
**Pallets for materials handling —
Quality of new wooden components
for flat pallets**

*Palettes pour la manutention et le transport de marchandises —
Qualité des composants neufs en bois pour palettes plates*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 51, *Pallets for unit load method of materials handling*.

This second edition cancels and replaces the first edition (ISO 18333:2002), which has been technically revised.

Introduction

Efficient international transportation of products depends on both pallet strength and functionality, or fit, to the material handling systems. Existing International Standards address issues of strength and some issues regarding functionality of pallets. However, major issues related to the minimum material quality and manufacturing and repair workmanship are not addressed in current International Standards. These factors can significantly impact the efficiency of international unit load material handling practices.

The purpose of this International Standard is to establish internationally recognized minimum acceptable quality levels for wooden parts commonly used for the assembly of timber pallets. These parts are stringers, stringerboards, blocks, and deckboards. The properties of these components affect pallet performance.

There are four related International Standards:

- ISO 15629;
- ISO 18333;
- ISO 18334;
- ISO 18613.

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Pallets for materials handling — Quality of new wooden components for flat pallets

1 Scope

This International Standard gives guidance on minimum recommended timber quality characteristics. It is applicable to new stringers, stringerboards, blocks, and deckboards used for flat wooden pallet assembly.

This International Standard does not address the phytosanitation and safety problems, if any, associated with the use of these components.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 445, *Pallets for materials handling — Vocabulary*

EN 844-3, *Round and sawn timber — Terminology — Part 3: General terms relating to sawn timber*

EN 844-9, *Round and sawn timber — Terminology — Part 9: Terms relating to features of sawn timber*

EN 844-10, *Round and sawn timber — Terminology — Part 10: Terms relating to stain and fungal attack*

EN 844-12, *Round and sawn timber — Terminology — Part 12: Additional terms and general index*

International Standards for Phytosanitary Measures Publication No. 15 (ISPM 15), *Regulation for wood packaging material in international trade*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 445, EN 844-3, EN 844-9, EN 844-10 and EN 844-12 and the following apply.

3.1

bark pocket

bark that is partly or wholly enclosed in the wood

3.2

boxed heart

pith that is present and not visible in any face or edge

3.3

decay

disintegration of the wood substance due to actions of wood-destroying fungi

3.4

exposed pith

pith that is visible on a part or the full length of a face or on an edge

3.5

face shake

fissure showing on a face and possibly at the end

3.6

fungal decay

biodeterioration caused by fungi

3.7

heart shake

radial end shake originating at the pith

3.8

intergrown knot

knot that, on the surface considered, is intergrown with the surrounding wood for more than three quarters of its cross-sectional perimeter

3.9

oblique shake

fissure at an angle to the arris, showing on a face and/or an edge

3.10

resin pocket

lens-shaped cavity in timber containing, or that has contained, resin

3.11

ring shake

fissure following the line of the growth ring

3.12

sound knot

knot showing no indication of rot

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3.13

split

fissure that extends from one surface to another

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3.14

straight shake

fissure approximately parallel with the arris

3.15

unsound knot

knot affected by rot

3.16

wane

original rounded surface of a log, with or without bark, on any face or edge of sawn timber

3.17

notch area

area above the notch and within 50 mm of either end of the notch, to include half the notch depth

Note 1 to entry: See [Figure 2](#).

3.18

blue stain

stain caused by fungi, where discoloration ranges from pale blue to black

Note 1 to entry: This usually affects the sapwood of certain species.

3.19**dote**

early stage of rot, characterized by discoloured streaks or patches in the wood, where the general texture and strength properties remain more or less unchanged

Note 1 to entry: It occurs prior to felling or during storage.

3.20**rot**

decomposition of wood by fungi or other microorganisms, resulting in softening, progressive loss of mass and strength, and often a change of texture and colour

4 Species

The species of woods used in pallet manufacture are numerous and are not limited in this International Standard. However, the species selected significantly influences pallet performance. Therefore, when specifying wooden pallets, the permissible timber species should be indicated.

NOTE Properties of timber species can be determined from ISO 3131, ISO 3133, and ISO 3349.

5 Quality characteristics

Pallet components should meet or exceed the minimum quality levels of Q1 or Q2 as indicated by the characteristic limitations contained in [Table 1](#), and according to a previously specified minimum percentage of quality levels per component.

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6 Moisture content of components

The moisture content of pallet components is not limited to any value

NOTE However, the moisture content of wood in pallets can affect strength and functionality. Below 20 % moisture content, there is a minimal risk of biological infestation.

7 Preparation of pallet components**7.1 Manufacturing tolerances****7.1.1 Target dimensions**

Wooden components should have a target thickness and width, and be uniform in dimension; and 50 % of components should meet or exceed the target dimension at the time of manufacture.

The target dimension should be adequate to meet the pallet specification requirements including the tolerances.

EXAMPLE If the pallet specification for component thickness is 22 (+2/-0) mm and the manufacturing tolerance is $\pm 1,5$ mm, then the target manufacturing thickness should be 23,5 mm, plus an allowance for shrinkage.