SLOVENSKI STANDARD
SIST EN 312:2011

01-marec-2011

Nadomešča:
SIST EN 312:2004

Iverne plošče - Specifikacije

Particleboards - Specifications

Spanplatten - Anforderungen

Panneaux de particules - Exigences

Ta slovenski standard je istoveten z: EN 312:2010

ICS:

79.060.20 Vlaknene in iverne plošče Fibre and particle boards

SIST EN 312:2011 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 312

September 2010

ICS 79.060.20

Supersedes EN 312:2003

English Version

Particleboards - Specifications

Panneaux de particules - Exigences

Spanplatten - Anforderungen

This European Standard was approved by CEN on 23 July 2010.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 312:2010: E

Contents

Page

Foreword

This document (EN 312:2010) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

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

This document supersedes EN 312:2003.

Compared to EN 312:2003, the following main modifications have been made:

a) New thickness ranges included;

b) Certain values for bending strength, modulus of elasticity and thickness swelling modified.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the requirements for flat-pressed or calendar-pressed unfaced particleboards as defined in EN 309.

NOTE 1 This standard is called up in EN 13986 for construction applications. Products specified in this standard are referred to in EN 13986 as resin-bonded particleboards.

The values listed in this standard relate to product properties, but they are not characteristic values to be used in design calculations.

NOTE 2 Such characteristic values (e.g. for use in design calculation in EN 1995-1-1) are given either in EN 12369-1 or derived by testing according to EN 789, EN 1058 and ENV 1156.

Additional information on supplementary properties for certain applications is also given.

NOTE 3 Particleboards in accordance with this standard may be referred to as P1 to P7-boards. Boards of type P4 to P7 are intended for use in design and construction of load-bearing or stiffening building elements, e.g. walls, flooring, roofing and I-beams (see EN 1995-1-1 and/or performance standards).

This standard does not apply to extruded particleboards and flaxboards, which are standardised in EN 14755 and EN 15197 respectively.

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 120, *Wood based panels — Determination of formaldehyde content — Extraction method called the perforator method*

EN 309:2005, *Particleboards — Definition and classification*

EN 310, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength*

EN 311, *Wood-based panels — Surface soundness — Test method*

EN 317, *Particleboards and fibreboards — Determination of swelling in thickness after immersion in water*

EN 318, *Wood based panels — Determination of dimensional changes associated with changes in relative humidity*

EN 319, *Particleboards and fibreboards — Determination of tensile strength perpendicular to the plane of the board*

EN 321, *Wood-based panels — Determination of moisture resistance under cyclic test conditions*

EN 322, *Wood-based panels — Determination of moisture content*

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

EN 324-1, *Wood-based panels — Determination of dimensions of boards — Part 1: Determination of thickness, width and length*

EN 324-2, *Wood-based panels — Determination of dimensions of boards — Part 2: Determination of squareness and edge straightness*

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

EN 326-2, *Wood-based panels — Sampling, cutting and inspection — Part 2: Quality control in the factory*

EN 326-3, *Wood-based panels — Sampling, cutting and inspection — Part 3: Inspection of an isolated lot of panels*

EN 717-1, *Wood-based panels — Determination of formaldehyde release — Part 1: Formaldehyde emission by the chamber method*

EN 1087-1, *Particleboards — Determination of moisture resistance — Part 1: Boil test*

EN 12871, *Wood-based panels — Performance specifications and requirements for load bearing boards for use in floors, walls and roofs*

EN 13986:2004, *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*

ISO 3340, *Fibre building boards — Determination of sand content*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13986:2004 and EN 309:2005 and the following apply.

3.1
dry conditions
conditions corresponding to service class 1 of EN 1995-1-1:2004 which is characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

3.2
humid conditions
conditions corresponding to service class 2 of EN 1995-1-1:2004 which is characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 85 % for a few weeks per year

3.3
general purpose
all non-load bearing applications, e.g. furniture and fitments

3.4
load-bearing
use in a load-bearing construction, i.e. an organized assembly of connected parts designed to provide mechanical resistance and stability to the works

NOTE Also referred to as "structural use".

4 Classifications

Seven types of boards are classified and are distinguished as follows:

— P1 General purpose boards for use in dry conditions;

— P2 Boards for interior fitments (including furniture) for use in dry conditions;

— P3 Non load-bearing boards for use in humid conditions;

— P4 Load-bearing boards for use in dry conditions;

— P5 Load-bearing boards for use in humid conditions;

— P6 Heavy duty load-bearing boards for use in dry conditions;

— P7 Heavy duty load-bearing boards for use in humid conditions.

5 General requirements for all board types

Particleboards shall comply with the general requirements as listed in Table 1 when dispatched from the production factory. For certain uses of particleboards (see performance standard EN 12871), special tolerances are required for the dimensional properties listed under No. 1. In the case of dispatch in cut sizes, or of further machined boards (tongued and grooved, and similar), special tolerances for properties No. 1, 2 and 3 may be agreed upon.

Table 1 — General requirements at dispatch

No	Property	Test method	Requirement
1[a]	Tolerances on nominal dimensions	EN 324-1	
	— Thickness (sanded) within and between boards		± 0,3 mm
	— Thickness (unsanded) within and between boards		– 0,3 mm + 1,7 mm
	— Length and width		± 5 mm
2[a]	Edge straightness tolerance	EN 324-2	1,5 mm per m
3[a]	Squareness tolerance	EN 324-2	2 mm per m
4	Moisture content	EN 322	5 % to 13 %
5[a]	Tolerance on the mean density within a board	EN 323	± 10 %
6[b]	Formaldehyde release according to EN 13986		
	— Class E 1		
	Perforator value	EN 120	Content ≤ 8 mg/100 g oven dry board[d]
	Formaldehyde release[c]	EN 717-1	Release ≤ 0,124 mg/m^3 air
	— Class E 2		
	Perforator value	EN 120	Content > 8 mg/100 g oven dry board and ≤ 20 mg/100 g oven dry board
	Formaldehyde release[c]	EN 717-1	Release > 0,124 mg/m^3 air and ≤ 0,3 mg/m³ air

[a] These values are characterized by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.

[b] The perforator values apply to boards with moisture contents H of 6,5 %. In the case of particleboards with different moisture content (in the range of 3 % ≤ H ≤ 10 %), the perforator value shall be multiplied by a factor F which can be calculated from the following equation:

$F = -0{,}133\,H + 1{,}86$

[c] Required for initial type testing other than for established products where initial type testing may also be done on the basis of existing data with EN 120 or EN 717-1 testing, either from factory production control or from external inspection.

[d] Experience has shown that to ensure compliance with these limits, the rolling average of the EN 120 values found from the internal factory production control over a period of ½ year should not exceed 6,5 mg HCHO/100 g panel mass.

NOTE In certain countries only products of formaldehyde class E1 are allowed.

6 Requirement values

The requirements in Tables 2 to 11 shall be met by 5 percentile values (95 percentile values in the case of thickness swelling) based on the mean values for individual boards and calculated in accordance with EN 326-1. In the case of thickness swelling they shall be equal to or less than the values in Tables 2 to 11 and in the case of all other properties they shall be equal to or greater than the values in Tables 2 to 11.

The values in Tables 2 to 11 for both bending strength and modulus of elasticity shall apply to test results obtained in the weakest direction in the plane of the panel.

NOTE The manufacturer may test the panel in only the main direction if this direction is clearly indicated on the machined ready to use panel.

7 Requirements for general purpose boards for use in dry conditions (Type P1)

Boards of this type shall comply with the requirements given in Tables 1 and 2.

Table 2 — General purpose boards for use in dry conditions (Type P1) — Requirements for specified mechanical properties

Property	Test method	Unit	Requirement							
			Thickness range (mm, nominal)							
			< 3	3 to 6	> 6 to 13	> 13 to 20	> 20 to 25	>25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm^2	11,5	11,5	10,5	10	10	8,5	7	5,5
Internal bond	EN 319	N/mm^2	0,31	0,31	0,28	0,24	0,20	0,17	0,14	0,14
NOTE The values are characterised by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.										

8 Requirements for boards for interior fitments (including furniture) for use in dry conditions (Type P2)

Boards of this type shall comply with the requirements given in Tables 1 and 3.

Table 3 — Boards for interior fitments (including furniture) for use in dry conditions (Type P2) — Requirements for specified mechanical properties

Property	Test method	Unit	Requirement								
			Thickness range (mm, nominal)								
			< 3	3 to 4	> 4 to 6	> 6 to 13	> 13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm^2	13	13	12	11	11	10,5	9,5	8,5	7
Modulus of elasticity in bending	EN 310	N/mm^2	1 800	1 800	1 950	1 800	1 600	1 500	1 350	1 200	1 050
Internal bond	EN 319	N/mm^2	0,45	0,45	0,45	0,40	0,35	0,30	0,25	0,20	0,20
Surface soundness	EN 311	N/mm^2	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
NOTE The values are characterised by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.											

9 Requirements for non load-bearing boards for use in humid conditions (Type P3)

9.1 General

Boards of this type shall comply with the requirements given in Tables 1, 4 and 5.

9.2 Mechanical and swelling properties

Table 4 — Non load-bearing boards for use in humid conditions (P3) — Requirements for specified mechanical and swelling properties

Property	Test method	Unit	Requirement								
			Thickness range (mm, nominal)								
			< 3	3 to 4	> 4 to 6	> 6 to 13	> 13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm^2	13	13	14	15	14	12	11	9	7,5
Modulus of elasticity in bending	EN 310	N/mm^2	1 800	1 800	1 950	2 050	1 950	1 850	1 700	1 550	1 350
Internal bond	EN 319	N/mm^2	0,50	0,50	0,50	0,45	0,45	0,40	0,35	0,30	0,25
Swelling in thickness, 24 h	EN 317	%	25	23	20	17	14	13	13	12	12
NOTE The values for bending properties, internal bond and swelling in thickness are characterised by a moisture content in the material (before treatment in the case of swelling in thickness) corresponding to a relative humidity of 65 % and a temperature of 20 °C.											

9.3 Moisture resistance

Table 5 — Non load-bearing boards for use in humid conditions (Type P3) — Requirements for moisture resistance

Property	Test method	Unit	Requirement								
			Thickness range (mm, nominal)								
			< 3	3 to 4	> 4 to 6	> 6 to 13	> 13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
OPTION 1											
Internal bond after cyclic test	EN 321	N/mm^2	0,18	0,18	0,18	0,15	0,13	0,12	0,10	0,09	0,08
Swelling in thickness after cyclic test	EN 321	%	15	15	14	14	13	12	12	11	11
OPTION 2											
Internal bond after boil test	EN 1087-1	N/mm^2	0,09	0,09	0,09	0,09	0,08	0,07	0,07	0,06	0,06
NOTE The values for internal bond and swelling in thickness after option 1 treatment are characterised by a moisture content in the material (before and after cyclic test) corresponding to a relative humidity of 65 % and a temperature of 20 °C. The values for internal bond after option 2 treatment are characterised by a moisture content in the material (before the boil test) corresponding to a relative humidity of 65 % and a temperature of 20 °C.											