SLOVENSKI STANDARD
oSIST prEN 12369-1:2024

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Lesne plošče - Karakteristične vrednosti za konstrukcijsko načrtovanje - 1. del: OSB, iverne in vlaknene plošče

Wood-based panels - Characteristic values for structural design - Part 1: OSB, particleboards and fibreboards

Holzwerkstoffe - Charakteristiche Werte für die Berechnung und Bemessung von Holzbauwerken - Teil 1: OSB, Spanplatten und Faserplatten

Panneaux à base de bois - Valeurs caractéristiques pour la conception des structures - Partie 1: OSB, panneaux de particules et panneaux de fibres

Ta slovenski standard je istoveten z: **prEN 12369-1**

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79.060.20 Vlaknene in iverne plošče Fibre and particle boards

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English Version

Wood-based panels - Characteristic values for structural design - Part 1: OSB, particleboards and fibreboards

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 112.

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.

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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

Contents

Page

European foreword

This document (prEN 12369-1:2024) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12369-1:2001.

prEN 12369-1:2024 includes the following significant technical changes with respect to EN 12369-1:2001:

— MDF.RWH added in the scope;

— characteristic values for MDF.RWH added in 5.5.4

— editorial changes.

This document is intended to be used in conjunction with EN 1995-1-1.

The EN 12369 series Wood-based panels — Characteristic values for structural design is currently composed of the following parts:

— Part 1: OSB, particleboards and fibreboards;

— Part 2: Plywood;

— Part 3: Solid wood panels.

Annex A is informative.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

1 Scope

This document provides information on the characteristic values for use in designing structures incorporating wood-based panels. The characteristic values given are as defined in EN 1995-1-1.

This document includes the characteristic values of both the mechanical properties and density for the panels set out below:

— OSB/2, OSB/3 and OSB/4, complying with EN 300;

— Particleboard, P4, P5 P6, P7 complying with EN 312;

— Hardboard, HB.HLA2 complying with EN 622-2;

— Medium board, MBH.LA2 complying with EN 622-3;

— MDF.LA and MDF.HLS complying with EN 622-5;

— MDF.RWH complying with EN 622-5.

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 300, *Oriented Strand Boards (OSB) — Definitions, classification and specifications*

EN 312, *Particleboards — Specifications*

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

EN 622-2, *Fibreboards — Specifications — Part 2: Requirements for hardboards*

EN 622-3, *Fibreboards — Specifications — Part 3: Requirements for medium boards*

EN 622-5, *Fibreboards — Specifications — Part 5: Requirements for dry process boards (MDF)*

EN 789, *Timber structures — Test methods — Determination of mechanical properties of wood based panels*

EN 1058, *Wood-based panels — Determination of characteristic 5-percentile values and characteristic mean values*

EN 1995-1-1:2004, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*

3 Terms, definitions and symbols

3.1 Terms and definitions

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

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

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

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

3.1.1 Characteristic values

3.1.1.1
characteristic strength value
population 5-percentile value obtained from the results of tests with a duration of 300 s at an equilibrium moisture content of the test pieces relating to a temperature of 20 °C and a relative humidity of 65 %

3.1.1.2
characteristic stiffness value
either the population 5-percentile or the mean value obtained of tests with a duration of 300 s at an equilibrium moisture content of the test pieces relating to a temperature of 20 °C and a relative humidity of 65 %

Note 1 to entry: The stiffness values given in the Tables are mean values as these are most commonly used in design. A NOTE below each of the Tables explains how to calculate the 5-percentile value.

3.1.1.3
characteristic density
population 5-percentile value with mass and volume corresponding to equilibrium moisture content at a temperature of 20 °C and a relative humidity of 65 %

3.1.2 Service classes

3.1.2.1
service class 1
class characterized by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air exceeding 65 % only for a few weeks per year

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

3.1.2.2
service class 2
class characterized by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air exceeding 85 % for only a few weeks per year

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

3.1.2.3
service class 3
climatic conditions leading to higher moisture contents than in service class 2

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

3.1.3
load duration class
class characterized by the effect of a constant load acting for a certain period of time in the life of the structure

Note 1 to entry: For a variable action, the appropriate class is determined on the basis of an estimate of the interaction between the typical variation of the load with time and the rheological properties of the materials.

Note 2 to entry: For strength and stiffness calculations, actions are assigned to one of the load-duration classes given in Table 1.

Table 1 — Load-duration classes

Load-duration class	Order of accumulated duration of characteristic load	Examples of loading
Permanent	more than 10 years	self weight
Long-term	6 months to 10 years	storage
Medium-term	1 week to 6 months	imposed load
Short-term	less than on week	snow[a] and wind
Instantaneous		accidental load

[a] In areas which have a heavy snow load for a prolonged period to time, part of the load should be regarded as medium-term.

3.2 Symbols

In the tables the following symbols are used:

3.2.1 Main symbols

f	Strength
E	Modulus of elasticity (defined as stiffness in EN 1995-1-1)
G	Modulus of rigidity
k	Factor for modification in strength (k_{mod}) or stiffness (k_{def}) after a period of time relative to initial values. Values are included in EN 1995-1-1.
t	Thickness
ρ	Density as measured according to EN 323
// or 0	In the direction of the major axis of OSB
⊥ or 90	In the direction of the minor axis of OSB

3.2.2 Subscripts

m	Bending
t	Tension
c	Compression
v	Panel shear
r	Planar shear
nom	Nominal
mod	Strength
def	Deflection

4 General

The characteristic values given in this document are the minimum values applicable to products conforming to the appropriate EN specification standards. These values may be presented in the format as shown in Annex A or similar to it.

Alternatively, characteristic values other than chose contained in this document shall be determined using sampling techniques set out in EN 1058 and testing procedures given in EN 789, and declared in a format in a format as shown in Annex A or similar to it.

Additionally, these characteristic values shall be supported by the following information:

— product description;

— specification standard;

— service class or classes in which the panel can be used.

The characteristic values given in this document are either different from the requirements given in the specification standard for each type of panel product, due to differences in test methodology or size of test piece used (as in the case of bending strength and modulus of elasticity), or are absent from the specification standards (as in the case of shear, in plane tension and compression).

5 Characteristic values

5.1 General

This clause gives information on the characteristic values of both mechanical properties and density for those wood-based panels the values of which, unless specified to the contrary, have been determined using the sampling techniques set out in EN 1058 and the testing procedures given in EN 789.

5.2 OSB (EN 300)

5.2.1 General

This subclause gives the minimum characteristic values for OSB complying with EN 300.

5.2.2 EN 300: OSB/2: Load-bearing boards for use in dry conditions and OSB/3: Load-bearing boards for use in humid conditions

When OSB/2 and OSB/3 are used structurally under service class 1 conditions, the characteristic values of the mechanical properties and density given in Table 2 shall apply. These require to be modified according to EN 1995-1-1 for duration of load (k_{mod}, k_{def}).

When OSB/3 is used structurally under service class 2 conditions, the characteristic values of the mechanical properties and density given in Table 1 shall be modified according to EN 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).

Table 2 — Characteristic values of boards complying with EN 300: OSB/2: Load bearing boards for use in dry conditions, and OSB/3: Load bearing boards for use in humid conditions

Thickness	**Characteristic density** (kg/m^3) **and strength** (N/mm^2) **values**									**Mean stiffness values**							
										N/mm^2							
mm	Density	Bending		Tension		Compression		Panel shear	Planar shear	Bending		Tension		Compression		Panel shear	Planar shear
t_{nom}	ρ	f_m		f_t		f_c		f_v	f_r	E_m		E_t		E_c		G_v	G_r
		0	90	0	90	0	90			0	90	0	90	0	90		
> 6 to 10	550	18,0	9,0	9,9	7,2	15,9	12,9	6,8	1,0	4 930	1 980	3 800	3 000	3 800	3 000	1 080	50
> 10 to 18	550	16,4	8,2	9,4	7,0	15,4	12,7	6,8	1,0	4 930	1 980	3 800	3 000	3 800	3 000	1 080	50
> 18 to 25	550	14,8	7,4	9,0	6,8	14,8	12,4	6,8	1,0	4 930	1 980	3 800	3 000	3 800	3 000	1 080	50

The 5 % characteristic values for stiffness should be taken as 0,85 times the mean values given in Table 2. Other properties not given in Table 2 shall comply with the requirements given in EN 300 for the grades OSB/2 or OSB/3.

5.2.3 EN 300: OSB/4: heavy-duty load bearing boards for use in humid conditions

When used structurally under service class 1 conditions, the characteristic values of the mechanical properties and density given in Table 3 shall apply. These require to be modified for duration of load (k_{mod}, k_{def}).

When used structurally under service class 2 conditions, the characteristic values of the mechanical properties and density given in Table 3 shall be modified according to EN 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).