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Photography — Aerial films and spools — Dimensions

Photographie — Films et bobines aériens — Dimensions

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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 14546 was prepared by Technical Committee ISO/TC 42, *Photography*.

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Introduction

This International Standard points out (for the benefit of equipment designers) that dimensions of spools should not be used for the design of magazine cassette internal clearances. Spools shipped from point to point may have lateral runout as much as three times those indicated in this International Standard.

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Photography — Aerial films and spools — Dimensions

1 Scope

This International Standard specifies dimensions for films, leaders and trailers, perforations where applicable, and package marking for rolls of photographic film used in aerial applications.

This International Standard also includes the sizes and dimensions of steel or aluminium spools for appropriate sizes of film.

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.

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

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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
aerial film
film designed for taking photographs from the air

3.2
aim dimension
preferred dimension at which the manufacturing process should be aimed or designed

3.3
leader
material attached to the leading edge of the roll of film, not intended for recording of images, and usually to assist in winding

3.4
nominal size
size reference that appears on product labels and in catalogues

3.5
perforations
holes of particular shape and dimensions, punched near one or both edges of the film, to assist with winding

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3.6
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.

3.7
splice
union of two pieces of material, joined to form a single piece

3.8
spool
cylindrical device that has a rim or edge at each end and an axial hole for a pin or spindle, and on which a roll of film is wound

3.9
trailer
material attached to the trailing edge of the roll of film, not intended for recording of images, and usually to assist in winding

4 Conditions for measurement of dimensions

The dimensions and tolerances specified in this International Standard shall apply at the time of manufacture (except where specifically stated otherwise), when equilibrated and measured at atmospheric conditions of (23 ± 2) °C and (50 ± 5) % relative humidity, as specified in ISO 554.

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

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5 Film dimensions

Film dimensions shall be as shown in Figures 1 and 2 and as given in Tables 1 and 2, and apply to film at the time of cutting and perforating. Dimensions can be altered by a permanent ageing shrinkage and by temporary shrinkage or swelling due to changes in moisture content or temperature.

Dimensionally stable films are required for aerial products, and any departure from the dimensions specified in this International Standard shall be no more than + 0,2 % larger than the maximum tolerance, nor less than – 0,3 % smaller than the minimum tolerance at the time of package opening.

Dimension G (see Figure 2) is the offset of any given side-to-side perforation pair.

6 Film thickness

The film thickness, including support, emulsion and any protective coatings, shall conform to the values given in Table 3.

7 Roll lengths

Preferred roll lengths and tolerances shall conform to the values given in Table 4. Tolerances are $^{+0,6}_{0}$ m.

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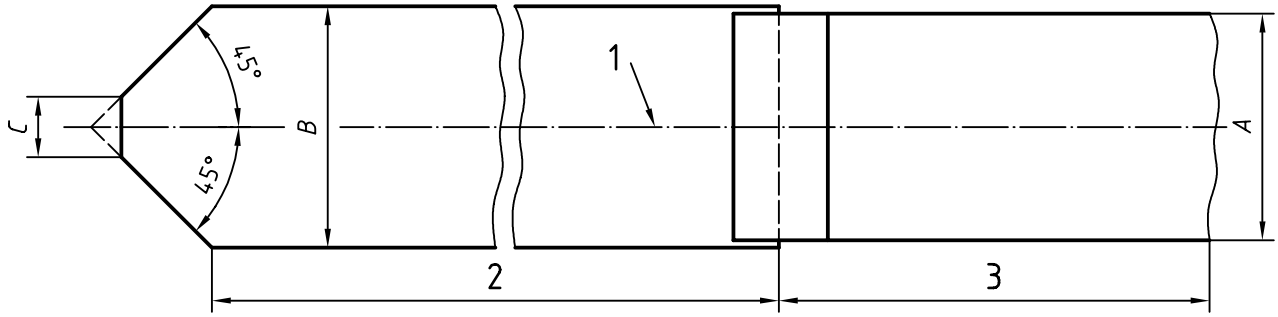

NOTE A tolerance of ±10° is permissible on each of the 45° angles in the tapered end of the leader or trailer, but the two angles should be approximately equal.

Key

1 Centreline of leader and trailer
2 Leader and trailer
3 Film

Figure 1 — Typical splice of leader/trailer and film (see Table 5)

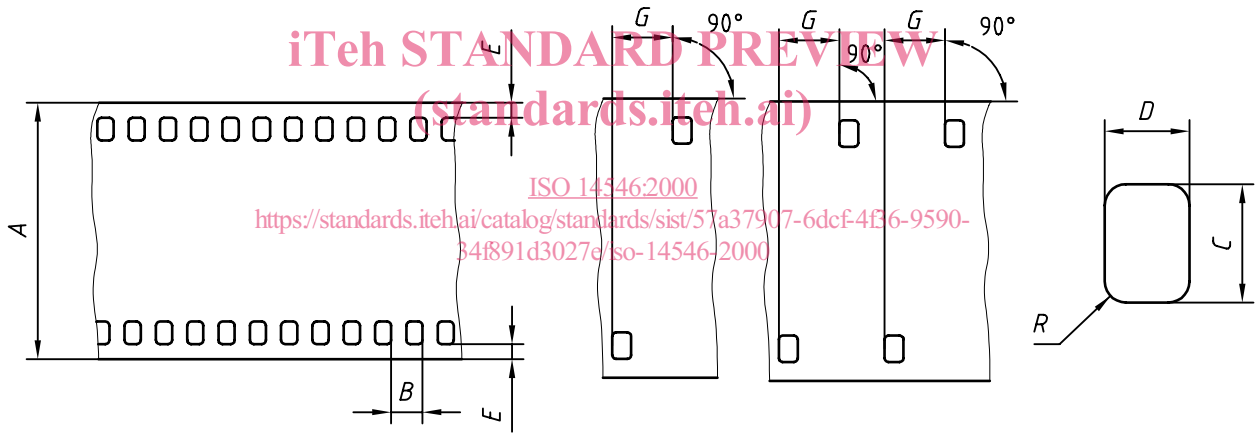

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Figure 2 — Film perforations (see Table 2)

Table 1 — Aerial film widths (dimension A) (see Figures 1 and 2)

Dimensions in millimetres

Nominal film width	Aim film width	Tolerance
70	69,95	± 0,05
127	125,98	± 0,25
241	240,28	± 0,25

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