SLOVENSKI STANDARD
SIST EN 385:2002

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Nadomeġļa:
SIST EN 385:1996

Konstrukcijski les z zobatimi stiki - Zahteve za uporabo in minimalne zahteve za proizvodnjo

Finger jointed structural timber - Performance requirements and minimum production requirements

Keilzinkenverbindungen im Bauholz - Leistungsanforderungen und Mindestanforderungen an die Herstellung

Aboutages a entures multiples dans les bois de construction - Exigences de performance et exigences minimales de fabrication

Ta slovenski standard je istoveten z: **EN 385:2001**

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79.040	Les, hlodovina in žagan les	Wood, sawlogs and sawn timber

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Finger jointed structural timber - Performance requirements and minimum production requirements

Aboutages à entures multiples dans les bois de construction - Exigences de performance et exigences minimales de fabrication

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 124 "Timber structures", the secretariat of which is held by DS.

This European Standard supersedes EN 385:1995.

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of an identical text or by endorsement, at the latest by April 2002, and conflicting national standards shall be withdrawn at the latest by April 2002.

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.

Introduction

This standard was written based on Recommended Standard for Finger Jointing in Coniferous Sawn Timber prepared by the ECE (Economic Commission of Europe) Timber Committee and published in the Timber Bulletin for Europe (Vol. XXXIV, Supplement 16, November 1982) with Draft Amendments, May 1988. This standard was developed on the basis of the use of European redwood and whitewood, but most of the requirements apply to any species.

Further, it was recognized that finger-jointing standards are currently in use in different countries and experience with these has influenced this standard.

1 Scope

This standard specifies requirements for bonded finger joints and minimum requirements for the manufacture of cut, interlocking, bonded finger joints in structural timber members. Requirements are given for timber, adhesive, moisture content, cutting and bonding.

This standard is only applicable to finger joints between timber members of the same species type.

Although most finger joints are produced in coniferous species this standard also applies to broad-leaved species where information is available to enable them to be satisfactorily bonded.

It does not cover impressed (die-formed) joints. In the case of glued laminated timber it applies only to individual laminations. Large finger joints in glued laminated timber are covered by EN 387.

NOTE This standard is elaborated as a supporting standard for a harmonized standard on structural timber with finger joints to be published in the future.

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 (including amendments).

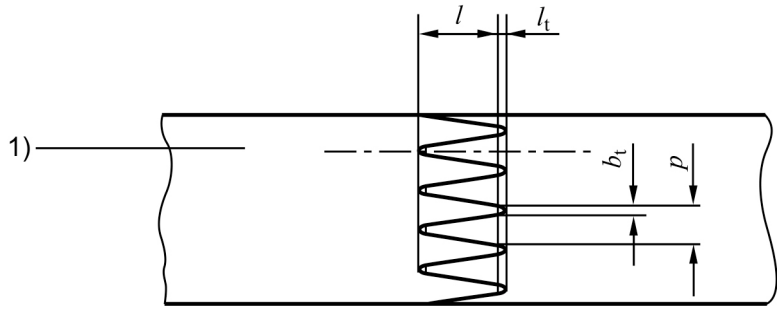
EN 301, *Adhesives, phenolic and aminoplastic for load-bearing timber structures - Classification and performance requirements.*

EN 408, *Timber structures – Structural timber and glued laminated timber – Determination of some physical and mechanical properties.*

3 Terms and definitions

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

3.1
finger joint
self-locating end joint formed by machining a number of similar, tapered, symmetrical fingers in the ends of timber members, which are then bonded together. See Figure 1



Key

l Finger length
p Pitch
b_t Tip width
l_t Tip gap
1) Symmetry direction

Figure 1 - Typical profile of finger joint

3.2
finger length
distance between the finger base and the tip of the finger, measured along the centre line of the finger

3.3
pitch
distance between fingers, centre to centre

3.4
production batch
joints, all of which have the same profile, manufactured from the same species of timber, the same strength class, having the same nominal cross section, bonded with the same adhesive and made during a continuous run on one production line

3.5
service class 1
service class characterized by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

NOTE In service class 1 the average equilibrium moisture content in most softwoods will not exceed 12 %.

3.6
service class 2
service class characterized by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air only exceeding 85 % for a few weeks per year

NOTE In service class 2 the average equilibrium moisture content in most softwoods will not exceed 20 %.

3.7
service class 3
service class characterized by climatic conditions leading to higher moisture contents than service class 2

3.8
tip gap
distance between finger tip and opposite slot base in a bonded finger joint

3.9
tip width
distance between finger faces, measured at the tip of the finger

4 Symbols

A area, in square millimetres;

A_w area of one wane, in square millimetres;

a_w diagonal length of wane, in millimetres;

b width of cross section, in millimetres;

b_t tip width, in millimetres;

d diameter, in millimetres;

f_m bending strength, in newtons per square millimetre;

$f_{m,k}$ characteristic bending strength, in newtons per square millimetre;

$f_{m,15,k}$ characteristic bending strength of 15 specimens, see 7.1.4, in newtons per square millimetre;

$f_{m,15,mean}$ mean value of bending strength of 15 specimens, see 7.1.4, in newtons per square millimetre;

$f_{m,dc,k}$ characteristic bending strength, declared by the manufacturer, in newtons per square millimetre;

h depth of cross section, in millimetres;

k_f factor, see 7.1.4;

k_{15} statistical factor, see 7.1.4;

l finger length, in millimetres;

l_t tip gap, in millimetres;

p pitch, in millimetres;

s standard deviation (the variable is given in parenthesis).

5 Requirements

5.1 General

The cutting and the bonding operations of finger joints shall result in reliable and durable bonds of required strength.

These general requirements shall be considered satisfied if both the requirements in this clause and the minimum production requirements in clause 6 are fulfilled.

5.2 Timber

5.2.1 Species

Sufficient information on the timber species shall be available to enable the timber to be satisfactorily bonded.

5.2.2 Knots and fissures

For the following requirements knots with a diameter not greater than 6 mm shall be disregarded.

There shall be no knots, fissures or pronounced grain disturbance within the joint itself. Outside the joint the distance between a knot and the end of the cross-cut timber shall be not less than $l + 3d$ where d is the diameter of the knot measured perpendicular to the grain direction (longitudinal direction), see Figure 2.

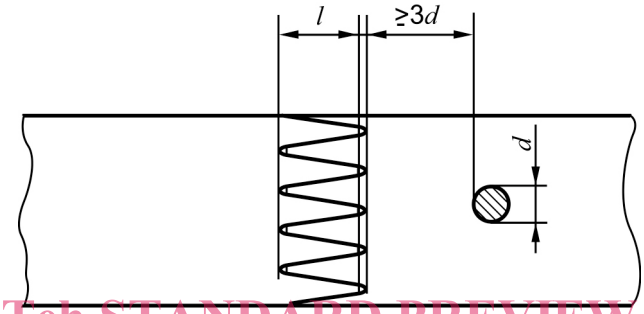


Figure 2 - Minimum distance from the end of the timber to a knot

Where a member is cross-cut to remove a knot, the cut shall be made at a distance from the knot at least equal to a length of $3d$, see Figure 3.

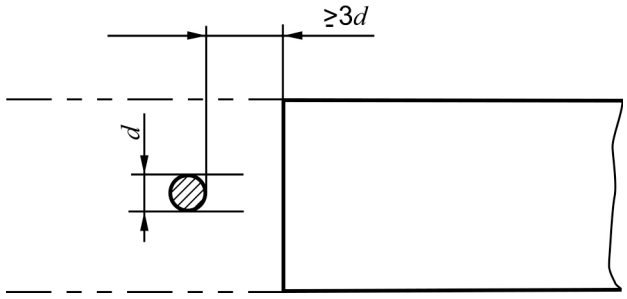


Figure 3 - Minimum distance for a cross-cut to remove a knot

5.2.3 Wane or edge damage

There shall be no wane or edge damage affecting more than two corners at the joint within the finger length and within 75 mm of the root of the fingers. The area of the wane at any corner shall not exceed 1 % of the cross-sectional area, see Figure 4.

NOTE Conformity with this requirement can be verified by measuring the diagonal a_w of the wane and demonstrating that it is less than the maximum diagonal given in figure 5 as a function of the cross-sectional area A.