SLOVENSKI STANDARD
SIST EN 26891:1997

01-oktober-1997

Lesene konstrukcije - Stiki, izdelani z mehanskimi veznimi sredstvi - Splošna načela za ugotavljanje nosilnosti in deformacijskih karakteristik (ISO 6891:1983)

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

Holzbauwerke - Verbindungen mit mechanischen Verbindungsmitteln - Allgemeine Grundsätze für die Ermittlung der Tragfähigkeit und des Verformungsverhaltens (ISO 6891:1983)

Structures en bois - Assemblages réalisés avec des éléments mécaniques de fixation - Principes généraux pour la détermination des caractéristiques de résistance et de déformation (ISO 6891:1983)

Ta slovenski standard je istoveten z: **EN 26891:1991**

ICS:

91.080.20	Lesene konstrukcije	Timber structures

SIST EN 26891:1997 **en**

EUROPEAN STANDARD

NORME EUROPEENNE

EUROPAISCHE NORM

EN 26 891

February 1991

UDC 694.14:624.011.1:624.042/044:621.882

Descriptors: Timber construction, joining, fasteners, characteristics, mechanical strength, deformation, loading

English version

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

Structures en bois - Assemblages réalisés avec des éléments mécaniques de fixation - Principes généraux pour la détermination des caractéristiques de résistance et de déformation (ISO 6891:1983)

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This European Standard was approved by CEN on 1991-01-17 and is identical to the ISO standard as referred to. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

Based on the positive result of the Primary Questionnaire procedure, the Technical Board decided by Resolution BT 321/1989 to submit the International Standard

ISO 6891:1983 "Timber structures - Joints made with mechanical fasteners - General principles for the determination of strength and deformation characteristics"

to the formal vote. The result was positive.

In accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 6891:1983 was approved by CEN as a European Standard without any modification.

International Standard 6891

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Timber structures — Joints made with mechanical fasteners — General principles for the determination of strength and deformation characteristics

Structures en bois — Assemblages réalisés avec des éléments mécaniques de fixation — Principes généraux pour la détermination des caractéristiques de résistance et de déformation

First edition — 1983-05-01

UDC 624.011.1 : 674.028 : 620.17 **Ref. No. ISO 6891-1983 (E)**

Descriptors : timber construction, joints (junctions), fasteners, tests, determination, deformation, mechanical strength, specimen preparation, test equipment, loading, computation, test results.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6891 was developed by Technical Committee ISO/TC 165, *Timber structures*, and was circulated to the member bodies in January 1982.

It has been approved by the member bodies of the following countries :

Australia	Egypt, Arab Rep. of	Norway
Austria	France	Portugal
Belgium	Germany, F. R.	Romania
China	India	South Africa, Rep. of
Czechoslovakia	Ireland	Sweden
Denmark	New Zealand	United Kingdom

The member body of the following country expressed disapproval of the document on technical grounds :

Canada

Printed in Switzerland

Timber structures — Joints made with mechanical fasteners — General principles for the determination of strength and deformation characteristics

0 Introduction

Developments in the field of load-bearing timber structures require that joints made with mechanical fasteners be tested to obtain information about their strength and deformation (slip) characteristics.

This International Standard lays down general principles which should be followed in order to achieve comparability of results from investigations carried out in different laboratories. Standard rules for the determination of characteristic strengths for particular types of mechanical fasteners will be given in separate International Standards.

This International Standard is based on Joint Recommendations from Working commission W18, Timber Structures, of CIB[1)] and Committee 3TT, Timber Testing, of RILEM[2)], who will also prepare the basis for the above-mentioned supplementary International Standards.

1 Scope

This International Standard lays down general principles for the determination of the strength and deformation (slip) characteristics of joints made with mechanical fasteners.

2 Field of application

This International Standard is applicable to joints made with mechanical fasteners used in statically loaded timber structures.

Detailed procedures appropriate to joints made with specific fasteners will be given in separate International Standards.

The principles can also be used for the testing of other joints.

It is recognized that for some special types of joints not covered by International Standards, modification of the test procedure may be necessary.

3 Reference

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications.*

1) International Council for Building Research, Studies and Documentation.

2) International Union of Testing and Research Laboratories for Materials and Structures.

4 Symbols

F : applied load, in newtons

F_{est} : estimated maximum load, in newtons

F_{max} : maximum load, in newtons

k : slip modulus, in newtons per millimetre

v : joint slip, in millimetres

Subscripts for the joint slip, v, relate to load points in figure 2 and are defined in clause 8.

5 Conditioning of test specimens

Attention should be paid to the conditioning of the timber before the manufacture of the joint and also to the conditioning of the joints as a whole before testing.

The conditioning should be conducted in such a way that the test conditions correspond in a realistic manner to the conditions in joints in structures as regards the influence of the moisture content on the strength properties of the timber and the occurrence of gaps, etc., through shrinkage.

Detailed requirements for specimens made with specific types of fasteners will be given in separate International Standards.[1)]

Where the purpose of testing is to compare joints under similar conditions, the standard atmosphere 20/65 according to ISO 554 should be used for conditioning.

6 Form and dimensions of test specimens

The test joints shall be of such realistic form and dimensions that the necessary information about the strength and deformation of joints in service can be obtained.

Detailed information about the form and dimensions of the test specimens suitable for different types of mechanical fasteners will be given in separate International Standards.

7 Apparatus

In addition to equipment for measuring the geometry of the test specimens, moisture content, etc., the following shall be available :

a) a testing machine able to apply and record load with an accuracy of ± 1 % of F_{est} or better;

b) equipment to measure joint slip under load with an accuracy of ± 1 % or better, or for slips of less than 2 mm with an accuracy of ± 0,02 mm. The equipment shall ensure that eccentricities, twist, etc. have no influence on the measurements.[2)]

8 Loading procedure

8.1 Estimation of maximum load

The estimated maximum load, F_{est}, for the type of joint to be tested shall be determined on the basis of experience, calculation or preliminary tests, and should be adjusted as required in 8.6.

8.2 Application of load

The loading procedure shown in figure 1 should generally be followed.

The load shall be applied up to 0,4 F_{est} and maintained for 30 s. The load shall then be reduced to 0,1 F_{est} and maintained for 30 s. Thereafter the load shall be increased until the ultimate load or slip of 15 mm is reached.[3)]

Below 0,7 F_{est} a constant rate of load or slip corresponding to 0,2 F_{est} per minute ± 25 % shall be used. Above 0,7 F_{est}, a constant rate of slip shall be used, so adjusted that the ultimate load or a slip of 15 mm is reached in 3 to 5 min additional testing time (total testing time about 10 to 15 min).

The test may be stopped when the ultimate load is reached, or when the slip is 15 mm. For particular tests, the preload cycle up to 0,4 F_{est} may be omitted with a corresponding adjustment to the total testing time.

8.3 Measurement of slip

The slip measurements v_{01}, v_{04}, v_{14}, v_{11}, v_{21}, v_{24}, v_{26} and v_{28} shown in figure 2 shall be recorded for each test specimen. The slip at maximum load, F_{max}, shall also be recorded. When a load/slip diagram is not available, measurements of slip should be taken at each 0,1 F_{est} increment of load (see figure 1).

8.4 Measurement of load

The load reached before or at a slip of 15 mm, shall be recorded as the maximum load, F_{max}, for each specimen.

1) Test methods for joints made with punched metal plate fasteners, nails and staples will form the subject of future International Standards.

2) Equipment that can continuously record load and slip is recommended; exceptionally, slips may be measured at chosen load levels provided the measurements can be made without significantly influencing the continuity of load application. A sufficient number of load levels should be chosen to ensure that the calculations (see 8.5) and the adjustments (see 8.6) can be made.

3) The requirement that the load be maintained constant for 30 s at 0,4 and 0,1 F_{est} is to permit adequate time for the loading to be reversed, it is not intended to provide information on creep behaviour.

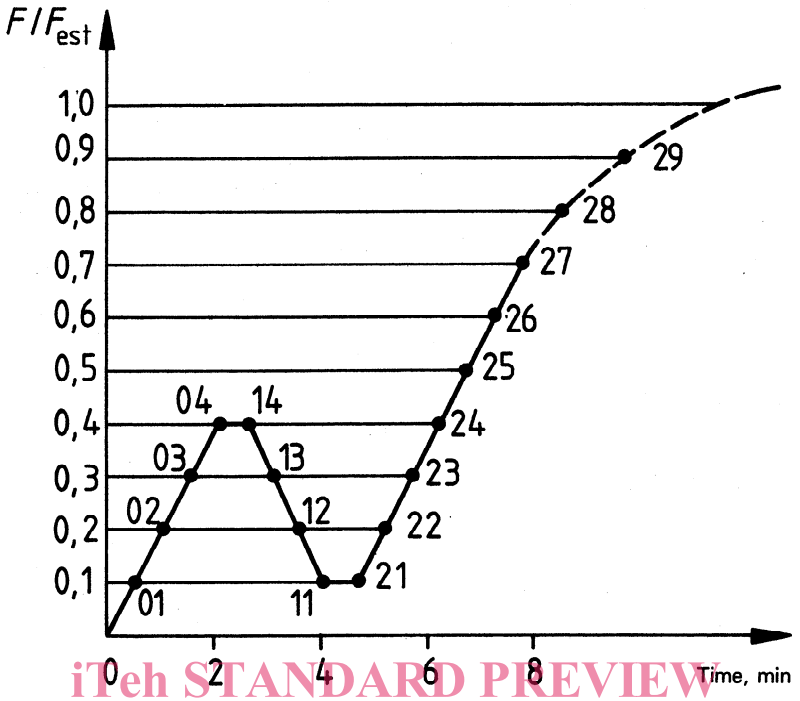

Figure 1 — Loading procedure

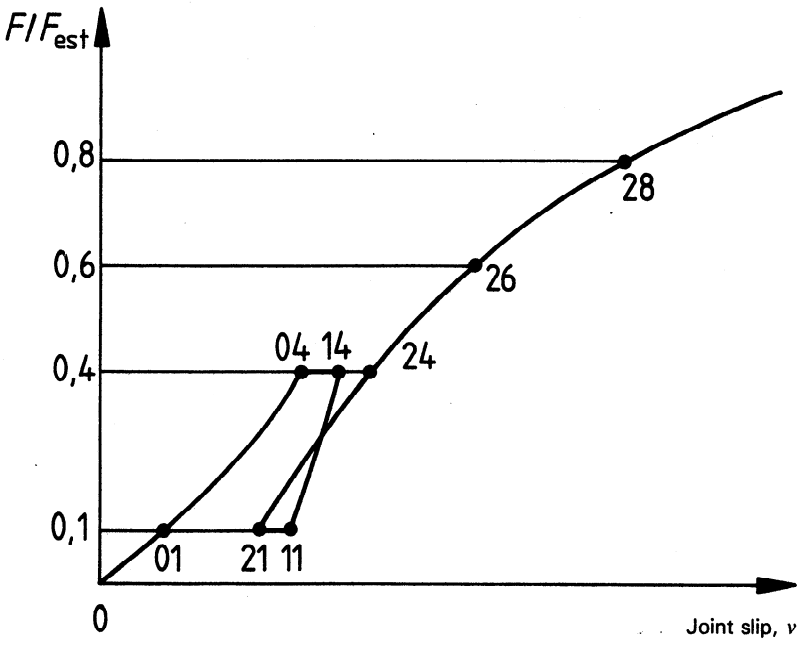

Figure 2 — Idealized load-deformation curve and measurements