International Standard ISO 3024

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Cinematography — Motion-picture camera cartridge, 8 mm type S, model I — Camera run length, perforation cut-out and end-of-run notch in film — Specifications

Cinématographie — Chargeur, modèle I, pour caméra 8 mm *type S — Longueur de film entraîné, encoche d'élimination de perforation et encoche de fin de prise de vues — Spécifications*

Second edition — 1983-10-01

UDC 778.5 : 771.333 : 771.531.352 **Ref. No. ISO 3024-1983 (E)**

Descriptors : cinematography, motion picture film, motion picture film 8 mm, length, dimensions, specifications.

Price based on 3 pages

Foreword

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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 3024 was developed by Technical Committee ISO/TC 36, *Cinematography*, and was circulated to the member bodies in May 1982.

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

Austria	France	Mexico
Canada	Germany, F.R.	USA
Czechoslovakia	Italy	USSR
Denmark	Japan	

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 3024-1975).

Printed in Switzerland

Cinematography — Motion-picture camera cartridge, 8 mm type S, model I — Camera run length, perforation cut-out and end-of-run notch in film — Specifications

1 Scope and field of application

This International Standard gives specifications for the camera run length, perforation cut-out notch, and end-of-run notch in film supplied in

— 8 mm type S model I motion-picture film camera cartridges of 15 m (50 ft) and 60 m (200 ft) nominal capacity;

— and 8 mm type S model I sound motion-picture film camera cartridges of 15 m (50 ft) and 60 m (200 ft) nominal capacity.

It also gives specifications for the length of film returned to the customer.

The purpose of this International Standard is to provide a uniform basis for the operation of footage counters in cameras.

2 References

ISO 1780, *Cinematography — Motion-picture camera cartridge, 8 mm type S, model I — Aperture opening, pressure pad and film load — Positions and dimensions.*

ISO 1787, *Cinematography — Camera usage of 8 mm motion-picture film perforated type S.*

ISO 3654, *Cinematography — Motion-picture camera cartridge, 8 mm type S, model I — Cartridge-camera interface and take-up core drive — Dimensions and specifications.*

ISO 5759, *Cinematography — Sound motion-picture camera cartridge, 8 mm type S, model I — Cartridge-camera interface and take-up core drive — Dimensions and specifications.*

ISO 6903, *Cinematography — 60 m (200 ft) capacity motion-picture camera cartridge, 8 mm type S, model I — Cartridge-camera interface and sprocket drive — Dimensions and specifications.* [1)]

3 Camera run and customer return lengths

3.1 15 m (50 ft) capacity cartridge

3.1.1 The camera run length of film may vary between 3 666 perforation pitch intervals 15,52 m (50.9 ft) and 3 715 perforation pitch intervals 15,73 m (51.6 ft). (See the note.) The overall length of the film is to be determined by the manufacturer and shall provide the camera run length specified.

NOTE — A nominal pitch, based on 72 perforation pitch intervals per foot, of 4,234 mm (0.166 7 in) is assumed for all comparisons of the number of perforation pitch intervals in a given film length.

3.1.2 The length of the film returned to the customer shall contain a minimum customer return length of 3 600 perforation pitch intervals. The customer return length shall be that portion of the camera run length available for subject matter. The customer return length starts at least 13 perforation pitch intervals 55 mm (2.17 in), after the frame located at the camera aperture, as the cartridge is supplied by the manufacturer, and ends at least 37 perforation pitch intervals 157 mm (6.18 in), before the perforation cut-out. (See the annex, clause A.1.)

3.2 60 m (200 ft) capacity cartridge

3.2.1 The camera run length of film may vary between 14 450 perforation pitch intervals or 61,18 m (200.7 ft), and 14 530 perforation pitch intervals or 61,52 m (201.8 ft) (see the note to 3.1.1). The overall length of the film is to be determined by the manufacturer and shall provide the camera run length specified.

3.2.2 The length of film returned to the customer shall contain a minimum length of 14 400 perforation pitch intervals. The customer return length shall be that portion of the camera run length available for subject matter. The customer return length starts at least 13 perforation pitch intervals 55 mm (2.17 in), after the frame located at the camera aperture, as the cartridge is supplied by the manufacturer, and ends at least 37 perforation pitch intervals 157 mm (6.18 in), before the perforation cut-out. (See the annex, clause A.1.)

3.3 End of film

The end of the film shall have a visual marking in the frame area, and a means shall be provided to ensure the final portion of the film stops in the film cartridge aperture thus affording the user a visual confirmation that all the film has been exposed. (See the annex, clause A.2.)

1) At present at the stage of draft.

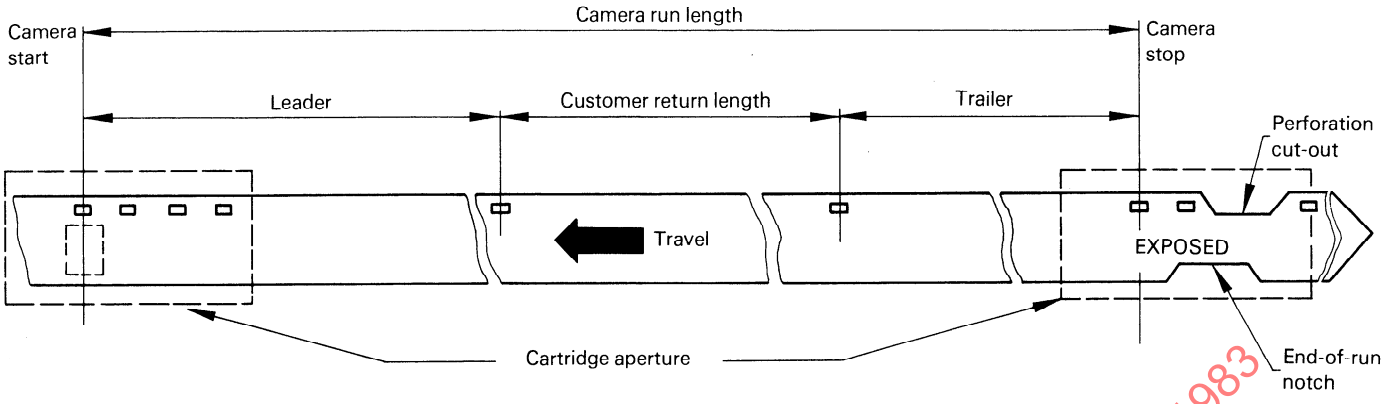

Figure 1 — Camera run length and notches

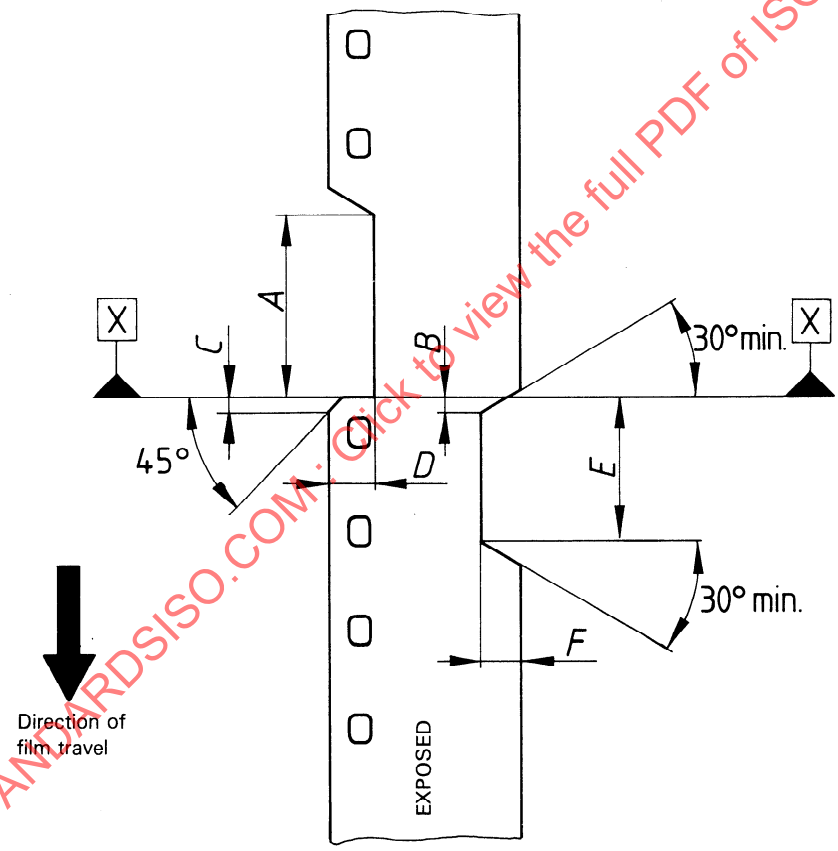

Figure 2 — Notch dimensions

Table — Notch dimensions

Dimension	mm	in
A (see 4.2)	5,38 min.	0.212 min.
B (see 4.6)	0,30 max.	0.012 max.
C (at 45 %)	0,55 max.	0.022 max.
D	1,50 min.	0.059 min.
E	4,75 ± 0,75	0.187 ± 0.030
F	0,80 min.	0.031 min.

4 Perforation cut-out and end-of-run notches

4.1 The dimensions shall be as shown in figure 2 and given in the table.

4.2 Datum line **X** (see figure 2) is established by the leading edge of the perforation cut-out which is the last edge of the film to be contacted by the camera pull-down claw. It is recognized that in some manufacturing operations the leading edge of the perforation cut-out notch area may intersect a perforation. When a perforation is intersected, Datum line **X** is established by the leading edge of the perforation.

4.3 The bevelled cut shown at the trailing end of the perforation cut-out as defined by dimension A is shown as a matter of convenience and not as a specification. Some bevel is desirable to reduce the possibility of catching or snagging the edge of the notch in the internal mechanism of the cartridge.

4.4 The 30° minimum bevelled cuts at both ends of the end-of-run notch are to facilitate the entry of the camera-sensing finger and to reduce the possibility of catching or snagging the edge of the notch in the internal mechanism of the cartridge.

4.5 The inside and outside corners of the notches shall have a maximum radius of 0,3 mm (0.01 in).

4.6 Dimension B for the end-of-run notch shown in figure 2 is expressed as a maximum to ensure a minimum notch length. There is no functional need to specify a maximum notch length. The trailing edge of the notch, specified by dimension B, may approach or cross Datum line **X** so that the notch length could extend to the end of the film, provided the notch depth, dimension F, is maintained.

NOTE — The sum of the minimum customer return length, leader, and trailer is intentionally less than the minimum camera run length. This difference provides a tolerance for the film processor in unloading the cartridge, making processing machine splices, etc.

Annex

Explanatory notes

(This annex does not form part of this International Standard.)

A.1 The lengths of the leader and trailer are necessary to ensure that the fog produced near the aperture is removed. The material removed also provides space for identification numbers and allows for manufacturing variability of film lengths.

A.2 For sound cartridges it is suggested that an effective means of stopping the film at the end of the camera run be provided to prevent the film end from being completely wound into the cartridge. This could be accomplished by a mechanical latching arrangement, which is activated by changes in the film path through the cartridge at the time that film transport through the picture aperture ceases as a result of the presence of the perforation cut-out notch. A technique to accomplish this involves the use of a projection over which a hole in the film can be made to drop during the collapse of the loop between the picture aperture and sound recording area of the cartridge.

A.3 When a punch and die set are used to cut both perforation cut-out and end-of-run notch simultaneously, the dimension equivalent to dimension E may utilize the entire range from 4,00 to 5,50 mm (0.157 to 0.217 in), when the cut-out does not intersect a perforation.

A.4 The dimensions established for the end-of-run notch will permit the use of the cut-out in the upper half of the cartridge pressure pad.

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