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Replacing GB/T 8196-2003

**Safety of Machinery – Guards – General Requirements for
the Design and Construction of Fixed and Movable Guards**

机械安全 防护装置 固定式和活动式防护装置的设计与制造一般要

求

(ISO 14120:2015, IDT)

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Table of Contents

Foreword	4
Introduction	6
1 Scope	8
2 Normative References	8
3 Terms and Definitions	9
4 Risk Assessment	15
5 General Requirements for the Design and Construction of Guards	15
5.1 Machine aspects	15
5.2 Human aspects	17
5.3 Guard design and construction aspects	19
5.4 Materials, rigidity, and impact requirements	21
5.5 Containment	22
5.6 Resistance to corrosion	22
5.7 Resistance to microorganisms	22
5.8 Non-toxicity	23
5.9 Machine viewing	23
5.10 Transparency	23
5.11 Shadows and stroboscopic effects	23
5.12 Electrostatic properties	23
5.13 Guards with electrically conductive parts	23
5.14 Thermal stability	24
5.15 Fire and flammability	24
5.16 Noise and vibration reduction	24
5.17 Radiation protection	24
5.18 Climbing	24
5.19 Retained fastenings	24
5.20 Vibration resistance	25
5.21 Warning signs	25
5.22 Color	25
5.23 Appearance	25
6 Selection of Types of Guards	26
6.1 General	26
6.2 Combination of different guards or of guards with other devices	26

6.3 Selection of guards according to the number and size of the hazards.....	27
6.4 Selection of guards according to the nature and frequency of access required	28
7 Verification of the Safety Requirements for Guards	29
7.1 General	29
7.2 Verification and validation methods	29
7.3 Required verification and validation.....	30
8 Information for Use	34
8.1 General	34
8.2 Guard hazards	34
8.3 Installation.....	34
8.4 Operation	34
8.5 Removal of guards	35
8.6 Inspection and maintenance.....	35
Annex A (Informative) Example of Retained Fastening	36
Annex B (Informative) Example of Projectile Test Method for Mechanically Testing Guards	37
Annex C (Informative) Example of Pendulum Test Method for Mechanically Testing Guards	41
Bibliography	46

Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaced GB/T 8196-2003 *Safety of Machinery – Guards - General Requirements for the Design and Construction of Fixed and Movable Guards*. Compared with GB/T 8196-2003, the major technical changes of this Standard are as follows besides the editorial modifications:

- Increase the ergonomic requirements for power-operated guards (see 5.2.5.4 of this Edition);
- Increase the requirements for guards with conductive parts (see 5.13 of this Edition);
- Increase the requirements for anti-climbing (see 5.18 of this Edition);
- Refine the requirements for fasteners of guards (see 5.19 of this Edition; 7.2 of 2003 Edition);
- Refine verification and validation of safety requirements for guards (see Clause 7 of this Edition; Clause 8 of 2003 Edition);
- Add examples of retaining fasteners (see Annex A of this Edition);
- Add test methods (see Annexes B and C of this Edition);
- Delete Annexes B and C (see Annexes B and C of 2003 Edition).

This Standard used the translation method to equivalently adopt ISO 14120:2015 *Safety of Machinery – Guards – General Requirements for the Design and Construction of Fixed and Movable Guards*.

The Chinese documents that have a consistent correspondence with the international documents normatively cited in this Standard are as follows:

- GB/T 18569.1-2001 Safety of Machinery - Reduction of Risks to Health from Hazardous Substances Emitted by Machinery - Part 1: Principles and Specifications for Machinery Manufacturers (eqv ISO 14123-1:1998);
- GB/T 18831-2017 Safety of Machinery - Interlocking Devices Associated with Guards - Principles for Design and Selection (ISO 14119:2013, IDT);
- GB/T 19876-2012 Safety of Machinery - Positioning of Safeguards with respect to the Approach Speeds of Parts of the Human Body (ISO 13855:2010, IDT);
- GB/T 19891-2005 Safety of Machinery - Hygiene Requirements for the Design of Machinery (ISO 14159:2002, IDT);

Safety of Machinery – Guards – General Requirements for the Design and Construction of Fixed and Movable Guards

1 Scope

This Standard specifies general requirements for the design, construction, and selection of guards provided to protect persons from mechanical hazards.

This Standard indicates other hazards that can influence the design and construction of guards.

This Standard applies to guards for machinery which will be manufactured after it is published.

This Standard applies to the fixed and movable guards.

This Standard does not cover interlocking devices, which are covered in ISO 14119.

This Standard does not provide requirements for special systems relating specifically to mobility such as ROPS (rollover protective structures), FOPS (falling-object protective structures), and TOPS (tip over protective structures) or to the ability of machinery to lift loads.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this document.

GB 5226.1-2008 Electrical Safety of Machinery - Electrical Equipment of Machines - Part 1: General Requirements (IEC 60204-1:2005, IDT)

GB/T 15706-2012 Safety of Machinery - General Principles for Design - Risk Assessment and Risk Reduction (ISO 12100:2010, IDT)

ISO 13855 Safety of Machinery – Positioning of Safeguards with respect to the Approach Speeds of Parts of the Human Body

ISO 13857 Safety of Machinery – Safety Distances to Prevent Hazard Zones being Reached by Upper and Lower Limbs

ISO 14119 Safety of Machinery – Interlocking Devices Associated with Guards – Principles for Design and Selection

ISO 14123-1 Safety of Machinery – Reduction of Risks to Health from Hazardous Substances Emitted by Machinery – Part 1: Principles and Specifications for Machinery Manufacturers

ISO 14159 Safety of Machinery – Hygiene Requirements for the Design of Machinery

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 15706-2012 and the following apply.

3.1 Guard

Physical barrier, designed as part of the machine, to provide protection.

NOTE 1: A guard may act either

- alone, in which case it is only effective when “closed” (for a movable guard) or “securely held in place” (for a fixed guard), or
- in conjunction with an interlocking device with or without guard locking, in which case protection is ensured whatever the position of the guard.

NOTE 2: Depending on its construction, a guard may be described as, for example, casing, shield, cover, screen, door, enclosing guard.

NOTE 3: The terms for types of guards are defined in GB/T 15706-2012, 3.27.1 to 3.27.6. See also GB/T 15706-2012, 6.3.3.2 for types of guards and their requirements.

[GB/T 15706-2012, definition, 3.27]

3.2 Fixed guard

Guard affixed in such a manner (for example, by screws, nuts, and welding) that it can only be opened or removed by the use of tools or by destruction of the means by which the guard is affixed.

[GB/T 15706-2012, definition, 3.27.1]

3.2.1 Enclosing guard

Guard which prevents access to the hazard zone from all sides.

NOTE 1: See Figure 1.

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