
INTERNATIONAL STANDARD



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Wood — Determination of modulus of elasticity in static bending

Bois — Détermination du module d'élasticité en flexion statique

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3349 was drawn up by Technical Committee ISO/TC 55, *Sawn timber and sawlogs*, and circulated to the Member Bodies in February 1974.

It has been approved by the Member Bodies of the following countries :

Belgium	Hungary	South Africa, Rep. of
Bulgaria	India	Spain
Canada	Ireland	Sweden
Czechoslovakia	New Zealand	Turkey
Egypt, Arab Rep. of	Norway	United Kingdom
Finland	Poland	U.S.S.R.
France	Romania	

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
Netherlands

Wood – Determination of modulus of elasticity in static bending

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the modulus of elasticity of wood in static bending by measuring the deflection in the net bending area.

2 REFERENCES

ISO 3129, *Wood – Sampling methods and general requirements for physical and mechanical tests.*

ISO 3130, *Wood – Determination of moisture content for physical and mechanical tests.*

3 PRINCIPLE

Determination of the modulus of elasticity by measuring the deflection in the net bending area during the application to a test piece of a gradually increasing load within the region of proportionality of the load and deflection.

4 APPARATUS

4.1 Testing machine ensuring the rate of loading of the test piece or movement of the loading head according to 6.3 and allowing measurement of the load to an accuracy of 1 %.

4.2 Device for creation of a net bending area symmetrical in relation to the test piece length, consisting of two supports with two loading shoes between them. The distance between the supports shall be from 240 to 320 mm and that between the loading shoes shall be equal to 1/3 or 1/2 of the distance between the supports. The radius of curvature of the supports and shoes shall be 30 mm.

4.3 Instrument for measuring deflection of the test piece in the net bending area, consisting of

a) an arrangement for measuring linear movements to an accuracy of 0,001 mm;

b) a mechanism for fastening the arrangement on the neutral axis of the test piece and symmetrically in relation to the middle of its length, the distance between the points of fastening being equal to that between the loading shoes;

c) an arrangement fastened on the neutral axis of the test piece on the middle of its length to be used as the reference point from which the deflection of the test piece is read.

4.4 Measuring instrument for determining the cross-sectional dimensions of the test piece to an accuracy of 0,1 mm.

4.5 Equipment for the determination of moisture content in accordance with ISO 3130.

5 PREPARATION OF TEST PIECES

5.1 Test pieces shall be made in the form of right prisms with cross-section 20 mm X 20 mm and length along the grain from 300 to 380 mm.

5.2 The preparation, moisture content and number of test pieces shall be in accordance with ISO 3129.

6 PROCEDURE

6.1 In the middle of the test piece length, measure the width in a radial direction and height in a tangential direction to an accuracy of 0,1 mm.

6.2 Place the test piece, with the instrument for measuring deflection (4.3) fastened on its neutral axis, into the device for cross-sectional bending (4.2). The bending force shall be directed perpendicular to the radial surface of the test piece (tangential bending) (see figure).