA.2 — Applicable Standards to confer presumption of conformity as described in this Annex ZA

Column 1 Reference in Clause 2	Column 2 International Standard Edition	Column 3 Title	Column 4 Corresponding European Standard Edition
ISO 4007	ISO 4007:2018	Personal protective equipment - Eye and face	EN ISO 4007:2018
ISO/CIE 11664-1	ISO/CIE 11664-1:2019	Colorimetry – Part 1: CIE standard colorimetric observers	EN ISO/CIE 11664-1:2019
ISO/CIE 11664-2	ISO/CIE 11664-2:2022	Colorimetry – Part 2: CIE standard illuminants	EN ISO/CIE 11664-2:2022
ISO 12312-1	ISO 12312-1:2022	Eye and face protection – Sunglasses and related eyewear - Part 1: Sunglasses for general use	EN ISO 12312-1:2022
ISO 16034	ISO 16034:2002	Ophthalmic optics — Specifications for single-vision ready-to-wear near-vision spectacles	X
ISO 16321-2	ISO 16321-2:2021	Eye and face protection for occupational use — Part 2: Additional requirements for protectors used during welding and related techniques	EN ISO 16321-2:2021
ISO 16321-3	ISO 16321-3:2021	Eye and face protection for occupational use — Part 3: Additional requirements for mesh protectors	EN ISO 16321-3:2022
ISO 18526-1	ISO 18526-1:2020	Eye and face protection — Test methods — Part 1: Geometrical optical properties	EN ISO 18526-1:2020
ISO 18526-2	ISO 18526-2:2020	Eye and face protection — Test methods — Part 2: Physical optical properties	EN ISO 18526-2:2020
ISO 18526-3	ISO 18526-3:2020	Eye and face protection — Test methods — Part 3: Physical and mechanical properties	EN ISO 18526-3:2020
ISO 18526-4	ISO 18526-4:2020	Eye and face protection — Test methods — Part 4: Headforms	EN ISO 18526-4:2020

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

ISO 21987	ISO 21987:2017	Ophthalmic optics — Mounted spectacle lenses	EN ISO 21987:2017
ISO 80079-36	ISO 80079-36:2016	Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements	EN ISO 80079-36:2016

The documents listed in the Column 1 of Table ZA.2, in whole or in part, are normatively referenced in this document, i.e. are indispensable for its application. The achievement of the presumption of conformity is subject to the application of the edition of Standards as listed in Column 4 or, if no European Standard Edition exists, the International Standard Edition given in Column 2 of Table ZA.2.

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 General requirements for protectors	2
4.1 Ambient temperatures.....	2
4.2 Physiological compatibility.....	2
4.3 Construction and adjustment.....	3
4.4 Cleaning and/or disinfection.....	3
4.5 Headform(s).....	3
4.6 Mandatory and optional requirements.....	3
5 Geometrical optical requirements for protectors	4
5.1 Field of view.....	4
5.2 Refractive power and prismatic power for plano lenses.....	4
5.2.1 Spherical and cylindrical power.....	4
5.2.2 Spatial deviation.....	4
5.2.3 Prismatic power for unmounted plano lenses covering one eye.....	5
5.2.4 Prism imbalance of complete eye protectors or plano lenses covering both eyes.....	5
5.3 Mounted prescription lenses.....	5
5.3.1 Optical.....	5
5.3.2 Positioning.....	5
5.4 Single-vision ready-to-wear near-vision lenses (lenses with positive spherical power).....	5
5.5 Enhanced optical performance (optional requirement).....	5
6 Physical optical requirements for protectors	6
6.1 Detection of signal lights.....	6
6.2 Luminous transmittance of lenses without deliberate filter action.....	6
6.3 Specific requirements for different types of filter.....	6
6.3.1 Ultraviolet protective filters.....	6
6.3.2 Infrared protective filters.....	7
6.3.3 Sunglare filters for occupational use.....	9
6.3.4 Filters for use in glass blowing.....	11
6.4 Uniformity of luminous transmittance and transmittance matching.....	12
6.5 Scattered light.....	12
6.6 Frame transmittance.....	12
6.7 Anti-reflective coated lenses (optional requirement).....	13
7 Physical and mechanical requirements for protectors	13
7.1 Area to be protected.....	13
7.1.1 General.....	13
7.1.2 Area to be protected by eye protectors.....	18
7.1.3 Area to be protected by face protectors.....	19
7.1.4 Lateral protection.....	19
7.2 Headbands and harnesses.....	19
7.3 Quality of material and surface of mounted and unmounted lenses, visors and filters.....	19
7.4 Basic impact level of complete protectors.....	19
7.4.1 Complete protectors.....	19
7.4.2 Failure criteria.....	20
7.4.3 Protectors with inserts to carry prescription lenses.....	20
7.5 Resistance to thermal exposure.....	21
7.6 Resistance to UV radiation.....	21
7.7 Resistance to corrosion.....	22
7.8 Resistance to ignition.....	22

This is a preview of BS EN ISO 16321-1:2022+A1:2025. [Click here to purchase the full version from the ANSI store](#)

7.9	Penetration of vents and gaps.....	22
7.10	High-speed impact resistance, impact level C, D, E (optional requirement).....	22
	7.10.1 Protection at normal ambient temperatures.....	22
	7.10.2 Protection at extremes of temperature.....	23
7.11	High mass impact, impact level HM (optional requirement).....	24
	7.11.1 Protection at normal ambient temperatures.....	24
	7.11.2 Protection at extremes of temperature.....	24
7.12	Resistance to surface damage due to flying fine particles (optional requirement).....	25
7.13	Resistance to fogging of lenses or filters (optional requirement).....	25
7.14	Protection against molten metals and hot solids (optional requirement).....	25
7.15	Protection against droplets (optional requirement).....	25
7.16	Protection against streams of liquids (Optional requirement).....	25
7.17	Protection against large dust particles (optional requirement).....	26
7.18	Protection against gases and fine dust (optional requirement).....	26
7.19	Protection against radiant heat (optional requirement).....	26
7.20	Chemical resistance (optional requirement).....	26
7.21	Use in explosive atmospheres (optional requirement).....	27
8	Marking of protectors.....	27
8.1	General.....	27
8.2	Mandatory markings on lenses/filters.....	28
8.3	Mandatory markings on frames.....	28
8.4	Optional markings on lenses/filters.....	29
8.5	Optional markings on frames.....	29
8.6	Examples of markings.....	30
9	Information to be supplied by the manufacturer.....	30
10	Allocation of requirements, test samples and application.....	31
10.1	General test samples.....	31
10.2	Test samples for prescription lenses for eye protectors.....	38
	10.2.1 Single-vision lenses.....	38
	10.2.2 Multifocal lenses.....	39
	10.2.3 Power-variation lenses.....	39
	10.2.4 Information to be provided by the frame manufacturer.....	39
	Annex A (informative) Summary of mechanical impact levels in eye and face protection for sunglass, occupational and sports use.....	40
	Bibliography.....	41