

Concrete pavements —

Part 3: Specifications for dowels to be used in concrete pavements

The European Standard EN 13877-3:2004 has the status of a British Standard

ICS 93.080.20

National foreword

This British Standard is the official English language version of EN 13877-3:2004.

The UK participation in its preparation was entrusted by Technical Committee B/510, Road materials, to Subcommittee B/510/3, Materials for concrete roads, 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;
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Summary of pages

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Concrete pavements - Part 3: Specifications for dowels to be used in concrete pavements

Chaussées en béton - Partie 3: Spécifications relatives aux goujons à utiliser dans les chaussées en béton

Fahrbahnbefestigungen aus Beton - Teil 3: Anforderungen an Dübel für Fahrbahnbefestigungen aus Beton

This European Standard was approved by CEN on 20 October 2004.

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Foreword

This document (EN 13877-3:2004) has been prepared by Technical Committee CEN/TC 227 “Road materials”, 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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

The European Standard is one of a series of standards as follows:

EN 13877-1, *Concrete pavements — Part 1: Materials.*

EN 13877-2, *Concrete pavements — Part 2: Functional requirements for concrete pavements.*

EN 13877-3, *Concrete pavements — Part 3: Specifications for dowels to be used in concrete pavements.*

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.

1 Scope

This document specifies the requirements for dowels to be used in cast “in situ” concrete pavements for roads, airfields and other trafficked areas.

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 10060, *Hot rolled round steel bars for general purposes. Dimensions and tolerances on shape and dimensions.*

EN 13877-1:2004, *Concrete pavements — Part 1: Materials.*

EN ISO 9001, *Quality management systems — Requirements (ISO 9001:2000).*

EN ISO 15630-1, *Steel for the reinforcement and prestressing of concrete. Test methods — Part 1: Reinforcing bars, wire rod and wire (ISO 15630-1:2002).*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13877-1:2004 apply.

4 Requirements

Dowels shall have at least a tensile strength of 250 MPa when tested in accordance with EN ISO 15630-1.

Diameter and tolerances on diameters of dowels shall be in accordance with EN 10060. The minimum diameter shall be 16 mm. The tolerances in length shall be ± 10 mm.

Dowels shall be straight, free of burrs and other irregularities and the sliding ends sawn with no protrusions outside the normal diameter of the bar.

NOTE 1 The length of dowels should conform to national application provisions in the place of use.

NOTE 2 Before the use, half of their length at least, should be covered with a thin bituminous coating or a thin plastic sheet to prevent them from adhering to the concrete. The average thickness should be not greater than 1,25 mm.

5 Durability

The durability shall be ensured either by a protective coating factory made, or by on site treatments as a national application provision.

NOTE Protective measures against corrosion have to conform to national standards or provisions in the place of use.

6 Evaluation of Conformity

6.1 General

The compliance of the product with the requirements of this document shall be demonstrated by:

- Initial Type Testing;
- Factory Production Control by the manufacturer, including product assessment.

When tested by an external body, the characteristics indicated in Clause 5 shall be determined within 3 months to the date of delivery from the manufacturer.

6.2 Type Testing

6.2.1 Initial Type Testing

Initial Type Testing shall be performed to show conformity with this document. Tests previously performed in accordance with the provisions of this document (same product, same characteristic(s), test method, sampling procedure, system of attestation of conformity, etc.) may be taken into account. In addition, Initial Type Testing shall be performed at the beginning of the production of a new product type or at the beginning of a new method of production (where this may affect the stated properties).

All characteristics in the relevant clauses shall be subject to Initial Type Testing, where relevant.

6.2.2 Further Type Testing

Whenever a change occurs in the product design, the raw material or supplier of the components, or the production process, which would change significantly one or more of the characteristics, the type tests shall be repeated for the appropriate characteristic(s).

6.3 Factory Production Control (FPC)

6.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market conform with the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

A FPC system conforming with the requirements of EN ISO 9001, and made product specific to the requirements of this document, is considered to satisfy the above requirements.

The results of inspections, tests or assessments requiring action shall be recorded and retained during the period specified by the producer, as shall any action taken. The actions to be taken when control values or criteria are not met shall be recorded.

6.3.2 Frequency of testing

Minimum frequencies of testing for Factory Production Quality control are shown in Table 1.

6.3.3 Equipment

All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documents procedure, frequencies and criteria.

6.3.4 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their conformity.

6.3.5 Product testing and evaluation

The manufacturer shall establish procedures to ensure that the stated values of all of the characteristics are maintained.

Table 1 — Initial Type Testing and frequencies of testing for Factory Production Control

Product characteristic	Clause	Initial Type Testing	Factory Production Control
			Minimum frequencies of testing
Tensile strength	4	X	One per 2 500 dowels

Annex ZA (informative)

Clauses of this European standard addressing the provisions of the EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/124 “Road construction products” given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the Mandate given under the EU Construction Products Directive (89/106/EEC). Compliance with these clauses confers a presumption of fitness of the construction products covered by this annex for their intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

WARNING — Other requirements and other EU Directives, not affecting the fitness for intended use, may be applicable to the construction products falling within the scope of this standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this Standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through <http://europa.eu.int>).

This annex has the same scope as Clause 1 of this standard with regard to the products covered. It establishes the conditions for the CE marking of road construction products and shows the relevant clauses applicable (see Table ZA.1).

Construction Product: **dowels for concrete pavements**

Intended uses: **concrete pavements for roads, airfields and other trafficked areas.**

Table ZA.1 — Dowels for concrete pavements

Product: Dowels for concrete pavements		Intended use: Concrete pavements for roads, airfields and other trafficked areas	
Requirement/Characteristics from the mandate (1)	Requirement clauses in this and other European Standard(s)	Mandated levels and/or classes)	Notes
Tensile strength	4		Threshold
Durability	5		Pass/fail
Release of dangerous substances ^a	See clause	No	Less than ppm
^a In particular, those dangerous substances defined in Council Directive 76/769/EEC, as amended			

The requirement on a certain characteristic is not applicable in those Member States where there are no regulatory requirements on that characteristic for the intended end use of the product. In this case,

manufacturers placing their products on the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option “No performance determined” (NPD) in the information accompanying the CE marking (see Clause ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

ZA.2 Procedure(s) for attestation of conformity of dowels

ZA.2.1 System(s) of attestation of conformity

The system of attestation of conformity of dowels indicated in Table ZA.1, in accordance with the decision of the Commission 98/601/EC of 1998-10-13 as given in Annex III of the mandate for “Road construction products”, is shown in Table ZA.2 for the indicated intended use and relevant level or class:

Table ZA.2 — System of attestation of conformity (check with mandate)

Product(s) (6)	Intended use(s) (7)	Level(s) or class(es) (8)	Attestation of conformity system(s) (10)
Dowels	concrete pavements for roads, airfields and other trafficked areas	—	4
System 4: See CPD Annex III.2. (ii), Third possibility			

The attestation of conformity of the dowels in Table ZA.1 shall be based on the evaluation of conformity procedure indicated in Table ZA.3 resulting from application of the clauses of this European Standard indicated therein.

Table ZA.3 — Assignment of evaluation of conformity tasks (for system 4)

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory Production Control (FPC)	Parameters related to all characteristics of Table ZA.1	6
	Initial Type Testing	All characteristics of Table ZA.1.	

ZA.2.2 Certificate and Declaration of conformity

When compliance with this annex is achieved, the manufacturer or his agent established in the EEA, shall prepare and retain a declaration of conformity, which entitles the manufacturer to affix the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking;
- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc);
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

The above mentioned declaration and certificate shall be presented in the official language or languages of the Member State in which the product is to be used.

ZA.3 CE Marking

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol shall be in accordance with Directive 93/68/EEC and shall be shown on the accompanying commercial documents. The following information and characteristics shall accompany the CE marking symbol (where relevant):

- name or identifying mark and registered address of the producer
- last two digits of the year of CE marking-number of the certificate of conformity (if relevant)
- the number of this standard (EN 13877-3)
- description of the product: generic name, materials, and intended use
- information on those relevant essential characteristics listed in Table ZA.1 which are to be declared
- “no performance determined” for characteristics where this is relevant;

The NPD option shall not be used where the characteristic is subject to a threshold level.


	CE conformity marking, consisting of the “CE”-symbol given in directive 93/68/EEC.
AnyCo Ltd, PO Box 21, B-1050	Name or identifying mark and registered address of the producer
04	Last two digits of the year in which the marking was affixed
EN 13877-3	No. of European Standard
Dowel for use in	Description of product
tensile strength > 250 MPa	and
Durability Pass	information on regulated characteristics
Dangerous substances NPD	

Figure ZA.1 — Example CE marking information to be given on the accompanying commercial (technical) documentation for a product

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations need not be mentioned.

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