

---

---

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

**Part 3:  
Maximum working loads**

*Palettes pour la manutention — Palettes plates —  
Partie 3: Charges maximales en service*  
**iTeh STANDARD PREVIEW  
(standards.iteh.ai)**

[ISO/TS 8611-3:2005](https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-bd14ea723f04/iso-ts-8611-3-2005)

[https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-  
bd14ea723f04/iso-ts-8611-3-2005](https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-bd14ea723f04/iso-ts-8611-3-2005)



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO/TS 8611-3:2005](https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-bd14ea723f04/iso-ts-8611-3-2005)

<https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-bd14ea723f04/iso-ts-8611-3-2005>

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote.
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

<https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98ff-bd14ea733f04/iso-ts-8611-3-2005>

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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/TS 8611-3 was prepared by Technical Committee ISO/TC 51, *Pallets for unit load method of materials handling*.

This first edition, together with ISO 8611-1 and ISO 8611-2, cancels and replaces ISO 8611:1991.

ISO/TS 8611 consists of the following parts, under the general title *Pallets for materials handling — Flat pallets*:

- *Part 1: Test methods*
- *Part 2: Performance requirements and selection of tests*
- *Part 3: Maximum working loads*

## Introduction

The changing of the title and the scope of ISO 6780<sup>[1]</sup> from “*General-purpose flat pallets for through transit of goods — Principal dimensions and tolerances*” to “*Flat pallets for intercontinental materials handling — Principal dimensions and tolerances*” made it necessary to revise International Standard ISO 8611:1991 “*General purpose flat pallets for through transit of goods — Test methods*” and the Technical Reports ISO/TR 10232<sup>[2]</sup> and ISO/TR 10233<sup>[3]</sup>. The test methods, performance requirements and maximum working load include not only “general purpose pallets” but also all other pallets for materials handling. ISO/TC 51 decided to elaborate three parts of ISO 8611 as listed in the Foreword.

Part 2 gives the performance requirements for tests described in Part 1. The result of these tests lead to the nominal load, which represents, in general, a uniformly distributed load. The nominal load is a value in kg, established by test, valid for a given pallet configuration. In use, the pallets are loaded in different ways and it is important for the user to know the maximum working load under different conditions. Part 3 lays down the methods of determining the maximum working load of a pallet with different types, distributions, arrangements and means of stabilization of the load and the system of support. The maximum working load may be included in the relevant specification.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO/TS 8611-3:2005](https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-bd14ea723f04/iso-ts-8611-3-2005)

<https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-bd14ea723f04/iso-ts-8611-3-2005>

# Pallets for materials handling — Flat pallets —

## Part 3: Maximum working loads

### 1 Scope

This part of ISO 8611 proposes relevant test methods to determine a range of maximum working loads for different payloads and loading and support conditions, which depend on the nature of the load being carried.

### 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 445, *Pallets for materials handling — Vocabulary*

ISO 8611-1:2004, *Pallets for materials handling — Flat pallets — Part 1: Test methods*

ISO/TS 8611-2:2005, *Pallets for materials handling — Flat pallets — Part 2: Performance requirements and selection of tests*

### 3 Terms and definitions

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

#### 3.1

##### **concentrated load**

load concentrated over an area of less than 50 % of the pallet top deck

#### 3.2

##### **uniformly distributed unbonded load**

load spread evenly across the full surface of the pallet top deck where the packages are not interlocked, bound or connected

#### 3.3

##### **uniformly distributed bonded load**

load spread evenly across the full surface of the pallet top deck, where the pattern of each single layer changes, so that the packages are interlocked

#### 3.4

##### **solid load**

single, compact, rigid, homogeneous load, supported by all the blocks and/or stringers (bearers) of the pallet

**3.5  
maximum working load**

greatest payload that a pallet may be permitted to carry in a specific loading and support condition

NOTE This varies according to the type, distribution, arrangement and means of stabilization of the load and the system of support and can be lower or higher than the nominal load. See ISO/TS 8611-2.

**3.6  
payload**

$Q$   
load carried by the pallet in use

[ISO/TS 8611-2]

NOTE 1 Adapted from ISO 445.

NOTE 2 This can be above, identical with or below the nominal load.

**3.7  
racking**

storage of loaded pallets in beam racks

**3.8  
stacking**

placing of pallets with unit loads one upon the other without recourse to intermediate shelves or racking

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

**4 Determination of maximum working load**

**4.1 General**

ISO/TS 8611-3:2005

The maximum working load shall be determined by the appropriate tests as given in 4.2 to 4.4

Test the pallet in the direction of its intended use. When the pallet is to be supported in both directions in a rack or on forks, the weaker direction may be determined and used for determining the maximum working load.

In order to establish the weakest pallet support direction relative to pallet length or width, when conducting test No. 4b, (Forklifting test – bending stiffness) and test No. 7, (Dead-weight bending test) of ISO 8611-1:2004, test one pallet across the length of the pallet and then a second pallet across the width of the pallet. There is no requirement for further tests on the stronger dimension unless the result is within 15 % of the weaker.

**4.2 Pallets for handling of goods inclusive of racking**

Pallets intended for handling of goods inclusive of racking shall be tested using test No. 4b Forklifting test, test No. 6 (Stacking test) and test No. 7 (Dead-weight bending test) as given in 8.4, 8.6 and 8.7 of ISO 8611-1:2004.

NOTE Most often test No. 7 Dead-weight bending will be limiting. If it is known that one condition of use is limiting, only those tests necessary for that condition need be conducted.

**4.3 Pallets for handling of goods and stacking but without racking**

Pallets intended for handling of goods and stacking without racking shall be tested using test No. 4b (Fork-lifting test), as given in 8.4 of ISO 8611-1:2004, ISO/TS 8611-2:2005 Table 1, and using test method 6 (Stacking test), as given in 8.6 of ISO 8611-1:2004 and ISO/TS 8611-2:2005 Table 1.

The maximum working load shall be the lowest value achieved in test No. 4b or test No 6.

NOTE If it is known that one condition of use is limiting, only the test necessary for that condition need be conducted.

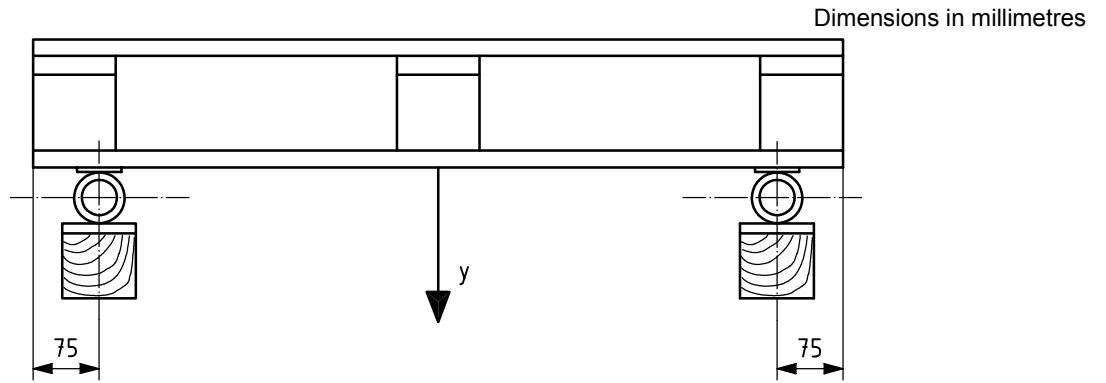


Figure 1 — Test for racking conditions

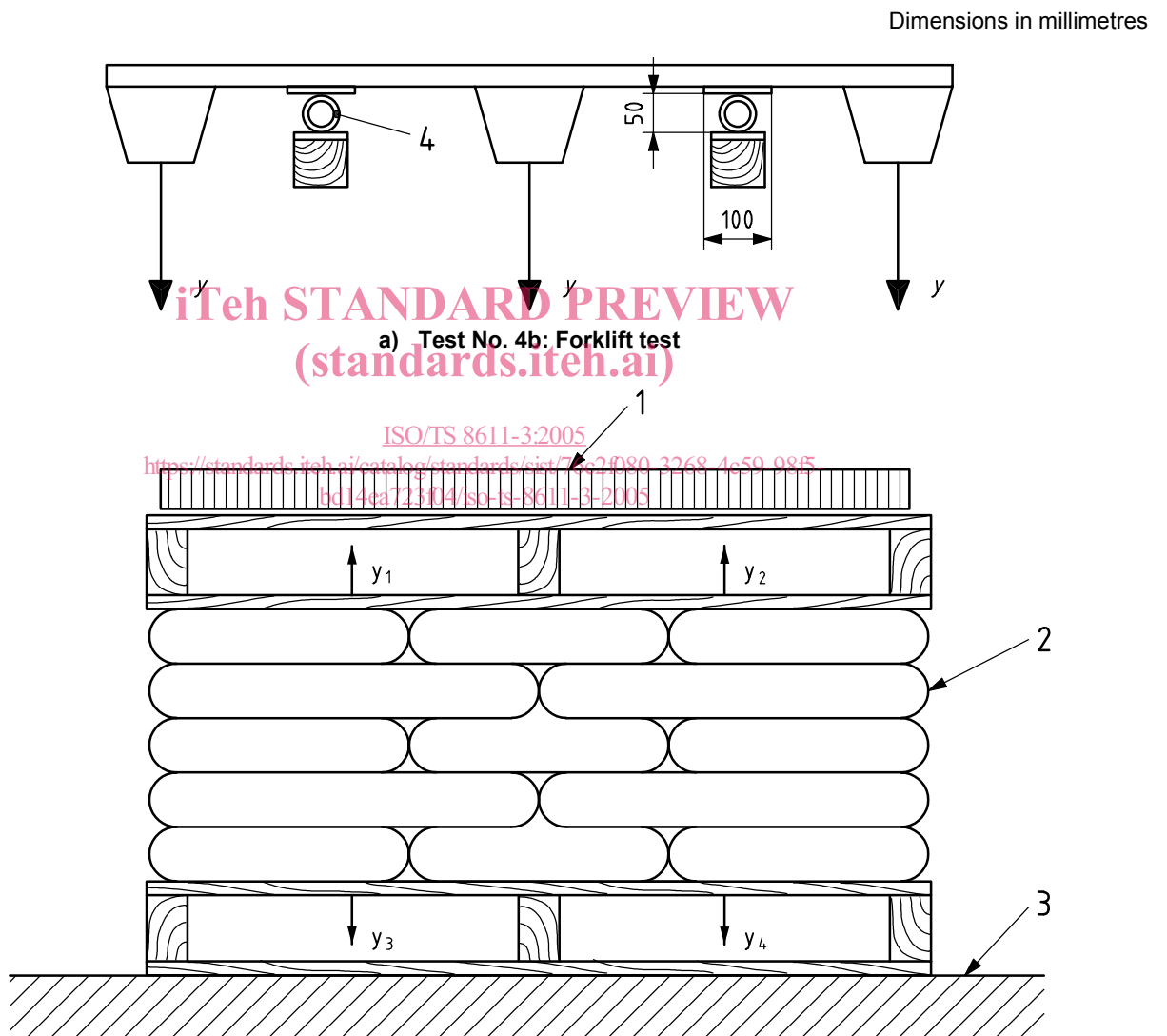


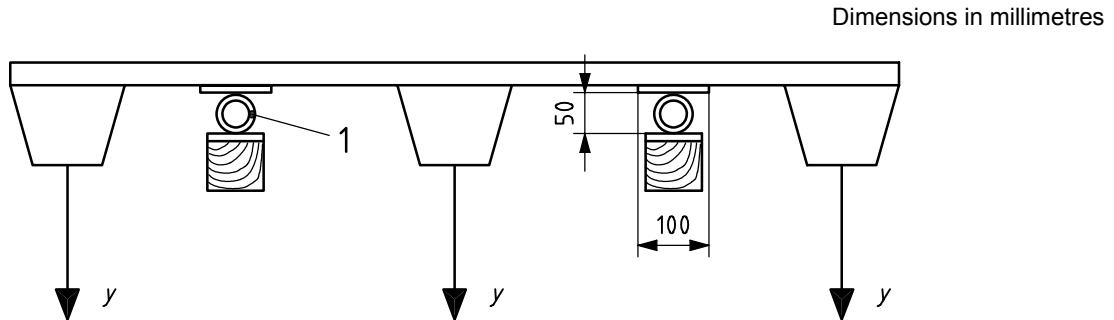
Figure 2 — Test for stacking condition

**Key**

- 1 test load or payload
- 2 payload or standard test load from 5.2
- 3 load support
- 4 support

**4.4 Pallets for handling without racking or stacking**

Pallets intended for use in the transportation of goods on forklift trucks or pallet trucks without racking or stacking shall be tested using Test No. 4b (Fork-lifting test), as given in 8.4 of ISO 8611-1:2004, ISO/TS 8611-2:2005 Table 1.



**Key**  
1 support

**Figure 3 — Test for handling of goods**

**5 Test conditions**

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

**5.1 General**

Carry out *either* the test given in 5.2 *or* the test given in 5.3.

**5.2 Testing of pallets with known payload**

<https://standards.iteh.ai/catalog/standards/sist/76c2f080-3268-4c59-98f5-3d14ca723f04/iso-ts-8611-3-2005>

Pallets with known payload shall be tested using the test method which corresponds to their proposed end application according to 4.2 to 4.4. The test load shall be the actual load.

NOTE For known payload, stretchwrapping, strapping and other load binders can be used.

**5.3 Testing of pallets with unknown payload**

**5.3.1 General**

Pallets with unknown payload shall be tested using the test methods which correspond to their intended support condition according to 4.2 to 4.4. The standardized test loads given in 5.3.2 to 5.3.5 shall be used.

**5.3.2 Concentrated load**

Place the test load as shown in Figure 4, with a width of 1/3 of pallet length or width and a length equal to the pallet length or width on to the centre of the pallet deck.



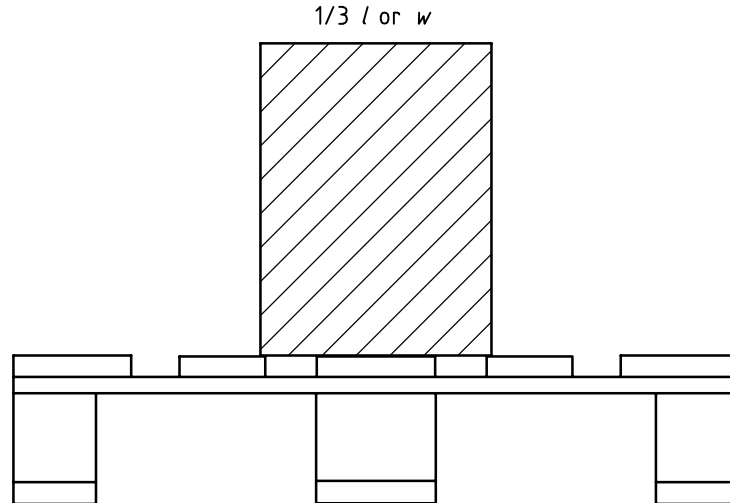
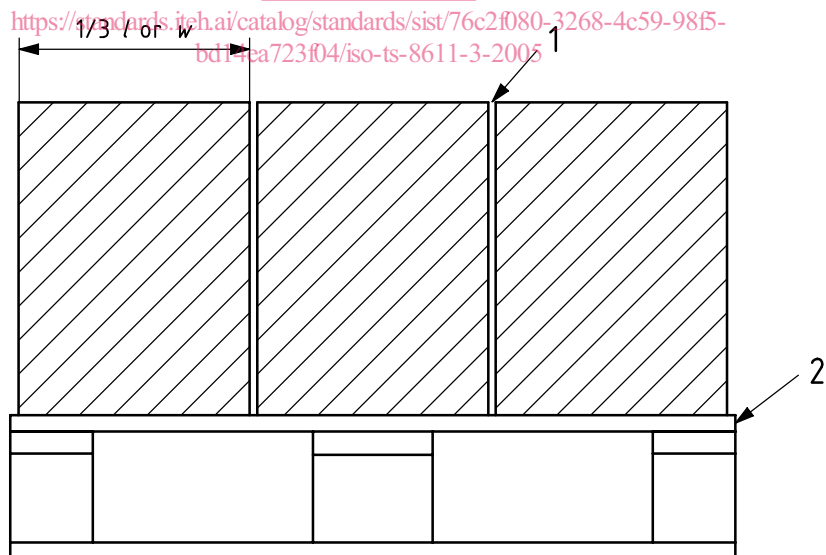


Figure 4 — Concentrated load

### 5.3.3 Uniformly distributed unbonded load

Place the test load as shown in Figure 5, composed of packages which have a length and width of  $1/3$  of the pallet length or width, to cover the whole surface (at least 85 %) of the pallet deck. The packages shall not be bonded.

NOTE Gaps of at least 4 mm between the packages should prevent mutual contact.



#### Key

- 1 gap between load packages
- 2 pallet top deck

Figure 5 — Uniformly distributed load