



SLOVENSKI STANDARD
oSIST prEN 302-8:2022

01-april-2022

Lepila za nosilne lesene konstrukcije - Preskusne metode - 8. del: Preskus statične obremenitve preskušancev z več lepljenimi spoji pri tlačni strižni obremenitvi

Adhesives for load-bearing timber structures - Test methods - Part 8: Static load test of multiple bond line specimens in compression shear

Klebstoffe für tragende Holzbauteile - Prüfverfahren - Teil 8: Statische Belastungsprüfung an Prüfkörpern mit mehreren Klebfugen bei Druck-Scherbeanspruchung

Adhésifs pour structures portantes en bois - Méthodes d'essai - Partie 8 : Essai de charge statique d'éprouvettes à joints de colle multiples en cisaillement par compression

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Ta slovenski standard je istoveten z: prEN 302-8

ICS:

83.180	Lepila	Adhesives
91.080.20	Lesene konstrukcije	Timber structures

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 302-8

February 2022

ICS 83.180

Will supersede EN 302-8:2017

English Version

Adhesives for load-bearing timber structures - Test methods - Part 8: Static load test of multiple bond line specimens in compression shear

Adhésifs pour structures portantes en bois - Méthodes d'essai - Partie 8 : Essai de charge statique d'éprouvettes à joints de colle multiples en cisaillement par compression

Klebstoffe für tragende Holzbauteile - Prüfverfahren - Teil 8: Statische Belastungsprüfung an Prüfkörpern mit mehreren Klebfugen bei Druck-Scherbeanspruchung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 193.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 302-8:2022) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by UNE.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 302-8:2017.

Compared to EN 302-8:2017, the following modifications have been made:

- a) test of test pieces with bond line thickness 0,5 mm and 1 mm included in the standard.

This document is one of a package dealing with adhesives for use with timber structures, and is published in support to EN 1995, *Eurocode 5: Design of timber structures* (all parts).

The package consists of

- three classification and performance requirements for adhesives for load-bearing timber structures; phenolic and aminoplastic adhesives (EN 301), one component polyurethane adhesives (EN 15425) and emulsion polymerized isocyanate adhesives (EN 16254), and
- twelve test methods (EN 302 parts 1 to 8, EN 15416 parts 1, 3, 4 and 5).

These European Standards have the following titles:

- EN 301, *Adhesives, phenolic and aminoplastic, for load-bearing timber structures — Classification and performance requirements*
- EN 15425, *Adhesives — One component polyurethane (PUR) for load-bearing timber structures — Classification and performance requirements*
- EN 16254, *Adhesives — Emulsion polymerized isocyanate (EPI) for load-bearing timber structures — Classification and performance requirements*
- EN 302-1, *Adhesives for load-bearing timber structures — Test methods — Part 1: Determination of longitudinal tensile shear strength*
- EN 302-2, *Adhesives for load-bearing timber structures — Test methods — Part 2: Determination of resistance to delamination*
- EN 302-3, *Adhesives for load-bearing timber structures — Test methods — Part 3: Determination of the effect of acid damage to wood fibres by temperature and humidity cycling on the transverse tensile strength*
- EN 302-4, *Adhesives for load-bearing timber structures — Test methods — Part 4: Determination of the effects of wood shrinkage on the shear strength*
- EN 302-5, *Adhesives for load-bearing timber structures — Test methods — Part 5: Determination of maximum assembly time under referenced conditions*
- EN 302-6, *Adhesives for load-bearing timber structures — Test methods — Part 6: Determination of the minimum pressing time under referenced conditions*

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- EN 302-7, *Adhesives for load-bearing timber structures — Test methods — Part 7: Determination of the working life under referenced conditions*
- EN 302-8, *Adhesives for load-bearing timber structures — Test methods — Part 8: Static load test of multiple bond line specimens in compression shear*
- EN 15416-1, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 1: Long-term tension load test perpendicular to the bond line at varying climate conditions with specimens perpendicular to the glue line (Glass house test)*
- EN 15416-3, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 3: Creep deformation test at cyclic climate conditions with specimens loaded in bending shear*
- EN 15416-4, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 4: Determination of open assembly time under referenced conditions*
- EN 15416-5, *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 5: Determination of minimum pressing time under referenced conditions*

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Introduction

Safety statement

Persons using this document should be familiar with the normal laboratory practice, if applicable. This document cannot address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

Environmental statement

It is understood that some of the material permitted in this document may have negative environmental impact. As technological advantages lead to better alternatives for these materials, they will be eliminated from this document to the extent possible.

At the end of the test, it is recommended that the user of this document take care to carry out an appropriate disposal of the wastes, according to local regulation.

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prEN 302-8:2022 (E)**1 Scope**

This document specifies a method of determining the ability of adhesive bonds to resist static load. It is applicable to adhesives used in load bearing timber structures.

It is suitable for the following applications:

- a) for assessing the compliance of adhesives according to EN 301, EN 15425 and EN 16254;
- b) for assessing the suitability and quality of adhesives for load-bearing timber structures;
- c) for assessing the effect on the bond strength resulting from constant load at different climate conditions.

This method is intended primarily to obtain performance data for the classification of adhesives for load bearing timber structures according to their suitability for use in defined climatic environments.

This method is not intended to provide data for structural design, and does not necessarily represent the performance of the bonded member in service.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 301:2017, *Adhesives, phenolic and aminoplastic, for load-bearing timber structures - Classification and performance requirements*

EN 15425:2017, *Adhesives - One component polyurethane (PUR) for load-bearing timber structures - Classification and performance requirements*

EN 16254:2013+A1:2016, *Adhesives - Emulsion polymerized isocyanate (EPI) for load-bearing timber structures - Classification and performance requirements*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Principle

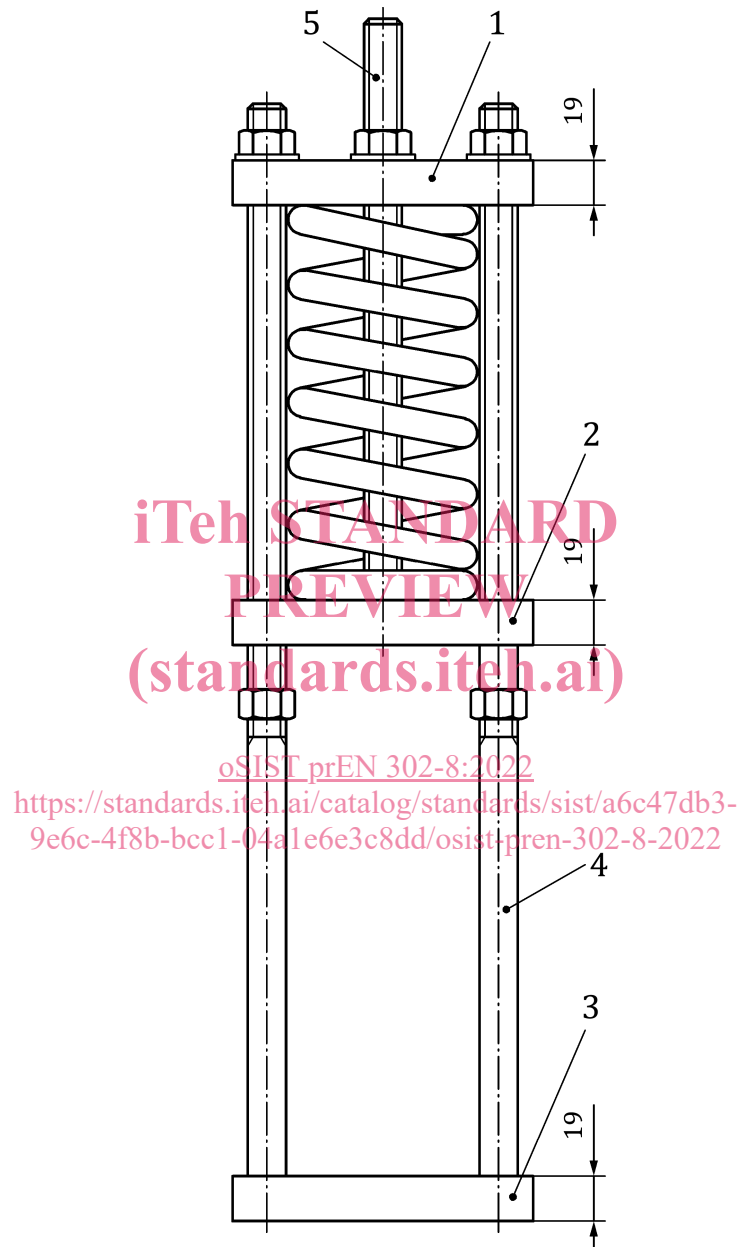
Bonded test pieces are subjected to a constant compression shear load under a series of three different climates. Number of failures and the amount of deformation is measured after the end of the last climate cycle.

5 Apparatus

5.1 Test jig

The test equipment is shown in Figure 1 and Figure 2.

Dimensions in millimetres

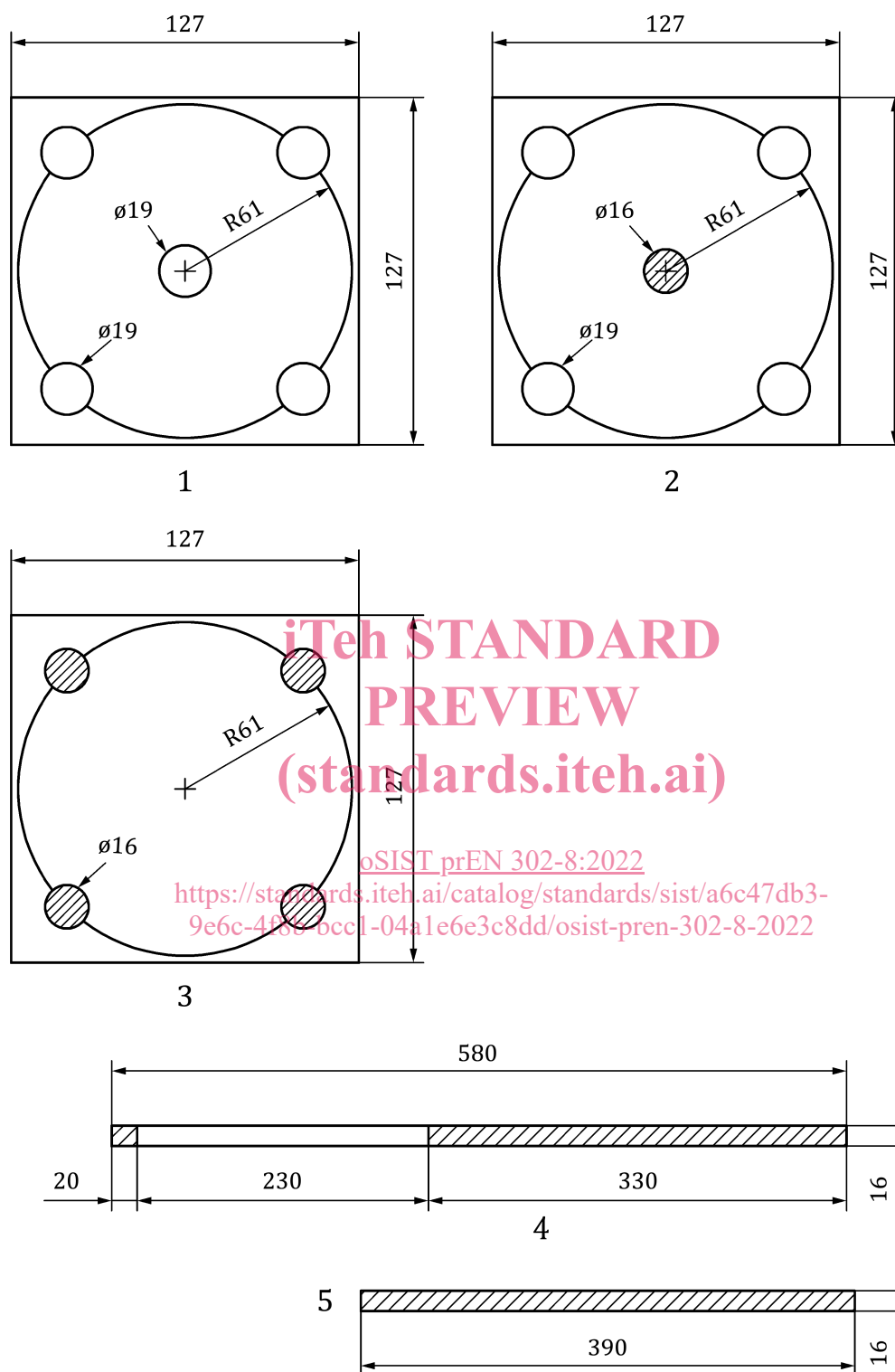


Key

- 1 top plate
- 2 spacer plate
- 3 base plate
- 4 tension rod
- 5 centre rod

Figure 1 — Test jig

Dimensions in millimetres



Key

- 1 top plate
- 2 spacer plate
- 3 base plate
- 4 tension rod (the given lengths are minimum values)
- 5 centre rod. (the given length is a minimum value)

Figure 2 — Dimensions of plates and rods

If longer rods are used, distance blocks need to be placed on top and/or under the specimen. The distance blocks shall be prepared in such a way that the two contact surfaces, between the distance block and the jig and between the distance block and the specimen, are parallel. Dimension of distance blocks: at least 48 mm × 51 mm × 10 mm.

NOTE 1 Blocks produced from several pieces of plywood bonded together have been found suitable.

The spring shall have the following characteristics:

- outside diameter (unloaded): 105 mm;
- end fix: both ends fixed and grounded;
- free length: 320 mm;
- compression at maximum load: 45 mm to 50 mm.

NOTE 2 A spring rate of 81 N/mm has shown to be suitable.

5.2 Equipment for climate control

The used equipment shall be capable of maintaining (50 ± 2) °C, (70 ± 2) °C or (90 ± 2) °C with a relative humidity of (10 ± 5) % in order to reach one of the climate conditions 1a, 1b or 1c in Table 1, and the two climates (20 ± 2) °C and (85 ± 5) % relative humidity and (50 ± 2) °C and (75 ± 5) % relative humidity.

5.3 Testing machine

A testing machine capable of applying a compression load is required.

6 Test specimens

6.1 Selection of wood

Untreated beech wood (*Fagus sylvatica* L.) with a density of (700 ± 50) kg/m³ at 12 % moisture content shall be used. The material shall be straight-grained and free from knots, machining defects (such as chipped grain, dubbed ends, feed roll polish, coarse knife marks and feed roll compression) and any drying defects such as case hardening, collapse, splits or checks. The angle of the annual rings to the surface to be bonded shall be between 30° and 60°.

6.2 Preparation of the laminated members

6.2.1 Test pieces with thin bond line

Condition the wood at (20 ± 2) °C and (65 ± 5) % relative humidity (hereafter climate [20/65]) until a moisture content of (12 ± 1) % has been obtained. Plane each lamination not more than 4 h before applying the test adhesive.

The parts, of which the specimen is built of, shall have the same direction for the annual rings in the cross section (according to Figure 3).