

American National Standard Dimensions for 16-mm motion-picture film perforated 8-mm type R, 2R

February 12, 1982

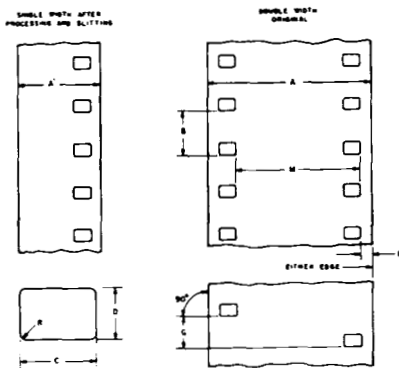
Secretariat: Society of Motion Picture and Television Engineers

Page 1 of 2 pages

1. Scope

This standard specifies the cutting and perforation dimensions for 16-mm motion-picture film strips with rows of 8-mm Type R perforations and

a perforation pitch of either 0.1500 or 0.1497 in (3.810 or 3.802 mm). The width of the 8-mm strip after processing and slitting is also specified.



| Dimensions | Inches | Millimeters |
|--|-----------------|---------------|
| A Film width | 0.628 ± 0.001 | 15.95 ± 0.03 |
| A' Film width after slitting | 0.314 ± 0.002 | 7.98 ± 0.05 |
| B Perforation pitch (long) | 0.1500 ± 0.0005 | 3.810 ± 0.013 |
| B' Perforation pitch (short) | 0.1497 ± 0.0005 | 3.802 ± 0.013 |
| C Perforation width | 0.0720 ± 0.0004 | 1.829 ± 0.010 |
| D Perforation height | 0.0500 ± 0.0004 | 1.270 ± 0.010 |
| E Edge to perforation | 0.0355 ± 0.0020 | 0.902 ± 0.051 |
| G Perforation misalignment | 0.001 max | 0.03 max |
| L 100 consecutive perforation pitches | 15.000 ± 0.015 | 381.00 ± 0.38 |
| L' 100 consecutive perforation pitches | 14.970 ± 0.015 | 380.24 ± 0.38 |
| M Lateral perforation displacement | 0.485 ± 0.001 | 12.32 ± 0.03 |
| R Radius of perforation fillet | 0.010 ± 0.001 | 0.25 ± 0.03 |

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Page 2 of 2 pages

2. Dimensions

2.1 The dimensions shall be as given in the figure and table.

2.2 The dimensions pertain to a safety film as defined in American National Standard Specifications for Motion-Picture Safety Film, ANSI PH22.31M-1980.

2.3 Except for Dimension A', the dimensions apply at the time of cutting and perforating for film adjusted to a temperature of $23 \pm 1^\circ\text{C}$ (nominally converted to $72 \pm 2^\circ\text{F}$) and a relative

humidity of $50 \pm 2\%$. The manufacturer may indicate other normal and humidity conditions under which the dimensions apply. Dimension A' applies after slitting.

NOTE: The title of this standard is an application of a nomenclature system for all film dimension standards. Each perforation shape (BH, KS, DH or other) and rows of perforations (1R, 2R, etc.) which is the significant factor, or without the decimal point.

Appendix

(The Appendix is not a part of this American National Standard, but is included for information purposes.)

A1. The user is reminded that, as a plastic, film can change dimensions temporarily due to moisture or temperature, or permanently due to solvent loss or strain effect.

A2. 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 to variations from one perforation to the next within any small group of consecutive perforations. As an example, the uniformity of the margin is uniquely critical for optical

printing. During the printing process the image on the film is usually with lateral pairs of perforations at one end. During subsequent projection, however, the image projected is usually located by the edge of the film, not by the perforations, but by the edge of the film. The steadiness of the projected image is, therefore, dependent on the frame-to-frame uniformity of the margin.

A3. For historical background on this standard, refer to A. J. Miller, "Motion-picture film—its size and characteristics," Jour. SMPTE, 74: 3-11, Jan.

American National Standard Dimensions of transverse cemented splices on 16-mm and 8-mm type R motion-picture film

February 12, 1982

Secretariat: Society of Motion Picture and Television Engineers

Page 1 of 3 pages

1. Scope

1.1 Applications. This standard specifies the dimensions of transverse cemented splices on 16-mm Type R motion-picture film.

Two types of splices are specified: a laboratory splice for professional applications and a projection splice for release prints and amateur reversal films.

1.2 Splicers. It is not intended that this standard be prejudicial to diagonal, scarf, or other types of splicers.

8-mm Type R film and 0.630 in (16.00 mm) for 16-mm film. If the film has been widened during scraping, the extra width shall be removed.

2.3 Lateral Offset for Perforation Overlap. Perforation overlapping shall not be offset laterally by more than 0.002 in (0.05 mm).

2.4 Lateral Offset for Film Edges. Edges of the two spliced films shall not be offset laterally by more than 0.002 in (0.05 mm) unless a difference in the lateral shrinkage of the two strips makes it impossible to maintain the tolerance. Shoulders formed by such misalignment shall be beveled after the cement has dried.

2.5 Angle between Edges. In the plan view, the angle between the respective edges of the spliced films shall be $180^\circ \pm 4'$. Thus, the spliced film shall be aligned to the extent that, when one portion of the film is placed against a straightedge, the other portion will not deviate more than 0.006 in (0.15 mm), which is the approximate film thickness, in 6 in (152 mm).

2. Dimensions

2.1 Applications. The dimensions shall be as shown in Figures 1 and 2.

2.2 Width at Splice. Film width at the splice shall not exceed 0.317 in (8.05 mm) for

Page 2 of 3 pages

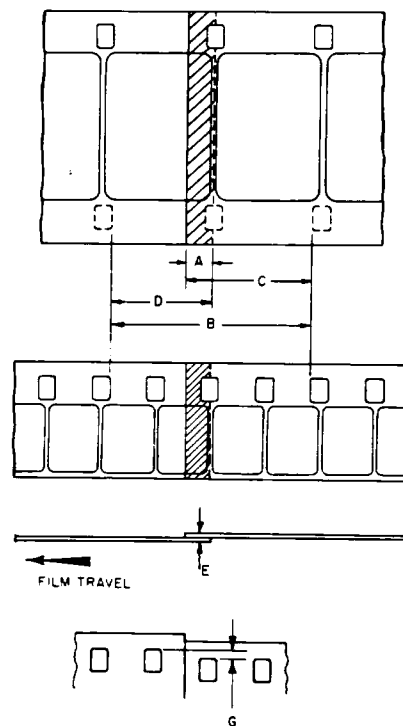


Fig. 1
Laboratory Splices

| Dimensions | Inches | Millimeters |
|------------|--------------------------|-----------------------|
| A | 0.070 ± 0.003 | 1.78 ± 0.08 |
| B | 0.548 ± 0.001 | 13.92 ± 0.03 |
| C | 0.344 ± 0.003 | 8.74 ± 0.08 |
| D | 0.274 + 0.000 - 0.003 | 6.96 + 0.00 - 0.08 |
| E | 0.012 max | 0.30 max |
| G | 0.002 max | 0.05 max |

Tolerances shown are not to be cumulative.

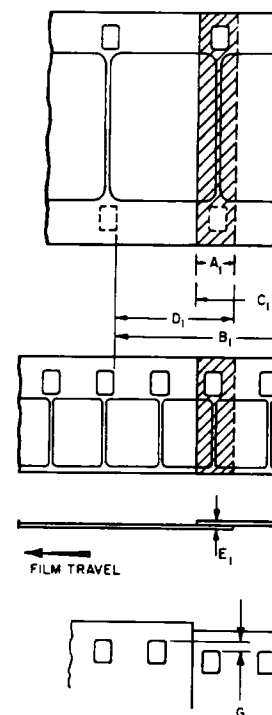


Fig. 2
Projection Splices

| Dimensions | Inches |
|----------------|--------------------------|
| A ₁ | 0.100 + 0.000 - 0.005 |
| B ₁ | 0.548 ± 0.001 |
| C ₁ | 0.324 + 0.000 - 0.003 |
| D ₁ | 0.324 + 0.000 - 0.003 |
| E ₁ | 0.012 max |
| G ₁ | 0.002 max |

Tolerances shown are not to be cumulative.

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A1. Dimension B (or B₁)

(or B₁) controls the longitudinal registration of films being spliced. It is measured to the perforations most commonly used for registration on the film, and to the nearer edges of these perforations generally used for registration.

Dimensions C, C₁, D, and D₁

Dimensions C, C₁, D, and D₁ were chosen to give a splice edge along the frameline. This provides an invisible splice when printing A and B rolls of film together.

A3. Orienting the Films

To orient the films in splicing so that a maximum of film would, at a splice, drop down rather than bump up onto it.

A4. Preventing White Line

In order to prevent the appearance of a white line on the screen, the scraped area should be 0.001 to 0.003 in (0.03 to 0.08 mm) narrower than the area covered by the overlapping film. Presence of this narrow uncemented area will not shorten the life of the splice.

A5. Striped Film

If the film being spliced contains a stripe, the stripe must be removed from the base side of the film falling on top of the mating piece.

A6. Splicing Technique

Emulsion and binder must be completely removed by scraping in order to ensure a strong, long-lasting cement bond. The surface on the base side of the film to be joined must also be thoroughly cleaned. Sometimes it may be helpful to roughen the base surface slightly when certain films resist satisfactory splicing.

American National Standard

Dimensions of exposed areas for picture and photographic sound on 35-mm motion-picture prints made on continuous contact printers

Approved February 12, 1982

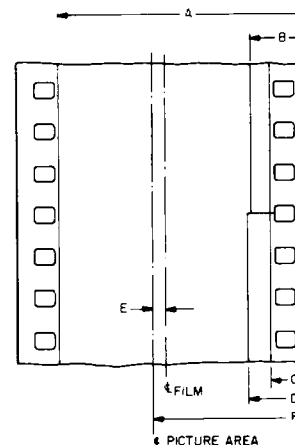
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1. Scope

1.1 This standard specifies the location and width dimensions of the exposed areas for picture and photographic sound on 35-mm motion-picture prints made on continuous contact printers.

1.2 This standard is applicable to the printing of motion-picture raw stock which is cut and perforated in accordance with American National Standard Dimensions for 35-mm Motion-Picture Film Perforated KS, ANSI PH22.139-1980, or American National Standard Dimensions for 35-mm Motion-Picture Film, DH-1870, ANSI PH22.1-1981.

1.3 This standard refers to the adjustment of the printer, and is in accordance with American National Standard Position, Dimensions and Reproducing Speed of Photographic Sound Records on 35-mm Motion-Picture Release Prints, ANSI PH22.40-1978.



As Seen from Emulsion Side

NOTE 1: Dimension A minus B defines the picture area exposed in accord with the standard. Dimension D minus C that of the sound area. An overlap area ranging from 0.000 to 0.020 mm) will receive exposure from both picture and sound printing apertures.

NOTE 2: The centerline information (Dimension C and D) given in the table is provided as a convenience. These two dimensions are specified in American National Standard Dimensions of Projectable Image Motion-Picture Prints, ANSI PH22.139-1980.

2. Dimensions

The dimensions shall be as specified in the figure and table.

| Dimensions | Inches | Millimeters |
|------------|---------------|--------------|
| A | 1.184 ± 0.002 | 30.07 ± 0.05 |
| B | 0.304 ± 0.002 | 7.72 ± 0.05 |
| C | 0.192 ± 0.001 | 4.88 ± 0.03 |
| D | 0.308 ± 0.002 | 7.82 ± 0.05 |
| E | 0.050 nom | 1.27 nom |
| F | 0.738 nom | 18.75 nom |

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ANSI PH22.24-1982

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