INTERNATIONAL STANDARD

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Wood-based panels — Sampling and cutting of test pieces

Panneaux à base de bois — Échantillonnage et découpe des éprouvettes

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 16999 was prepared by Technical Committee ISO/TC 89, *Wood-based panels*.

ISO 16999 is based on European Standard EN 326-1.

Wood-based panels — Sampling and cutting of test pieces

1 Scope

This International Standard specifies certain rules for the sampling and cutting of test pieces.

It does not cover the sampling and cutting of test pieces for the derivation of characteristic values for structural design. These tests are carried out on medium-sized test pieces.

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.

ISO 9427, *Wood-based panels — Determination of density*

ISO 12466-2, *Plywood — Bonding quality — Part 2: Requirements*

ISO 16978, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength*

ISO 16979, *Wood-based panels — Determination of moisture content*

ISO 16981, *Wood-based panels — Determination of surface soundness*

ISO 16983, *Wood-based panels — Determination of swelling in thickness after immersion in water*

ISO 16984, *Wood-based panels — Determination of tensile strength perpendicular to the plane of the board*

ISO 16985, *Wood-based panels — Determination of dimensional changes associated with changes in relative humidity*

3 Sampling

3.1 Sampling of panels

The size of the sample n depends on the purpose of the determination of panel properties. The sample size can be specified in the relevant International Standard.

3.2 Sampling of test pieces

Due to the variability both within and between panels, it is necessary to test a certain number of panels n as well as a certain number of test pieces m, cut from a single panel, in order to obtain reliable results.

Examples of the minimum number m of test pieces are given in Table 1. For other panel properties, m shall be as laid down in the relevant International Standard for the respective test method.

Table 1 — Minimum number m of test pieces cut from each single panel

Property	International Standard	m
Moisture content	ISO 16979	4
Dimensional changes associated with changes in relative humidity	ISO 16985	
Density	ISO 9427	6
Modulus of elasticity in bending and bending strength	ISO 16978	
Internal bond	ISO 16984	8
Swelling in thickness after immersion in water	ISO 16983	
Surface soundness	ISO 16981	
Plywood-bonding quality	ISO 12466-2	10

For the determination of those properties which differ in the two principal directions of the plane of the panel, two groups of m test pieces shall be cut from each panel. One group shall have its longitudinal axis parallel to the direction of the production (or the length of the panel), the other shall have its longitudinal axis perpendicular to this direction.

In testing the bonding quality of plywood, m relates to a pair of glue lines and to each pretreatment (see Annex A).

4 Test pieces

4.1 Cutting

The test pieces shall be cut from the individual panels to the dimensions specified in the relevant standards of test methods, using a suitable method to ensure unbiased selection. At least one test piece of each group of test pieces shall be cut from the edge of the trimmed panel after any edge profiling and/or protective treatment has been removed.

4.2 Example of cutting plan

An example of a cutting plan for small test pieces is given in Figure 1.

The cutting plan shall be recorded. Except for plywood-bonding quality tests, for which a cutting plan is given in Annex A, the minimum distance between two test pieces for the same test shall be 100 mm. This requirement may be waived if replacement test pieces are required.

4.3 Marking

All test pieces cut from a panel shall be marked on the same surface with

— the test-panel identification number,

— the test-piece serial number, and

— and, if possible, the original length direction and the original upper or lower surface of the panel.

4.4 Asymmetric surfaces

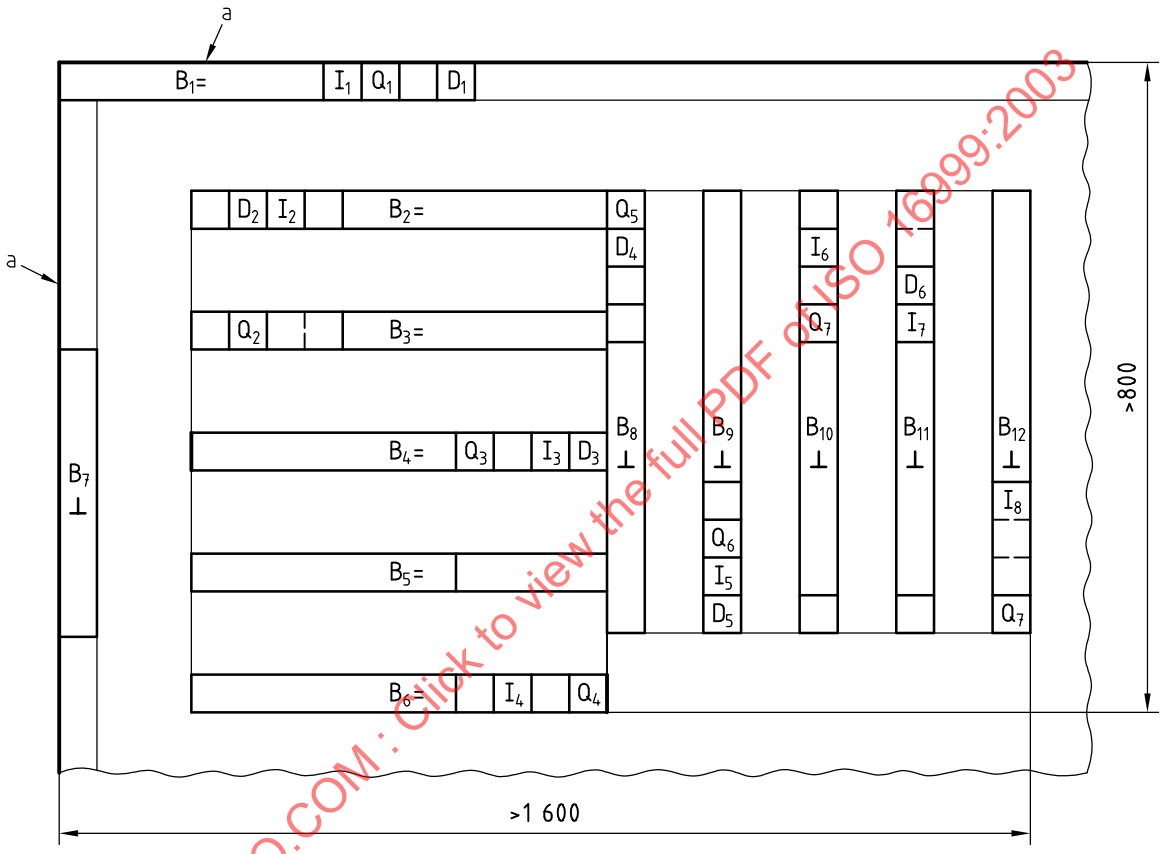
For panels which are asymmetric about the centre of their thickness, so that the test result is influenced by which surface is uppermost when tested (e.g. bending strength), half of the total number of test pieces m (i.e. $m/2$) shall be tested in each surface orientation.

In all other cases where the orientation of the surface of the panel is of minor influence on the property tested, the position of the upper or lower surface during the test shall be chosen at random.

4.5 Other requirements

Cutting of test pieces shall be carried out in such a way that their edges are clean, without burns, and perpendicular to the plane of the panel.

Dimensions in millimetres



Key

= Orientation of the longitudinal axis of the test piece parallel to the length of a plywood panel or to the machine direction of other panel types.

⊥ Orientation of the longitudinal axis of the test piece perpendicular to the length of a plywood panel or to the machine direction of other panel types.

a Outer edge trimmed

Test	Test piece number[a]
Density	D 1 to D 6
Bending	B 1 to B12
Thickness swelling	Q 1 to Q 8
Internal bond	I 1 to I 8

[a] For properties which are independent from orientation (e.g. D, I and Q), one test piece shall be taken from an outer edge of a trimmed panel where this can be identified.

Figure 1 — Example of a cutting plan for small test pieces for determination of certain properties (thickness of the panel about 20 mm)

5 Sampling report

The sampling report shall contain the following information:

— place and date of sampling and persons present at sampling;

— reference to this International Standard;

— number of panels n;

— number of test pieces taken from each panel for each group of test pieces m;

— a copy of the cutting plan used, if required;

— any further relevant information.