BRITISH STANDARD

BS EN
12369-1:2001

Wood-based panels — Characteristic values for structural design —

Part 1: OSB, particleboards and fibreboards

The European Standard EN 12369-1:2001 has the status of a British Standard

ICS 79.060.20

National foreword

This British Standard is the official English language version of EN 12369-1:2001.

The UK participation in its preparation was entrusted to Technical Committee B/541, Wood-based panels, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Users should note that the terminology and notation used in EN 12369-1 is different from that used for solid timber and different from that previously used in the UK for wood-based panels in BS 5268-2. The symbols used are explained in **3.2** and users should note that the subscripts "0" and "90" are used to denote the major and minor axes of OSB.

Bending properties are for flatwise bending, and for OSB the "0" is with the major axis parallel to the span and "90" is with the minor axis parallel to the span. No corresponding values are given for edgewise bending.

The tension and compression properties given are both for in-plane stresses. No values are given for perpendicular to the plane of the panel.

The term panel shear is for in-plane shear which tends to transform a rectangular section of a panel into a lozenge shape, as in the web of an I-beam. The term planar shear is also in-plane and occurs in flatwise bending and between glued components. It refers to stresses tending to cause layers of the panel to slide over one another. In BS 5268-2, this property is referred to as rolling shear.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Sector Committee for Building and Civil Engineering, was published under the authority of the Standards Committee and comes into effect on 15 March 2001

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EUROPEAN STANDARD

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

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

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

This European Standard was approved by CEN on 3 December 2000.

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 Management Centre or to any CEN member.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Foreword

This European Standard 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 July 2001, and conflicting national standards shall be withdrawn at the latest by July 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This standard is intended to be used in conjunction with ENV 1995-1-1.

No existing European Standard is superseded.

Annex A is informative.

1 Scope

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

This standard 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 Parts 4 to 7;
- 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.

Characteristic values for plywood, solid wood panels, laminated veneer lumber (LVL) and cement bonded particleboards will be provided in one or more further parts of this standard.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

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

EN 312-4, *Particleboards — Specifications — Part 4: Requirements for load-bearing boards for use in dry conditions.*

EN 312-5, *Particleboards — Specifications — Part 5: Requirements for load-bearing boards for use in humid conditions.*

EN 312-6, *Particleboards — Specifications — Part 6: Requirements for heavy duty load-bearing boards for use in dry conditions.*

EN 312-7, *Particleboards — Specifications — Part 7: Requirements for heavy duty load-bearing boards for use in humid conditions.*

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 values of mechanical properties and density.*

ENV 1995-1-1 *Eurocode 5 — Design of timber structures — Part 1-1: General rules and rules for buildings.*

3 Terms and definitions and symbols

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1.1
characteristic values

Characteristic strength values are defined as the population 5-percentile values 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 %.

Characteristic stiffness values are defined as either the population 5-percentile or the mean values obtained under the same test conditions as defined above.

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.

The characteristic density is defined as the 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 %. This value is used in the design of joints in association with ENV 1995-1-1.

3.1.2
service classes

three service classes are defined in ENV 1995-1-1. These are:

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

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

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

3.1.3
load-duration classes

For strength and stiffness calculations, actions are assigned to one of the load-duration classes given in Table 1 (see ENV 1995-1-1).

The load-duration classes are characterized by the effect of a constant load acting for a certain period of time in the life of the structure. 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.

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 of 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 ENV 1995-1-1);
G	modulus of rigidity;
k	retention in strength (k_{mod}) or stiffness (k_{def}) after a period of time relative to initial values. Values are included in ENV 1995-1-1;
t	thickness;
ρ	density as measured according to EN 323;
// or 0	in the direction of the major axis of OSB;
$\perp$ 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 standard are the minimum values applicable to products conforming to the appropriate EN specification standards. Suppliers may present these values in a format similar to that in annex A.

Alternatively, characteristic values other than those contained in this standard shall be determined using sampling techniques set out in EN 1058 and testing procedures given in EN 789, and declared in a format similar to that in annex A. These characteristic values shall be supported by the following information:

- the product description;
- the product specification and part number;
- the service class or classes in which the panel can be used.

The characteristic values given in this standard 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 Introduction

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)

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

5.2.1 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 ENV 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 ENV 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, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values								
	Density	Bending		Tension		Compression		Panel Shear	Planar Shear
t_{nom}	ρ	f_m		f_t		f_c		f_v	f_r
		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
> 10 to 18	550	16,4	8,2	9,4	7,0	15,4	12,7	6,8	1,0
> 18 to 25	550	14,8	7,4	9,0	6,8	14,8	12,4	6,8	1,0

Thickness, mm	Mean stiffness values, N/mm^2							
	Bending		Tension		Compression		Panel Shear	Planar Shear
t_{nom}	E_m		E_t		E_c		G_v	G_r
	0	90	0	90	0	90		
> 6 to 10	4 930	1 980	3 800	3 000	3 800	3 000	1 080	50
> 10 to 18	4 930	1 980	3 800	3 000	3 800	3 000	1 080	50
> 18 to 25	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.

5.2.2 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 ENV 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).

Table 3 — Characteristic values of boards complying with EN 300: OSB/4: Heavy-duty load bearing boards for use in humid conditions

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values								
	Density	Bending		Tension		Compression		Panel Shear	Planar Shear
t_{nom}	ρ	f_m		f_t		f_c		f_v	f_r
		0	90	0	90	0	90		
> 6 to 10	550	24,5	13,0	11,9	8,5	18,1	14,3	6,9	1,1
> 10 to 18	550	23,0	12,2	11,4	8,2	17,6	14,0	6,9	1,1
> 18 to 25	550	21,0	11,4	10,9	8,0	17,0	13,7	6,9	1,1

Thickness, mm	Mean stiffness values, N/mm^2							
	Bending		Tension		Compression		Panel Shear	Planar Shear
t_{nom}	E_m		E_t		E_c		G_v	G_r
	0	90	0	90	0	90		
> 6 to 10	6 780	2 680	4 300	3 200	4 300	3 200	1 090	60
> 10 to 18	6 780	2 680	4 300	3 200	4 300	3 200	1 090	60
> 18 to 25	6 780	2 680	4 300	3 200	4 300	3 200	1 090	60

The 5 % characteristic values for stiffness should be taken as 0,85 times the mean values given in Table 3. Other properties not given in Table 3 shall comply with the requirements given in EN 300 for the grade OSB/4.

5.3 Particleboards (EN 312)

This subclause gives the minimum characteristic values for particleboards complying with parts 4 to 7 of EN 312.

5.3.1 EN 312-4: Particleboards: Load-bearing boards for use in dry conditions

When used structurally under service 1 conditions, the characteristic values of the mechanical properties and density given in Table 4 shall apply. These require to be modified according to ENV 1995-1-1 for duration of load (k_{mod}, k_{def}).

Table 4 — Characteristic values of boards complying with EN 312-4: Particleboards — Load-bearing boards for use in dry conditions

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	Bending	Tension	Compression	Panel Shear	Planar Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
> 6 to 13	650	14,2	8,9	12,0	6,6	1,8
> 13 to 20	600	12,5	7,9	11,1	6,1	1,6
> 20 to 25	550	10,8	6,9	9,6	5,5	1,4
> 25 to 32	550	9,2	6,1	9,0	4,8	1,2
> 32 to 40	500	7,5	5,0	7,6	4,4	1,1
> 40	500	5,8	4,4	6,1	4,2	1,0

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	Tension and Compression	Panel Shear
t_{nom}	E_m	E_t, E_c	G_v
> 6 to 13	3 200	1 800	860
> 13 to 20	2 900	1 700	830
> 20 to 25	2 700	1 600	770
> 25 to 32	2 400	1 400	680
> 32 to 40	2 100	1 200	600
> 40	1 800	1 100	550

The 5 % characteristic values for stiffness should be taken as 0,8 times the mean values given in Table 4. Other properties not given in Table 4 shall comply with the requirements given in EN 312-4.

The above characteristic values were originally calculated from product specification standards using derived conversion factors and have subsequently been verified and confirmed by testing to EN 789 and EN 1058.

5.3.2 EN 312-5: Particleboards: 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 5 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 5 shall be modified according to ENV 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).

Table 5 — Characteristic values of boards complying with EN 312-5: Particleboards — Load-bearing boards for use in humid conditions

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	Bending	Tension	Compression	Panel Shear	Planar Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
> 6 to 13	650	15,0	9,4	12,7	7,0	1,9
> 13 to 20	600	13,3	8,5	11,8	6,5	1,7
> 20 to 25	550	11,7	7,4	10,3	5,9	1,5
> 25 to 32	550	10,0	6,6	9,8	5,2	1,3
> 32 to 40	500	8,3	5,6	8,5	4,8	1,2
> 40	500	7,5	5,6	7,8	4,4	1,0

Table 5 *(continued)*

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	**Tension and Compression**	**Panel Shear**
t_{nom}	E_m	E_t, E_c	G_v
> 6 to 13	3 500	2 000	960
> 13 to 20	3 300	1 900	930
> 20 to 25	3 000	1 800	860
> 25 to 32	2 600	1 500	750
> 32 to 40	2 400	1 400	690
> 40	2 100	1 300	660

The 5 % characteristic values for stiffness values should be taken as 0,8 times the mean values given in Table 5. Other properties not given in Table 5 shall comply with the requirements given in EN 312-5.

The above characteristic values were originally calculated from product specification standards using derived conversion factors and have subsequently been verified and confirmed by testing to EN 789 and EN 1058.

5.3.3 EN 312-6: Particleboards: Heavy duty load-bearing boards for use in dry conditions

When used structurally under service class 1 conditions, the characteristic values of the mechanical properties and density given in Table 6 shall apply. These require to be modified according to ENV 1995-1-1 for duration of load (k_{mod}, k_{def}).

Table 6 — Characteristic values of boards complying with EN 312-6: Particleboards — Heavy-duty load-bearing boards for use in dry conditions

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	**Bending**	**Tension**	**Compression**	**Panel Shear**	**Planar Shear**
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
> 6 to 13	650	16,5	10,5	14,1	7,8	1,9
> 13 to 20	600	15,0	9,5	13,3	7,3	1,7
> 20 to 25	550	13,3	8,5	12,8	6,8	1,7
> 25 to 32	550	12,5	8,3	12,2	6,5	1,7
> 32 to 40	500	11,7	7,8	11,9	6,0	1,7
> 40	500	10,0	7,5	10,4	5,5	1,7

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	**Tension and Compression**	**Panel Shear**
t_{nom}	E_m	E_t, E_c	G_v
> 6 to 13	4 400	2 500	1 200
> 13 to 20	4 100	2 400	1 150
> 20 to 25	3 500	2 100	1 050
> 25 to 32	3 300	1 900	950
> 32 to 40	3 100	1 800	900
> 40	2 800	1 700	880

The 5 % characteristic values for stiffness should be taken as 0,8 times the mean values given in Table 6. Other properties not given in Table 6 shall comply with the requirements given in EN 312-6.

The above characteristic values were originally calculated from product specification standards using derived conversion factors and have subsequently been verified and confirmed by testing to EN 789 and EN 1058.

5.3.4 EN 312-7: Particleboards: 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 7 shall apply. These require to be modified according to ENV 1995-1-1 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 7 shall be modified according to ENV 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).

Table 7 — Characteristic values of boards complying with EN 312-7: Particleboards — Heavy-duty load-bearing boards for use in humid conditions

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	Bending	Tension	Compression	Panel Shear	Planar Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
> 6 to 13	650	18,3	11,5	15,5	8,6	2,4
> 13 to 20	600	16,7	10,6	14,7	8,1	2,2
> 20 to 25	550	15,4	9,8	13,7	7,9	2,0
> 25 to 32	550	14,2	9,4	13,5	7,4	1,9
> 32 to 40	500	13,3	9,0	13,2	7,2	1,9
> 40	500	12,5	8,0	13,0	7,0	1,8

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	Tension and Compression	Panel Shear
t_{nom}	E_m	E_t, E_c	G_v
> 6 to 13	4 600	2 600	1 250
> 13 to 20	4 200	2 500	1 200
> 20 to 25	4 000	2 400	1 150
> 25 to 32	3 900	2 300	1 100
> 32 to 40	3 500	2 100	1 050
> 40	3 200	2 000	1 000

The 5 % characteristic values for stiffness should be taken as 0,8 times the mean values given in Table 7. Other properties not given in Table 7 shall comply with the requirements given in EN 312-7.

The above characteristic values were originally calculated from product specification standards using derived conversion factors and have subsequently been verified and confirmed by testing to EN 789 and EN 1058.

5.4 Fibreboards (EN 622 parts 2 and 3)

This subclause gives the minimum characteristic values for fibreboards complying with parts 2 and 3 of EN 622.

5.4.1 EN 622-2: Hardboards (HB.HLA2): 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 8 shall apply. These require to be modified according to ENV 1995-1-1 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 8 shall be modified according to ENV 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).

Table 8 — Characteristic values of fibreboards complying with EN 622-2: Hardboards — Heavy duty load-bearing boards for use in humid condtions (HB.HLA2)

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	Bending	Tension	Compression	Panel Shear	Planar Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
≤ 3,5	900	37	27	28	19	3
> 3,5 to 5,5	850	35	26	27	18	3
> 5,5	800	32	23	24	16	2,5

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	Tension and Compression	Panel Shear
t_{nom}	E_m	E_t, E_c	G_v
≤ 3,5	5 000	5 000	2 100
> 3,5 to 5,5	4 800	4 800	2 000
> 5,5	4 600	4 600	1 900

The 5 % characteristic values for stiffness should be taken as 0,8 times the mean values given in Table 8. Other properties not given in Table 8 shall comply with the requirements given in EN 622-2 for HB.HLA2.

The above characteristic values were calculated from product specification standards, using derived conversion factors.

5.4.2 EN 622-3: Medium boards (MBH.LA2): Heavy duty load-bearing boards for use in dry conditions

When used structurally under service class 1 conditions, the characteristic values of the mechanical properties and density given in Table 9 shall apply. These require to be modified according to ENV 1995-1-1 for duration of load (k_{mod}, k_{def}).

Table 9 — Characteristics values of fibreboards complying with EN 622-3: Medium boards — Heavy duty load-bearing boards for use in dry conditions (MBH.LA2)

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	Bending	Tension	Compression	Panel Shear	Planar Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
≤ 10	650	17	9	9	5,5	0,3
> 10	600	15	8	8	4,5	0,25

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	Tension and Compression	Panel Shear
t_{nom}	E_m	E_t, E_c	G_v
≤ 10	3 100	3 100	1 300
> 10	2 900	2 900	1 200

The 5 % characteristic values for stiffness should be taken as 0,8 times the mean values given in Table 9. Other properties not given in Table 9 shall comply with the requirements given in EN 622-3 for MBH.LA2.

The above characteristic values were calculated from product specification standards using derived conversion factors.

5.5 MDF (EN 622-5)

This subclause gives the minimum characteristic values for MDF complying with EN 622-5.

5.5.1 EN 622-5: MDF. LA: Load-bearing boards for use in dry conditions

When used structurally under service class 1 conditions, the characteristic values of the mechanical properties and density given in Table 10 shall apply. These require to be modified according to ENV 1995-1-1 for duration of load (k_{mod}, k_{def}).

Table 10 — Characteristic values of boards complying with EN 622-5: MDF.LA — Load-bearing boards for use in dry conditions

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values				
	Density	Bending	Tension	Compression	Panel Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v
> 1,8 to 12	650	21,0	13,0	13,0	6,5
> 12 to 19	600	21,0	12,5	12,5	6,5
> 19 to 30	550	21,0	12,0	12,0	6,5
> 30	500	19,0	10,0	10,0	5,0

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	Tension and Compression	Panel Shear
t_{nom}	E_m	E_t, E_c	G_v
> 1,8 to 12	3 700	2 900	800
> 12 to 19	3 000	2 700	800
> 19 to 30	2 900	2 000	800
> 30	2 700	1 600	600

The 5 % characteristic values for stiffness should be taken as 0,85 times the mean values given in Table 10. Other properties not given in Table 10 shall comply with the requirements given in EN 622-5 for MDF.LA.

5.5.2 EN 622-5: MDF.HLS: 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 11 shall apply. These require to be modified according to ENV 1995-1-1 for duration of load (k_{mod}, k_{def}).

When used structurally under service class 2 conditions, these boards are restricted to instantaneous or short-term periods of loading. The characteristic values of the mechanical properties and density given in Table 11 shall be modified according to ENV 1995-1-1 for both service class and duration of load (k_{mod}, k_{def}).

Table 11 — Characteristic values of boards complying with EN 622-5: MDF.HLS — Load-bearing boards for use in humid conditions (When used under humid conditions these boards are restricted to instantaneous or short-term periods of loading)

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values				
	Density	Bending	Tension	Compression	Panel Shear
t_{nom}	ρ	f_m	f_t	f_c	f_v
> 1,8 to 12	650	22,0	18,0	18,0	8,5
> 12 to 19	600	22,0	16,5	16,5	8,5
> 19 to 30	550	21,0	16,0	16,0	8,5
> 30	500	18,0	13,0	13,0	7,0

Thickness, mm	Mean stiffness values, N/mm^2		
	Bending	Tension and Compression	Panel Shear
t_{nom}	E_m	E_t, E_c	G_v
> 1,8 to 12	3 700	3 100	1 000
> 12 to 19	3 200	2 800	1 000
> 19 to 30	3 100	2 700	1 000
> 30	2 800	2 400	800

The 5 % characteristic values for stiffness should be taken as 0,85 times the mean value given in Table 11. Other properties not given in Table 11 shall comply with the requirements given in EN 622-5 for MDF.HLS.

Annex A
(informative)

Format for the presentation of the characteristic values

Type of panel
complying with EN .....
Manufactured by .....

The characteristic values given below are minimum values as specified in EN 12369

Thickness, mm	Characteristic density (kg/m^3) and strength (N/mm^2) values					
	Density	**Bending**	**Tension**	**Compression**	**Panel Shear**	**Planar Shear**
t_{nom}	ρ	f_m	f_t	f_c	f_v	f_r
//						
⊥						

Thickness, mm	Mean stiffness values, N/mm^2			
	Bending	**Tension and Compression**	**Panel Shear**	**Planar Shear**
t_{nom}	E_m	E_t, E_c	G_v	G_r
//				
⊥				

The 5 % characteristic values for stiffness should be taken as ..... times the mean values given above. Other properties not given in the above table shall comply with the requirements given in the relevant EN specification standards

The above panel is suitable for use in the following service class(es) defined in ENV 1995-1-1 .....

blank

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