INTERNATIONAL STANDARD

ISO 16763

First edition
2016-03-01

Graphic technology — Post-press — Requirements for bound products

Technologie graphique — Exigences pour la finition — Produits reliés

Reference number
ISO 16763:2016(E)

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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. 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 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 130, *Graphic technology*.

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Introduction

Bound products, such as booklets, brochures, case-bound or paper-bound books, etc., are commonly used in daily life across countries. Post-press is the last but not the least process in the production flow of bound products, which includes pre-press, printing and post-press. This International Standard introduces the use of the standardization approach to accomplish the conversion of printed sheets into end products and to achieve the desired result.

Post-press production has a significant effect on the appearance, usability and durability of bound products. The aim of this International Standard is to address the major quality elements in post-press production of such products.

Post-press production of bound products involves four major processes: cutting, folding, assembling and binding. As the process steps are interrelated and sequential, any deviations from current practice can lead to deficiencies in the end product. Accordingly, this International Standard specifies technical requirements and tolerances for the outcomes of processing operations in order to avoid quality deficiencies. Although material specification is not covered in this International Standard because this is not normally the responsibility of the finisher, it is recommended that, if a long life is required for the bound product, ISO 9706 gives guidance.

This International Standard is expected to benefit both manufacturers and customers in the printing and publishing industries in terms of the production and assessment of bound products.

The use of this International Standard is intended to

— enhance overall process control of the production of bound products,

— enhance production efficiency and accuracy in post-press processes,

— reduce occurrence of remakes resulting from inadequate working methods, and

— promote transparency of the quality requirements of post-press operations in a universally understood manner.

This International Standard does not cover special effect or surface decorations.

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Graphic technology — Post-press — Requirements for bound products

1 Scope

This International Standard specifies quality requirements and tolerances of bound products and intermediate components. It is applicable to products requiring industrial binding, for example, books, magazines, catalogues and brochures.

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 534, *Paper and board — Determination of thickness, density and specific volume*

ISO 536, *Paper and board — Determination of grammage*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Conversion processes

3.1.1
backing
shaping a ridge or shoulder on each side of the spine of a book block after rounding, ideally complemented by gluing a material stripe on the spine with the same width as the spine

3.1.2
binding
holding signatures or sheets together along one edge by means of staples, adhesives, thread, wire or other means

Note 1 to entry: Most of the time, the binding process also includes attaching a cover to the bound block.

3.1.3
casing in
gluing endpapers to the inside of the case to anchor the bound and trimmed book block into the case

3.1.4
cutting
using a mechanical device (e.g. blade) to reduce sheets to a size that is suitable for further processing

3.1.5
creasing
indenting lines into substrates, such as cardboard or paper, to guide subsequent folding operations and to prevent cracking

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3.1.6
folding
bending a printed or blank substrate upon itself in order to achieve specified dimensions and folding layouts

Note 1 to entry: It is important that the correct imposition is used at the printing stage in order to obtain the sequence of pages in a bound product, as well as to compensate the creep.

3.1.7
gathering
assembling either by collating of signatures to form a multi-layer block or by inserting one signature inside another signature to form a single-layer block

3.1.8
gluing-off
applying glue on the spine of a thread sewn or thread sealed book block

3.1.9
inserting
assembling signatures one inside another or putting loose inserts into print products

3.1.10
back-lining
covering the glued spine by a material stripe with an extension on front and back side of the book block

3.1.11
rounding
forming, by mechanical or manual manipulation, the spine of a book block into a convex shape prior to backing

3.1.12
trimming
cutting off the edges of a blank or printed substrate or book block to achieve the required format

3.2 Binding methods

3.2.1
adhesive binding
converting process used to join, by gluing individual pages or signatures and covers into a final product

Note 1 to entry: There are different types of adhesive binding that result from the different processes of spine preparation prior to the application of adhesive; commonly used types are notch binding and perfect binding.

3.2.2
lock-stitching
sewing method where two threads, an upper and a lower, are used to link together in stitching

Note 1 to entry: This method is used mainly for identity cards and passports.

3.2.3
notch binding
type of adhesive binding where slots are cut into the spine edges of the gathered signatures to facilitate the penetration of adhesive

3.2.4
perfect binding
type of adhesive binding in which gathered signatures or sheets are connected to a book block by applying glue on the binding edge after executing spine preparation techniques

Note 1 to entry: In the broad sense, perfect binding is also used as an alternate term for adhesive binding.

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3.2.5
saddle-stitching
binding method where a set of folded and inserted signatures is bound with stitches or staples driven down through the centre fold of the spine

Note 1 to entry: This method is used mainly for menus, brochures and magazines.

3.2.6
single-sheet binding
type of non-adhesive binding in which the single sheets are held together by a plastic or metal binding tool (spiral, wire-o and comb), showing a particular good lay-flat behaviour.

Note 1 to entry: This method is used mainly for products that need to lay flat when opened, such as board books, cookbooks, notebooks, calendars and manuals.

3.2.7
thread sealing
sealing method used as an economical alternative to thread sewing, where the signatures are bound with single thread staples containing a thermoplastic coating during the folding process

3.2.8
thread sewing
binding method where the gathered signatures are sewn together with thread before being inserted into a cover or book case

Note 1 to entry: There are two thread sewing methods: sewing with stitches on a straight line and sewing with stitches on a staggered line.

3.3 Product and structure

3.3.1
binding edge
edge of a book block along which signatures or pages are bound by means of staples, adhesives, thread, wire or other means

3.3.2
binding margin
white space that is left blank between the binding edge and the printed area of a page

3.3.3
case-bound book
set of blank, written or printed pages bound in a case made of solid boards glued onto the end paper of a book block

3.3.4
bound product
book or book block, made up of one or more folded sheets or single sheets, held together by a particular binding method, with or without a cover

3.3.5
brochure
set of blank, written or printed pages bound together in a cover made of cardboard (soft-cover)

3.3.6
fore edge
front edge of a book or book block that is opposite, and parallel, to its binding edge

3.3.7
head
top edge of a book or a book block

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3.3.8
joint
one of two grooves that run head to tail on the outside of the case, front and back, in the gap between spine inlay and case boards

3.3.9
Omega staples
variant of wire staples with shaped eyelets to be used as file holes

Note 1 to entry: Loop stitch is same as Omega staple.

3.3.10
shoulder
outer edge on each side of the rounded spine of a book block that is formed by the backing process

3.3.11
spine
back of a book block or outer portion of a book where the pages are held together, opposite to the fore edge

3.3.12
squares
edges of the book case extending beyond the book block at the head, tail and fore edges

3.3.13
tail
bottom edge of a book or a book block

3.4 Component and binding material

3.4.1
book block
part of a case-bound book or brochure, consisting of a trimmed or untrimmed bound block of sheets, prior to the application of the book case or cover

3.4.2
bookmark
fabric ribbon, one end of which is normally glued onto the top of the spine, inserted between the pages of a book to mark the reader's place

3.4.3
case
hardcover of a book composed of front and rear boards, spine inlay and covering material

3.4.4
cover
flexible or rigid cardboard connected to the book block to protect and strengthen it

3.4.5
covering material
flexible material, which can be paper or fabric, attached to the case boards and the spine inlay of a case

3.4.6
end paper
folded sheet used at the front and back of a book block to connect it with the case using glue

3.4.7
headband
decorative fabric band glued onto the upper and lower edges of the spine of a book block

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3.4.8
multi-layer block
book block assembled by collation of signatures in page order

3.4.9
overhang
part of the covering material that extends beyond the edges of the case boards and spine inlay before turning-in

3.4.10
signature
printed sheet, single or multiple folded to be used as part of a book block

3.4.11
single-layer block
book block consisting of a single signature or assembled by inserting signatures into one another, which can be bound to form a thin magazine, a booklet or document with a limited number of pages

3.4.12
spine inlay
stripe of cardboard or solid board attached with gaps between the front and rear boards of a case

3.4.13
turn-in
overhang that is turned over the edges of the case boards and spine inlay onto their inside surface of the case

3.5 Binding quality evaluation

3.5.1
glue penetration
uncontrolled and inhomogeneous penetration of glue between the sheets of a book block

3.5.2
grain direction
direction in which the majority of the fibres in a piece of paper, cardboard or solid board are aligned and the direction in which the warp threads run in cloth

Note 1 to entry: The grain direction in a sheet of machine-made paper is also referred to as the machine direction.

Note 2 to entry: The sheet is called long grain if the larger dimension is parallel to the machine direction (MD). The sheet is called short grain if the larger dimension is parallel to the cross direction (CD).

Note 3 to entry: In book binding, the right grain direction is preferentially parallel to the binding edge.

4 Process requirements

4.1 General

Post-press production of bound products is carried out in a series of process operations. A typical workflow is shown in Figure 1 and, for each operation, the number of the clause describing it is given in parentheses.

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