



# SLOVENSKI STANDARD

## SIST EN 1381:2016

01-april-2016

Nadomešča:  
SIST EN 1381:2000

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### Lesene konstrukcije - Metode preskušanja - Nosilni spoji s sponkami

Timber structures - Test methods - Load bearing stapled joints

Holzbauwerke - Prüfverfahren - Tragende Klammerverbindungen

Structures en bois - Méthodes d'essai - Assemblages agrafés porteurs

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**Ta slovenski standard je istoveten z: EN 1381:2016**

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#### **ICS:**

91.080.20	Lesene konstrukcije	Timber structures
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1381**

February 2016

ICS 91.080.20

Supersedes EN 1381:1999

English Version

**Timber structures - Test methods - Load bearing stapled joints**

Structures en bois - Méthodes d'essai - Assemblages  
agrafés porteurs

Holzbauwerke - Prüfverfahren - Tragende  
Klammerverbindungen

This European Standard was approved by CEN on 19 December 2015.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 1381:2016) has been prepared by Technical Committee CEN/TC 124 “Timber Structures”, the secretariat of which is held by AFNOR.

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 August 2016, and conflicting national standards shall be withdrawn at the latest by August 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1381:1999.

Compared to EN 1381:1999, the following changes have been made:

- replacement of EN 28970 by EN ISO 8970;
- improvement to figures and definitions.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## 1 Scope

This European Standard specifies test methods for determining the strength and deformation characteristics of stapled joints in load-bearing timber structures.

The methods assess joints with members of timber (solid timber and glued laminated timber) or wood-based products in the combination proposed for use in service and using all types of staples up to 3 mm diameter for circular cross-section staples or 4 mm x 2 mm for rectangular or oval cross-section staples.

The methods determine load-slip characteristics and maximum load of joints with laterally loaded staples where various angles between the applied force and the timber grain direction or the main direction of the wood-based products, respectively, are possible.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 322, *Wood-based panels - Determination of moisture content*

EN 323, *Wood-based panels - Determination of density*

EN 14592, *Timber Structures – Dowel-type-fasteners – Requirements*

EN 26891:1991, *Timber structures - Joints made with mechanical fasteners - General principles for the determination of strength and deformation characteristics (ISO 6891:1983)*

EN ISO 8970:2010, *Timber structures - Testing of joints made with mechanical fasteners - Requirements for wood density (ISO 8970:2010)*

ISO 13061-1, *Physical and mechanical properties of wood — Test methods for small clear wood specimens — Part 1: Determination of moisture content for physical and mechanical tests*

ISO 13061-2, *Physical and mechanical properties of wood — Test methods for small clear wood specimens — Part 2: Determination of density for physical and mechanical tests*

## 3 Terms and definitions

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

### 3.1 staple

double-bent, u-shaped piece of round, square, rectangular or oval wire with pointed

### 3.2 staple crown

connection between the two staple legs

### 3.3 staple leg diameter or side length

nominal diameter of a round staple leg, the side length of a rectangular leg, or the diameter of an oval cross section as defined in EN 14592

**3.4****staple length**

length of each staple leg, including point

**3.5****staple crone width**

width across the staple legs

**3.6****deformation of the joint**

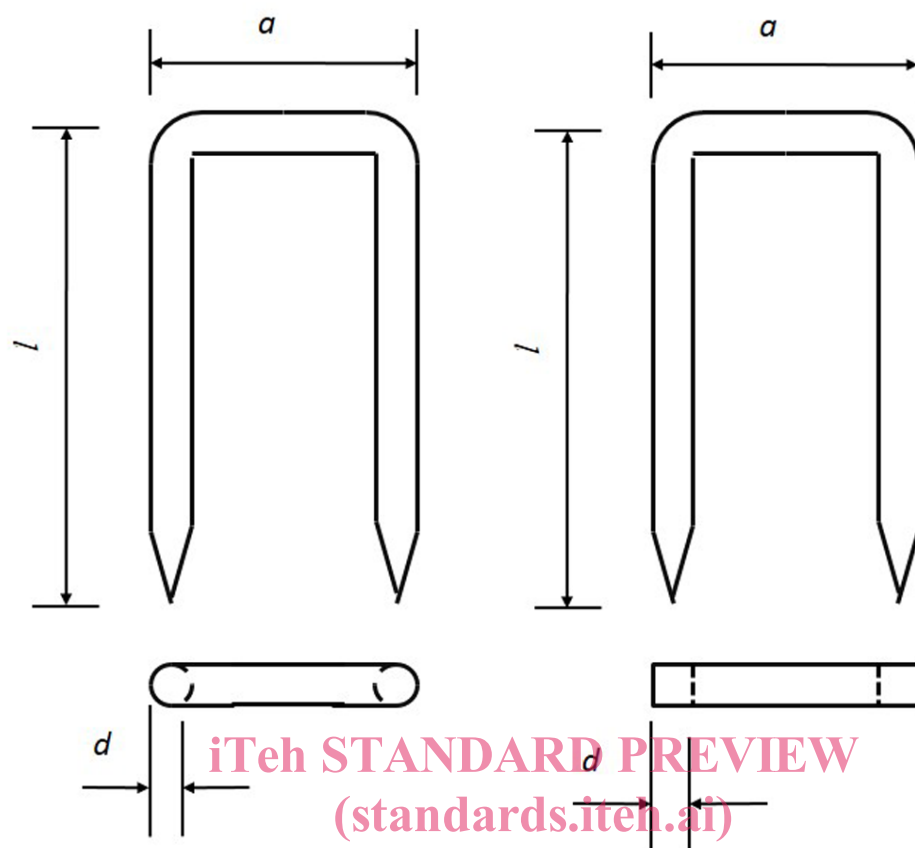
mean value of the measurements of the relative displacements of the two side members with respect to the central member

Note 1 to entry see Figure 1.

**4 Symbols and abbreviations**

For the purposes of this document, the following symbols and abbreviations apply.

- a staple crone width, see Figure 1, in millimetres
- b width of member cross-section, in millimetres
- d nominal value of the diameter of a round staple leg, the side length of a rectangular leg, or the diameter of an oval cross section as defined in EN 14592, see Figure 1, in millimetres.
- F load, in newtons
- t member thickness, in millimetres
- l staple length including the point, see Figure 1, in millimetres
- $\alpha_{\text{crn}}$  angle between the direction of a staple crown and the grain direction or the main direction of the wood-based products, respectively, see Figure 2, in degrees

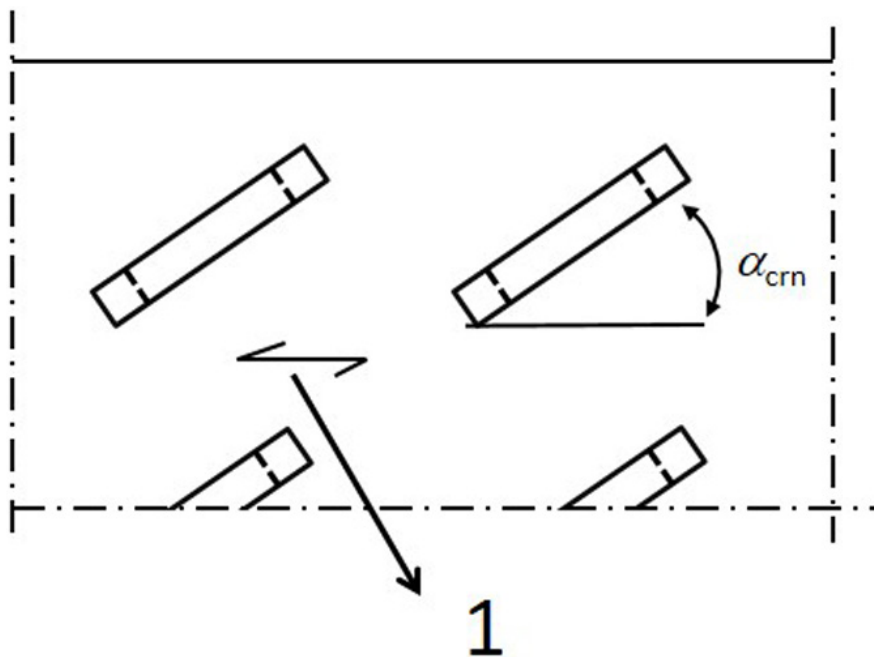
**Key**

- $l$  is staple length  
 $d$  is diameter  
 $a$  is staple crown width

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**Figure 1 — Staple dimensions**



**Key**

1 grain direction

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**Figure 2 — Angle between the staple direction and the grain direction or the main direction of a wood-based product**

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**5 Materials**

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**5.1 Timber**

The timber shall be selected in accordance with the method given in EN ISO 8970:2010.

For each test piece, the density of the individual members to be joined shall not differ more than 10 %.

For a group of similar test pieces, separate planks shall be used for each test piece.

The members shall be free from major defects that could lead to premature failure in the area away from the fasteners.

**5.2 Wood-based materials**

The specification of these products shall be established. The products used for the individual members of the test pieces shall be representative of the class or range of product to which they belong and the relevant properties shall be declared.

One unique grade shall be used to make the test pieces. For each test piece, the individual members in the joint shall be selected from separate pieces of material.

**5.3 Staples**

The technical specification of the staple wire and the staples shall be established if unknown.