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BSI Standards Publication

Plastics and rubber machines - Internal mixers - Safety requirements

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National foreword

This British Standard is the UK implementation of EN 12013:2018. It supersedes BS EN 12013:2000+A1:2008, which is withdrawn.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 secretary.

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

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

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English Version

Plastics and rubber machines - Internal mixers - Safety requirements

Machines pour les matières plastiques et le caoutchouc
- Mélangeurs internes - Prescriptions de sécurité

Kunststoff- und Gummimaschinen - Innenmischer -
Sicherheitsanforderungen

This European Standard was approved by CEN on 8 September 2017.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	8
4 Safety requirements and/or protective/risk reduction measures	11
4.1 General	11
4.2 Start, stop and restart functions	11
4.2.1 Start function	11
4.2.2 Stop function	11
4.2.3 Restart function	11
4.3 Safety related parts of the control system	11
4.4 Emergency stop	12
4.5 Emergency stop devices	12
4.6 Mechanical hazards	12
4.6.1 General	12
4.6.2 Safeguarding and risk reduction measures	12
4.6.3 Guidance for interpreting subclauses 4.6.4 to 4.6.7	13
4.6.4 Safety requirements and/or protective/risk reduction measures preventing mechanical hazards in the feeding area	14
4.6.5 Safety requirements and/or protective / risk reduction measures preventing mechanical hazards in the transition chute area of the tandem mixer	28
4.6.6 Safety requirements and/or protective / risk reduction measures preventing mechanical hazards in the discharge area	31
4.6.7 Safety requirements and/or protective /risk reduction measures preventing mechanical hazards for movement of the rotor drive elements	33
4.7 Hazards due to the hose assemblies of the hydraulic/pneumatic/heating and cooling systems	35
4.8 Additional hazards during major cleaning operation, maintenance and repair	35
4.8.1 Conditions for major cleaning operation, maintenance and repair at internal mixers and laboratory internal mixers	35
4.8.2 Additional conditions for major cleaning operations, maintenance and repair at laboratory internal mixers	36
4.9 Hazards due to electrical energy	36
4.9.1 General	36
4.9.2 Protection against direct contact	36
4.9.3 Protection against indirect contact	36
4.9.4 Protection against ingress of solids and liquids	36
4.9.5 Electric shock or fire due to electrostatic discharge	36
4.10 Thermal hazards	36
4.11 Hazards generated by noise	37
4.12 Hazards resulting from substances hazardous to health	37
4.13 Fire hazards	38
4.14 Slip, trip and fall hazards	38
4.14.1 Slippage due to leakage from dust seals	38

This is a preview of "BS EN 12013:2018". [Click here to purchase the full version from the ANSI store.](#)

4.14.2	Slipping, tripping and falling from permanent means of access	38
4.15	Ergonomics	38
5	Verification of the safety requirements and/or protective/risk reduction measures	38
6	Information for use	45
6.1	General	45
6.2	Instruction handbook	45
6.2.1	General	45
6.2.2	Installation	45
6.2.3	Operation	46
6.2.4	Cleaning and maintenance	46
6.2.5	Noise	47
6.2.6	Information on fire hazard emergency procedure	47
6.3	Marking	47
6.4	Warning signals and warning signs	47
Annex A (informative)	List of significant hazards	48
A.1	General	48
A.2	Design versions of internal mixers and their working levels	48
A.3	Hazards, hazardous situations and events	49
Annex B (normative)	Noise test code for laboratory internal mixers	62
B.1	Introduction	62
B.2	Determination of the A-weighted emission sound pressure level at the workstation	62
B.2.1	Basic standards and measurement procedure	62
B.2.2	Measurement uncertainty	63
B.3	Determination of the A-weighted sound power level	63
B.3.1	Basic standards and measurement procedure	63
B.3.2	Measurement uncertainty	64
B.4	Mounting and operating conditions	64
B.5	Information to be recorded and reported	65
B.5.1	General	65
B.5.2	General data	65
B.5.3	Mounting and operating conditions	65
B.5.4	Standards	65
B.5.5	Noise data	65
B.6	Declaration and verification of noise emission values	65
Annex C (informative)	Examples of possible technical measures to prevent fire hazards due to exothermically reacting compounds	68
Annex ZA (informative)	Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered	69
Bibliography	70

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European foreword

This document (EN 12013:2018) has been prepared by Technical Committee CEN/TC 145 "Plastics and rubber machines", the secretariat of which is held by UNI.

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 July 2018 and conflicting national standards shall be withdrawn at the latest by July 2018.

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

This document supersedes EN 12013:2000+A1:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

The main changes with respect to the previous edition are as follows:

- modification of the structure;
- list of significant hazards is moved into an informative annex;
- clarification that internal mixers for production and for laboratory applications are dealt with;
- tandem mixers (combination of two internal mixers) are added;
- technical developments in safeguards are taken into account;
- revised type-A and type-B standards are taken into account;
- the performance levels of safety related parts of control systems are specified in accordance with EN ISO 13849-1:2015;
- normative annex on noise measurement and declaration for laboratory internal mixers is added.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This document is a type-C standard as stated in EN ISO 12100:2010.

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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1 Scope

This European Standard deals with all significant hazards, hazardous situations or hazardous events relevant to the design and construction of internal mixers during all phases of the machine life cycle (see EN ISO 12100:2010, 5.4), irrespective of their size and of the control modes of the feeding door and discharge door, for production and laboratory applications, when the machines are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Annex A).

An internal mixer for production and a tandem mixer with manual feeding begins at the feeding door and ends at the lower edge of the material discharge opening.

An internal mixer for production and a tandem mixer with automatic feeding begins at the conveyor, which is an integral part of the machine, and ends at the lower edge of the material discharge opening.

A laboratory internal mixer begins at the feeding door and ends at the material container, which is an integral part of the mixer.

With regard to noise emission measurement and declaration, only laboratory mixers are covered.

Explosion hazards are not dealt with in this document.

NOTE Internal mixers usually do not produce explosive atmospheres. Where materials are processed, which may cause an explosive atmosphere, the Directive 2014/34/EU on the Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) can be applied.

Exhaust systems are not covered.

This European Standard is not applicable to internal mixers manufactured before the date of its publication.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 574:1996+A1:2008, *Safety of machinery - Two-hand control devices - Functional aspects - Principles for design*

EN 614-1:2006+A1:2009, *Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles*

EN 619:2002+A1:2010, *Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads*

EN 1037:1995+A1:2008, *Safety of machinery - Prevention of unexpected start-up*

EN 60204-1:2006, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989/A1:1999/A2:2013)*¹⁾

1) This document is impacted by the amendments EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.