SLOVENSKI STANDARD
SIST-TS CEN/TS 14966:2006

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Lesne ploġ e ï Indikativne preskusne metode na majhnih preskuġancih za nekatere mehanske lastnosti

Wood-based panels - Small scale indicative test methods for certain mechanical properties

Holzwerkstoffe - Orientierende Prüfverfahren an kleinen Prüfkörpern für einige mechanische Eigenschaften

Panneaux a base de bois - Méthodes d'essais indicatives sur éprouvettes de petites dimensions pour certaines propriétés mécaniques

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Wood-based panels - Small scale indicative test methods for certain mechanical properties

Panneaux à base de bois - Méthodes d'essais indicatives sur éprouvettes de petites dimensions pour certaines propriétés mécaniques

Holzwerkstoffe - Orientierende Prüfverfahren an kleinen Prüfkörpern für einige mechanische Eigenschaften

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Foreword

This document (CEN/TS 14966:2005) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

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1 Scope

This Technical Specification specifies small-scale test methods for estimating the following mechanical properties of wood-based panels:

— indicative planar shear strength (sometimes referred to as block shear);

— indicative panel shear strength;

— indicative strength and modulus of elasticity in tension in the plane of the panel;

— indicative strength in compression in the plane of the panel.

Reference should be made to EN 310 for bending properties. For plywood, EN 314-1 may also be used as an indicator of planar shear strength.

These test methods are intended for indicative purposes only and should not be used as a means of determining structural design values. They may not be suitable for all panel types. They may be used as a means of supporting quality control procedures for structural panels, if correlations with EN 789 test results can be established (CEN Technical Report in preparation).

2 Normative references

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

EN 325, *Wood-based panels — Determination of dimensions of test pieces*.

EN 326-1, *Wood-based panels — Sampling, cutting and inspection — Part 1: Sampling and cutting of test pieces and expression of test results.*

3 Terms and definitions

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

3.1
indicative test
test intended to give an estimate of a particular property for guidance purposes only. It may be used as a tool for the estimation of additional properties where a reliable correlation can be demonstrated

4 Indicative planar shear strength

4.1 Principle

The shear strength parallel to the surface of the test piece is determined by applying a uniform compressive force until rupture occurs. The compression load required to obtain failure is measured.

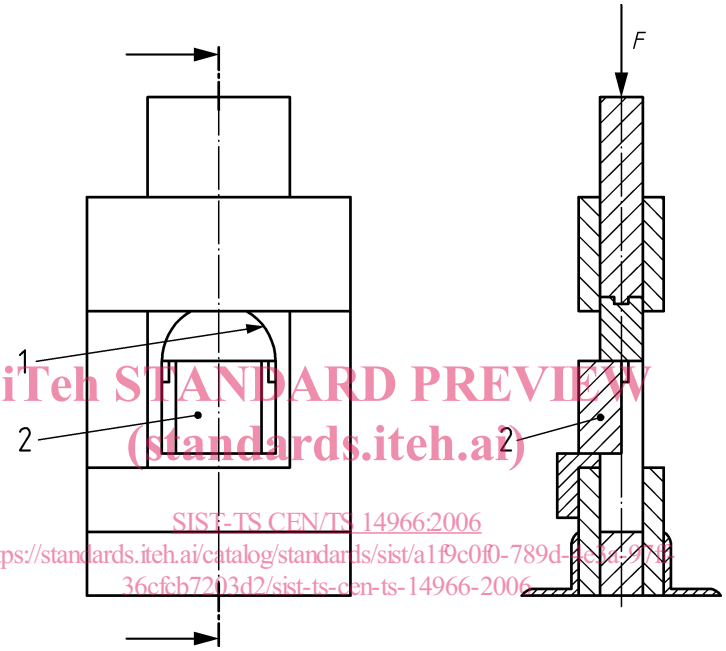
NOTE This test procedure is not appropriate to plywood made from mixed species.

4.2 Apparatus

4.2.1 Measuring instruments, as specified in EN 325.

4.2.2 Shear test apparatus for applying a shear load through the central plane of the test piece, as shown in Figure 1. The shearing apparatus provides support to one half of the lower edge of the test pieces, whilst applying a load to the opposite half of the upper edge of the test piece. The edges of the support and loading blocks shall form a vertical plane passing through the centre of the test piece.

4.2.3 Testing machine, capable of applying a compressive force parallel to the surface of the test piece, and measuring this force to an accuracy of 1 % of the maximum applied load.



Key
1 spherical seated
2 test piece

Figure 1 — Arrangement of the shear test apparatus

4.3 Test pieces

4.3.1 Sampling and cutting

Sampling and cutting of the test pieces shall be carried out according to EN 326-1.

A minimum of 8 test pieces shall be taken from each board to be tested.

4.3.2 Dimensions

The test piece shall be (50 ± 0,1) mm × (50 ± 0,1) mm with a thickness equal to the thickness of the board. If the thickness of the panel is ≥ 15 mm, the thickness of the test piece shall be a single panel thickness. For panels with a thickness < 15 mm, a sufficient odd number of specimens shall be laminated by gluing, with a suitable glue type, to give a test piece with a minimum thickness of 15 mm.

4.3.3 Conditioning

The test pieces shall be conditioned to constant mass in an atmosphere with a relative humidity of (65 ± 5) % and a temperature of (20 ± 1) °C. Constant mass is considered to be reached when the results of two successive weighing operations, carried out at an interval of 24 h, do not differ more than 0,1 % of the mass of the test piece.

In some cases, for instance in a cyclic test in humid conditions or in an immersion-in-water or boil test, alternative conditioning procedures may be specified. In this case the appropriate standard shall be consulted and followed. In the case of laminated test pieces, the lamination shall be carried out after the cyclic conditioning.

4.3.4 Determination of dimensions

After conditioning, measure the length and width of each test piece to an accuracy of ± 0,1 mm according to EN 325.

4.4 Procedure

The shear test apparatus shall be mounted in a compression testing machine. The test piece shall be centrally positioned in the apparatus.

The load shall be applied at a constant rate of cross-head movement throughout the test. The rate of loading shall be adjusted so that the maximum load is reached within (60 ± 30) s. The maximum load for each test piece shall be recorded.

4.5 Expression of results

The shear strength parallel to the surface (indicative planar shear strength) f_v (N/mm^2) of the test piece shall be calculated from the following equation to three significant figures:

$$f_v = \frac{F_{max}}{A}$$

where

F_{max} is the maximum load, in Newtons;

A is the shear area of the test piece (length × width) in square millimetres.

5 Indicative panel shear strength

5.1 Principle

The panel shear strength perpendicular to the plane of the test piece is determined by applying a uniform compressive force to a notched test piece until failure occurs. The load required to cause failure is recorded.

5.2 Apparatus

5.2.1 Measuring instruments, as specified in EN 325.

5.2.2 Shear test apparatus for applying a shear load perpendicular to the plane of the test piece, as shown in Figure 2. The apparatus provides support to the two ends of the test piece, outside of the two pairs of notches, whilst applying a load to the upper surface between the two pairs of notches.

Dimensions in millimetres

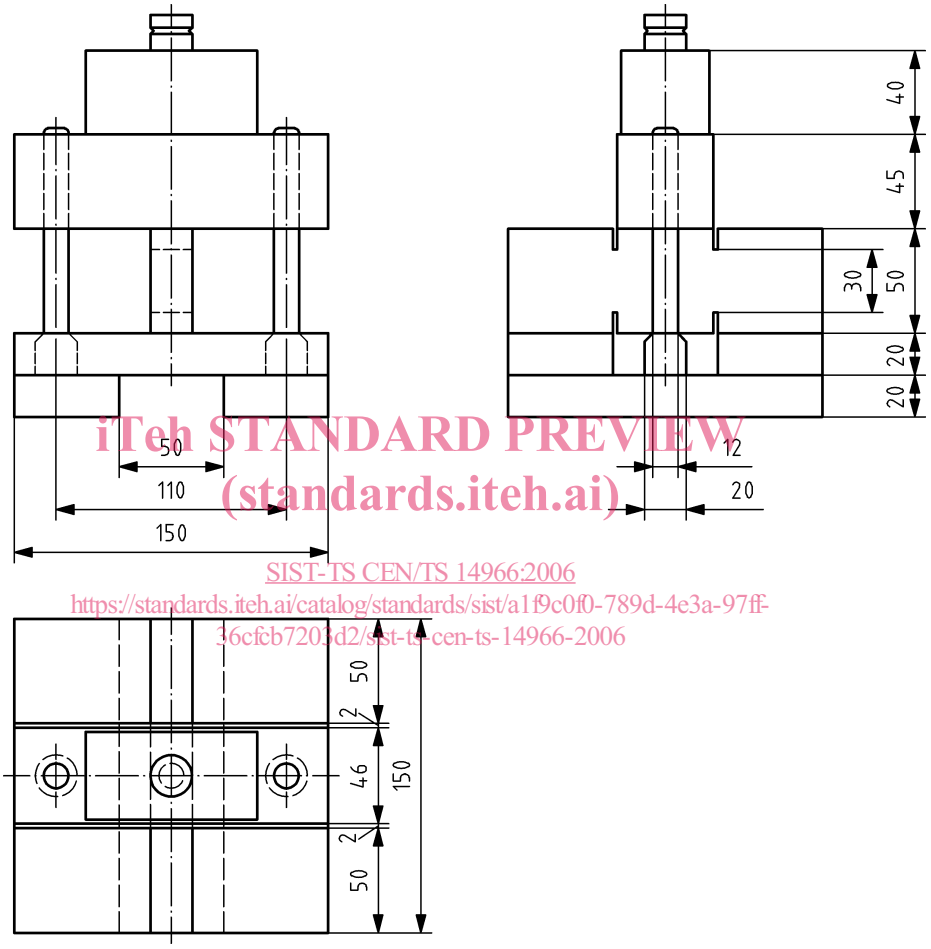


Figure 2 — Arrangement of the shear test apparatus

5.2.3 Testing machine, capable of applying a compressive force perpendicular to the plane of the test piece, with two parallel steel platens and measuring the applied load to an accuracy of 1 % of the maximum load. One of the steel platens shall be attached to a ball joint.

5.3 Test pieces

5.3.1 Sampling and cutting

Sampling and cutting of the test pieces shall be carried out according to EN 326-1. A minimum of 8 test pieces for both transverse and longitudinal directions shall be taken from each board. (Test pieces shall normally be cut parallel and perpendicular to the long direction of the board but may be cut at other angles if required.)