



BSI Standards Publication

## **Underground mining machines — Mobile extracting machines at the face — Safety requirements for shearer loaders and plough systems**

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## National foreword

This British Standard is the UK implementation of EN ISO 19225:2017+A1:2019. It is identical to ISO 19225:2017, incorporating amendment 1:2019. It supersedes [BS EN ISO 19225:2017](#), which is withdrawn.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 MRE/1, Mining mechanical equipment and machinery.

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

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English Version

Underground mining machines — Mobile extracting  
machines at the face — Safety requirements for shearer  
loaders and plough systems (ISO 19225:2017)

Machines d'exploitation de mines et carrières  
souterraines — Machines mobiles d'abattage  
de front de taille — Exigences de sécurité  
imposées aux haveuses à tambour(s)  
et aux rabots (ISO 19225:2017)

Bergbaumaschinen unter Tage —  
Mobile Abbaumaschinen im Streb —  
Sicherheitsanforderungen für Walzenlader  
und Hobelanlagen (ISO 19225:2017)

This European Standard was approved by CEN on 16 November 2017.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

## European foreword

The text of ISO 19225:2017 has been prepared by Technical Committee ISO/TC 82 "Mining" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 19225:2017 by Technical Committee CEN/TC 196 "Mining machinery and equipment - Safety" 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of an identical text or by endorsement, at the latest by June 2018, and conflicting national standards shall be withdrawn at the latest by June 2018.

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 1552:2003](#).

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.

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

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### Endorsement notice

The text of ISO 19225:2017 has been approved by CEN as EN ISO 19225:2017 without any modification.

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## Foreword to amendment A1

This document (EN ISO 19225:2017/A1:2019) has been prepared by Technical Committee ISO/TC 82 "Mining" in collaboration with Technical Committee CEN/TC 196 "Mining machinery and equipment - Safety" the secretariat of which is held by DIN.

This Amendment to the European Standard EN ISO 19225:2017 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

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**Endorsement notice**

The text of ISO 19225:2017/Amd 1:2019 has been approved by CEN as EN ISO 19225:2017/A1:2019 without any modification.

## Annex ZA (informative)

### Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/396 (Machinery) to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC (MD).

Once this standard is cited in the Official Journal of the European Union under that Directive, 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 Directive, and associated EFTA regulations.

**Table ZA.1 — Correspondence between this European Standard and Directive 2006/42/EC (MD)**

| Essential Requirements of Directive 2006/42/EC (MD)   | Clause(s)/sub-clause(s) of this EN                             | Remarks/Notes |
|-------------------------------------------------------|----------------------------------------------------------------|---------------|
| 1.1.2. Principles of safety integration               | 5.4.1; 5.13; 6; 7.3.5                                          |               |
| 1.1.3. Materials and products                         | 5.10.1                                                         |               |
| 1.1.5. Design of machinery to facilitate its handling | 5.12; 7.3.2                                                    |               |
| 1.1.6. Ergonomics                                     | 5.4.3.1; 5.4.5; 5.4.6                                          |               |
| 1.1.7. Operating positions                            | 5.4.5; 5.4.6                                                   |               |
| 1.2.1. Safety and reliability of control systems      | 5.4.2; 5.4.3; 5.4.3.1; 5.4.3.5; 5.4.6; 5.4.8; 5.4.8.2; 5.4.8.3 |               |
| 1.2.2. Control devices                                | 5.4.1; 5.4.3; 5.4.3.1; 5.4.3.4; 5.4.3.5.3; 5.4.5; 5.4.6        |               |
| 1.2.3. Starting                                       | 5.4.3; 5.4.3.3; 5.4.3.5.3; 5.4.7                               |               |
| 1.2.4.1. Normal stop                                  | 5.4.3; 5.4.3.5.1                                               |               |
| 1.2.4.2. Operational stop                             | 5.4.3.5.3                                                      |               |
| 1.2.4.3. Emergency stop                               | 5.4.3.5.3; 5.4.5; 5.4.6; 5.4.7                                 |               |
| 1.2.4.4. Assembly of machinery                        | 5.4.3.5.3                                                      |               |
| 1.2.5. Selection of control or operating modes        | 5.4.3; 5.4.3.1; 7.3.6                                          |               |
| 1.2.6. Failure of the power supply                    | 5.4.3; 5.4.3.5; 5.4.4; 5.4.8.3; 5.5                            |               |
| 1.3.1. Risk of loss of stability                      | 5.3; 5.12; 7.3                                                 |               |
| 1.3.2. Risk of break-up during operation              | 5.9; 5.10; 7.3.6                                               |               |
| 1.3.3. Risks due to falling or ejected objects        | 5.5                                                            |               |
| 1.3.4. Risks due to surfaces, edges or angles         | 5.2.1; 5.9.1                                                   |               |
| 1.3.7. Risks related to moving parts                  | 5.9.1; 7.2                                                     |               |
| 1.3.8.1. Moving transmission parts                    | 5.9                                                            |               |

| Essential Requirements of Directive 2006/42/EC (MD)          | Clause(s)/sub-clause(s) of this EN           | Remarks/Notes |
|--------------------------------------------------------------|----------------------------------------------|---------------|
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| 1.5.1. Electricity supply                                    | 5.4.3; 5.8                                   |               |
| 1.5.4. Errors of fitting                                     | 5.8; 5.9; 5.10; 7                            |               |
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**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.

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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](http://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](http://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 on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html)

The committee responsible for this document is ISO/ TC 82, *Mining*.

## Introduction

This document is a type-C standard as stated in [ISO 12100](#).

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.

The machines concerned work with tools for cutting minerals such as coal, ore, salt and surrounding rock, at a fixed or variable height and are guided on armoured face conveyors or their attachments. Shearer loaders have built-in haulage systems. They can be directly operated by one or more drivers or be remotely or program controlled. Plough systems are remotely controlled. Wireless remote control systems of shearer loaders are used in the immediate environment of the machines.

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# Underground mining machines — Mobile extracting machines at the face — Safety requirements for shearer loaders and plough systems

## 1 Scope

This document specifies safety requirements to minimize the hazards listed in [Clause 4](#) that can occur during the assembly, use, maintenance, repair, decommissioning, disassembly and disposal of shearer loaders and plough systems when used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer, in underground mining.

This document does not cover any hazards resulting from explosive atmospheres. Requirements for explosive atmospheres can be found in ISO/IEC 80079-38.

This document is not applicable to machines that are 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 3457:2003](#), *Earth-moving machinery — Guards — Definitions and requirements*

[ISO 3864-3](#), *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

[ISO 4413:2010](#), *Hydraulic fluid power — General rules and safety requirements for systems and their components*

[ISO 4871](#), *Acoustics — Declaration and verification of noise emission values of machinery and equipment* <sup>[A1]</sup>

[ISO 6405-1](#), *Earth-moving machinery — Symbols for operator controls and other displays — Part 1: Common symbols*

[ISO 7731:2003](#), *Ergonomics — Danger signals for public and work areas — Auditory danger signals*

[ISO 9244](#), *Earth-moving machinery — Machine safety labels — General principles*

ISO 9355-1, *Ergonomic requirements for the design of displays and control actuators — Part 1: Human interactions with displays and control actuators*

[ISO 11201:2010](#), *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

[ISO 11202:2010](#), *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections*

[ISO 11204:2010](#), *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections* <sup>[A1]</sup>

[ISO 12100:2010](#), *Safety of machinery — General principles for design — Risk assessment and risk reduction*