October 2014

DIN EN 16228-1

DIN

ICS 93.020

Supersedes: see below

Drilling and foundation equipment – Safety – Part 1: Common requirements; English version EN 16228-1:2014, English translation of DIN EN 16228-1:2014-10

Geräte für Bohr- und Gründungsarbeiten –
Sicherheit –
Teil 1: Gemeinsame Anforderungen;
Englische Fassung EN 16228-1:2014,
Englische Übersetzung von DIN EN 16228-1:2014-10

Machines de forage et de fondation –
Sécurité –
Partie 1: Prescriptions communes;
Version anglaise EN 16228-1:2014,
Traduction anglaise de DIN EN 16228-1:2014-10

Together with DIN EN 16228-2:2014-10, DIN EN 16228-3:2014-10, DIN EN 16228-4:2014-10, DIN EN 16228-5:2014-10, DIN EN 16228-6:2014-10 and DIN EN 16228-7:2014-10 supersedes DIN EN 791:2010-01 and DIN EN 996:2010-02

Document comprises 154 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

09.14 2249419

A comma is used as the decimal marker.

National foreword

This standard includes safety requirements.

This document (EN 16228-1:2014) has been prepared by Technical Committee CEN/TC 151 “Construction equipment and building material machines — Safety” (Secretariat: DIN, Germany).

The responsible German body involved in its preparation was the *DIN-Normenausschuss Maschinenbau* (DIN Standards Committee Mechanical Engineering), Working Committee NA 060-13-03 AA *Bohrgeräte* of Section *Bau- und Baustoffmaschinen*. Representatives of manufacturers and users of drilling and foundation equipment, and of the employers’ liability insurance associations contributed to this standard.

This standard contains specifications meeting the essential requirements set out in Annex I of the “Machinery Directive”, Directive 2006/42/EC, and which apply to machines that are either first placed on the market or commissioned within the EEA. This standard serves to facilitate proof of compliance with the essential requirements of that directive.

Once this standard is cited in the Official Journal of the European Union, it is deemed a “harmonized” standard and thus, a manufacturer applying this standard may assume compliance with the requirements of the Machinery Directive (“presumption of conformity”).

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

The European Standards referred to in Clause 2 and in the Bibliography of this document have been published as the corresponding DIN EN or DIN EN ISO Standards with the same number.

For the International Standards referred to in this standard there are no national standards available unless they have been published as DIN ISO standards with the same number.

Amendments

This standard differs from DIN EN 791:2010-01 and DIN EN 996:2010-02 as follows:

a) the EN 16228 standards series, Parts 1 to 7, has a completely new approach and replaces the previous standards EN 996 and EN 791 specifying piling and drilling equipment;

b) the new EN 16228 standards series specifies drilling and foundation equipment for specific applications.

Previous editions

DIN 24096: 1987-06
DIN EN 791: 1996-01, 2010-01,
DIN EN 996: 1996-04, 2010-02
DIN EN 996/A1: 2000-03
DIN EN 996/A2: 2003-11

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16228-1

May 2014

ICS 93.020

Supersedes EN 791:1995+A1:2009,
EN 996:1995+A3:2009

English Version

Drilling and foundation equipment - Safety - Part 1: Common requirements

Machines de forage et de fondation - Sécurité - Partie 1: Prescriptions communes

Geräte für Bohr- und Gründungsarbeiten - Sicherheit - Teil 1: Gemeinsame Anforderungen

This European Standard was approved by CEN on 6 March 2014.

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

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

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

Ref. No. EN 16228-1:2014 E

Contents

Page

Foreword

This document (EN 16228-1:2014) has been prepared by Technical Committee CEN/TC 151 “Construction equipment and building material machines - 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 November 2014 and conflicting national standards shall be withdrawn at the latest by November 2014.

This document supersedes EN 791:1995+A1:2009, EN 996:1995+A3:2009.

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.

This European Standard is divided into several parts and covers drilling and foundation equipment.

Part 1 contains requirements that are/may be common to all drilling and foundation equipment. Other parts contain additional requirements for specific machines that supplement or modify the requirements of part 1. Compliance with the clauses of part 1 together with those of a relevant specific part of this standard giving requirements for a particular machine provides one means of conforming with the essential health and safety requirements of the Directive concerned.

When a relevant specific part does not exist, part 1 can help to establish the requirements for the machine, but will not by itself provide a means of conforming to the relevant essential health and safety requirements of the Directive.

This European Standard, EN 16228, *Drilling and foundation equipment – Safety*, consists of the following parts:

— *Part 1: Common requirements*

— *Part 2: Mobile drill rigs for civil and geotechnical engineering, quarrying and mining*

— *Part 3: Horizontal directional drilling equipment (HDD)*

— *Part 4: Foundation equipment*

— *Part 5: Diaphragm walling equipment*

— *Part 6: Jetting, grouting and injection equipment*

— *Part 7: Interchangeable auxiliary equipment*

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard is a type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards are covered are indicated in the scope of this standard.

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

1 Scope

This European Standard specifies the common safety requirements for drilling and foundation equipment.

Part 1 of this European Standard deals with the significant hazards common to drilling and foundation equipment (see Annex A), when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer associated with the whole life time of the machine (transport, assembly, dismantling, equipment in service and out of service, maintenance, moving on site, storage, disabling and scrapping).

NOTE 1 The requirements specified in this part of the standard are common to two or more families of drilling and foundation equipment.

This document gives safety requirements for all types of drilling and foundation equipment and is intended to be used in conjunction with one of parts 2 to 7. These machine specific parts do not repeat the requirements from part 1 but supplement or modify the requirements for the type of drilling and foundation equipment in question.

For multipurpose machinery, the parts of the standard that cover the specific functions and applications are used, e.g. a drilling machine also used as a piling machine will use the relevant requirements of EN 16228-1, EN 16228-2, and EN 16228-4.

The following machines are excluded from the scope of this standard:

— tunnelling machines, unshielded tunnel boring machines and rodless shaft boring machines for rock according to prEN 16191;

— raise boring machines;

— drill rigs used in oil and gas industry.

NOTE 2 Specific requirements for offshore applications are not covered by this European Standard.

Where a drilling or foundation equipment of fixed configuration that is not intended to be separated is assembled using a carrier based on earth-moving equipment, agricultural equipment, or a crane, then the completed assembly will conform to the requirements specified in this drilling and foundation equipment standard.

Drilling and foundation equipment within the scope of EN 16228 parts 1 to 6 may include interchangeable auxiliary equipment within the scope of EN 16228-7, either as an integral part of its construction or as interchangeably fitted equipment.

If drilling and foundation equipment is intended to be used in a potentially explosive atmosphere, additional requirements will need to be met which are not covered by this standard.

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 474-1:2006+A4:2013, *Earth-moving machinery — Safety — Part 1: General requirements*

EN 474-5:2006+A3:2013, *Earth-moving machinery — Safety — Part 5: Requirements for hydraulic excavators*

EN 795:2012, *Personal fall protection equipment — Anchor devices*