



SLOVENSKI STANDARD
SIST EN 383:2007

01-julij-2007

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Timber Structures - Test methods - Determination of embedment strength and foundation values for dowel type fasteners

Holzbauwerke - Prüfverfahren - Bestimmung der Lochleibungsfestigkeit und Bettungswerte für stiftförmige Verbindungsmittel

Structures en bois - Méthodes d'essai - Détermination de caractéristiques de fondation et de la portance locale d'éléments d'assemblage de type broche

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Ta slovenski standard je istoveten z: **EN 383:2007**

ICS:

91.080.20 Lesene konstrukcije Timber structures

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English Version

Timber Structures - Test methods - Determination of embedment strength and foundation values for dowel type fasteners

Structures en bois - Méthodes d'essai - Détermination de
caractéristiques de fondation et de la portance locale
d'éléments d'assemblage de type broche

Holzbauwerke - Prüfverfahren - Bestimmung der
Lochleibungsfestigkeit und Bettungswerte für stiftförmige
Verbindungsmittel

This European Standard was approved by CEN on 25 October 2006.

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, 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.

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

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Foreword

This document (EN 383:2007) has been prepared by Technical Committee CEN/TC 124 "Timber Structures", the secretariat of which is held by SFS.

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 July 2007, and conflicting national standards shall be withdrawn at the latest by July 2007.

This document supersedes EN 383:1993.

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.

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1 Scope

This standard specifies laboratory methods to determine the embedding strength and foundation values of solid timber, glued laminated timber and wood based sheet products with dowel type fasteners.

2 Normative references

Not applicable.

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1

dowel type fastener

bolt, nail, dowel or the like with plain or patterned surfaces

3.2

embedment strength

average compressive stress at maximum load in a piece of timber or wood based sheet product under the action of a stiff linear fastener. The fastener's axis is perpendicular to the surface of the timber. The fastener is loaded perpendicular to its axis

3.3

maximum load

maximum load measured before the deformation of the specimen has reached the deformation limit

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3.4

fastener section dimension

- 1) Nominal diameter of round fasteners; or
- 2) Length of one side of the section of a square fastener; or
- 3) Minimum dimension of the section of an oval or rectangular fastener.

4 Symbols and abbreviations

d fastener section dimension, in millimetres

F load, in newtons

F_{\max} maximum load, in newtons

$F_{\max, \text{est}}$ estimated maximum load, in newtons

f_h embedding strength, in newtons per square millimetre

$f_{h, \text{est}}$ estimated embedding strength, in newtons per square millimetre

K_e elastic foundation modulus, in newtons per cubic millimetre

K_i initial foundation modulus, in newtons per cubic millimetre

K_s foundation modulus, in newtons per cubic millimetre

t	thickness, in millimetres
w	indentation or deformation, in millimetres
w_e	elastic deformation, in millimetres
w_i	initial deformation, in millimetres
$w_{i,mod}$	modified initial deformation, in millimetres
w_o	deformation of the test apparatus at any given load, in millimetres

5 Requirements

The fasteners and the timber, glued laminated timber or wood based sheet product shall be, as far as possible, of the minimum quality allowed by the relevant specification.

6 Test methods

6.1 Principle

The test shall be carried out on the test piece and using the apparatus shown in figure 1. It is a principle of this test to avoid bending of the fastener under test.

The fastener is loaded perpendicular to its axis through a steel loading apparatus and the load and the corresponding indentation or deformation is measured, see figure 1.

The loading may be either in compression, see figure 2a, or in tension, see figure 2b. For solid timber and layered wood products with only one grain direction, the loading may be either parallel to the grain, see figures 2a and 2b or compression perpendicular to the grain, see figure 2c.

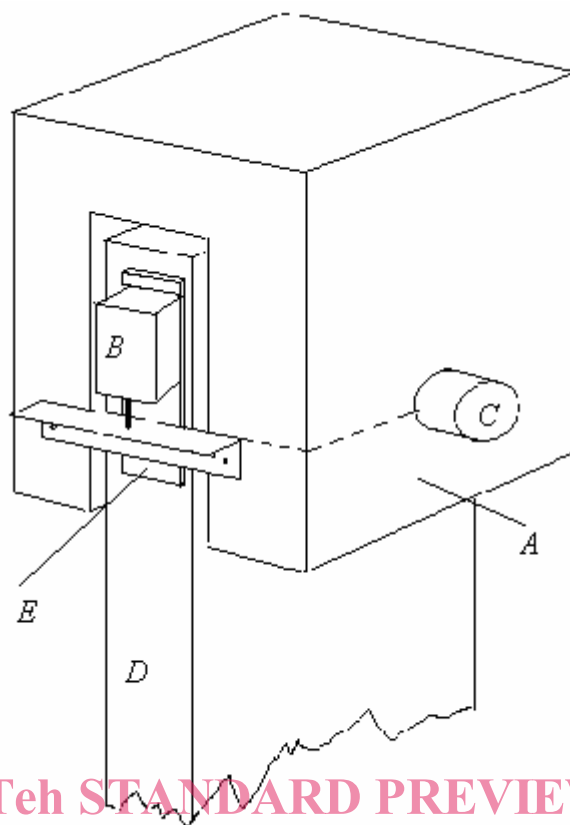
NOTE The principles of this standard may be used for other angles between the load and the grain.

6.2 Test Pieces

The test piece is a rectangular prism of wood or wood based sheet product with a fastener placed with its axis perpendicular to the surface of the prismatic test piece. The sizes of the test pieces are given in table 1.

NOTE The thickness t should be in the range $1,5d$ to $4d$ in order to comply with the principle of the test.

For wood based sheet products, the thickness of the test piece shall be the thickness of the panel as produced.



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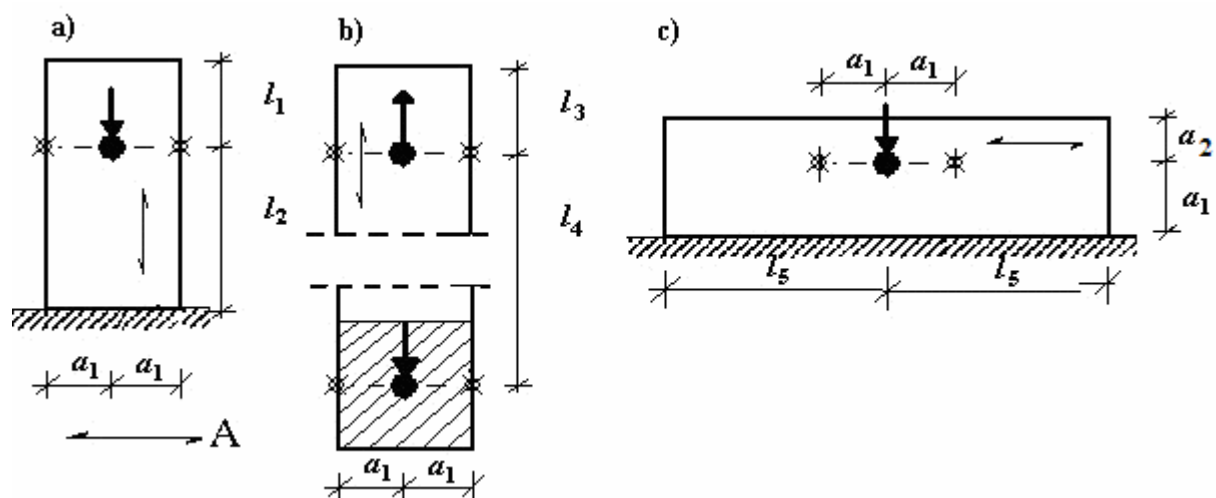
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Key

- A Steel apparatus
- B Displacement gauges
- C Fastener
- D Test piece
- E Strip

Figure 1 — Test principle



Key

- a) Compression parallel to grain
- b) Tension parallel to grain
- c) Compression perpendicular to grain
- A Grain direction or one of the main directions of wood based sheet products
- X Measuring point

Figure 2 — Test piece dimensions as specified in Table 1 with transducer pick up points

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