

Irish Standard I.S. EN 16228-5:2014

Drilling and foundation equipment - Safety -Part 5: Diaphragm walling equipment

© CEN 2014 No copying without NSAI permission except as permitted by copyright law.

#### I.S. EN 16228-5:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.* 

*This document is based on:* EN 16228-5:2014 *Published:* 2014-05-21

This document was published		ICS number:	
and comes into effect on:		93.020	
2014-06-07			
		NOTE: If blank see CEN/CENELEC cover page	
NSAI	T +353 1	L 807 3800 Sales:	
1 Swift Square,	F +353 1	L 807 3838 T +353 1 857 6730	
Northwood, Santry	E standa	ards@nsai.ie F +353 1 857 6729	
Dublin 9	W NSAI.i	ie W standards.ie	
Úda	rás um Cha	aighdeáin Náisiúnta na hÉireann	

# EUROPEAN STANDARD

# EN 16228-5

# NORME EUROPÉENNE

# EUROPÄISCHE NORM

May 2014

ICS 93.020

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

**English Version** 

# Drilling and foundation equipment - Safety - Part 5: Diaphragm walling equipment

Machines de forage et de fondation - Sécurité - Partie 5: Machines pour parois moulées Geräte für Bohr- und Gründungsarbeiten - Sicherheit - Teil 5: Geräte für Schlitzwandarbeiten

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 16228-5:2014 E

# Contents

# Page

Forewo	ord	3
Introdu	iction	4
1	Scope	5
2	Normative references	5
3	Terms and definitions	5
4	List of additional significant hazards	6
5 5.1	Safety requirements and/or protective measures	7
5.2	Requirements for strength and stability	8
5.2.1 5.2.2 5.2.3	Ceneral Loads from diaphragm wall cutting tools	8 8 8
5.3	Winches and pulleys	9
5.4 5.4.1	Control devices	0
5.4.2 5.4.3 5.5	Control of winches for suspending grabs or cutters when changing ropes	0
5.6 5.7	Maintenance of diaphragm wall cutters	0
5.8	Inclination of the carrier	0
6 6.1	Verification of the safety requirements and/or protective measures	1 1
7 7.1	Information for use	2 2
7.1.1 7.1.2 7.2	Specific instructions on the diaphragm wall cutting tools put on the market separetely	2 3 3
Annex	A (normative) Noise test code 1	4
Annex	ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC1	5
Bibliog	raphy1	6

## Foreword

This document (EN 16228-5:2014) 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.

EN 16228-5:2014 (E)

## 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, together with part 1, deals with all significant hazards for diaphragm walling equipment 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 (see Clause 4).

The requirements of this part are complementary to the common requirements formulated in EN 16228-1:2014.

This document does not repeat the requirements from EN 16228-1, but adds or replaces the requirements for application for diaphragm walling equipment.

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

EN 474-12:2006+A1:2008, Earth-moving machinery — Safety — Part 12: Requirements for cable excavators

EN 16228-1:2014, Drilling and foundation equipment — Safety — Part 1: Common requirements

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

ISO 6395:2008, Earth-moving machinery — Determination of sound power level — Dynamic test conditions

ISO 6396:2008, Earth-moving machinery — Determination of emission sound pressure level at operator's position — Dynamic test conditions

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN 16228-1:2014 and the following apply.

## 3.1

#### diaphragm wall

structural retaining wall or cut-off wall, both of which can be impermeable and constructed in-situ in the ground as a series of contiguous panels

Note 1 to entry: Panels are typically narrow but deep and are cut between surface guide walls and can depend on a slurry or mud suspension for temporary ground support. Structural walls are typically of reinforced concrete with the concrete placed from the bottom of the panel upwards to displace the slurry or mud suspension.

Note 2 to entry: There are other diaphragm wall techniques, for example continuous trenchers; these techniques use machines and cutting tools such as digging chain or wheel disc, which are covered by EN 474–10.

### 3.2

### diaphragm walling equipment

equipment for cutting panels for diaphragm walls

## 3.3

#### diaphragm walling rig

carrier machine equipped with diaphragm wall cutting tool



This is a free preview. Purchase the entire publication at the link below:

**Product Page** 

S Looking for additional Standards? Visit Intertek Inform Infostore

> Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation