International Standard ISO 3023

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Cinematography — 65 and 70 mm unexposed motion-picture film — Cutting and perforating dimensions

Cinématographie — Films cinématographiques vierges 65 mm et 70 mm — Dimensions de coupe et de perforation

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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 developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3023 was developed by Technical Committee ISO/TC 36, *Cinematography*, and was circulated to the member bodies in December 1981.

It has been approved by the member bodies of the following countries :

Australia	France	Spain
Austria	Germany, F. R.	Sweden
Belgium	Italy	United Kingdom
Canada	Japan	USA
Czechoslovakia	Korea, Dem. P. Rep. of	USSR
Egypt, Arab Rep. of	Mexico	

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 3023-1974).

Cinematography — 65 and 70 mm unexposed motion-picture film — Cutting and perforating dimensions

1 Scope and field of application

This International Standard specifies the cutting and perforating dimensions for unexposed 65 and 70 mm motion-picture film.

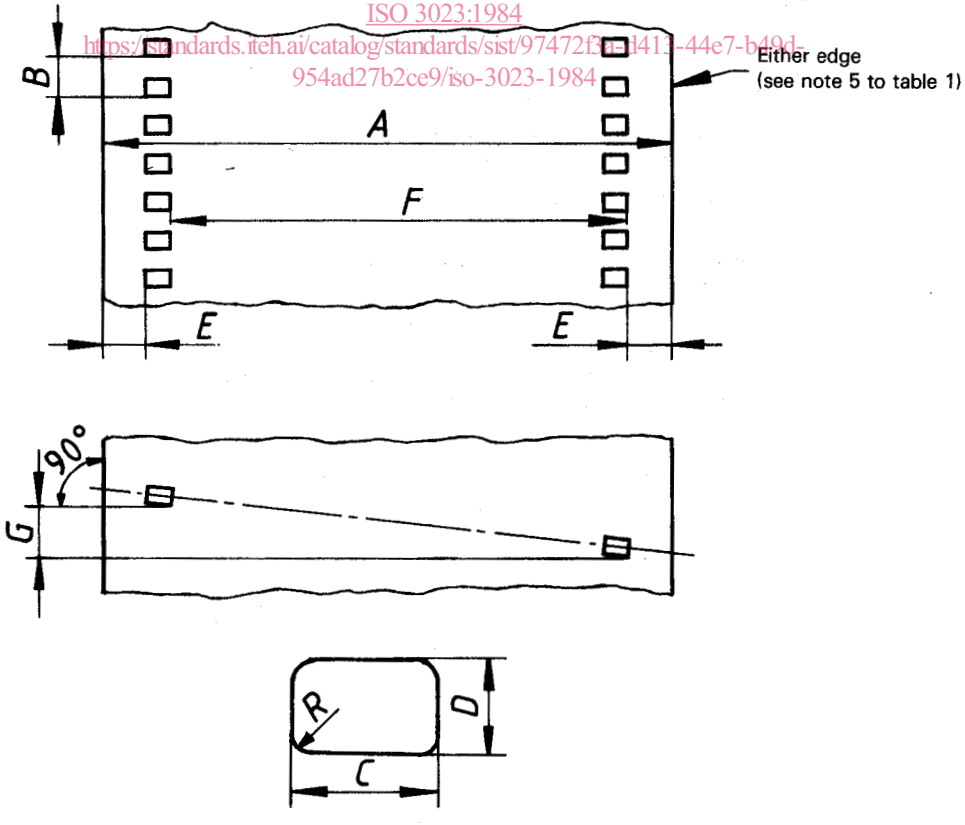
2 Reference

ISO 543, *Cinematography — Motion-picture safety film — Definition, testing and marking.*

3 Dimensions

The dimensions and tolerances shall be as shown in the figure and given in table 1. They apply to safety raw stock film, as defined in ISO 543, at the time of cutting and perforating, for film adjusted to a temperature of 23 ± 1 °C and a relative humidity of 50 ± 2 %. The manufacturer may indicate other nominal temperature and humidity conditions under which the dimensions apply.

NOTE — The 65 mm width is usually used for negative films and is not intended to be used in projectors.



Perforation

Figure

Table 1 — Dimensions (see note 1)

Dimensions in millimetres

Dimension	65 mm film	70 mm film
A	64,97 ± 0,05	69,95 ± 0,05
B	—	4,750 ± 0,010
B_1 (see note 2)	4,740 ± 0,010	—
L (see note 3)	—	475,0 ± 0,4
L_1 (see notes 2 and 3)	474,0 ± 0,4	—
C (see note 4)	2,800 $^{+0,005}_{-0,015}$	2,800 $^{+0,005}_{-0,015}$
D	1,980 ± 0,010	1,980 ± 0,010
E (see note 5)	2,97 ± 0,08	5,46 ± 0,08
F	56,24 ± 0,08	56,24 ± 0,08
G	0,05 max.	0,05 max.
R	0,51 ± 0,03	0,51 ± 0,03

NOTES

1 All dimensions given in imperial units are shown in the annex. In some instances, the values of the metric dimensions are not exact conversions of the inch dimensions.

2 Dimensions B_1 and L_1 (short perforation pitch) are provided to fulfil the requirements of continuous sprocket contact printing.

3 Dimensions L and L_1 represent the length of any 100 consecutive perforation intervals.

4 Dimension C in metric units has non-symmetrical tolerances by convenience.

5 Dimension and tolerances of E apply to both edges of the film. There are many dimensions in the table for which the tolerances of the parts are limited by other tolerances, and where this occurs, the sum of the individual tolerances should be less than the overall variation series.

Annex

Additional data

(This annex does not form part of the standard.)

A.1 Uniformity of perforations

The dimensions given in this International Standard represent the practice of film manufacturers in that the dimensions are for film stock immediately after cutting and perforating. The punches and dies themselves are made to tolerances considerably smaller than those given, but since film is a plastic material, the dimensions of the slit and perforated film stock never agree exactly with the dimensions of the slitters, punches and dies. The dimensions can change during the life of the film. These changes occur mainly due to loss or gain of moisture or loss of solvent, but can also be due to other causes, such as changes in temperature or relaxation of strain. The change is generally uniform throughout a roll.

The uniformity of pitch, hole size and margin (dimensions B, C, D and E) is an important variable affecting steadiness. Variations in these dimensions, from roll-to-roll, are of little significance compared with variations from one perforation to the next. Actually, it is the maximum variation from one perforation to the next within any small group of consecutive perforations that is important.

A.2 Choice of width

For the purpose of choice of width, low-shrinkage film base is a film base which :

— when coated with emulsion and any other normal coating treatment,

— perforated,

— kept in manufacturer's normal commercial packings for 6 months at 18 to 24 °C (65 to 75 °F),

— exposed,

— processed,

— stored exposed to air for a period not to exceed 30 days at 18 to 24 °C (65 to 75 °F) and 50 to 60 % relative humidity,

— *measured under like conditions of temperature and humidity, has shrunk not more than* 0,2 % from its original dimensions at the time of perforating.

This definition of low-shrinkage film has been found by experience to be useful as a guide to film manufacturers in slitting their film. Departure from this definition shall not be cause for rejection of the film.

Table 2 — Inch dimensions (see the figure)

Dimension	65 mm film	70 mm film
A	2.558 ± 0.002	2.754 ± 0.002
B	—	0.187 0 ± 0.000 4
B_1	0.186 6 ± 0.000 4	—
L	—	18.700 ± 0.015
L_1	18.660 ± 0.015	—
C	0.110 0 ± 0.000 4	0.110 0 ± 0.000 4
D	0.078 0 ± 0.000 4	0.078 0 ± 0.000 4
E	0.117 ± 0.003	0.215 ± 0.003
F	2.214 ± 0.003	2.214 ± 0.003
G	0.002 max.	0.002 max.
R	0.020 ± 0.001	0.020 ± 0.001

NOTE — The inch dimensions follow the practice of those countries using the imperial system.