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Timber structures — Determination of characteristic values —

Part 5: Mechanical connections

Structures en bois — Détermination des valeurs caractéristiques — Partie 5: Assemblages

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 165, *Timber structures*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

A list of all parts in the ISO 12122 series can be found on the ISO website.

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Introduction

This document sets out a framework for establishing characteristic values from test results on a sample drawn from a clearly defined reference population of connections. The characteristic value is an estimate of the property of the reference population with a consistent level of confidence prescribed in this document.

This document is intended to be used in conjunction with ISO 12122-1.

This document permits the evaluation of characteristic values from testing on connections made with commercial components.

In some cases, characteristic values determined in accordance with this document may be modified to become a design value.

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Timber structures — Determination of characteristic values —

Part 5: Mechanical connections

1 Scope

This document gives methods of determination of characteristic values for a defined population of mechanical connections between timber components, calculated from full scale test values.

It presents methods for the determination of:

a) slip modulus of mechanical connections;

b) characteristic strength of connections subjected to either monotonic or cyclic loads.

Glued connections are excluded from the scope of this document.

NOTE 1 It is assumed that the failure mode is the same for all specimens in the sample.

NOTE 2 When a small number of test results is available, ISO 12122-6 is used for the determination of the mean and the 5^{th} percentile values.

NOTE 3 Informative commentary to the clauses of this document can be found in Annex A.

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.

ISO 6891, *Timber structures — Joints made with mechanical fasteners — General principles for the determination of strength and deformation characteristics*

ISO 12122-1, *Timber structures — Determination of characteristic values — Part 1: Basic requirements*

ISO 16670, *Timber structures — Joints made with mechanical fasteners — Quasi-static reversed-cyclic test method*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

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3.1
mechanical connection
assembly of one or more timber components connected directly together or connected together with components made from other materials

Note 1 to entry: Other materials include steel dowels, bolts, nails, screws, shear connectors and plates.

3.2
test load
peak load achieved for each test specimen for both monotonic and cyclic tests

3.3
ultimate displacement
displacement associated with the maximum load or peak load or ultimate load, F_{max}, determined in accordance with ISO 16670

4 Symbols

F_{est} estimated maximum load, in newtons

F_{max} maximum load or peak load or ultimate load, in newtons

v_y yield displacement (determined only if a clear yield point can be established)

5 Reference population

In addition to the requirements for definition of the reference population in ISO 12122-1, the following attributes of connections shall be described:

a) the material of the connecting components;

b) the dimensions of the connecting components;

c) the method of assembly;

d) the dimensions of the assembly, in particular end distances, edge distances and connector spacings;

e) the species and density range of timber used in the connections;

f) the presence or exclusion of specified features (e.g. knots or finger joints) in or near the connection;

g) the moisture exposure conditions (before and after specimen preparation);

h) the moisture conditions when the specimen is installed and tested (e.g. installed dry and tested dry, installed wet and tested wet, installed dry and tested wet, installed wet and tested dry).

NOTE Where the densities of timber components comply with ISO 8970, this can be declared as part of the reference population.

6 Sampling

6.1 Sampling method

The sampling method shall comply with the performance objective of sampling defined in ISO 12122-1.

Representation of each of the variants in the sample shall approximate the representation of the same variants in the reference population.

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