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Machines for underground mines - Safety requirements for hydraulic powered roof supports - Part 1: Support units and general requirements

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1804-1:2020 sisaldab Euroopa standardi EN 1804-1:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 1804-1:2020 consists of the English text of the European standard EN 1804-1:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.12.2020.	Date of Availability of the European standard is 23.12.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Machines for underground mines - Safety requirements for hydraulic powered roof supports - Part 1: Support units and general requirements

Machines pour mines souterraines - Exigences de sécurité relatives aux soutènements marchants applicables aux piles - Partie 1 : Unités de soutènement et exigences générales

Maschinen für den Bergbau unter Tage - Sicherheitsanforderungen für hydraulischen Schreitausbau - Teil 1: Ausbaugestelle und allgemeine Anforderungen

This European Standard was approved by CEN on 25 October 2020.

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, 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, Turkey and United Kingdom.

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

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European foreword

This document (EN 1804-1:2020) has been prepared 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 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

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 1804-1:2001+A1:2010.

The main differences between this document and EN 1804-1:2001+A1:2010 are as follows:

a) Normative references (updated);

b) List of significant hazards (revised) (see Annex C);

c) Requirements for prop anchorages (deleted);

d) Requirements for steel for welded components (updated/modified);

e) List of tests for confirmation (updated);

f) Acceptance criteria for test results (modified);

g) Measurement and criteria for deformation after the test (added);

h) Requirements for convergence test (modified);

i) Cyclic fatigue test for canopy side shield (added);

j) Figures and pictures (revised/added).

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.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Turkey and the United Kingdom.

Introduction

This document is a type C standard, as specified in EN ISO 12100:2010.

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

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 the 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.

The extent to which hazards are covered is indicated in the scope of this document. When creating this standard it was assumed that:

— only trained and qualified personnel would operate the machine;

— components for which no specific requirements have been formulated:

  — have been constructed in accordance with generally accepted engineering practice and generally accepted calculation methods;

  — have been well manufactured mechanically;

  — are free of defects;

— the components are kept in good operational condition;

— the implementation conditions and requirements imposed on the machine have been agreed between manufacturer and user.

1 Scope

This document stipulates the safety requirements for the use of support units intended by the manufacturer. Examples of support units are: frame supports, chock supports, shield supports, paired frames and push-pull support systems including the components of advancing and anchoring devices which provide support functions. This document excludes fixing elements on the conveyor, coal-winning equipment, power set legs and rams, valves, hydraulic and electro-hydraulic control units, lighting and signalling facilities and other ancillary equipment.

NOTE Some components are discussed in other parts of this series of standards.

This document applies for support units that are used at ambient temperatures between −10 °C and 60 °C.

This document also applies to support components and support accessories which are provided if the support unit is fitted with stowing equipment. This document identifies and takes account of:

— the hazards that can possibly be induced through operation of the support units;

— the hazardous areas and the operating conditions that can cause any type of hazard;

— the situations that can result in hazards that cause an injury or impair health;

— dangers that can be caused through mine gas and/or flammable dusts.

This document describes methods for reducing these hazards.

Clause 4 contains a list of the hazards discussed.

This document does not specify any additional requirements for:

— a particularly corrosive environment;

— risks associated with manufacturing, transport and decommissioning;

— earthquake.

A complete hydraulic powered roof support consists of the support units (EN 1804-1:2020), legs and support rams (EN 1804-2:2020) and the hydraulic and electro hydraulic controls (EN 1804-3:2020). Each part of this multipart document addresses the safety requirements of the components mentioned in the scopes of the respective parts of this multipart series.

This document is not applicable to all support units 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.

EN 1090-1:2009+A1:2011, *Execution of steel structures and aluminium structures — Part 1: Requirements for conformity assessment of structural components*

EN 1804-2:2020, *Machines for underground mines — Safety requirements for hydraulic powered roof supports — Part 2: Power set legs and rams*

EN 1804-3:2020, *Machines for underground mines — Safety requirements for hydraulic powered roof supports — Part 3: Hydraulic and electro hydraulic control systems*

EN 1993-1-1:2005,[1] *Eurocode 3: Design of steel structures — Part 1-1: General rules and rules for buildings*

EN 1993-1-8:2005,[2] *Eurocode 3: Design of steel structures — Part 1-8: Design of joints*

EN 1993-1-9:2005,[3] *Eurocode 3: Design of steel structures — Part 1-9: Fatigue*

EN 1993-1-10:2005,[4] *Eurocode 3: Design of steel structures — Part 1-10: Material toughness and through-thickness properties*

EN 10025-1:2004, *Hot rolled products of structural steels — Part 1: General technical delivery conditions*

EN 10025-2:2019, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10025-3:2019, *Hot rolled products of structural steels — Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels*

EN 10025-4:2019, *Hot rolled products of structural steels — Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels*

EN 10025-5:2019, *Hot rolled products of structural steels — Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance*

EN 10025-6:2019, *Hot rolled products of structural steels — Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition*

EN 10204:2004, *Metallic products — Types of inspection documents*

EN ISO 80079-36:2016, *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements (ISO 80079-36:2016)*

EN ISO 148-1:2016, *Metallic materials — Charpy pendulum impact test — Part 1: Test method (ISO 148-1:2016)*

EN ISO 643:2020, *Steels — Micrographic determination of the apparent grain size (ISO 643:2019, Corrected version 2020-03)*

EN ISO 6892-1:2019, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2019)*

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

EN ISO 15614-1:2017,[5] *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2017, Corrected version 2017-10-01)*

[1] As impacted by EN 1993-1-1:2005/AC:2009 and EN 1993-1-1:2005/A1:2014.
[2] As impacted by EN 1993-1-8:2005/AC:2009.
[3] As impacted by EN 1993-1-9:2005/AC:2009.
[4] As impacted by EN 1993-1-10:2005/AC:2009.
[5] As impacted by EN ISO 15614-1:2017/A1:2019.