
**Round timber — Visual characteristics
— Methods of determination**

Bois ronds — Caractéristiques visuelles — Méthodes de mesure

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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.

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This document was prepared by Technical Committee ISO/TC 218, *Timber*.

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Introduction

The main purpose of this document is to establish a uniform international approach to methods of determination of visible characteristics of round timber.

This document is developed in light of the provisions of ISO 4475, provisions of European standards EN 1310:1997, EN 1311:1997, and provisions of available national standards.

This document:

- establishes uniform and modern requirements for methods of determination of visible characteristics of round timber;
- harmonizes requirements of various standardization systems for methods of determination of visible characteristics of round timber;
- provides technological unity and compatibility of scientific technical information for round forest timber;
- reduces technical barriers in international trade of round timber, to simplify procedures of trade operations and mutual settlements between the producer, the buyer and the seller of timber.

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Round timber — Visual characteristics — Methods of determination

1 Scope

This document defines requirements to methods of determination of visual characteristics of round timber.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 24294, *Timber — Round and sawn timber — Vocabulary*

3 Terms and definitions

For the purposes of this document the terms and definitions given in ISO 24294 apply.

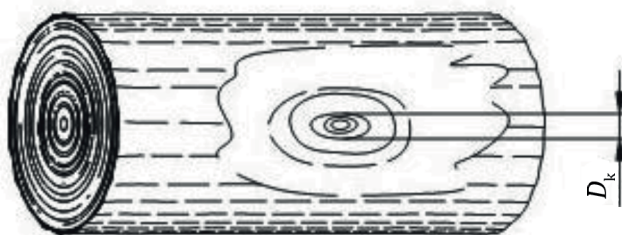
ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Knots

4.1 Uncovered knot

The smallest diameter of a knot at the surface of the bark of round timber is measured, and expressed in millimetres. The area surrounding the knot callus is not noted (see [Figure 1](#)).



Key

D_k diameter of knot

Figure 1 — Measurement of the size of a knot

4.2 Covered knot

The measurements do not need to be made; the presence of a covered knot is noted.

4.3 Rose

Depending on the grade, one of the following applies:

- the smallest diameter of an extreme concentric fold is measured, and expressed in millimetres;
- the measurements are not made; the presence of a rose is noted.

4.4 Epicormic shoot

The measurements are not made, the presence of an epicormic shoot is noted.

4.5 Chinese moustache

Depending on the grade, one of the following applies:

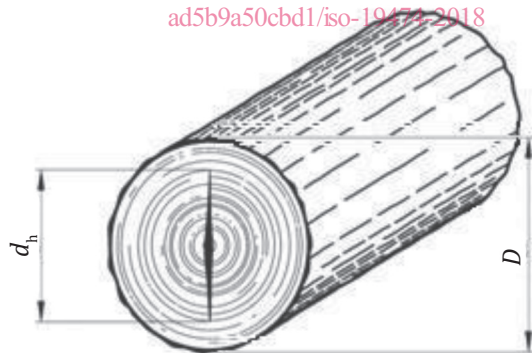
- the height is measured on the outer surface, and expressed in millimetres;
- the measurements are not made; the presence of a Chinese moustache is noted.

5 Shakes

5.1 Heart shake

Depending on the grade, one of the following applies:

- the depth is measured at the end of round timber, and expressed in millimetres or as a percentage in relation to the diameter of round timber (see [Figure 2](#));
- the measurements are not made; the presence of a heart shake is noted.



Key

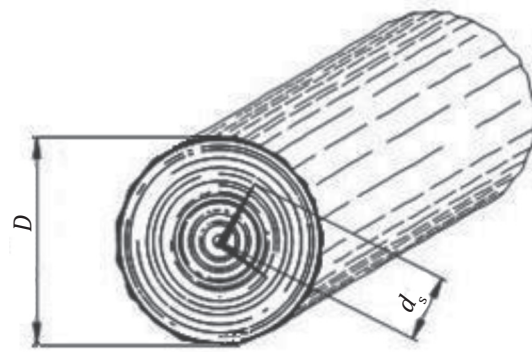
- D diameter of timber
 d_h depth of heart shake

Figure 2 — Measurement of end (heart) shakes

5.2 Star shake

Depending on the grade, one of the following applies:

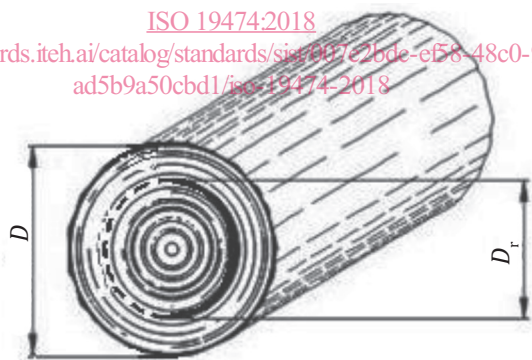
- the largest shake is measured by the depth at the end of round timber, and is expressed in millimetres or as a percentage of the diameter of round timber (see [Figure 3](#));
- the measurements are not made; the presence of a star shake is noted.

**Key** D diameter of timber d_s size of star shake (depth of the largest shake)**Figure 3 — Measurement of a star shake****5.3 Ring shake**

Depending on the grade, one of the following applies:

- the average diameter of a circle in which there is a shake is measured, and it is expressed in millimetres or as a percentage of the diameter of round timber (see [Figure 4](#));
- the measurements are not made, the presence is noted.

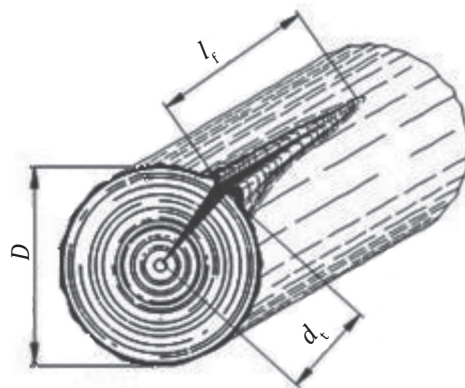
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**Key** D diameter of timber D_r size of ring shake**Figure 4 — Measurement of end (ring) shakes****5.4 Frost crack, shake caused by lightning, drying shake, through shake**

Depending on the grade, one of the following applies:

- the depth, d , is measured at the end of round timber, and expressed in millimetres or as a percentage of the diameter at the end of round timber (see [Figures 5](#) and [6](#));
- the length, l , is measured and expressed in centimetres or as a percentage of the length of round timber (see [Figures 5](#) and [6](#)). If there are several shakes, the quantity of shakes and the maximum length are shown;

c) the measurements are not made; the presence of a frost crack is noted.



Key

- D diameter of timber
- d_f depth of frost crack
- l_f length of frost crack

Figure 5 — Measurement of a frost crack



Key

- D diameter of timber
- d_d depth of through drying crack
- l_d length of through drying crack

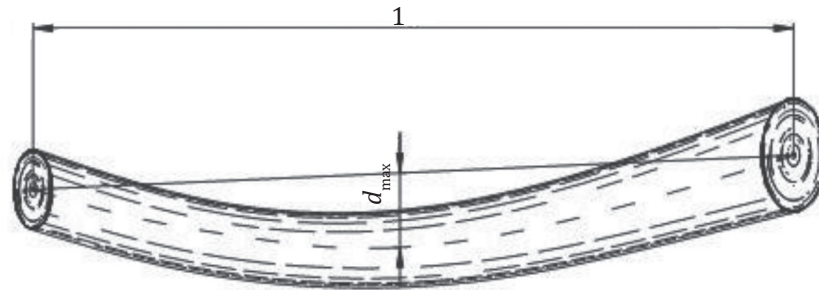
Figure 6 — Measurement of a through drying shake

6 Characteristics of trunk shape

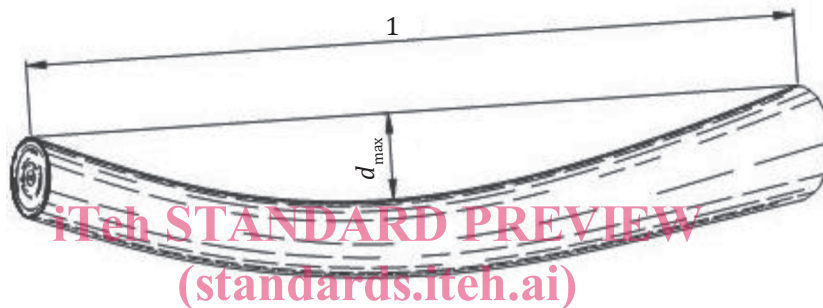
6.1 Sweep

6.1.1 Simple sweep

The maximum distance is measured between the concave centre line of round timber and the straight line, that it is connected by the central points at both ends. It is expressed in centimetres on each metre of the bend part, or as a percentage of the length of round timber [see [Figure 7 a](#)].



a) Measurement by the centre line



b) Measurement by the surface

Key

<https://standards.iteh.ai/catalog/standards/sist/007e2bdc-ef58-48c0-933a-5c9442019420/iso-19474-2018>
 d_{\max} maximum distance between the concave centre line of round timber and the straight line that connects the central points at both ends (the length of round timber), in centimetres

1 Straight line that connects the central points at both ends (the length of round timber), in metres.

Figure 7 — Measurement of a simple curvature

When it is impossible to do such measurements, the maximum distance is measured between a concave side surface of the round timber and the straight line that it is connected to at the internal points of the ends of the bend part of round timber [see [Figure 7 b](#)].

6.1.2 Multiple sweep

Divide the log with theoretical crosscut points into straight or simple sweep portions. Each segment is measured according to [6.1.1](#) (see [Figure 8](#)).

Express each result as:

- the quotient of sagitta (in centimetres) and the length of the log (m) in centimetres per metre;
- the ratio of sagitta and mid diameter in percent.