SLOVENSKI STANDARD
oSIST prEN ISO 8970:2018

01-november-2018

Lesene konstrukcije - Preskušanje zvez s kovinskimi veznimi sredstvi - Zahteve za gostoto lesa (ISO/DIS 8970:2018)

Timber structures - Testing of joints made with mechanical fasteners - Requirements for timber density (ISO/DIS 8970:2018)

Holzbauwerke - Prüfung von mechanischen Verbindungen - Anforderungen an die Rohdichte des Holzes (ISO/DIS 8970:2018)

Structures en bois - Essai des assemblages réalisés par organes mécaniques - Exigences concernant la masse volumique du bois (ISO/DIS 8970:2018)

Ta slovenski standard je istoveten z: **prEN ISO 8970**

ICS:

91.080.20	Lesene konstrukcije	Timber structures

oSIST prEN ISO 8970:2018 **en,fr,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 8970

ISO/TC **165**

Secretariat: **SCC**

Voting begins on:
2018-09-12

Voting terminates on:
2018-12-05

Timber structures — Testing of joints made with mechanical fasteners — Requirements for timber density

Structures en bois — Essai des assemblages réalisés par organes mécaniques — Exigences concernant la masse volumique du bois

ICS: 91.080.20

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 8970:2018(E)

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Published in Switzerland

Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 8970 was prepared by Technical Committee ISO/TC 165, Timber structures.

This third edition cancels and replaces the second edition (ISO 8970:2010), which has been technically revised.

Introduction

The sampling method given aims at ensuring that the selected pieces have a density distribution comparable to the timber to which the test result is intended to be applied. When this is fulfilled, the results can be used directly to determine the characteristic value of the strength parameter.

As it is often difficult to obtain a variation of the density similar to that allowed in a strength class, a correction method is given to obtain a corrected coefficient of variation for the strength parameter.

It should be kept in mind that the effect of density on the load-bearing capacity of connections is in many cases less significant than expected, and that many other parameters influence it.

Timber structures — Testing of joints made with mechanical fasteners — Requirements for timber density

1 Scope

This International Standard specifies a method based on density, for the selection of pieces of timber used in determining the strength and stiffness properties of joints between members of structural timber made with mechanical fasteners. It is intended to be used in conjunction with a test standard specifying a test method.

It is assumed the timber density is normally distributed and that any deviations are reported.

This International Standard is applicable only to specimens of structural timber.

NOTE It is emphasized that the timber density is only one of the properties that may influence the strength of a joint. Other relevant properties are, for example, growth-ring size and orientation, toughness and hardness.

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.

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 Symbols and units

k statistical factor;

$V_{\rho,tar}$ is the coefficient of variation of the density of the timber to which the test results are applied;

ρ is the density of a timber piece, expressed in kilograms per cubic metre;

$\rho_{m,tar}$ is the mean density of the timber to which the test results are applied, expressed in kilograms per cubic metre.

4 Timber sampling method and requirements

4.1 General

The timber shall be at equilibrium at a relative humidity (RH) of (65 ± 5) % and a temperature of (20 ± 2) °C at the time of testing. It shall be reported whether the timber wad dried or moistened during the conditioning.

NOTE 1 The moisture content at equilibrium is lower when reached by moistening than if reached by drying, which may affect the test results. The test standard might specify if the equilibrium condition should be reach through drying.

The density shall be determined in accordance with ISO 13061-2 part 2 for the actual moisture content.

NOTE 2 The moisture content need not to be determined, unless the test standard requires it.

If other conditions, such as tropical conditions, are used, they shall be reported.

4.2 Sampling method and requirements

The sampling method is based on the principle that all selected pieces have a density distribution comparable with that of the timber to which the test results are applied. The observed resistances may then be used directly for calculating characteristic values of the resistance. If this is not fulfilled and if permitted by the test standard, the observed resistances shallbe corrected according to Annex A.

NOTE The test results apply only to the timber species or the group of timber species used.

The timber shall be of uniform quality and without localized defects that can influence the test results.

The mean timber density $\rho_{m,sel}$ of all selected pieces shall satisfy the condition given by Equation (1):

$$0{,}95\ \rho_{m,tar} \le \rho_{m,sel} \le 1{,}05\ \rho_{m,tar} \quad (1)$$

where

$\rho_{m,tar}$ is the mean density of the timber to which the test results are applied;

$\rho_{m,sel}$ is the mean density of all selected pieces.

NOTE In order to obtain the target value of $V_{\rho,tar}$, the timber densitis ρ of the selected pieces need to approximately cover the range.

$$[(1 - k)\ \rho_{m,tar}\ ;\ (1 + k)\ \rho_{m,tar}] \quad (2)$$

where

k is equal to 1,65 $V_{\rho,tar}$, or 0,25 for cases where $V_{\rho,tar}$ is unknown;

$V_{\rho,tar}$ is the coefficient of variation of the density of the timber to which the test results are applied.

5 Test report

The following information shall be included in the test report:

a) reference to this International Standard, i.e. ISO 8970-201x;

b) the timber species or timber species group;

c) the conditioning used, including whether moistened or dried during conditioning;

d) the densities of the selected timber pieces at the time of testing, the mean density and the coefficient of variation;

e) if determined, the moisture content of the selected timber pieces at the time of testing;

f) evidence that the selected pieces satisfy the conditions required in this International Standard or possible deviations;

g) any other information which can influence the use of the test results.