BRITISH STANDARD

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14653-1:2005

Manually operated hydraulic shoring systems for groundwork support —

Part 1: Product specifications

The European Standard EN 14653-1:2005 has the status of a British Standard

ICS 93.020

National foreword

This British Standard is the official English language version of EN 14653-1:2005.

The UK participation in its preparation was entrusted by Technical Committee B/514, Access and support equipment, to Subcommittee B/514/29, Trench support systems, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

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

Cross-references

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Manually operated hydraulic shoring systems for groundwork support - Part 1: Product specifications

Composants des blindages de tranchées - Partie 1: Spécifications du produit

Manuell gesteuerte hydraulische Grabenverbaugeräte - Teil 1: Produktfestlegungen

This European Standard was approved by CEN on 28 February 2005.

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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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 14653-1:2005) has been prepared by Technical Committee CEN/TC 53 “Temporary works equipment”, 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of an identical text or by endorsement, at the latest by October 2005, and conflicting national standards shall be withdrawn at the latest by October 2005.

This European Standard with the general title *Manually operated hydraulically shoring systems for groundwork support* consists of the following parts:

Part 1: Product specifications

Part 2: Assessment by calculation or test

These standards are to be read in conjunction with EN 12811-2 and EN 12811-3.

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

Introduction

Hydraulically operated shoring systems comprise prefabricated equipment that supports sheeting to the sides of excavations. This document covers two types of equipment whose adjustment in length is by hydraulic or by a combination of hydraulic and mechanical means:

a) hydraulic bracing frames;

b) hydraulic waler frames.

A variety of components which when assembled form a full system. The prefabricated components are used to make frame assemblies of different dimensions and structural capacities.

Hydraulic bracing frames and waler frames have two strength classification classes - Class A and Class B.

Class B hydraulic bracing frame legs have a further restriction limiting the length of a single leg to 20 m.

The instruction manual is intended to provide all the necessary information on the safe use of the systems.

This document gives specific requirements on the main characteristics of manually operated hydraulic pumps, hoses and associated equipment, but does not provide requirements for their specification or assessment in EN 14653-2.

This equipment is frequently used in conjunction with supplementary equipment, e.g. knee braces and intermediate hydraulic bracing struts.

The characteristic resistance values specified in this document form various reference levels.

Annex A gives information about the values of Partial safety factor for materials γ_M and Partial safety factor for actions γ_F. Annex B gives information on their use under site conditions.

1 Scope

This document specifies constructional and structural requirements for manually operated hydraulic shoring systems made from steel and aluminium for groundwork support.

It specifies characteristic resistances for the equipment.

2 Normative references

The following referenced documents are indispensable for the application 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 853, *Rubber hoses and hose assemblies — Wire braid reinforced hydraulic type — Specification*

EN 856, *Rubber hoses and hose assemblies — Rubber-covered spiral wire reinforced hydraulic type — Specification*

EN 857, *Rubber hoses and hose assemblies — Wire braid reinforced compact type for hydraulic applications — Specification*

EN 1127-1, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature*

EN 10216 (all parts), *Seamless steel tubes for pressure purposes — Technical delivery conditions*

EN 10217 (all parts), *Welded steel tubes for pressure purposes — Technical delivery conditions*

EN 10305 (all parts), *Steel tubes for precision applications — Technical delivery conditions*

EN 12811-2, *Temporary works equipment —Part 2: Information on materials*

EN 14653-2, *Manually operated hydraulically shoring systems for groundwork support — Part 2: Assessment by calculation or test*

ENV 1993-1-1, *Eurocode 3: Design of steel structures — Part 1-1: General rules and rules for buildings*

ENV 1999-1-1, *Eurocode 9: Design of aluminium structures — Part 1-1: General rules — General rules and rules for buildings*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs (ISO 898-1:1999)*

EN ISO 4287, *Geometric product specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters (ISO 4287:1997)*

ISO 10100, *Hydraulic fluid power — Cylinders — Acceptance tests*