
**Pallets for materials handling — Flat
pallets —**

**Part 1:
Test methods**

*Palettes pour la manutention — Palettes plates —
Partie 1: Méthodes d'essai*



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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 51, *Pallets for unit load method of materials handling*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 261, *Packaging*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 8611-1:2011), which has been technically revised.

The main changes are as follows:

- The use of the deflection at the datum load was clarified.
- It was clarified that the average of the maximum deflections recorded for each replicate will need to be reported.
- It was clarified that test 5 applies for both twin track conveyors and narrow span beam racking.
- It was clarified that the minimum of the ultimate load recorded for each replicate needs to be reported.
- For test 11, the point where the leading edge of the pallet needs to touch the blade was changed from 100 mm to $250 \text{ mm} \pm 25 \text{ mm}$ to $200 \text{ mm} \pm 25 \text{ mm}$.

A list of all parts in the ISO 8611 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The forces to which pallets are exposed during use vary significantly. The test procedures described in this document are approximate simulations of pallet use. These tests help the pallet designer to establish an initial acceptable balance between the cost and the performance of a pallet design. It is intended that all results of tests performed using this protocol be confirmed and verified using field trials before publication of performance or the commercial implementation of a new pallet design.

The nominal load, determined according to this test protocol, does not represent a payload and cannot be verified using field trials. The nominal load is a minimum payload level for use in determining maximum working load according to the procedures in ISO 8611-3. The maximum working load can be verified for a specified payload and intended use, using field trials. It is intended that the publication of the maximum working load include a description of the payload and the intended modes of use of the pallet.

It is essential to exercise care when comparing the results of tests with historic experience using existing pallet designs. User expectations of pallet performance vary. Some require greater and some accept lower levels of performance. Users are accepting different levels of risk when using pallets. Because of the varied performance expectations of pallet users, it is possible that the results of tests do not always reflect the user's perception of pallet performance in use.

It is possible that the nominal load does not reflect users' perception of pallet performance because the nominal load does not represent a payload. It is intended that maximum working loads be used to compare with the historic performance of existing pallet designs.

Regarding the use of the ISO 8611 series,

- this document describes the test methods;
- ISO 8611-2 describes the performance requirements and selection of tests;
- ISO 8611-3 describes tests for determining maximum working loads for known payloads.

This document and ISO 8611-2 are required for determining nominal load. The nominal load is the lowest safe load value for the specified support conditions, independent of the type of load (excluding concentrated loads).

This document, ISO 8611-2 and ISO 8611-3 are required for determining maximum working loads for known payloads.

The nominal load for the intended use is established by the selection of tests in this document; and the performance requirement is established from criteria in ISO 8611-2.

The following three types of intended use with specified support conditions are defined:

- handling of loaded pallets with racking and stacking;
- handling of loaded pallets without racking;
- handling of loaded pallets without racking or stacking.

To determine the maximum working load through testing given in ISO 8611-3, the deflection under the known payload cannot exceed the limiting deflection (see ISO 8611-3:2011, 4.2, 4.3 and 4.4) established in this document and ISO 8611-2. The maximum working load is the greatest payload that a pallet can be permitted to carry in a specific loading and support condition.

Guidance is given in ISO 8611-3:2011, Annex A as to the general effect on performance of different load types and stabilization methods. These can only give guidance as to the likely result from tests with the known payload.

Other tests for durability evaluation are specified in this document.

Pallets for materials handling — Flat pallets —

Part 1: Test methods

1 Scope

This document specifies the test methods available for evaluating new flat pallets for materials handling.

The test methods are split into groups for:

- nominal load testing;
- maximum working load testing;
- durability comparison testing.

This document does not apply to pallets with a fixed superstructure or a rigid, self-supporting container that can be mechanically attached to the pallet and which contributes to the strength of the pallet.

NOTE Specific tests for determining load capacity do not replace the value of conducting field tests on specific pallet designs.

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 445, *Pallets for materials handling — Vocabulary*

ISO 2244, *Packaging — Complete, filled transport packages and unit loads — Horizontal impact tests*

ISO 8611-2:2021, *Pallets for materials handling — Flat pallets — Part 2: Performance requirements and selection of tests*

ISO 12777-1, *Methods of test for pallet joints — Part 1: Determination of bending resistance of pallet nails, other dowel-type fasteners and staples*

EN 13183-2, *Moisture content of a piece of sawn timber — Part 2: Estimation by electrical resistance method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 445 and the following apply.

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

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