

DIN EN ISO 14120**DIN**

ICS 13.110

Supersedes
DIN EN 953:2009-07

**Safety of machinery –
Guards –
General requirements for the design and construction of fixed and movable
guards (ISO 14120:2015);
English version EN ISO 14120:2015,
English translation of DIN EN ISO 14120:2016-05**

Sicherheit von Maschinen –
Trennende Schutzeinrichtungen –
Allgemeine Anforderungen an Gestaltung und Bau von feststehenden und beweglichen
trennenden Schutzeinrichtungen (ISO 14120:2015);
Englische Fassung EN ISO 14120:2015,
Englische Übersetzung von DIN EN ISO 14120:2016-05

Sécurité des machines –
Protecteurs –
Prescriptions générales pour la conception et la construction des protecteurs fixes et mobiles
(ISO 14120:2015);
Version anglaise EN ISO 14120:2015,
Traduction anglaise de DIN EN ISO 14120:2016-05

Document comprises 46 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

A comma is used as the decimal marker.

National foreword

This standard includes safety requirements.

This document (EN ISO 14120:2015) has been prepared by Technical Committee ISO/TC 199 "Safety of machinery" in collaboration with Technical Committee CEN/TC 114 "Safety of machinery" (Secretariat: DIN, Germany).

The responsible German bodies involved in its preparation were *DIN-Normenausschuss Sicherheitstechnische Grundsätze* (DIN Standards Committee Safety Design Principles), *DIN-Normenausschuss Maschinenbau* (DIN Standards Committee Mechanical Engineering), and the DKE *Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE* (German Commission for Electrical, Electronic and Information Technologies of DIN and VDE), Joint Working Committee NA 095-01-04 GA *Schutzeinrichtungen, Sicherheitsmaßnahmen und Verriegelungen*.

The DIN Standards corresponding to the International Standards referred to in this document are as follows:

ISO 11200	DIN EN ISO 11200
ISO 12100	DIN EN ISO 12100
ISO 13854	DIN EN 349
ISO 13855	DIN EN ISO 13855
ISO 13857	DIN EN ISO 13857
ISO 14119	DIN EN ISO 14119
ISO 14123-1	DIN EN 626-1
ISO 14159	DIN EN ISO 14159
ISO 14738	DIN EN ISO 14738
ISO 19353	E DIN EN ISO 19353
ISO 25980	DIN EN ISO 25980
IEC 60204-1	DIN EN 60204-1 (VDE 0113-1)
IEC/TR 61340-1	DIN IEC/TR 61340-1 (VDE 0300-1)

Amendments

This standard differs from DIN EN 953:2009-07 as follows:

- a) terms and definitions have been brought in line with ISO 12100;
- b) requirements for the removal of guards have been specified;
- c) Clause 6 dealing with the combination of different guards or of guards with other devices has been amended and updated;
- d) validation methods have been introduced;
- e) two new informative Annexes on test methods (projectile tests and impact tests) have been added;
- f) the document has been editorially revised;

Previous editions

DIN EN 953: 1997-11, 2009-07

National Annex NA (informative)

Bibliography

DIN EN 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

DIN EN 626-1, *Safety of machinery — Reduction of risks to health from hazardous substances emitted by machinery — Part 1: Principles and specifications for machinery manufacturers*

DIN EN ISO 11200, *Acoustics — Noise emitted by machinery and equipment — Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions*

DIN EN ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

DIN EN ISO 13855, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body*

DIN EN ISO 13857, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

DIN EN ISO 14119, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

DIN EN ISO 14159, *Safety of machinery — Hygiene requirements for the design of machinery*

DIN EN ISO 14738, *Safety of machinery — Anthropometric requirements for the design of workstations at machinery*

E DIN EN ISO 19353, *Safety of machinery — Fire prevention and protection*

DIN EN ISO 25980, *Health and safety in welding and allied processes — Transparent welding curtains, strips and screens for arc welding processes*

DIN EN 60204-1 (VDE 0113-1), *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

DIN IEC/TR 61340-1 (VDE 0300-1), *Electrostatics — Part 1: Electrostatic phenomena — Principles and measurements*

— This page is intentionally blank —

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 14120

November 2015

ICS 13.110

Supersedes EN 953:1997+A1:2009

English Version

Safety of machinery - Guards - General requirements for
the design and construction of fixed and movable guards
(ISO 14120:2015)

Sécurité des machines - Protecteurs - Prescriptions
générales pour la conception et la construction des
protecteurs fixes et mobiles (ISO 14120:2015)

Sicherheit von Maschinen - Trennende
Schutzeinrichtungen - Allgemeine Anforderungen an
Gestaltung, Bau und Auswahl von feststehenden und
beweglichen trennenden Schutzeinrichtungen
(ISO 14120:2015)

This European Standard was approved by CEN on 3 October 2015.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword	4
Foreword	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Risk assessment	14
5 General requirements for the design and construction of guards	14
5.1 Machine aspects	14
5.1.1 General	14
5.1.2 Access to hazard zones	14
5.1.3 Containment of ejected parts and other impacts	14
5.1.4 Containment of hazardous substances	15
5.1.5 Noise	15
5.1.6 Radiation	15
5.1.7 Potentially explosive atmosphere	15
5.2 Human aspects	15
5.2.1 General	15
5.2.2 Safety distances	15
5.2.3 Control of access to the hazard zone	15
5.2.4 Viewing	16
5.2.5 Ergonomic aspects	16
5.2.6 Intended use	16
5.3 Guard design and construction aspects	17
5.3.1 General	17
5.3.2 Crushing or trapping points	17
5.3.3 Durability	17
5.3.4 Hygiene	17
5.3.5 Cleaning	17
5.3.6 Exclusion of contaminants	17
5.3.7 Sharp edges, etc.	17
5.3.8 Integrity of joints	17
5.3.9 Removal of fixed guards	17
5.3.10 Mounting of removable fixed guards	18
5.3.11 Adjustable guards	18
5.3.12 Movable guards	18
5.3.13 Closed position of movable guards	18
5.3.14 Interlocking guards with a start function (control guards)	18
5.4 Materials, rigidity, and impact requirements	19
5.4.1 General	19
5.4.2 Impact and ejection resistance	19
5.4.3 Rigidity	19
5.4.4 Secure fixing	19
5.4.5 Reliability of moving parts	19
5.5 Containment	19
5.6 Resistance to corrosion	19
5.7 Resistance to microorganisms	19
5.8 Non-toxicity	20
5.9 Machine viewing	20
5.10 Transparency	20
5.11 Shadows and stroboscopic effects	20
5.12 Electrostatic properties	20
5.13 Guards with electrically conductive parts	20