SLOVENSKI STANDARD
SIST EN 636:2013+A1:2015

01-junij-2015

Vezane plošče - Specifikacije

Plywood - Specifications

Sperrholz - Anforderungen

Contreplaqué - Exigences

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ICS:

79.060.10 Vezan les Plywood

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Plywood - Specifications

Contreplaqué - Exigences

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 636:2012+A1:2015) 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of an identical text or by endorsement, at the latest by September 2015, and conflicting national standards shall be withdrawn at the latest by September 2015.

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 includes Amendment 1, approved by CEN on 2014-12-27.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟦A1⟩ ⟨A1⟧.

This document supersedes ⟦A1⟩ EN 636:2012 ⟨A1⟧.

⟦A1⟩ *Deleted text* ⟨A1⟧

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

1 Scope

〈A1〉 This European Standard specifies the requirements for plywood, as defined in EN 313-2, for both general purpose use (non-structural application) and structural application in dry, humid or exterior conditions. It also gives a classification system based on the bending properties.

NOTE 1 This European Standard is referenced in EN 13986 for construction applications.

This standard can be appropriately applied for all plywood, including overlaid and coated plywood, but it does not cover materials or processes used for overlaying or coating. Neither does it cover any materials or processes applied in relation to enhancement of biological durability.

NOTE 2 For additional guidance on biological durability and the potential need for preservative treatment, according to application and serviceability, reference can be made to CEN/TS 1099.

The values listed under Clause 4 relate only to product properties; they are not 'characteristic values' and are not to be used in design calculations.

NOTE 3 Characteristic values (i.e. for use in design calculation according to EN 1995–1–1) are given either in EN 12369–2 which is based on the classification system given in this standard or by the manufacturer based on testing according to EN 789, EN 1058 and ENV 1156.

Additional information on supplementary properties for certain applications is also given. 〈A1〉

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 314-1, *Plywood - Bonding quality - Part 1: Test methods*

EN 314-2, *Plywood - Bonding quality - Part 2: Requirements*

EN 315, *Plywood - Tolerances for dimensions*

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

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: Initial type testing and factory production control*

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

EN 335-3:1995, *Durability of wood and wood-based products — Definition of hazard classes of biological attack —Part 3: Application to wood-based panels*

EN 594, *Timber structures - Test methods - Racking strength and stiffness of timber frame wall panels*

EN 596, *Timber structures - Test methods - Soft body impact test of timber framed walls*

EN 635-1, *Plywood - Classification by surface appearance - Part 1: General*

EN 635-2, *Plywood - Classification by surface appearance - Part 2: Hardwood*

EN 635-3, *Plywood - Classification by surface appearance - Part 3: Softwood*

CEN/TS 635-4, *Plywood - Classification by surface appearance - Part 4: Parameters of ability for finishing, guideline*

EN 635-5, *Plywood - Classification by surface appearance - Part 5: Methods for measuring and expressing characteristics and defects*

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

EN 717-2, *Wood-based panels - Determination of formaldehyde release - Part 2: Formaldehyde release by the gas analysis method*

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*

ENV 1156, *Wood-based panels — Determination of duration load and creep factors*

EN 1195, *Timber structures - Test methods - Performance of structural floor decking*

EN 12369-2, *Wood-based panels - Characteristic values for structural design - Part 2: Plywood*

EN 13446, *Wood-based panels - Determination of withdrawal capacity of fasteners*

EN 13810-1, *Wood-based panels - Floating floors - Part 1: Performance specifications and requirements*

CEN/TS 13810-2, *Wood-based panels - Floating floors - Part 2: Test methods*

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

EN 14272, *Plywood - Calculation method for some mechanical properties*

3 Terms and definitions

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

3.1
plywood for use in dry conditions
plywood to be used in conditions 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

Note 1 to entry: These conditions correspond with Service Class 1 according to EN 1995–1-1.

Note 2 to entry: Boards of this type are suitable for use in Use Class 1 of EN 335–3.

3.2
plywood for use in humid conditions
plywood to be used in conditions characterised by a moisture content in the material corresponding to a temperature of 20 °C and relative humidity of the surrounding air only exceeding 85 % for a few weeks per year

Note 1 to entry: These conditions correspond with Service Class 2 according to EN 1995–1-1.

Note 2 to entry: Boards of this type are suitable for use in Use Class 1 and 2 of EN 335–3.

Note 3 to entry: This type of plywood is appropriate for protected external applications (e.g. behind cladding or under roof coverings), but is also capable of resisting weather exposure for short periods (e.g. when exposed during the construction). It is also suitable for interior situations where the service moisture condition is raised above humidity of dry conditions.

3.3
plywood for use in exterior conditions
plywood to be used in climatic conditions leading to higher moisture contents than in service class 2

Note 1 to entry: These conditions correspond with Service Class 3 according to EN 1995–1-1.

Note 2 to entry: Boards of this type are suitable for use in Use Class 1, 2 and 3 of EN 335–3.

Note 3 to entry: This type of plywood is capable of withstanding exposure to weathering conditions and liquid water, or water vapour in a damp but ventilated location, under consideration of 9.2.

4 Symbols and subscripts

E modulus of elasticity (defined as stiffness in EN 1995-1-1), in Newton per square millimetre

E class of modulus of elasticity in bending

f strength in Newton per square millimetre

F class of bending strength

m bending

0 in the direction of the grain of the outer layer of plywood

90 perpendicular to the grain of the outer layer of plywood

5 Classification system

All plywood, independent of composition factors (e.g. species, number of plies, thickness of plies) can be classified under this system based on bending properties.

The classification system may be used as an alternative to the full-scale testing as required by EN 789, for the derivation of characteristic values for plywood, by cross-referencing with EN 12369-2 for the characteristic values of each class listed in Tables 1 and 2.

The lower limit values given in Tables 1 and 2 for bending strength and modulus of elasticity in bending correspond to 5 percentile values based on the mean values, determined according to EN 310 and EN 326-2 for individual boards and calculated in accordance with EN 326-1.

These values shall not be used for structural design.

For the determination of the bending properties, see 6.2.

Table 1 — Bending strength classes for plywood

Bending strength		
Class		Lower limit value N/mm^2
$f_{m,0}$ $f_{m,90}$	F 3	5
	F 5	8
	F 10	15
	F 15	23
	F 20	30
	F 25	38
	F 30	45
	F 35	52
	F 40	60
	F 50	75
	F 60	90
	F 70	105
	F 80	120

Table 2 —Modulus of elasticity in bending classes for plywood

Modulus of elasticity in bending		
Class		Lower limit value N/mm^2
$E_{m,0}$	E 5	450
$E_{m,90}$	E 10	900
	E 15	1 350
	E 20	1 800
	E 25	2 250
	E 30	2 700
	E 35	3 150
	E 40	3 600
	E 50	4 500
	E 60	5 400
	E 70	6 300
	E 80	7 200
	E 90	8 100
	E 100	9 000
	E 120	10 800
	E 140	12 600

For a given plywood, the four classes shall be given according to the following sequence:

Strength in length direction/strength in width direction/modulus in length direction/modulus in width direction.

EXAMPLE $f_{m,0}$ = 22,4 N/mm^2, $f_{m,90}$ = 36,9 N/mm^2, $E_{m,0}$ = 2 850 N/mm^2 and $E_{m,90}$ = 4 200 N/mm^2.

The classes are expressed as: F 10/20 E 30/40.

6 General requirements

6.1 Tolerances on dimensions

The tolerances on dimensions shall be as specified in EN 315.

6.2 Mechanical characteristics

6.2.1 General purpose (non-structural application)

Bending properties shall be determined on small test pieces in accordance with EN 310 and calculated according to EN 326-1.

5 percentile values are determined from minimum of 30 panels of the same product type according to EN 326-2.