Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 6: Anchoring of reinforcing steel bar

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 1504-6:2006 sisaldab Euroopa standardi EN 1504-6:2006 ingliskeelset teksti. Käesolev dokument on jõustatud 20.09.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 1504-6:2006 consists of the English text of the European standard EN 1504-6:2006. This document is endorsed on 20.09.2006 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This Part of EN 1504 specifies requirements for the identification, performance (including durability) and safety of products and systems to be used for the anchoring of reinforcing steel (rebar) as used for structural strengthening to ensure the continuity of reinforced concrete structures.	**Scope:** This Part of EN 1504 specifies requirements for the identification, performance (including durability) and safety of products and systems to be used for the anchoring of reinforcing steel (rebar) as used for structural strengthening to ensure the continuity of reinforced concrete structures.

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Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Definitionen, Anforderungen, Qualitätsüberwachung und Beurteilung der Konformität - Teil 6: Verankerung von Bewehrungsstäben

This European Standard was approved by CEN on 19 July 2006.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 1504-6:2006) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, 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of an identical text or by endorsement, at the latest by February 2007, and conflicting national standards shall be withdrawn at the latest by December 2008.

It has been developed by sub-committee 8 "Products and systems for the protection and repair of concrete structures" (Secretariat AFNOR).

This Part of EN 1504 does not supersede any other European Standard.

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 Construction Products Directive (89/106/EC).

For the relationship with the EU Directive, see informative Annex ZA, which is an integral part of this document.

This Part of EN 1504 includes an informative Annex A dealing with factory production control and an informative Annex B dealing with release of dangerous substances.

This Part of this European Standard is one of the Parts of this standard on products and systems for the repair and protection of concrete structures. The other parts are listed below:

— *EN 1504-1, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 1: Definitions.*

— *EN 1504-2, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 2: Surface protection systems for concrete.*

— *EN 1504-3, Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 3: Structural and non-structural repair.*

— *EN 1504-4, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 4: Structural bonding.*

— *EN 1504-5, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 5: Concrete injection.*

— *EN 1504-7, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 7: Reinforcement corrosion protection.*

— *EN 1504-8, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 8: Quality control and evaluation of conformity.*

— *ENV 1504-9* [1)]*, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 9: General principles for the use of products and systems.*

— *EN 1504-10, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity - Part 10: Site application of products and systems and quality control of the works.*

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1) ENV 1504-9 will be modified when adopted as EN according to finalisation of this European Standard

1 Scope

This Part of EN 1504 specifies requirements for the identification, performance (including durability) and safety of products and systems to be used for the anchoring of reinforcing steel (rebar) as used for structural strengthening to ensure the continuity of reinforced concrete structures.

This Part of EN 1504 covers the fields of application in accordance with repair method 4.2 of ENV 1504-9:1997.

NOTE It is assumed that a proper structural assessment of the structural elements to be subjected to repair is carried out by qualified engineers and that the choice of the products and systems to be used as well as the design are based on this assessment.

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 1015-17, *Methods of test for mortar for masonry — Part 17: Determination of water-soluble chloride content of fresh mortars*

EN 1504-1:2005, *Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity — Part 1: Definitions*

EN 1504-8:2004, *Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity — Part 8: Quality control and evaluation of conformity*

ENV 1504-9:1997, *Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity — Part 9: General principles for the use of products and systems*

prEN 1544, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of creep under sustained tensile load for synthetic resin products (PC) for the anchoring of reinforcing bars*

EN 1767, *Products and systems for the protection and repair of concrete structures — Test methods — Infra-red analysis*

EN 1877-1, *Products and systems for the protection and repair of concrete structures — Test methods — Reactive functions related to epoxy resins — Part 1: Determination of epoxy equivalent*

EN 1877-2, *Products and systems for the protection and repair of concrete structures — Test methods — Reactive functions related to epoxy resins — Part 2: Determination of amine functions using the total basicity number*

prEN 1881, *Products and systems for the protection and repair of concrete structures — Test methods — Testing of anchoring products by the pull out method*

EN 12190, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of compressive strength of repair mortar*

EN 12192-1, *Products and systems for the protection and repair of concrete structures — Granulometry analysis — Part 1: Test method for dry components of premixed mortar*

EN 12614, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of glass transition temperatures of polymers*

EN 13294, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of stiffening time*

EN 13395-2, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of workability - Part 2: Test for flow of grout or mortar*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN ISO 9514, *Paints and varnishes — Determination of the pot life of multicomponent coating systems — Preparation and conditioning of samples and guidelines for testing (ISO 9514:2005)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1504-1:2005, EN 1504-8:2004, ENV 1504-9:1997 and the following apply.

3.1
anchoring product
products based on hydraulic binders or synthetic resins or a mixture of these, installed at a fluid or paste consistency, to grout ribbed reinforcing steel bars (rebars) in hydraulic concrete structures

4 Performance characteristics for intended uses

Table 1 lists the performance characteristics of anchoring products which are required for anchoring of reinforcing steel bars (rebars) according to the “principles” and “methods” defined in ENV 1504-9.

Performance characteristics which are required for “all intended uses” are marked with ■.

Performance requirements are given in 5.2.

Table 1 — Performance characteristics of anchoring products for all intended uses

Performance characteristic	Repair principle
	Structural strengthening Installing rebar with anchoring product
Pull-out	■
Chloride ion content	■
Glass transition temperature [a]	■
Creep under tensile load [a]	■
[a] For polymers only. ■ For all intended uses.	