SLOVENSKI STANDARD
SIST EN 1337-11:2001

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Konstrukcijska leģiģļ a - 11. del: Transport, skladiģļ enje in vgradnja

Structural bearings - Part 11: Transport, storage and installation

Lager in Bauwesen - Teil 11: Transport, Zwischenlagerung und Einbau

Appareils d'appui structuraux - Partie 11: Transport, entreposage intermédiaire et montage

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EUROPEAN STANDARD
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Descriptors: civil engineering, bearing devices, specifications, transportation, storage, implementation, assembling, setting-up conditions

English version

Structural bearings - Part 11: Transport, storage and installation

Appareils d'appui structuraux - Partie 11: Transport, entreposage intermédiaire et montage

Lager in Bauwesen - Teil 11: Transport, Zwischenlagerung und Einbau

This European Standard was approved by CEN on 24 October 1997.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Working Group 1 of Technical Committee CEN/TC 167 "Structural bearings", the secretariat of which is held by UNI.

This European Standard prEN 1337 "Structural bearings" consists of the following 11 Parts:

Part 1 – General design rules

Part 2 – Sliding elements

Part 3 – Elastomeric bearings

Part 4 – Roller bearings

Part 5 – Pot bearings

Part 6 – Rocker bearings

Part 7 – Spherical and cylindrical PTFE bearings

Part 8 – Guided bearings and restrained bearings

Part 9 – Protection

Part 10 – Inspection and maintenance

Part 11 – Transport, storage and installation

This Part 11 - Transport, storage and installation includes annex A (informative) and annex B (informative).

Further to CEN/TC 167 decision Part 1 and Part 2 form a package of standards and they come into force together, while the other parts come into force separately after the publication of Part 1 and Part 2.

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 May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard is applicable to the transport, storage and installation of bearings used in the construction of bridges or of structures requiring comparable bearing systems.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ENV 206	Concrete – Performance, production, placing and compliance criteria
prEN 1337–1:1993	Structural bearings – Part 1: General design rules
prEN 1337–2	Structural bearings – Part 2: Sliding elements
prEN 1337–9	Structural bearings – Part 9: Protection
prEN 1337–3	Structural bearings – Part 3: Elastomeric bearings

3 General requirements

Packaging of bearings shall be such that damages during transport will not occur.

Handling and installation of bearings shall only be carried out by qualified personnel whose knowledge and qualifications shall be proved.

Bearings shall be handled with care and protected from damage and contamination. If unsuitable for lifting by hand, permanent or temporary attachments shall be provided to facilitate handling by mechanical means.

The bearing installation drawing, specified in clause 4 of this standard, shall be available on site.

Unloading of bearings from transport shall be done by means of cranes and elevators which carry the bearings by the lifting devices provided (elements with loops). Chain blocks with hooks shall be used when lifting bearings by crane or pulley (bridges constructed by incremental launching).

If bearings are not installled in the structure immediately after delivery they shall be stored by the user on an appropriate substrate, e.g. on planks, being provided with a protective cover and ventilated from underneath. The interim storage shall be such that the bearings will not be polluted or damaged by exposure to weather (heat, rain, snow or hail) nor by contaminants or other deleterious effects such as ongoing work on site or traffic on site.

4 Bearing installation drawing

A bearing installation drawing showing all the data required for the installation (such as dimensions, levels, inclinations, lateral and longitudinal position, tolerances, qualities of the construction material in the bearing joint, pre-setting of the bearing as a function of temperature of the structure) shall be prepared.

The bearing installation drawing may be combined with the drawing of the bearing system to form a single design document.

5 Inspection after delivery

At site, prior to installation, the condition of the bearings shall be inspected and reported. Special attention shall be given to the following points:

a) visible damage, particularly to the corrosion protection (see prEN 1337-9). The nature and extent of any damage shall be indicated together with details of any permissible remedial action on the bearing installation drawing;

b) cleanliness;

c) security of the temporary clamping devices;

d) conformance to the installation and working drawings if this has not already been established by way of quality control or acceptance inspection;

e) marking on the top surface of the bearing and on the type plate as well as marking of x- and y-axis and, if necessary, of presetting on the faces of upper and bottom part of the bearing, in addition identification of measuring points at rotating gap and eventually sliding gap;

f) position of all means used to ensure the exact positioning and installation of the bearings, where specified;

g) indicating device required for movable bearings in main direction of movement, where required;

h) the magnitude and direction of presetting, if specified;

i) possibility of readjustment, if provided;

j) temporary storage on site (see clause 3).

6 Installation

6.1 General

Alterations shall only be made to the as-delivered condition of the bearings where specific instructions to do so are given on the installation drawing. Any alterations shall only be carried out by suitably qualified persons in accordance with paragraph 2 of clause 3.

If required, the first bearing of a given type (as agreed between the parties involved) shall be installed in the presence of a qualified agent of the manufacturer.

Bearings shall be installed in accordance with the installation drawing in all respects in accordance with the marking on the top surface of the bearing.

The approximate temperature prevailing in the structure and, in special cases, the variations in temperature at different points in the structure, shall be established and used when necessary to determine any presetting (see Annex A).

The same considerations apply to temporary changes in the setting or fixing of the bearings.

The setting of the bearings shall be checked after they have become operative.

6.2 Placing of bearings

Generally bearings shall be installed on an intermediate bed of mortar which serves as a levelling course. Only elastomeric bearings without outer steel plates may be placed directly on the supporting surface which shall be clean, dry, smooth and level within the tolerances given prEN 1337-3.

Where specified, levelling screws shall be used to adjust the position of the bearing.

As an alternative, wedges or other suitable devices may be used.

Under no circumstances are "rigid" areas permitted to be produced underneath the bearing. This can be avoided by removing the temporary supports as soon as the mortar has achieved its required resistance.

Alternatively a temporary support consisting of compressive material may be used. Account must be taken in this case of the fact that, due to its incompressibility, elastomeric material will not be suitable for this purpose if it cannot expand laterally.

The bearing may:

a) be placed on a cambered bed of stiffly plastic mortar in such a way that excess mortar can be squeezed out on all sides; or

b) be bedded by pouring or grouting, using free flowing mortar; care shall be taken for an appropriate ventilation. Bearings with headed studs shall generally be installed using pouring or grouting technics; or

c) be bedded such that mortar can be packed underneath. This method is only recommended for use where the smaller side length is less than 500 mm.

The mortar shall be low shrinkage.

If other materials are used their suitability shall be proved.

Irrespective of the method used, the bearing shall be supported over its whole area.

6.3 Mounting of superstructure or structural component on the bearing

Structural components of in-situ concrete are generally formed directly on the bearing subsequent to its installation. The surface of the bearing and the structural component shall be in direct contact and have no separating layer. Care shall be taken to keep the bearing clean, to avoid damage by wet concrete and to ensured that it can be replaced without difficulty.

In the case of precast concrete or steel members, appropriate measures shall be taken to ensure their uniform contact with the bearing.

Attachment by welding shall only be permitted in exceptional cases. Any such welding shall only be carried out by suitably qualified persons in accordance with clause 3. Measures shall be taken to prevent damage by heat to sensitive items such as plastic parts.

The corrosion protection system shall be reinstated after welding, where necessary.

6.4 Height correction

Should height correction prove necessary, it shall be effected by grouting or packing with finegrained mortar or similar materials.

Height correction with the aid of additional metal plates is only permitted if metal to metal surfaces are machined and if it can be ensured they remain flat until their installation is completed. Consideration shall also be given to the corrosion protection required for the plates.

Height correction shall only be carried out by suitably qualified persons in accordance with clause 3.

6.5 Installation tolerances

If any installation tolerances as given in other parts of this European standard are exceeded the structural implications of the error shall be calculated and appropriate action agreed upon.

6.6 Mortar joints[1])

The thickness of non-reinforced mortar joints between the bearing and the plinth shall not exceed

50 mm or

$$0{,}1 \cdot \frac{\text{surface contact area}}{\text{perimeter of contact area}} + 15\ \text{mm, in millimetres}$$

whichever is smaller.

Furthermore the thickness shall not be less than three times the maximum aggregate size.

The suitability of the mortar used and the method of placing shall be verified by testing in accordance with the relevant specifications.

In the case of cement mortar or cement grout the plinth concrete surface shall be saturated with water prior to installation in order to prevent dehydration. Immediately before the mortar is poured any water remaining on the surface shall be blown out.

When resin mortar is employed the chemical properties of the resin and the resin/filler ratio shall be such as to give a satisfactory consistency and setting time to ensure the correct installation under site conditions. Durability in terms of strength, final hardening and shape shall be considered.

If resin mortar is to be in direct contact with the bearing the chemical compatibility and friction coefficient shall be verified by test unless prior satisfactory use in similar conditions can be demonstrated.

Installation aids shall be designed to facilitate the installation and ensure the correct design setting of the bearings or structural components.

6.7 Formwork for mortar joints

Formwork shall not be removed until the mortar has hardened sufficiently, but must be removed completely by the time the bearing is fully operative. Removal by burning off is not permitted.

6.8 Release of structure onto bearings

The release of the structure onto the bearings shall take place in accordance with the construction drawings. Any adjusting screws shall remain operative until the mortar of any intermediate layer(s) has hardened sufficiently. Subsequently all hard packs and setting devices shall be removed before the bearing becomes fully operative, unless the levelling screws are designed such that they become inoperative when the final load is applied.

7 Records

7.1 General

Records shall be made of the inspections carried out in accordance with clauses 5 and 6, and 7.2 to 7.5, as well as of the results of such inspections (see specimen form Annex B).

The records may be omitted except in case of explicit dispensation by the client in the following case:

– elastomeric bearings utilized for structures consisting of single-span girders with spans not exceeding 25 m or for other structures of not more than 25 m between any fixed point and the bearing furthest away from that point.

[1]) Including resin mortar.