BRITISH STANDARD

BS EN
635-5:1999

Plywood — Classification by surface appearance —

Part 5: Methods for measuring and expressing characteristics and defects

The European Standard EN 635-5:1999 has the status of a British Standard

ICS 79.060.10

National foreword

This British Standard is the English language version of EN 635-5:1999.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 6, an inside back cover and a back cover.

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Plywood — Classification by surface appearance — Part 5: Methods for measuring and expressing characteristics and defects

Contreplaqué — Classification selon l'aspect des faces — Partie 5: Méthodes de mesure et d'expression des caractéristiques et des défauts

Sperrholz — Klassifizierung nach dem Aussehen der Oberfläche — Teil 5: Meßverfahren und Angabe der Merkmale und Fehler

This European Standard was approved by CEN on 3 March 1999.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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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of an identical text or by endorsement, at the latest by September 1999, and conflicting national standards shall be withdrawn at the latest by September 1999.

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 one of a series of standards for the classification of plywood by surface appearance.

Contents

1 Scope

This European Standard specifies the methods for measuring and expressing:

— some inherent characteristics of wood; and

— some defects that come from the manufacturing process

which are used for the classification of the appearance of plywood surfaces according to EN 635-1, EN 635-2 and EN 635-3.

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.

EN 313-2, *Plywood — Classification and terminology — Part 2: Terminology.*

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

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.*

3 Definitions

For the purposes of this standard the definitions of EN 313-2 and EN 635-1 apply.

4 Measurements

For the purpose of determining the appearance class of plywood according to EN 635-1, EN 635-2 and EN 635-3, the following characteristics inherent in wood (see Table 1) and manufacturing defects (see Table 2) shall be measured for each surface classified, according to the methods described in clause **6** of this standard.

Table 1 — Measurements required to classify the characteristics inherent in wood of plywood surfaces

Category of characteristics	Reference EN 635-2:1995 EN 635-3:1995	Number	Size			
			Diameter	Length	Width	Area
Pin knots	**3.2.1.1**	X				
Sound intergrown knots	**3.2.1.2**	X	X			
Unsound or non-adhering knots and knots holes	**3.2.1.3**	X	X			
Open splits	**3.2.1.4**	X		X	X	
Abnormalities due to insects and marine borers	**3.2.1.5**	X	X	X	X	
Resin pockets and inbark	**3.2.1.6**				X	
Irregularities in the structure of the wood, e.g. roughness	**3.2.1.7**					X
Discolouration which is not wood destroying	**3.2.1.8**					X

Table 2 — Measurements required to classify the manufacturing defects on plywood surfaces

Category of defects	Reference EN 635-2:1995 EN 635-3:1995	Number	Size			
			Diameter	Length	Width	Area
Open joints	**3.2.2.1**	X			X	
Overlaps	**3.2.2.2**	X		X		
Hollows, imprints and bumps	**3.2.2.4**					X
Roughness, other than that due to irregularities in the structure of the wood	**3.2.2.5**					X
Sanding through	**3.2.2.6**					X
Glue penetration	**3.2.2.7**					X
Repairs	**3.2.2.9**	X				
Defects at the edges of the panel due to sanding or sawing	**3.2.2.10**				X	

5 Apparatus

For measuring the following apparatus is used:

— either a metal rule with a graduation of 1 mm; and

— a transparent or semi-transparent film printed with a rectangular grid; or

— any optical system, able to measure the requested quantities, i.e. lengths, widths, diameters and areas.

6 Methods for measurement

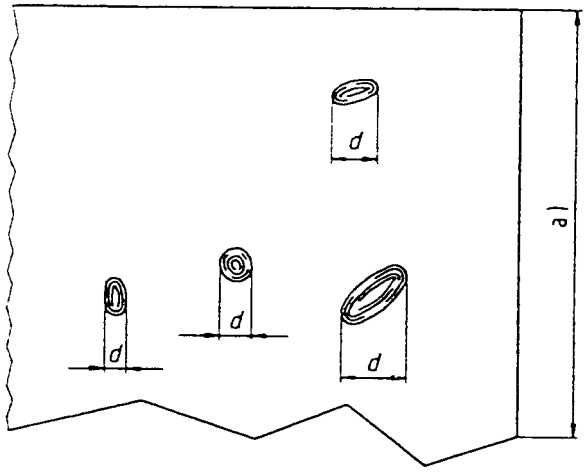
6.1 Quantity in number

Quantities in number of characteristics and defects shall be related to the full panel surface area (panel length multiplied by panel width) with the only exceptions of open splits and open joints, for which the number shall be related to the panel width.

6.2 Diameter

6.2.1 The measurement shall be expressed to the nearest millimetre.

6.2.2 The diameter of knots and knot holes shall be measured as the distance between two opposite tangents plotted to the circumference of the knot (or hole) in a direction parallel to the wood fibre direction of the surface veneer (see Figure 1).



a) Length direction of the panel

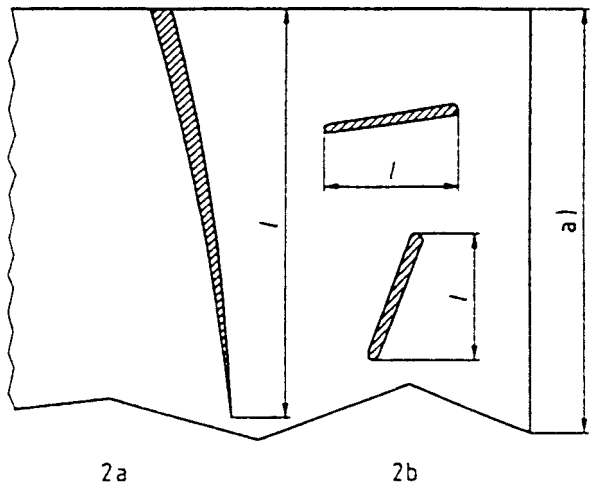
Figure 1 — Dimensions to be used to express the diameter (d) of knot holes and similar characteristics

6.3 Length

6.3.1 The measurement shall be expressed to the nearest millimetre.

6.3.2 The length of open splits shall be measured and expressed as the greatest dimension parallel to that of the wood fibre direction of the surface veneer [see Figure 2a)].

6.3.3 The length of anomalies due to insects and marine borers and the length of overlaps shall be measured and expressed as the maximum dimension, parallel or perpendicular to the wood fibre direction of the surface veneer [see Figure 2b)].



a) Length direction of the panel

Figure 2 — Dimensions to be used to express the length (l) of characteristics and defects

6.4 Width

6.4.1 The measurement shall be expressed to the nearest millimetre.

6.4.2 The width of an open split shall be measured at the edge of the panel and expressed as the dimension between two parallels in line with the length of the panel [see Figure 3a)].

6.4.3 The width of abnormalities due to insects and marine borers shall be measured and expressed as the minimum dimension either parallel or perpendicular to the wood fibre direction of the surface veneer [see Figure 3b)].

6.4.4 The width of open joints, resin pockets and inbark shall be measured and expressed as the maximum dimension perpendicular to the length of the panel [see Figure 3c)].

6.4.5 The width of defects at the edges of the panels due to sanding and sawing shall be measured and expressed as the maximum distance between the referred edge and the parallel tangent line to the defect [see Figure 3d)].

6.5 Area

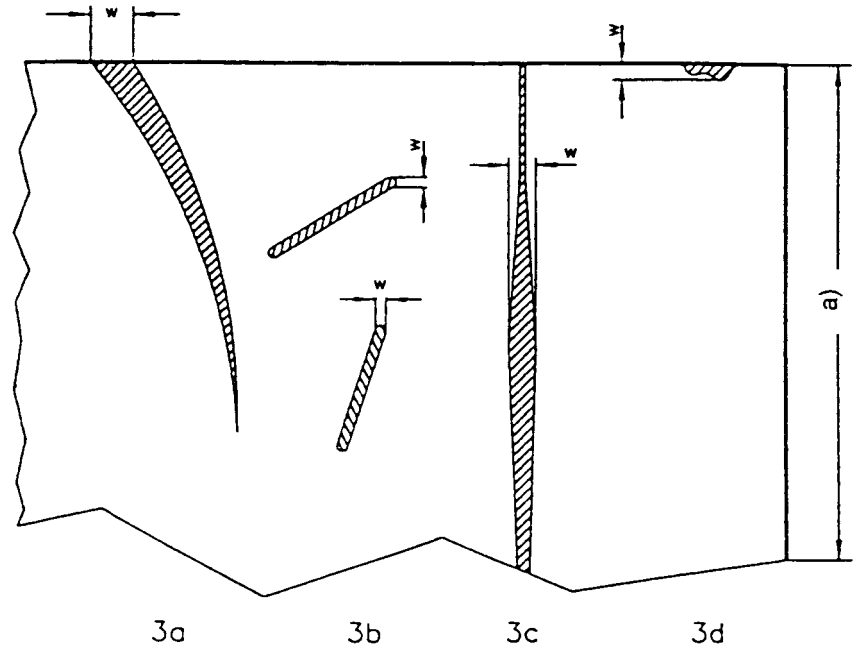
6.5.1 *General*

The area shall be expressed in square millimetres to the nearest 5 mm^2.

6.5.2 *Indirect measurement*

The area of the characteristic or defect can be measured indirectly by tracing its outline onto a transparent or semi-transparent film which is printed with a squared grid (see Figure 4).

NOTE The extent of the roughness can be more easily seen and traced if it is first rubbed with a piece of chalk.



a) Length direction of the panel

Figure 3 — Dimensions to be used to express the width (w) of characteristics and defects

The area shall be determined either by:

6.5.2.1 calculating the area within the trace outline by counting the number of squares enclosed; or

6.5.2.2 scanning the tracing with suitable electronic image identification equipment.

6.5.3 ***Direct measurement***

The area of the characteristic or defect can be measured directly using a suitable electronic image identification equipment.

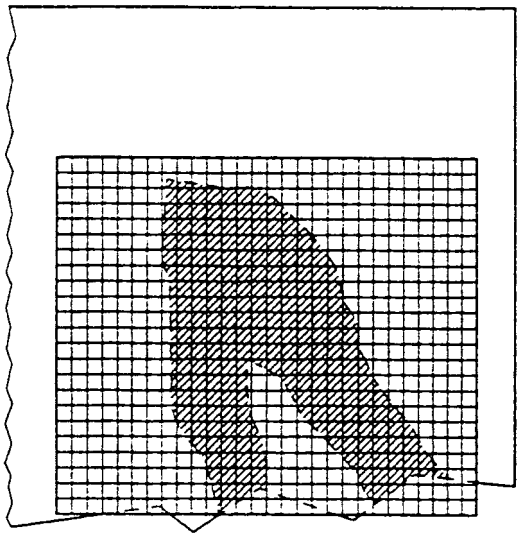


Figure 4 — Tracing of the outline of a characteristic or a defect on a transparent squared grid used to determine the area

7 Test report

The test report shall be in accordance with EN 326-1 and shall include the following information:

a) the category and type(s) of characteristic and defect measured;

b) their number, length, width or area as appropriate;

c) the method used for determination of the area **6.5.2.1**, **6.5.2.2** or **6.5.3**.

Annex A (informative)

Bibliography

ENV 635-4, *Plywood — Classification by surface appearance — Part 4: Parameters of ability for finishing — Guideline.*

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