

# American National Standard for motion-picture film (8-mm type S)— perforated 1R

Approved October 5, 1987  
Sponsor: Society of Motion Picture and Television Engineers

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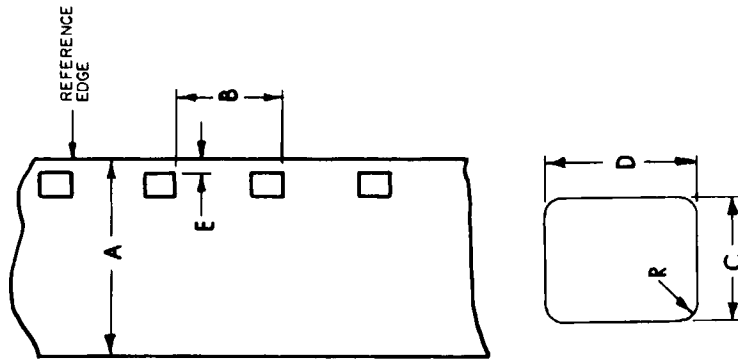
**1. Scope**  
This standard specifies the cutting and perforating dimensions for 8-mm motion-picture film with 8-mm Type S perforations along one edge and a perforation pitch of either 0.1664 or 0.1667 in (4.227 or 4.234 mm).

**2. Referenced American National Standard**  
This standard is intended for use in conjunction with the following American National Standard:  
ANSI/SMPTE 223M-1985, Motion-Picture Film—Safety Film

**3. Dimensions**  
**3.1** The dimensions shall be as given in the figure and table.

**3.2** The dimensions pertain to a safety film as defined in ANSI/SMPTE 223M-1985.

**3.3** The dimensions apply at the time of cutting and perforating for film adjusted to a temperature of  $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$  (nominally converted to  $73^{\circ}\text{F} \pm 2^{\circ}\text{F}$ ) and a relative humidity of  $50 \pm 2$  percent. The manufacturer may indicate other nominal temperature and humidity conditions under which the dimensions apply.



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	Dimensions	Inches	Millimeters
A	Film width	0.3140 ± 0.0015	7.976 ± 0.038
B	Perforation pitch (long)	0.1667 ± 0.0004	4.234 ± 0.010
B'	Perforation pitch (short)	0.1664 ± 0.0004	4.227 ± 0.010
C	Perforation width	0.0360 ± 0.0004	0.914 ± 0.010
D	Perforation height	0.0450 ± 0.0004	1.143 ± 0.010
E	Edge to perforation	0.020 ± 0.002	0.51 ± 0.05
L	100 consecutive perforation pitches	16.670 ± 0.017	423.42 ± 0.43
L'	100 consecutive perforation pitches	16.640 ± 0.017	422.66 ± 0.43
R	Radius of perforation fillet	0.005 ± 0.001	0.13 ± 0.03

NOTE: The title of this standard was established by the application of a nomenclature system developed for all film dimension standards. Each title provides an indication of the film width, a code designation for the perforation shape (BH, KS, DH, or CS) or the number of rows of perforations (1R, 2R, etc.), depending upon which is the significant factor, or the perforation pitch without the decimal point.

**Appendix**

(This Appendix is not part of the American National Standard, but is included for information only.)

**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.** Film for positive use has a longitudinal pitch 0.2 percent longer than its companion unprocessed negative. Shrinkage of the negative during aging and processing prior to printing will generally not exceed 0.2 percent. Thus, the processed negative stock is expected to be  $0.3 \pm 0.1$  percent shorter than the unprocessed positive. This difference will minimize slippage between the two on the 12-in (305-mm) circumference sprocket of the printer, assuming a film thickness of 0.0055 to 0.0065 in (0.140 to 0.165 mm.)

**A3.** 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 placement of the image on the film is usually with respect to successive lateral pairs of perforations at one-frame intervals. During subsequent projection, however, the portion of the image projected is usually located, not by these perforations, but by the edge of the film. The lateral steadiness of the projected image is, therefore, directly related to the frame-to-frame uniformity of the margin.

**A4.** For historical background on the development of this standard, refer to A. J. Miller and A. C. Robertson, "Motion-picture film—its size and dimensional characteristics," *Jour. SMPTE*, 74: 3-11, Jan. 1965.

# American National Standard for motion-picture equipment (16-mm) – daylight-loading camera spools – 50- to 400-ft capacity

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## 1. Scope

1.1 This standard specifies the dimensions for 16-mm daylight-loading motion-picture camera spools having capacities from 50 to 400 ft (15 to 120 m) of film.

1.2 This standard further specifies the configuration of the positioning of the spindle holes in the two flanges. These shall be identified as Styles 1, 2, and 3 (See Fig. 2).

## 2. Dimensions

The dimensions shall be as specified in the figures and tables.

## 3. Spindle Hole Alignment

In Styles 2 and 3, the alignment of the sides of the squares in the two flanges shall be such that a test bar 0.316 in (8.03 mm) square may be passed completely through the spool. The corner keyways in the two flanges of Style 2 shall be aligned with each other.

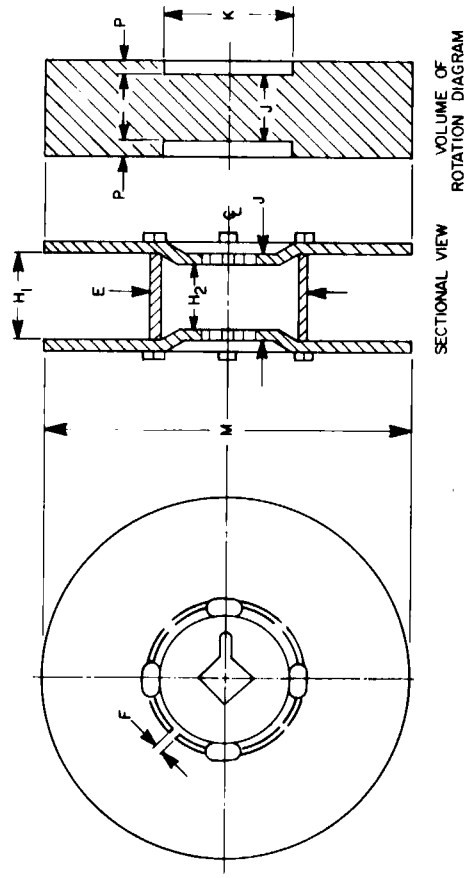


Fig. 1

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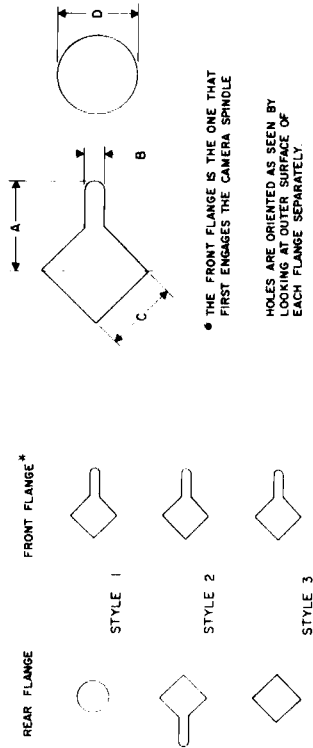


Fig. 2

Table 1  
Nominal Spool Capacity

Dimensions	Nominal Spool Capacity			Millimeters
	Feet	Meters	Inches	
E	50	15	1.26 ± 0.02	32.0 ± 0.5
	100	30	1.26 ± 0.02	32.0 ± 0.5
	200	60	1.26 ± 0.02	32.0 ± 0.5
	400	120	2.12 ± 0.02	53.8 ± 0.5
K	50	15	1.00 min	25.4 min
	100	30	1.00 min	25.4 min
	200	60	1.00 min	25.4 min
	400	120	1.50 min	38.1 min
M	50	15	2.81 ± 0.04	71.4 ± 1.0
	100	30	3.62 ± 0.04	91.9 ± 1.0
	200	60	4.96 ± 0.04	126.0 ± 1.0
	400	120	6.65 ± 0.04	168.9 ± 1.0