

CORRECTION — PH22.11–1952

16Mm Motion Picture Projection Reels

IN THE PROCESS of revising Z22.11, several drafts were considered by the 16mm and 8mm Motion Pictures Committee. In December 1949, SMPE 121 was issued containing a misplaced decimal point in the lateral runout dimension of 200-ft reels (Table 2). Thus, the correct dimension of .057 in. was given as 0.57 in. This error was discovered only after the final approved standard was published in the June 1952 *Journal*. The standard is therefore now being republished as originally intended.

In addition, the diagram has been changed slightly to show the flanges flat instead of flared to preclude any misunderstanding that the edges must be rolled or flared. The words "if any" have been added at the end of the note after "S" in the table of dimensions to make that clear.

American Standard
for
**16-Millimeter Motion Picture
Projection Reels**

ASA
Reg. U. S. Pat. Off.
PH22.11-1952
Revision of
Z22.11-1941
and
Z52.33-1945
*UDC 778.55

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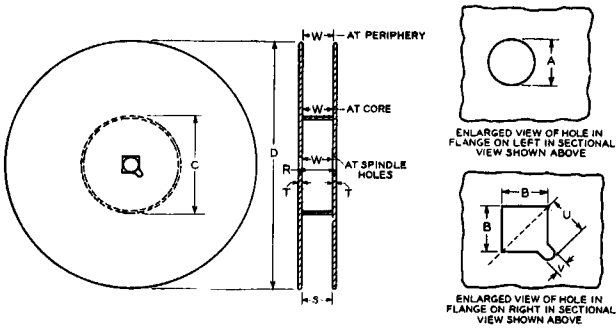


Table 1

See page 3 for notes.

Dimension	Inches	Millimeters
A	0.319 $\begin{matrix} +0.000 \\ -0.003 \end{matrix}$	8.10 $\begin{matrix} +0.00 \\ -0.08 \end{matrix}$
B	0.319 $\begin{matrix} +0.000 \\ -0.003 \end{matrix}$	8.10 $\begin{matrix} +0.00 \\ -0.08 \end{matrix}$
R ¹	0.790 maximum	20.06 maximum
S ² (including flared, rolled, or beveled edges, if any)	0.962 maximum	24.43 maximum
T (adjacent to spindle)	0.027 minimum 0.066 maximum	0.69 minimum 1.68 maximum
U	0.312 ± 0.016	7.92 ± 0.41
V	0.125 $\begin{matrix} +0.005 \\ -0.000 \end{matrix}$	3.18 $\begin{matrix} +0.13 \\ -0.00 \end{matrix}$
W, at periphery ³	0.660 $\begin{matrix} +0.045 \\ -0.025 \end{matrix}$	16.76 $\begin{matrix} +1.14 \\ -0.64 \end{matrix}$
at core ⁴	0.660 ± 0.010	16.76 ± 0.25
at spindle holes	0.660 ± 0.015	16.76 ± 0.38
Flange and core concentricity ⁵	± 0.031	± 0.79

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Sponsor: Society of Motion Picture and Television Engineers

*Universal Decimal Classification

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Table 2

Capacity	Dimension	Inches	Milli- meters	Capacity	Dimension	Inches	Milli- meters
200 feet ^h (61 meters)	D, nominal maximum minimum	5.000	127.00	1200 feet (366 meters)	D, nominal maximum minimum	12.250	311.15
		5.031	127.79			12.250	311.15
		5.000	127.00			12.125*	307.98*
	C, nominal maximum minimum	1.750	44.45		C, nominal maximum minimum	4.875	123.83
		2.000*	50.80*			4.875	123.83
Lateral runout, ⁷ maximum	0.057	1.45	Lateral runout, ⁷ maximum	0.140	3.56		
400 feet ^h (122 meters)	D, nominal maximum minimum	7.000	177.80	1600 feet (488 meters)	D, nominal maximum minimum	13.750	349.25
		7.031	178.59			14.000*	355.50*
		7.000	177.80			13.750	349.25
	C, nominal maximum minimum	2.500	63.50		C, nominal maximum minimum	4.875	123.83
		2.500	63.50			4.875	123.83
Lateral runout, ⁷ maximum	1.750*	44.45*	Lateral runout, ⁷ maximum	4.625*	117.48*		
800 feet (244 meters)	D, nominal maximum minimum	10.500	266.70	2000 feet (610 meters)	D, nominal maximum minimum	15.000	381.00
		10.531	267.49			15.031	381.79
		10.500	266.70			15.000	381.00
	C, nominal maximum minimum	4.875	123.83		C, nominal maximum minimum	4.625	117.48
		4.875	123.83			4.875	123.83
Lateral runout, ⁷ maximum	4.500*	114.30*	Lateral runout, ⁷ maximum	4.625	117.48		
		0.120	3.05			0.171	4.34

*When new reels are designed or when new tools are made for present reels, the cores and flanges should be made to conform, as closely as practicable, to the nominal values in the above table. It is hoped that in some future revision of this standard the asterisked values may be omitted.

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Note 1: The outer surfaces of the flanges shall be flat out to a diameter of at least 1.250 inches.

Note 2: Rivets or other fastening members shall not extend beyond the outside surfaces of the flanges more than 1/32 inch (0.79 millimeter) and shall not extend beyond the over-all thickness indicated by dimension S.

Note 3: Except at embossings, rolled edges, and rounded corners, the limits shown here shall not be exceeded at the periphery of the flanges, nor at any other distance from the center of the reel.

Note 4: If spring fingers are used to engage the edges of the film, dimension W shall be measured between the fingers when they are pressed outward to the limit of their operating range.

Note 5: This concentricity is with respect to the center line of the hole for the spindles.

Note 6: This reel should not be used as a take-up reel on a sound projector unless there is special provision to keep the take-up tension within the desirable range of 1½ to 5 ounces.

Note 7: Lateral runout is the maximum excursion of any point on the flange from the intended plane of rotation of that point when the reel is rotated on an accurate, tightly fitted shaft.

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Appendix

(This Appendix is not a part of the American Standard for 16-Millimeter Motion Picture Projection Reels, PH22.11-1952.)

Dimensions A and B were chosen to give sufficient clearance between the reels and the largest spindles normally used on 16-millimeter projectors. While some users prefer a square hole in both flanges for laboratory work, it is recommended that such reels be obtained on special order. If both flanges have square holes, and if the respective sides of the squares are parallel, the reel will not be suitable for use on some spindles. This is true if the spindle has a shoulder against which the outer flange is stopped for lateral positioning of the reel. But the objection does not apply if the two squares are oriented so that their respective sides are at an angle.

For regular projection, however, a reel with a round hole in one flange is generally preferred. With it the projectionist can tell at a glance whether or not the film needs rewinding. Furthermore, this type of reel helps the projectionist place the film correctly on the projector and thread it so that the picture is properly oriented with respect to rights and lefts.

The nominal value for W was chosen to provide proper lateral clearance for the film, which has a maximum width of 0.630 inch. Yet the channel is narrow enough so that the film cannot wander laterally too much as it is coiled; if the channel is too wide, it is likely to cause loose winding and excessively large rolls. The tolerances for W vary. At the core they are least because it is possible to control the distance fairly easily in that zone. At the holes for the spindles they are somewhat larger to allow for slight buckling of the flanges between the core and the holes. At the periphery the tolerances are still greater because it is difficult to maintain the distance with such accuracy.

Minimum and maximum values for T, the thickness of the flanges, were chosen to permit the use of various materials.

The opening in the corner of the square hole, to which dimensions U and V apply, is provided for the spindles of 35-millimeter rewinds, which are used in some laboratories.

D, the outside diameter of the flanges, was made as large as permitted by past practice in the design of projectors, containers for the reels, rewinds, and similar equipment. This was done so that the values of C could be made as great as possible. Then there is less variation, throughout the projection of a roll, in the tension to which the film is subjected by the take-up mechanism, especially if a constant-torque device is used. Thus it is necessary to keep the ratio of flange diameter to core diameter as small as possible, and also to eliminate as many small cores as possible. For the cores, rather widely separated limits (not intended to be manufacturing tolerances) are given in order to permit the use of current reels that are known to give satisfactory results.