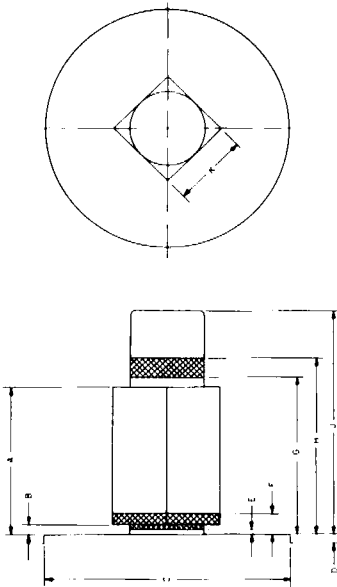


Dimensions for 16-mm Motion-Picture Camera Spindles



1. **Scope**
 - 1.1 This practice specifies the dimensions for 16-mm motion-picture camera spindles.
2. **Dimensions**
 - 2.1 The dimensions shall be as given in the figure and table.



Dimensions	Inches	Millimeters
A	0.100 min 0.610 max	2.54 min 15.49 max
B	0.010 max	0.25 max
C	0.63 min 0.97 max	16.0 min 24.6 max
D	0.025 min 0.005 max	0.64 min 0.13 max
E*	0.080 min	2.03 min
F*	0.680 max	16.80 max
G*	0.730 min	19.05 min
H*	0.800 min	20.32 min
J	0.310 min	7.87 min
K*	0.315 max	8.00 max

*See Notes 1 and 2.

1. Dimensions E, F, G, and H, illustrated by cross-hatching in the figure, represent the spindle shaft areas (with safety factor) on which the spool flanges rest. A minimum shaft diameter (in addition to a maximum) has been fixed to help prevent loose fit and resultant noise or tilt of spools or reels.
 2. Dimension K represents the diameter of the round portion or length of a side of the square drive portion of the spindle "shaft," excluding locking means.
- Although the figure illustrates a four-sided square drive portion of the spindle, a two-sided (or one side and two half sides) arrangement is also acceptable.
3. The shape or action of the device for locking spools on spindles is optional, but the device should work against the full thickness of spools in the vicinity of the spindle hole.
 4. The spindles specified are compatible with spools specified in American National Standard Dimensions for 16-mm Daylight-Loading Motion-Picture Camera Spools (30- to 400-Ft Capacity). ANSI PH22.174-1981.

Notes

Audio and Picture Synchronization on Motion-Picture Film Relative to the Universal Leader for Magnetic and Photographic Records



1. **Scope**

It is the purpose of this practice to standardize the photographic and magnetic synchronizing signals and their position relative to the SMPTE Universal Leader, as specified in American National Standard for Motion-Picture Film—Leaders and Cue Marks—35- and 16-mm Audio Release Prints, ANSI PH22.55-1983.
2. **Usage**

Two major areas of usage for this synchronizing information are (a) in editing and re-recording operations and (b) in preparing printing materials in the laboratory. During the latter, the signal position may be used for visual and aural checking of synchronization of release prints. The synchronizing information shall be so located on the audio track as to coincide with the single No. 2 (2-second) frame of the SMPTE Universal Leader, when audio track and picture are aligned in editorial (parallel) sync.
3. **Synchronizing Signal**

The synchronizing signal shall consist of a length equivalent to one picture frame of 1000 Hz sine wave \pm 10 percent. Modulation shall be at least 80 percent.
4. **Location**

The signal shall be so located on the audio track as to coincide with the single No. 2 (2-second) frame of the SMPTE Universal Leader, when audio track and picture are aligned in editorial (parallel) sync.

nizing information, therefore, applies to both magnetic and photographic audio records.