



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL III  
INDUSTRY  
Industrial affairs II: Capital goods industries  
Construction

CONSTRUCT 95/132 Rev. 1

MANDATE TO CEN/CENELEC  
CONCERNING THE EXECUTION OF STANDARDISATION WORK FOR A  
HARMONISED STANDARD ON

**STRUCTURAL BEARINGS**

RELATED TO THE FOLLOWING END USE

08/33 FRAMES (INCLUDING CHIMNEYS AND SHAFTS)

A. DESCRIPTION OF SPECIFIC MANDATES

I. FOREWORD

*This mandate details the scope of one of the standardisation mandates issued by the Commission to CEN/CENELEC within the context of the Council Directive 89/106/EEC of December 21, 1988 concerning construction products, hereafter referred to as "the Directive".*

*The main aim of the Directive is the removal of technical barriers to trade in the construction field, to the extent that they cannot be removed by mutual recognition of equivalence among all the Member States. Therefore, in a first phase, the standardisation mandates will refer to products for which all of the two following conditions are fulfilled :*

- a) the products are subject to technical barriers to trade;*
- b) the characteristics of the products influence the satisfaction by the construction works, in which they are to be incorporated in a permanent manner, of the essential requirements set out in article 3 of the Directive. These works are subject to legislative, regulatory or administrative regulations of Member States covering such essential requirements<sup>1</sup>*

*The present mandate is intended to provide for the harmonised European standards that are needed in order to make possible the "approximation" of national laws, regulations and administrative provisions, hereafter referred to as "regulations". This approximation is expected to be done by adapting the national regulations to take full account of the mandated harmonised standards.*

<sup>1</sup> Any other type of barrier to trade falls within articles 30/36 of the Treaty, and must be directly eliminated by the Member State.

*In this respect, the standardisers will refer to the basic principles prevailing in the regulations of Member States as described in the Interpretative documents, particularly in chapter 3, and, where applicable, to the more detailed description given within chapter 4.2 of the same document.*

*As stated by the Directive, the responsibility Member States have for construction works on their territory remains unchanged.*

*The essential requirements being expressed in terms of performance of the works, the characteristics of the products should be also expressed in terms of performance so that, in referring to the harmonised European standards, the regulations may "approximate" evolving in terms of "performance requirement".*

*Regulations that directly influence the nature of products will then be justified only in those cases in which a classification system is identified as the means of expressing the range of requirement levels of performance of the works (ID 1 point 1.2.1.2). Thus the harmonised standards covered by the present mandate should focus on the definition of the products and its CPD characteristics, on the relevant methods of determination of these characteristics (by calculation, testing,...) and, if necessary, the classification system of characteristics, if articles 3.2 and 6.3 of the Directive apply. Harmonised standards will also take into account all the current intended uses of the product, the evaluation of conformity and the labelling accompanying the CE marking, which will contain the values of the characteristics of the product on the basis of the technical specifications.*

*A minimum or a maximum level of a given characteristic that has to be met by family of products or a product, may be identified by the harmonised standard if required by an agreement of Member States expressed by positive vote under article 20 procedure (e.g. for masonry units, a compressive strength not less than  $2N/mm^2$ ).*

*The CEN programme in response to this mandate should consist of a compact, simple package of items that are manageable and user-friendly for regulators, producers, notified bodies and users. In general one harmonised standard should be sufficient to cover the main performances of a given family of products.*

*A producer not wishing to meet the non-mandated European standards will be able to use the CE marking on his product by referring only to the set of harmonised standards. On the other hand, if a non-mandated standard includes also the entire content of the harmonised standard, compliance with the former standard may give also presumption of conformity to the harmonised standard and will enable the bearing of the CE marking.*

*In this case, an appropriate system of reference should be established in the European standard in order to clearly distinguish the CPD-related content from the remaining part of the standard.*

## II. GROUNDS

1. This mandate falls within the framework of the general policy of the Commission with respect to technical harmonisation and standardisation, as well as within the scope of the Directive.
2. This mandate is based on article 7 of the Directive and has regard to the interpretative documents <sup>(2)</sup> that serve as reference for the establishment of the harmonised standards (see article 12 of the Directive). It serves to ensure the quality of the harmonised standards for products, always with reference to the state of the art, with particular reference to:
  - the fitness of the products listed in annex 1 intended for use for **FRAMES** enabling the works to satisfy the essential requirements set out in annex 1 of the Directive, provided that barriers to trade in these products exist and that the products fall within the scope of article 2.1 of the Directive;
3. With regard to possible levels of requirements for the works, these are determined in the interpretative document or according to the procedure provided for in article 20 (2) of the Directive. In either of these cases, where levels of requirements for works are determined, guidance is given in Annex 3 to this mandate. This is not the case for classes of convenience, which are classes of product performances developed as a means of convenience for specifiers, manufacturers and purchasers. Such classes of convenience are not covered by the present mandate and should not be defined within the harmonised standard. Nevertheless, the results of the determination of the product characteristics may be expressed making use of classes of convenience introduced by European standards other than those developed under this and other similar mandates for harmonised standards. Articles 3.2 and 6.3 of CPD do not apply to such classes.
4. Harmonised standards including classifications where appropriate, should permit construction products which allow works to meet the essential requirements and which are produced and used lawfully in accordance with technical traditions warranted by local climatological and other conditions to continue to be placed on the market.
5. The purpose of the Directive is to remove barriers to trade, the standards deriving from it will therefore be expressed, as far as practicable in product performance terms (art. 7.2 of the Directive), having regard to the interpretative documents. Where this is not practicable, justification will be made in the Work Programme when it is presented to the Commission (see IV.1 and IV.2). As far as possible, each standard will make reference to performances common to other standards developed under mandate and which constitutes a cohesive and compatible group of European harmonised standards developed in parallel.

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(2) O.J N°C 62, 28.02.1994

6. The work programme that CEN/CENELEC will develop in response to this mandate shall be a comprehensive one covering the complete package of product standards needed for the CE marking of the product. It will include the time scale for the publication of the complete package of harmonised standards and will refer as far as possible to horizontal standards which cover a number of different families of products and define the determination method of a given product performance.

### III. STANDARDISATION MANDATE

With reference to the grounds given in section II and further provisions of the Directive, the European standard(s) set up under this mandate shall take account of the following:

1. Harmonised standards shall be prepared to allow those products listed in Annex 2 to be able to demonstrate in performance terms, for the satisfaction of the essential requirements. Further specific mandates will cover the remaining products within the list of annex 1.
2. The standard will contain:
  - A detailed scope and field of application
  - A detailed description of the family of products covered and the relevant intended uses of the different products.
  - The definition of the characteristics of the products (expressed in performance terms) that are relevant to the satisfaction of the essential requirements as listed in Annex 2 of the mandate
  - The methods (calculation, test methods or others) or a reference to an harmonised standard containing the methods for the determination of such characteristics
  - Guidance on the characteristics that have to be stated within the labelling that will accompany the CE marking (depending on the intended use of the product) and on the way of expressing the determined values of these characteristics.
  - The classification system and the levels for the above values of characteristics, if required by the mandate
  - The system for attestation of conformity as required in annex 3 of the mandate and the corresponding specific provisions of evaluation of conformity.

Testing and/or calculation methods shall have, whenever possible, a horizontal character covering the widest possible range of products

3. This mandate replaces any provisional mandate on the same products formerly issued on a provisional base by the Commission. Some products have applications beyond the end uses covered by this mandate. Annex 1 identifies the other mandates under which such products fall.
4. As far as other directives are concerned, the relevant essential requirements are to be taken into account and will be indicated in the work programme, submitted for the final agreement of the Commission.
5. CEN/CENELEC shall ensure consistency within the whole package of standards in the field concerned.
6. As far as practicable and depending on the intended use, the standard shall include a definition of the durability in term of performance of the declared values of the product characteristics as well as suitable methods for its evaluation against the actions listed in Annex 2. Where appropriate the durability may be expressed in the standard by a conventional value without resorting to any test method. If the durability is expressed in terms of classes of periods, articles 3.2 and 6.3 will not apply.
7. Where a classification system of the product performances is envisaged in Annex 3 of the present mandate, CEN/CENELEC are requested to make an appropriate proposal.
8. The relevant systems for attestation of conformity according to Article 13.3 and Annex III of the Directive, are listed in annex 3. For the establishment of the corresponding specific provisions of evaluations of conformity, the harmonised standard will take into account:
  - the different intended uses of the product and, if any, the different levels of performance according to paragraph 7 above;
  - cases of individual (non series) production according to Article 13.5 of the Directive;
  - requirements of other directives.
9. The label accompanying the CE marking will list all the characteristics required by the mandates clearly distinguishing the characteristics to be declared for general uses from those relevant to specific uses of the product which are left to the free choice of the producer. Characteristics for which the "No performance determined". class applies are also listed in the labelling.
10. Where appropriate. Annex 4 contains the list of dangerous substances to be covered by the harmonised standard when defining their rate of release.

#### IV. EXECUTION OF THE MANDATE

1. CEN/CENELEC will present the Commission with a detailed proposal for the work programme, at the latest, by the end of January 1996.
2. This programme will include the list of standards considered necessary to ensure the fitness for use of the products covered by the mandate, in accordance with article 4.2 of the Directive.

In this programme the title of each standard will be followed by:

- a detailed description of the scope, the product characteristics and the intended uses covered by each standard,
  - the list of reference documents (national standards, ISO standards, prENs, ENs, research results, etc.),
  - the timetable for the development and the publication of the standard,
  - the identification of the Technical Committees responsible.
3. When a subject (e.g. test methods) is common to a number of products it will, as far as possible, be dealt with in a horizontal standard referring to a group or a family of products.
  4. Within the programme, CEN/CENELEC will specify which aspects (characteristics, products, specific intended uses,....) among those indicated by the mandate are not yet covered by the programme and the relevant reasons. Products not specifically mentioned in the mandate but relevant to the family referred to may be also included in the programme. CEN/CENELEC will also specify those cases where the performance approach will not be followed in the harmonised standard and will give the relevant justification.
  5. After examination of the programme and consultations with CEN/CENELEC, the Commission will endorse the timetable and the list of standards or parts of standards which meet the terms of this mandate and which will be recognised as harmonised standards.
  6. When considered appropriate, the list of existing standards or standards under development that are not candidates for the status of harmonised standards but are relevant to the family of products covered by the mandate, may be annexed to the work programme.
  7. Acceptance of this mandate by CEN/CENELEC is intended only after the work programme mentioned at point IV.1 has been endorsed by the Commission. The terms of reference of the mandate will be subject to possible modification or addition, if necessary.

8. Representatives of the authorities responsible for national regulations will be able to participate in the activities of CEN/CENELEC through their national delegations and to present their points of view at all stages of the drafting process.
9. The Commission may participate in standardisation activities as other observers and has the right to receive all relevant documents.
10. CEN/CENELEC will immediately inform the Commission of any problem relating to the carrying out of the mandate from within the Technical Committees and will present an annual progress report on work within the framework of the mandate.
11. The progress report will include a description of work carried out, and information on any difficulties being met, whether political or technical, with particular reference to those that might lead the authorities of a Member State to raise objections or to resort to article 5.1 of the Directive.
12. The progress report will be accompanied by the latest drafts of each standard under the mandate and by updated reports on any subcontracted work.
13. Acceptance of this mandate by CEN/CENELEC will initiate the standstill procedure referred to in article 7 of Council Directive 83/189/EEC of 28 March 1983 modified by Council Directive 88/182/EEC of 22 March 1988 and the European Parliament and the Council Directive 94/10/EC of 23 March 1994.
14. CEN/CENELEC will develop the draft harmonised European standards (prENs) in accordance with the appropriate work programme and will inform the Commission in good time that the draft is being circulated for public comment.
15. CEN/CENELEC will present the final drafts of the harmonised European standards to the Commission for confirmation of compliance with this mandate at the latest in accordance with the timetable agreed between CEN/CENELEC and the Commission and referred to in point IV.5.
16. CEN/CENELEC members will publish the standards transposing the harmonised European standards at the latest 6 months after a positive vote in CEN/CENELEC. National standards covering the same scope will continue to be applicable until the date agreed between CEN/CENELEC and the Commission in accordance with point IV.5.

# STRUCTURAL BEARINGS



ANNEX 1

SCOPE

**STRUCTURAL BEARINGS**

LIST OF PRODUCTS COVERED BY THIS MANDATE

TO BE USED IN: 8/33 FRAMES (INCLUDING CHIMNEYS AND SHAFTS)

FORM

MATERIALS

PRODUCTS FOR CONSIDERATION

Components

Various:  
elastomer,  
steel,  
stainless steel,  
PTFE,  
carbon filled PTFE,  
bronze,  
aluminium,  
cast iron,  
brass,  
POM

Structural bearings (as kits)

ANNEX 2  
 TECHNICAL TERMS OF REFERENCE  
 STRUCTURAL BEARINGS

TO BE USED IN : 8/33 FRAMES (INCLUDING CHIMNEYS AND SHAFTS)

Family and subfamilies of products

**STRUCTURAL BEARINGS**

Devices used in structures to transmit loads through the desired point, restraining lateral displacements (fixed bearings), allowing rotation and allowing displacements in one direction (guided bearings) or in all directions of a plane (free bearings) as required. They are for use in bridges, buildings and other structures where such devices are required for the distribution of loads

**Elastomeric bearings**

Structural bearings designed to accommodate translational movements in any direction and rotational movements about any axis by elastic deformation. They can be combined with complementary bearing devices to extend their field of use, such as a sliding system or a constraining system in any direction. They should not normally be used to provide permanent resistance to a constantly applied shear load. For structures with environment temperatures ranging from -25 to +50 °C and, for a short period, up to +70° C or down to -40 °C.

**Pot bearings**

Structural bearings which support vertical and horizontal loads and permit rotation about any horizontal axis. The rotational element is comprised of an elastomeric pad confined in a cylinder with a close fitting piston and seals. A pot bearing may be combined with other elements to produce bearings permitting translation in combination with rotation..

Characteristics to be covered by the harmonized standard will be:

E.R.	Performance characteristics	Durability
1	<ul style="list-style-type: none"> <li>- Loadbearing capacity (compression)</li> <li>- Shear modulus <i>(for elastomeric bearings)</i></li> <li>- Rotation capability</li> <li>- Horizontal distortion capability <i>(for elastomeric bearings)</i></li> </ul>	against repeated loading and against low and high temperatures  as well as of all listed characteristics against: - corrosion; ozone; and chemicals as appropriate to the material concerned
2 to 6		

**Roller bearings**

Bearings formed by an upper and a lower plate rolling on one or more components with cylindrical faces. Possible types are: single, flat, composite, multiple,...They are capable of transferring applied vertical loads between the structural components above and below it. They permit translation in one direction perpendicular to the roller's axis and rotation about that axis achieved by rolling contact between the bearing components..

**Rocker bearings**

Bearings formed by a partially cylindrical surface rolling on a flat plate, permitting rotation about an axis parallel to the axis of the curved surface (Line rocker bearing) or formed by a convex spherical surface rolling on a flat or concave spherical surface of larger radius, permitting rotation about any axis (Point rocker bearing). They are capable of transferring applied vertical and horizontal loads between the superstructure and the substructure. In line rocker bearings, rotation is permitted about an axis perpendicular to the center line of the curved surface and is achieved by rolling contact between the bearing components.

**Spherical and cylindrical bearings**

Bearings which support vertical and horizontal loads and permits rotation about any axis, the rotation element being two spherical sliding elements (Spherical) or one about one horizontal axis, the rotational element being two cylindrical sliding elements (Cylindrical). The articulation is made by curved sliding surfaces, cylindrical or spherical, which then allow rotations around one or more axes respectively. When combining with flat sliding surfaces, they become movable bearings. In combination with guiding elements they become guided bearings

Characteristics to be covered by the harmonized standard will be:

E.R.	Performance characteristics	Durability
1	- Loadbearing capacity (compression) - Rotation capability - Friction coefficient	against repeated loading and against low and high temperatures  as well as of all listed characteristics against: corrosion; ozone; and-chemicals as appropriate to the material concerned
2 to 6		

**Guided bearings and restrained bearings**

Guided bearings and restrained bearings are used to react to horizontal loads only, usually in conjunction with vertical bearings, such as elastomeric bearings.

Characteristics to be covered by the harmonized standard will be:

E.R.	Performance characteristics	Durability
1	<ul style="list-style-type: none"> <li>- Loadbearing capacity (compression)</li> <li>- Shear modulus (<i>when relevant</i>)</li> <li>- Friction coefficient</li> </ul>	against repeated loading and against low and high temperatures  as well as of all listed characteristics against: corrosion; ozone; and chemicals, as appropriate to the material concerned
2 to 6		

**Sliding elements**

Elements (sliding guides and backing plates) in structural bearings used to constrain sliding bearings to move in one axis, allowing movements in plane or curved sliding surfaces with relative rotational or translational displacements.

Characteristics to be covered by the harmonized standard will be:

E.R.	Performance characteristics	Durability
1	<ul style="list-style-type: none"> <li>- Loadbearing capacity (compression)</li> <li>- Friction coefficient</li> </ul>	against repeated loading and against low and high temperatures  as well as of all listed characteristics against: corrosion; ozone; and chemicals as appropriate to the material concerned
2 to 6		

COMPREHENSIVE TABLE OF CHARACTERISTICS

STRUCTURAL BEARINGS

E.R.	Performance characteristics	Elastom	Roller	Pot	Rocker	Spheric & Cylindric	Guided & Restrained	Sliding	Durability
1	- Loadbearing capacity (compression)	Y	Y	Y	Y	Y	Y	Y	against repeated loading and against low and high temperatures  as well as of all listed characteristics against: corrosion; ozone; and chemicals as appropriate to the material concerned
	- Shear modulus	Y	-	-	-	-	(Y)	-	
	- Rotation capability	Y	Y	Y	Y	Y	-	-	
	- Friction coefficient	-	Y	-	Y	Y	Y	Y	
	- Horizontal distorsion capability	Y	-	-	-	-	-	-	
2									
3									
4									
5									
6									

13

Note: (Y) When relevant

ANNEX 3  
ATTESTATION OF CONFORMITY

Product family :Structural bearings (1/1)

**1. Levels and classes for product performances**

1.1 For the time being, the differences specified in Article 3 (2) of the CPD, do not seem to give rise to the need of a classification system for products.

Where for such needs it is recognised that a classification of product performance is the means of expressing the range of requirement levels of the works, the Commission will give the appropriate guidance or will request CEN/CENELEC to make the appropriate proposal through a modification to this mandate.

**2. Systems of attestation of conformity**

2.1 For the product(s) and intended use(s) listed below, CEN/CENELEC are requested to specify the following system(s) of attestation of conformity in the relevant harmonised standard(s) :

Product(s)	Intended use(s)	Level(s) or class(es)	Attestation of conformity system(s)
<b>Structural bearings</b>	in buildings and civil engineering works where requirements on individual bearings are critical [1]		1
	----- in buildings and civil engineering works where requirements on individual bearings are not critical [2]		----- 3
System 1: See CPD Annex III.2.(i), without audit-testing of samples System 3: See CPD Annex III.2.(ii), Second possibility			

[1] Critical in the sense that those requirements may, in case of failure of the bearing, put the works or parts thereof in states beyond those regarded as serviceability and ultimate limit states.

[2] Not critical in the sense that those requirements may not, in case of failure of the bearing and under normal circumstances, put the works or parts thereof in states beyond those regarded as serviceability and ultimate limit states.

3. **Conditions to be applied by CEN on the specifications of the attestation of conformity system**

3.1 The specification for the system should be such that it can be implemented even where performance does not need to be determined for a certain characteristic, because at least one Member State has no legal requirement at all for such characteristic [see Article 2.1 of the CPD and, where applicable, clause 1.2.3 of the Interpretative Documents]. In those cases the verification of such a characteristic must not be imposed on the manufacturer if he does not wish to declare the performance of the product in that respect.

3.2 Regarding products fitting under system 1 and system 3, for the initial type testing of the product (to be required by the manufacturer in the case of system 3) [see Annex III.1.a) of the CPD] the task for the approved laboratory will be limited to the assessment of the following characteristics :

- **Loadbearing capacity (compression)**
- **Shear modulus**
- **Rotation capability**
- **Friction coefficient**
- **Horizontal distorsion capability**

as relevant to the type of structural bearing

3.3 Regarding products fitting under system 1, for the certification and the initial inspection of the factory production control, parameters related to the following characteristics shall be of the interest of the approved body:

- **Loadbearing capacity (compression)**
- **Shear modulus**
- **Rotation capability**
- **Friction coefficient**
- **Horizontal distorsion capability**

as relevant to the type of structural bearing.

