



# SLOVENSKI STANDARD

## SIST EN 12512:2002

01-julij-2002

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a Y Ubg\_]a ]j Ynb]a ]gfYXghj ]

Timber structures - Test methods - Cyclic testing of joints made with mechanical fasteners

Holzbauwerke - Prüfverfahren - Zyklische Prüfungen von Anschlüssen mit mechanischen Verbindungsmitteln

Structures en bois - Méthodes d'essai - Essais cycliques d'assemblages réalisés par organes mécaniques

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**Ta slovenski standard je istoveten z: EN 12512:2001**

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### **ICS:**

21.060.01	Vezni elementi na splošno	Fasteners in general
91.080.20	Lesene konstrukcije	Timber structures

**SIST EN 12512:2002**

**en**

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EUROPEAN STANDARD

**EN 12512**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2001

ICS 21.060.01; 91.080.20

English version

**Timber structures - Test methods - Cyclic testing of joints made with mechanical fasteners**Structures en bois - Méthodes d'essai - Essais cycliques  
d'assemblages réalisés par organes mécaniquesHolzbauwerke - Prüfverfahren - Zyklische Prüfungen von  
Anschlüssen mit mechanischen Verbindungsmitteln

This European Standard was approved by CEN on 5 October 2001.

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 Management Centre 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 Management Centre 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.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## 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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2002, and conflicting national standards shall be withdrawn at the latest by May 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.

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## Introduction

Developments in the field of load-bearing engineered timber structures in seismic regions require that joints made with mechanical fasteners be tested to obtain information about their ductility, dissipation of energy and impairment of strength under cyclic loading.

This standard lays down general principles, which should be followed in order to achieve comparability of results from investigations carried out in different laboratories.

For different purposes two different testing procedures are considered: a general one, when the determination of the complete cyclic load-slip performance is required (complete procedure), and a particular one when only the determination of the main performances at a pre-determined ductility level is required (short procedure).

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## 1 Scope

This European Standard specifies a test method for determining the ductility, impairment of strength and energy dissipation properties of joints made with mechanical fasteners under cyclic loading.

NOTE This standard is written, for uniformity, in terms of direct axial loads and their effects only. The standard is, however, also appropriate to the determination of the moment resisting properties of joints.

## 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 26891, *Timber structures - Joints made with mechanical fasteners - General principles for the determination of strength and deformation characteristics (ISO 6891:1983)*.

## 3 Terms and definitions

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

### 3.1

#### **cyclic load**

alternative load in compression and tension

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### 3.2

#### **maximum load**

maximum joint load reached during test,  $F_{\max}$ , see Figure 2

### 3.3

#### **yield load**

load corresponding to the entry into the plastic range. When the load-slip curve presents two well-defined linear parts, the yield values are determined by the intersection between these two lines (see Figure 1 a)). When the load-slip curve does not present two well defined linear parts, the yield values are determined by the intersection of the following two lines: the first line will be determined as that drawn through the point on the load slip curve corresponding to  $0,1 F_{\max}$  and the point on the load-slip curve corresponding to  $0,4 F_{\max}$ ; the second line is the tangent having an inclination of  $1/6$  of the first line (see Figure 1 b))

### 3.4

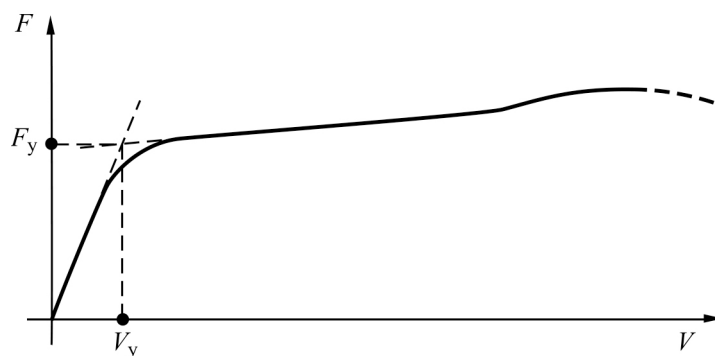
#### **ultimate load**

joint load corresponding to

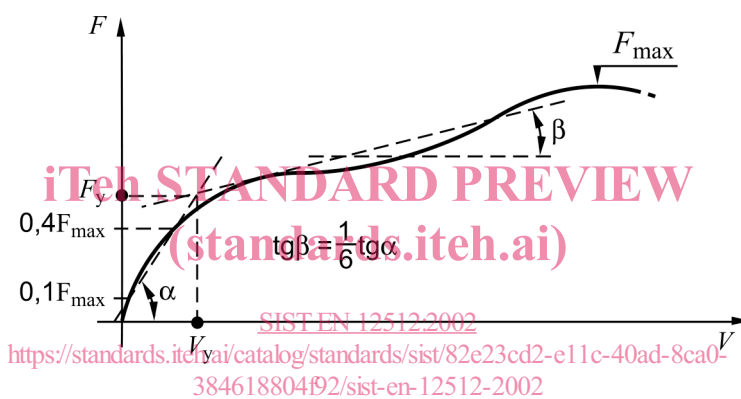
- a) failure; or
- b) 80 % of the maximum load for a slip of less than 30 mm; or
- c) a joint slip of 30 mm whichever occurs first in the test, see Figure 2







a) Definition of yield values for a load-slip curve with two well-defined linear parts



b) Definition of yield values for a load-slip curve without two well-defined linear parts

**Key**

$F$	Load
$F_{\max}$	Maximum load
$F_y$	Yield load
$V$	Slip
$V_y$	Yield slip

Figure 1 - Definition of yield values for a load-slip curve