SLOVENSKI PREDSTANDARD

OSIST prEN 15021:2004

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Montažni betonski izdelki – Montažni betonski elementi za zadrževanje vozil

Precast concrete products - Precast concrete elements for vehicle restraint systems

ICS 91.100.30

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ICS

English version

Precast concrete products - Precast concrete elements for vehicle restraint systems

Produits préfabriqués en béton - Eléments préfabriqués en béton pour dispositifs de retenue des véhicules

Betonfertigteile für Fahrzeug-Rückhaltesysteme

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 229.

If this draft becomes a European Standard, 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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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The numbering of clauses is strictly related to EN 13369:2004 Common rules for precast concrete products, at least for the first three digits. When a clause of EN 13369:2004 is not relevant or included in a more general reference of this standard, its number is omitted and this may result in a gap on numbering.

Foreword

This document (prEN 15021:2004) has been prepared by Technical Committee CEN/TC 229 “Precast concrete products”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

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 one of a coherent set of standards prepared by CEN/TC 229 which cover precast concrete products.

1 Scope

This European Standard specifies the requirements, the basic performance criteria and detailing provisions for precast concrete elements for vehicle restraint systems made in reinforced and/or prestressed concrete according to EN 206-1:2000 subclause 5.2.

Elements may contain e.g. inserts, holes, steps or other features needed for the completion of a barrier.

Precast elements produced with steel fibre concrete are not covered by this European Standard.

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 206-1:2000, *Concrete — Part 1 : Specification, performance, production and conformity*.

EN 1317-1:1998, *Road restraint systems — Part 1 : Terminology and general criteria for test methods*.

EN 1317-2:1998, *Road restraint systems — Part 2 : Performance classes, impact test acceptance criteria and test methods for safety barriers*.

prEN 1317-5:2000, *Road restraint systems — Part 5 : Product requirements, durability and evaluation of conformity.*

EN 1992-1-1:YYYY, *Eurocode 2 : Design of concrete structures — Part 1-1 : General rules and rules for buildings*.

EN 13369:2004, *Common rules for precast concrete products*.

CIB report Nr. 24, *Surface Quality of Concrete Elements* (Available at FIB).

3 Terms and definitions

For the purposes of this European Standard the definitions given in EN 1317-1:1998 and in EN 13369:2004 shall apply.

4 Requirements

4.1 Material requirements

4.1.1 General

Clause 4.1.1 of EN 13369:2004 shall apply.

4.1.2 Constituent materials of concrete

Clause 4.1.2 of EN 13369:2004 shall apply.

4.1.3 Reinforcing steel

Clause 4.1.3 of EN 13369:2004 shall apply.

4.1.4 Prestressing steel

Clause 4.1.4 of EN 13369:2004 shall apply.

4.1.5 Inserts and connectors

Clause 4.1.5 of EN 13369:2004 shall apply.

4.2 Production requirements

Clause 4.2 of EN 13369:2004 shall apply.

4.3 Finished product requirements

4.3.1 Geometrical properties

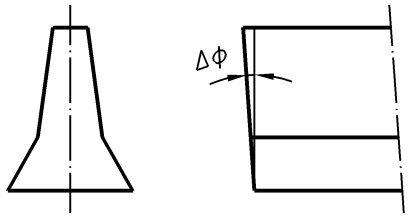
4.3.1.1 Production Tolerances

In addition to clause 4.3.1.1 of EN 13369:2004 the following applies.

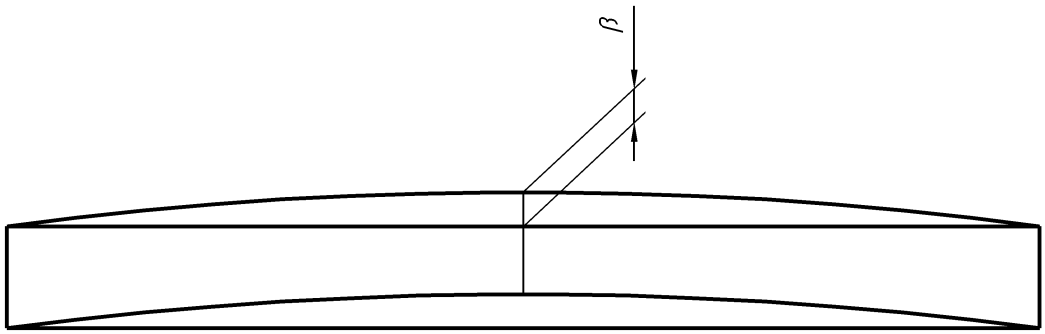
The permitted deviations (see Figure 1) are given in Table 1.

Table 1 — Permitted deviations

Aspect		Permitted deviations (mm)
Angle L is the shorter side of the angle	φ	$\Delta\varphi = \pm L/200$
Bow misalignment	b	$\beta = \pm L/500$
NOTE The tolerances may be reduced if necessary for a certain product or a certain use.		



Angle



Bow misalignement

Figure 1 — Deviations

4.3.1.2 Minimum dimensions

Not applicable.

4.3.1.3 Height of parapets

Not applicable.

4.3.2 Surface characteristics

Safety barriers for temporary use shall have a surface quality better than class 6 according to CIB Report No. 24, safety barriers for permanent use shall have a surface quality better than class 4, or otherwise agreed with the client.

Cracks on the product surface should be measured optically with a magnifier or equivalent and shall not exceed the value of 0,2 mm.

NOTE Alternative surface qualities may be agreed between the purchaser and the producer.

4.3.3 Mechanical resistance

4.3.3.1 General

The elements shall be able to withstand the actions caused by impact of vehicles in accordance with EN 1317-1:1998 and EN 1317-2:1998.

Due to these actions severe damage may occur to the elements as long as the performance requirements as mentioned under 4.3.3.4 are met.

The elements shall be designed to withstand the actions due to transport, handling and installation in accordance with EN 1992-1-1:YYYY.

4.3.3.2 Verification by calculation

Applicable for actions caused by handling, transport and installation.

4.3.3.3 Verification by calculation aided by testing

Not applicable.

4.3.3.4 Verification by testing

Applicable for performance under impact.

Elements as parts of a safety barrier system shall be designed by testing according to EN 1317-1:1998 and EN 1317-2:1998.

The performance criteria as derived from EN 1317-1:1998 thru 5 belonging to the specified performance classes shall be met.

4.3.3.5 Material safety factors

Clause 4.3.3.5 of EN 13369:2004 shall apply.

4.3.4 Resistance and reaction to fire

Not applicable.

4.3.5 Acoustic properties

If relevant, clause 4.3.5 of EN 13369:2004 shall apply.

4.3.6 Thermal properties

Not applicable.

4.3.7 Durability

Clause 4.3.7 of EN 13369:2004 shall apply.

NOTE For some intended uses design working life shorter than 50 years may be chosen.

4.3.7.2 Internal integrity

Clause 4.3.7.2 of EN 13369:2004 shall apply.

4.3.7.3 Surface integrity

Clause 4.3.7.3 of EN 13369:2004 shall apply.

4.3.7.4 Steel corrosion resistance

Clause 4.3.7.4 of EN 13369:2004 shall apply.

All inserts and couplings that are exposed to open air are to be protected against corrosion according to the expected service life of the safety barrier.

4.3.7.5 Water absorption

Clause 4.3.7.5 of EN 13369:2004 shall apply.

4.3.8 Other requirements

4.3.8.1 Safety in case of handling

Clause 4.3.8.1 of EN 13369:2004 shall apply.

4.3.8.2 Safety in use

EN 1317 shall apply.

4.3.8.3 Weight

When the weight of the element is measured by testing clause 5.3 of EN 13369:2004 shall apply.

5 Test methods

5.1 Tests on concrete

5.1.1 Compressive strength

Clause 5.1.1 of EN 13369:2004 shall apply.

5.1.2 Water Absorption

Clause 5.1.2 of EN 13369:2004 shall apply.

5.1.3 Dry density of concrete

Not relevant.

5.2 Measuring of dimensions and surface characteristics

Clause 5.2 of EN 13369:2004 shall apply.

5.3 Weight of the products

The weight of the barriers shall be measured by a scale with an accuracy of 1 %, or with a stricter accuracy possibly prescribed by the designer of the barrier system.

5.4 Performance under impact

The elements have to meet the requirements prescribed in the description according to prEN 1317-5:2000, subclause 5.1.1 of elements tested according to EN 1317-2:1998.

6 Evaluation of conformity and compliance criteria

6.1 General

Clause 6.1 of EN 13369:2004 shall apply.