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Transport packaging — Reusable, rigid plastic distribution boxes —

Part 1: General purpose application

Emballages de transport — Boîtes de distribution en plastique rigide, réutilisables —

Partie 1: Application à un besoin général

Reference number
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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).

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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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 122, *Packaging*.

A list of all parts in the ISO 18616 series can be found on the ISO website.

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Introduction

Standardization is a crucial element to improve the efficiency of a returnable packaging system in a supply chain and can help to integrate a supply chain. Standardization of returnable transport items (RTI) and its operation system (returnable transport system) is the first step for an efficient and seamless supply chain. RTI standards such as container sizes, materials and weights enable a company's supply chain integration. A standardized returnable packaging operation system facilitates the supply chain automation, increases efficiency of inventory control and reduces total logistics costs. Global standardization of returnable transport systems can help a company make it easy to invest in their packaging system while facilitating smooth and integrated supply chain interfaces from suppliers to customers.

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Transport packaging — Reusable, rigid plastic distribution boxes —

Part 1: General purpose application

1 Scope

This document specifies the four main types of reusable, rigid plastic distribution boxes for general purpose application in the fields of handling, transport, storage and display of products in distribution systems from the point of manufacture to the point of retail services:

a) rigid parallelepipedic and rectangular boxes (stackable boxes);

b) foldable boxes;

c) nestable boxes;

d) nestable and stackable boxes.

These boxes are based on the modular area 600 mm × 400 mm, 600 mm × 500 mm, 550 mm × 366 mm and subdivisions of them. This document defines the main types of rigid plastic distribution boxes, dimensions, safety, designation, marking and labeling.

This document is designed for general purpose applications in a returnable transport system. For automotive industry application, ISO 19709-1, ISO/TS 19709-2 and ISO/TS 19709-3 can be referenced.

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 3394, *Packaging — Complete, filled transport packages and unit loads — Dimensions of rigid rectangular packages*

ISO 3676, *Packaging — Complete, filled transport packages and unit loads — Unit load dimensions*

ISO/IEC 15418, *Information technology — Automatic identification and data capture techniques — GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance*

ISO/IEC 15434, *Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media*

ISO/IEC 15459-5, *Information technology — Automatic identification and data capture techniques — Unique identification — Part 5: Individual returnable transport items (RTIs)*

ISO/IEC 16022, *Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification*

ISO 17364, *Supply chain applications of RFID — Returnable transport items (RTIs) and returnable packaging items (RPIs)*

ISO/IEC 18000-63, *Information technology — Radio frequency identification for item management — Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C*

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ISO 18616-2, *Transport packaging — Reusable, rigid plastics distribution boxes — Part 2: General specifications for testing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21067 and ISO/IEC 19762 and the following apply.

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
box
rigid packaging with rectangular or polygonal sides, usually completely enclosing the contents

[SOURCE: ISO 21067:2007, 2.3.7]

3.2
bottom
normal standing surface of packaging

[SOURCE: ISO 11683:1997, 3.4]

3.3
burr
raised sharp edge, frequently with a wane on the opposite side

[SOURCE: ISO 8785:1998, 4.2.6]

3.4
capacity
<returnable transport systems> inner parallelepipedic rectangular volume calculated by multiplying the usable inner length by the usable inner width (both measured at the half way height) and the usable inner height

3.5
ends
vertical face of the box which corresponds to the width

[SOURCE: ISO 6780:2003, 3.7]

3.6
flash
ridge of workpiece material either expelled from the gap between mould parts or die parts when forming (die casting, forging, etc.) or formed perpendicular to the direction of pressure when resistance welding two surfaces (upset welding, flash welding, etc.)

[SOURCE: ISO 8785:1998, 4.2.7]

3.7
foldable box
box with a mechanism to reduce its volume when empty

Note 1 to entry: See examples in Figures 1 and 2.

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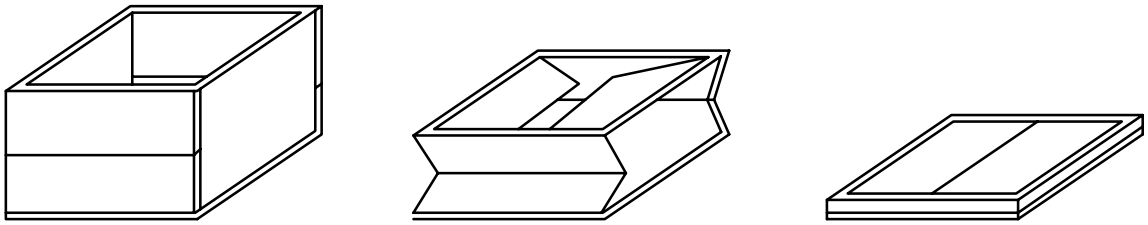
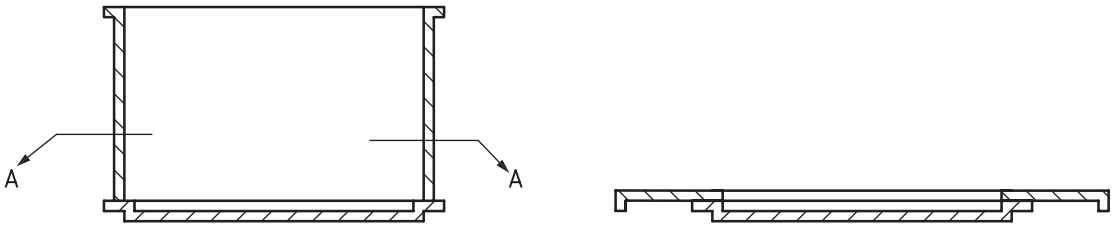


Figure 1 — Folded without plan view dimensions changed



Key

A Ends for interlocking.

Figure 2 — Folded with plan view dimensions changed

3.8
lid
top fitting cover to enclose a working volume and to prevent the escape of material accessory which fits inside or over the top rim of the box

3.9
maximum capacity
liquid equivalent volume up to the usable inner height

3.10
nestable box
box which can be placed upright partly inside another when empty, to reduce volume

Note 1 to entry: See Figure 6.

3.11
nestable and stackable box
nestable box incorporating a method of stacking

Note 1 to entry: See Figure 7.

3.12
nominal load
lowest load value, for the purposes of comparison, for the specified support conditions, independent of the type of load (excluding concentrated loads)

[SOURCE: ISO 445:2013, 2.2]

3.13
nominal stacking load
<returnable transport systems> recommended maximum weight applied to the top of a box when stacked

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3.14
reusable packaging
packaging or packaging component which has been designed to accomplish or proves its ability to accomplish a minimum number of trips or rotations in a system for reuse

[SOURCE: ISO 21067-2:2015, 2.3.2]

3.15
sides
vertical face of the box which corresponds to the length

[SOURCE: ISO 6780:2003, 3.8]

3.16
test load
maximum load required to be contained inside the box, multiplied by the safety factor, or the maximum stacking load required on top of the box, multiplied by the safety factor

3.17
intrusive marking
subtractive marking
marking method designed to alter a surface to form a human- or machine-readable symbol

[SOURCE: ISO/IEC 19762:2016, 04.02.24, modified]

Note 1 to entry: This marking category includes, but is not limited to, methods that abrade, burn, corrode, cut, deform, dissolve, etch, melt, oxidize or vaporize a surface. Intrusive marking methods include stamping, laser etching, chemical etching, dot peen and micro-sandblast.

3.18
non-intrusive marking
additive marking
marking method designed to add material to a surface to form a human- or machine-readable symbol

[SOURCE: ISO/IEC 19762:2016, 04.02.25, modified]

Note 1 to entry: Non-intrusive marking methods include ink jet, some forms of laser bonding, liquid metal jet, screen process, stencil and thin film deposition.

3.19
permanent marking
intrusive or non-intrusive markings that are designed to remain legible for at least the normal service life of an item

[SOURCE: ISO/IEC 19762:2016, 04.02.26]

3.20
returnable transport item
RTI
means to assemble goods for transportation, storage, handling and product protection in the supply chain which are returned for further usage

EXAMPLE Pallets with and without cash deposits as well as all forms of reusable containers, crates, trays, boxes, roll pallets, barrels, trolleys, pallet collars and lids.

[SOURCE: ISO 17364:2013, 4.3, modified]

4 Types of reusable rigid plastic distribution boxes

Details of the four main types of rigid plastic distribution boxes are given in Table 1 and Figures 3 to 7.

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