

# Drill rigs — Safety

ICS 91.220

# National foreword

This British Standard is the UK implementation of EN 791:1995+A1:2009. It supersedes BS EN 791:1996 which is withdrawn.

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English Version

## Drill rigs - Safety

Appareils de forage - Sécurité

Bohrgeräte - Sicherheit

This European Standard was approved by CEN on 1 July 1995 and includes Amendment 1 approved by CEN on 20 December 2008.

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## Contents

Page

Foreword.....	5
Introduction .....	6
1 Scope .....	6
2 Normative references .....	8
3 Definitions .....	9
4 List of hazards.....	12
5 Safety requirements and measures .....	13
5.1 General safety requirements .....	13
5.1.1 Intended use of the drill rig.....	13
5.1.2 Ergonomics .....	13
5.1.3 Hot and cold surfaces and sharp edges .....	13
5.1.4 Ventilating ports.....	13
5.1.5 Hoses, pipes and fittings under pressure .....	13
5.1.6 Materials .....	13
5.1.7 Handling of the drill rig and its parts .....	13
5.1.8 Access to operating positions and servicing points .....	14
5.1.9 Isolation of energy sources .....	14
5.2 Driving, tramming and operating position .....	14
5.2.1 General.....	14
5.2.2 Operator's position.....	14
5.2.3 Underground drill rigs .....	15
5.2.4 Visibility .....	15
5.3 Controls, functions, systems .....	15
5.3.1 General.....	15
5.3.2 Starting .....	15
5.3.3 Stopping .....	16
5.3.4 Failure of the power supply .....	16
5.3.5 Failure in a control circuit.....	16
5.4 Control devices .....	17
5.4.1 General.....	17
5.4.2 Emergency stop and safety devices.....	17
5.4.3 Verification .....	18
5.5 Stability .....	18
5.5.1 General stability criteria.....	18
5.5.2 Definitions for stability calculations.....	18
5.5.3 Verification of stability .....	24
5.5.4 Ground pressure, calculation for crawler mounted drill rigs.....	26
5.6 Carrier brakes.....	28
5.6.1 General.....	28
5.6.2 General requirements for wheel mounted drill rigs .....	28
5.6.3 Service braking system for wheel mounted drill rigs .....	28
5.6.4 Secondary braking system for wheel mounted drill rigs .....	29
5.6.5 Parking braking system for wheel and crawler mounted drill rigs.....	29
5.6.6 The service, secondary and parking braking systems on crawler mounted drill rigs .....	29
5.6.7 Braking systems for "skid steer" wheel mounted drill rigs .....	29
5.6.8 Verification .....	29
5.7 Protection against moving parts.....	30
5.7.1 General.....	30
5.7.2 Transmission parts.....	30

5.7.3	Moving parts involved in the working process .....	30
5.8	Electrical installations.....	31
5.8.1	Electric power installation .....	31
5.8.2	Battery installation .....	32
5.9	Hydraulic installations .....	32
5.10	Pneumatic installations .....	32
5.11	Lighting.....	32
5.11.1	Working light.....	32
5.11.2	Illumination when tramming.....	33
5.12	Fire protection .....	33
5.12.1	General .....	33
5.12.2	Fire extinguishers.....	33
5.12.3	Installation of fire extinguishers .....	33
5.13	Noise and vibration .....	34
5.13.1	General .....	34
5.13.2	Noise.....	34
5.13.3	Vibration .....	34
5.14	Dust and gases .....	34
5.14.1	Dust suppression .....	34
5.14.2	Engines and engine exhausts.....	34
5.15	Draw-works, winches and ropes.....	35
5.15.1	General .....	35
5.15.2	Safety requirements .....	35
5.15.3	Winches for operating a drill rig on slopes .....	36
5.16	Roller and leaf chains .....	37
5.17	Masts, derricks, feed beams and working platforms.....	37
5.17.1	General .....	37
5.17.2	Racking and working platforms.....	38
5.17.3	Personnel lift for operational work.....	38
5.17.4	Movable platforms for service, maintenance and repair.....	39
5.17.5	Access .....	39
5.17.6	Escape systems.....	39
5.18	Special requirements for remotely controlled and automated drill rigs.....	39
5.18.1	Operating position.....	39
5.18.2	Emergency stop.....	39
5.18.3	Control system .....	39
5.18.4	Fire protection .....	40
5.19	Warning devices .....	40
6	Verification of safety requirements/measures .....	40
7	Instructions for use – Instruction handbooks.....	41
7.1	Marking – Data plate.....	41
7.2	Indicators.....	41
7.2.1	Information indicators.....	41
7.2.2	Warning signs for residual hazards .....	41
7.3	Maintenance .....	42
7.4	Instruction handbooks for drill rigs.....	42
7.4.1	General .....	42
7.4.2	Operator's instructions .....	42
7.4.3	Special safety instructions in the operator's instructions .....	44
7.4.4	Maintenance instructions .....	45
7.4.5	Special safety instructions in the maintenance instruction .....	45
7.4.6	Spare parts list.....	46
Annex A	(normative) Measurement of noise and vibration.....	47
Annex B	(normative) Instructions for the examination and checking of blocks, wire ropes and chains .....	49
Annex C	(normative) Brake test for drill rigs excluding truck and tractor mounted drill rigs.....	50

<b>Annex D (normative) Hazards related to operation modes of drill rigs</b> .....	<b>53</b>
<b>Annex E (informative) Symbols and signs</b> .....	<b>55</b>
<b>Annex F Bibliography</b> .....	<b>68</b>
<b>Annex ZA (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC, amended by 98/79/EC </b> .....	<b>69</b>
<b>Annex ZB (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC </b> .....	<b>70</b>

## Foreword

This document (EN 791:1995+A1:2009) has been prepared by 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 August 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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

This document includes Amendment 1, approved by CEN on 2008-12-20.

This document supersedes EN 791:1995.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

**A1** For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. **A1**

This standard is a type C-standard in the structure of A-/B-/C-standards as defined in EN 292.

The Annex A is normative and contains "Measurement of noise and vibration", the Annex B is normative and contains "Instructions for the examination and checking of blocks, wire ropes and chains", the Annex C is normative and contains "Brake test for drill rigs excluding truck and tractor mounted drill rigs", the Annex D is normative and contains "Hazards related to operation modes of drill rigs", the Annex D is normative and contains "Hazards related to operation modes of drill rigs", the Annex E is informative and contains "Symbols and signs" and the Annex F is informative and contains "Bibliography".

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## **Introduction**

The extent to which hazards are covered is indicated in the scope of this standard.

In addition, machinery should comply as appropriate with EN 292 for hazards which are not covered by this standard.

Those hazards that are relevant for all mechanical, electrical, hydraulic, pneumatic and other equipment of machinery and that are dealt with in standards for common use are not covered by this standard.

Reference to pertinent standards of this kind is made where such standards are applicable and so far as is necessary.

## **1 Scope**

**1.1** The general term "Drill Rig" covers several differing types of machines for use in the construction industry, water well drilling industry, mining and quarrying, for use above ground as well as underground and for tunnel construction. The differing tasks determine the choice of drilling method and type of machine. For this reason there are many possible ways to separate drill rigs into different groups, e.g. in accordance with:

- The task;
- The drilling method used;
- The cutting removal method;
- The type of construction work.

The methods used for drilling can be basically differentiated in percussive and rotary drilling principles.

**Percussive drilling** is a method by which the hole is produced by crushing the ground or rock at the bottom of the drill-hole by striking it with the drilling tool and removing the cuttings out of the bore-hole.

**Rotary drilling** is a method in which the drilling tool at the bottom of the borehole is rotated and at the same time, a feed force is applied by a feed system or drill collar. The ground or rock at the bottom of the borehole is crushed or cut by pressure, shear or tensile stress produced by the different drilling tools. The cuttings are periodically or continuously removed out of the bore hole.

**Rotary percussive drilling** is performed by a piston striking directly on the bit (down the hole hammer drills) or by percussive energy transmitted via a drill string to the bit. The piston is powered by either hydraulic fluid or compressed air.

At the same time the drill bit is rotated either continuously or intermittently.

The cuttings are continuously removed out of the borehole by a flushing medium, air or fluid which is carried to the drilling tool.

Typical examples of drill rigs covered by this standard are:

- Cable tool drill rig;