



BSI Standards Publication

Plastics and rubber machines — Clamping systems

Part 1: Safety requirements for magnetic clamping systems

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National foreword

This British Standard is the UK implementation of EN ISO 23582-1:2023. It is identical to ISO 23582-1:2023. It supersedes BS EN 289:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/3/2, Rubber and plastics machine - Safety.

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

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Plastics and rubber machines - Clamping systems - Part 1: Safety requirements for magnetic clamping systems (ISO 23582-1:2023)

Machines pour les matières plastiques et le caoutchouc
- Systèmes de bridage - Partie 1: Prescriptions de
sécurité pour les systèmes de bridage magnétique (ISO
23582-1:2023)

Kunststoff- und Gummimaschinen - Spannsysteme -
Teil 1: Sicherheitsanforderungen für
Magnetspannsysteme (ISO 23582-1:2023)

This European Standard was approved by CEN on 10 March 2023.

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

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European foreword

This document (EN ISO 23582-1:2023) has been prepared by Technical Committee ISO/TC 270 "Plastics and rubber machines" in collaboration with Technical Committee CEN/TC 145 "Plastics and rubber machines" the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by October 2023, and conflicting national standards shall be withdrawn at the latest by October 2023.

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.

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 23582-1:2023 has been approved by CEN as EN ISO 23582-1:2023 without any modification.

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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 270, *Plastics and rubber machines*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 145, *Plastics and rubber machines*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 23582 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.

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Introduction

This document has been created in recognition of the particular hazards that are presented by magnetic clamping systems when integrated and installed in a plastics or rubber machine.

Hazards are frequently unique to a particular magnetic clamping system integrated in a plastics or rubber machine. The number and types of hazards are directly related to the nature of the application, the automation process and the complexity of the installation.

The risks associated with these hazards vary with the type of application and production process.

For the purpose of understanding requirements in this document, a word syntax is used to distinguish absolute requirements from recommended practices or suggested actions. The word "shall" is used to identify requirements necessary for conformance with this document. Such requirements are to be accomplished unless an alternative instruction is provided, or a suitable alternative is determined by a risk assessment. The word "should" is used to identify suggestions, recommended actions or possible solutions for requirements, but alternatives are possible and the suggested actions are not absolute.

In recognition of the variable nature of hazards with the application of magnetic clamping system integrated in a plastics or rubber machine, this document provides guidance for the assurance of safety in the design of magnetic clamping systems. Since safety in the use of magnetic clamping systems is influenced by the integration in the machine and by the design and use of the different moulds, a supplementary, though equally important, purpose is to provide guidelines for the integration, the installation and the use of magnetic clamping systems.

This document is a type-C standard as stated in ISO 12100.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance etc.)

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e. g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

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Plastics and rubber machines — Clamping systems —

Part 1: Safety requirements for magnetic clamping systems

1 Scope

This document specifies the essential safety requirements for the design, the construction and the integration of magnetic clamping systems (MCS) for plastics and rubber machines (e.g. injection moulding machines, compression moulding machines) and provides operational limits and information for their safe use.

This document deals with the basic hazards, hazardous situations or hazardous events that are listed in [Annex A](#), when an MCS is used utilizing magnetic force to affix a mould to the platen of a machine in which it is integrated, and provides requirements to eliminate or adequately reduce the risks associated with these hazards taking into consideration conditions of misuse that are reasonably foreseeable by the manufacturer.

This document also specifies requirements for the MCS when integrated into a machine. This document does not deal specifically with hazards associated with production processes or other processes (e.g. horizontal or vertical injection moulding processes). Other standards can be applicable to these process hazards.

This document does not cover hydraulic, pneumatic or mechanical clamping systems.

This document is not applicable to MCS manufactured before the date of its publication.

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 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

IEC 60204-1:2016, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

IEC 62061, *Safety of machinery — Functional safety of safety-related control systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010 and the following apply.

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

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