INTERNATIONAL STANDARD

ISO 1009

Third edition
2000-12-15

Photography — Paper dimensions — Rolls for printers

Photographie — Dimensions des papiers — Rouleaux pour tireuses

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 1009 was prepared by Technical Committee ISO/TC 42, *Photography*.

This third edition cancels and replaces the second edition (ISO 1009:1992), of which it constitutes a technical revision. References to inches have been removed and minor technical changes have been made to a tolerance in Table 1 as well as splices, core internal diameter, and package marking.

Annexes A and B of this International Standard are for information only.

Photography — Paper dimensions — Rolls for printers

1 Scope

This International Standard specifies the aim and tolerance values for the nominal widths of rolls of black-and-white and colour photographic papers for use in contact and projection printers.

It also specifies splice parameters, core dimensions, requirements for winding, and package marking.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 1:1975, *Standard reference temperature for industrial length measurements.*

ISO 554:1976, *Standard atmospheres for conditioning and/or testing — Specifications.*

3 Terms and definitions

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

3.1
aim dimension
preferred dimension at which the manufacturing process should be aimed or designed

3.2
core
physical mass, which serves as the central part of a wound roll of paper, that has no flanges at its ends and is generally cylindrical

3.3
nominal size
size reference that appears on product labels and in catalogues

3.4
preferred sizes
industry standard sizes, determined by most frequent user demand (number of units) and product volume (square metres)

NOTE Designers of new equipment are encouraged to use preferred sizes whenever possible.

3.5
recognized sizes
sizes that are significant in the industry, but are not so generally used that they are selected as preferred sizes

NOTE This category assists the reader to understand the requirements for certain sizes that may have been once preferred and are becoming less popular, or are new and are becoming more popular.

3.6
splice
union of two pieces of material, joined to form a single piece

4 Conditions for measurement of dimensions

The dimensions and tolerances specified in this International Standard shall apply at the time of manufacture, measured under atmospheric conditions of (23 ± 2) °C and (50 ± 5) % relative humidity, as specified in ISO 554 (see annex A).

All measuring instrument calibrations shall be conducted at a temperature of 20 °C (as specified in ISO 1) and a relative humidity of 50 %.

5 Paper widths

5.1 Preferred widths

Aim and tolerance values for preferred roll widths shall conform to the specifications given in Table 1. New equipment should be designed to accept only the preferred-width rolls specified in Table 1.

Table 1 — Preferred widths

Nominal width cm	Aim width mm	Tolerance mm
8,9	88,7	$^{+0,2}_{-0,4}$ [a]
10,2	101,4	± 0,2
12,7	126,6	± 0,4
15,2	151,6 [b]	± 0,4
20,3	202,8	± 0,4
25,4	253,6	± 0,4
27,9	278,6	± 0,8

[a] This tolerance is not in accordance with the rule described in Table 3.

[b] This aim width is not in accordance with the rule described in the note of Table 3.

5.2 Recognized widths

Aim and tolerance values for temporarily recognized roll widths shall conform to the specifications given in Table 2.

Table 2 — Recognized widths

Nominal width cm	Aim width mm	Tolerance mm
8,2	82,3	± 0,2
9,5	95,0	± 0,2

5.3 Slitting and tolerance rules

Widths of rolls that do not comply with the specifications given in Tables 1 and 2 shall conform with the aim and tolerance specifications given in Table 3.

Table 3 — Slitting and tolerance rules for widths not listed in Tables 1 and 2

Nominal width cm	Aim width mm	Tolerance mm
Less than or equal to 12	Nominal minus 0,2	± 0,2
Greater than 12; less than or equal to 26	Nominal minus 0,4	± 0,4
Greater than 26; less than or equal to 65	Nominal minus 0,8	± 0,8
Greater than 65	Nominal minus 1,2	± 1,2
NOTE For nominal widths originally in inch units, the following value should be used (expressed to 0,1 mm units): (nominal value in inch units) × 25,4.		

6 Length of rolls

The useable lengths of rolls shall not be less than their nominal lengths; however, nominal roll lengths are not specified in this International Standard.

7 Splices

7.1 Number of splices

A maximum of one splice per roll is preferred, regardless of length; however, up to two splices are recognized in rolls longer than 100 m, up to three in rolls longer than 250 m, and up to four splices in rolls longer than 350 m.

7.2 Splicing material requirements

The splicing material shall be chemically inert to photographic processing solutions, and physically unimpaired by the processing treatment and by stresses imposed during subsequent mechanical and manual operations.

7.3 Splice thickness

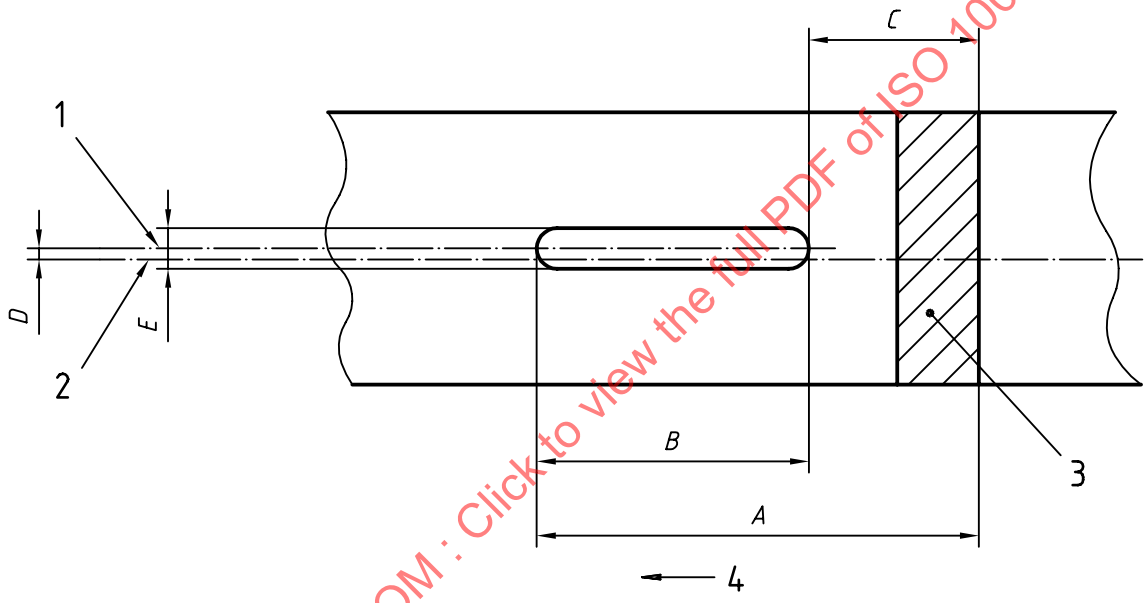
The thickness of tape splices shall not exceed double the paper thickness. However, overlapping splices may exceed double the paper thickness by up to 0,10 mm.

The thickness shall be measured with a thickness gauge that has a probe diameter of more than 5 mm, and preferably 10 mm.

The overlapping length shall not exceed 13 mm and the paper shall be welded on all of its width, without raised edges.

7.4 Splice detection

An elongated hole or slot shall be provided ahead of each splice to permit automatic splice detection. The position and dimensions of this opening are specified in Figure 1.



Key

1 Slot centreline
2 Paper centreline
3 Splice
4 Direction of paper transport

The dimensions *A*, *B*, *C* and *D* shall fulfil all the following conditions:

A: from 55 mm to 185 mm;
B: from 55 mm to 95 mm;
C: 100 mm maximum (*C* can be negative by 40 mm);
D: 3 mm maximum on each side of the paper's centreline;
E: 16 mm ± 1 mm.

Figure 1 — Splice detection slot

7.5 Length allowance

The length of rolls shall be increased by an amount not less than (A + 300 mm) for each splice.

8 Cores

The width of the core should be less than the width of the paper roll.

A core wider than the width of the roll is needed in some applications, but any protrusion shall not exceed 1 mm.

The internal diameter of the core shall be $\left(76{,}1\ ^{+0{,}6}_{-0{,}3}\right)$ mm.

9 Winding

For rolls narrower than 50,8 cm, the preferred winding orientation is sensitized side out. For rolls wider than 50,8 cm, the preferred winding orientation is sensitized side in.

The paper should not be attached to the core.

The effective roll width, which includes any paper telescoping and core protrusion, shall not exceed the maximum allowed slitting width by more than 1 mm.

10 Package marking

10.1 Data

Sufficient data shall be provided on the product's package to inform the user of corect use and handling.

Product packages shall be marked so as to indicate

a) product name and size,

b) conditions of use (such as safelight), and

c) conditions of shipping and storage.

To accomplish this, each of the packages which constitute the product's packaging should be marked so as to indicate one or more of the following[1)]:

— product name or trade name — for unit packages, a reasonable effort shall be made to make this item legible under recommended safelight conditions;

— name or trade mark of the manufacturer;

— manufacturer's catalogue identification number;

— bar-code information;

— information to assist recycling of waste packaging;

1) There can be legal requirements in certain countries for other data to be marked on the packages.

— quantity of units contained in the package;

— product name or trade name of sensitized material;

— nominal product dimensions, in metric units, with the smaller dimension first;

— batch number and/or parent roll number;

— expiration date or "develop before" date or inventory control code;

— manufacturer's recommended safelight conditions[2)];

— manufacturer's recommended storage conditions[2)];

— indication of winding, if applicable[2)].

10.2 Compliance

If it is desired to indicate compliance of the product with this International Standard, the following wording shall be used:

Complying with ISO 1009

2) This may be indicated by wording or by a code.

Annex A
(informative)

Dimensional stability

The dimensions and tolerances specified apply to the paper at the time of slitting and when in equilibrium with the standard atmosphere specified in ISO 554:1976, i.e., temperature (23 ± 2) °C and relative humidity (50 ± 5) %.

These dimensions may be altered by permanent ageing shrinkage and by temporary shrinkage or expansion induced by changes in the relative humidity and temperature of the atmosphere. (Photographic films and papers respond differently to relative humidity and this is the reason for specifying relative humidity rather than moisture content in photographic standards.)

Nevertheless, at the time of package opening within the warranty period of the paper, dimensions measured under atmospheric conditions of temperature (23 ± 2) °C and relative humidity (50 ± 5) % should not depart from those at the time of manufacture by more than ± 0,20 %.

Samples of paper cut from a roll require a minimum of 8 h conditioning for non-resin-coated paper and a minimum of 14 days conditioning for resin-coated papers in accordance with ISO 6221[3)].

3) ISO 6221:1996, *Photography — Films and papers — Determination of dimensional change.*