INTERNATIONAL STANDARD

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Wood-based panels — Determination of modulus of elasticity in bending and of bending strength

Panneaux à base de bois — Détermination du module d'élasticité en flexion et de la résistance à la flexion

Reference number
ISO 16978:2003(E)

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Foreword

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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 16978 was prepared by Technical Committee ISO/TC 89, *Wood-based panels*.

ISO 16978 is based on ISO 9429 and European Standard EN 310.

Wood-based panels — Determination of modulus of elasticity in bending and of bending strength

1 Scope

This International Standard specifies a method for determining the apparent modulus of elasticity and bending strength of wood-based panels in flatwise bending.

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 9424, *Wood-based panels — Determination of dimensions of test pieces*

ISO 16999, *Wood-based panels — Sampling and cutting of test pieces*

3 Principle

The modulus of elasticity in bending and bending strength are determined by applying a load to the centre of a test piece supported at two points. The modulus of elasticity is calculated by using the slope of the linear region of the load-deflection curve; the value calculated is the apparent modulus, not the true modulus, because the test method includes shear as well as bending. The bending strength of each test piece is calculated by determining the ratio of the bending moment M, at the maximum load F_{max}, to the moment of its full cross-section.

4 Apparatus

4.1 Measuring instruments, as specified in ISO 9424.

4.2 Testing apparatus, having the following essential components (see Figure 1).

4.2.1 Two parallel, cylindrical, roller-bearing supports, of length exceeding the width of the test piece and of (10 ± 0,5) mm diameter for panels of nominal thickness $\leqslant$ 6 mm and of diameter (15 ± 0,5) mm for panels of nominal thickness $>$ 6 mm.

The distance between the supports shall be adjustable.

4.2.2 Cylindrical loading head, of the same length and (10 ± 0,5) mm in diameter for panels of nominal thickness $\leqslant$ 6 mm, and (30 ± 0,5) mm in diameter for panels of nominal thickness $>$ 6 mm, placed parallel to the supports and equidistant from them.