

RECENT AMERICAN STANDARDS ON MOTION PICTURES

FOREWORD

The following six American Standards on Motion Pictures have been approved recently by the American Standards Association.

The Standard, "Dimensions for 16-Tooth 35-Mm Motion Picture Projector Sprockets", *Z22.35-1947*, is a revision of *Z22.35-1930*. It will be noticed that the revised Standard includes a change in the *B* dimension from 0.945 in. to 0.943 ± 0.001 in. This change was recommended by the Standards Subcommittee on 35-Mm Sprockets after tests of film and sprocket life were conducted, using sprockets with three different *B* dimensions, in several theaters.

The four standards on cutting and perforating, *Z22.5-1947*, *Z22.12-1947*, *Z22.17-1947*, and *Z22.36-1947* are also revisions of older standards. The dimensioning technique has been changed to conform with actual methods of measurement, that is, from edge to edge of the hole rather than from center to center. In addition, the tolerances and form have been brought up to date.

The Standard on "Nomenclature for Motion Picture Film Used in Studios and Processing Laboratories", *Z22.56-1947* was formerly approved as American War Standard *Z52.14-1944*. This Standard was printed in the April, 1945, *JOURNAL* and since the only change involved is that of the foreword, it is not being reprinted here.

Copies of these six standards and several more, which will be published in the *JOURNAL* shortly, will be available from the General Office of the Society in the very near future. It is planned to distribute these standards on $8\frac{1}{2} \times 11$ -in. sheets, punched to fit the SMPE Standards binder.

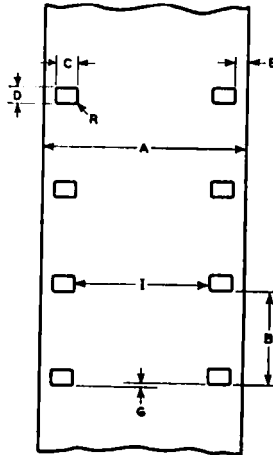
AMERICAN STANDARDS

- Z22.5 -1947* Cutting and Perforating Dimensions for 16-Mm Silent Motion Picture Negative and Positive Raw Stock
- Z22.12-1947* Cutting and Perforating Dimensions for 16-Mm Sound Motion Picture Negative and Positive Raw Stock
- Z22.17-1947* Cutting and Perforating Dimensions for 8-Mm Motion Picture Negative and Positive Raw Stock
- Z22.35-1947* Dimensions for 16-Tooth 35-Mm Motion Picture Projector Sprockets
- Z22.36-1947* Cutting and Perforating Dimensions for 35-Mm Motion Picture Positive Raw Stock
- Z22.56-1947* Nomenclature for Motion Picture Film Used in Studios and Processing Laboratories

American Standard
Cutting and Perforating Dimensions for
16-Millimeter Silent Motion Picture
Negative and Positive Raw Stock

ASA
Reg. U. S. Pat. Off.
Z22.5-1947
Revision of
Z22.5-1941

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Dimensions	Inches	Millimeters
A	0.629 ± 0.001	15.98 ± 0.03
†B*	0.3000 ± 0.0005	7.620 ± 0.013
C	0.0720 ± 0.0004	1.83 ± 0.01
D	0.0500 ± 0.0004	1.27 ± 0.01
†E	0.036 ± 0.002	0.91 ± 0.05
†G	Not > 0.001	Not > 0.025
†I	0.413 ± 0.001	10.490 ± 0.025
L‡	30.00 ± 0.03	762.00 ± 0.76
R	0.010	0.25

These dimensions and tolerances apply to the material immediately after cutting and perforating.

*In any group of four consecutive perforations, the maximum difference of pitch shall not exceed 0.001 inch and should be as much smaller as possible. (This requirement has been added to the previous standard Z22.5-1941.)

†This dimension and tolerance was given in respect to the center line of the perforations in the previous standard Z22.5-1941.

‡This dimension represents the length of any 100 consecutive perforation intervals.

American Standard
Cutting and Perforating Dimensions for
16-Millimeter Silent Motion Picture
Negative and Positive Raw Stock


Res. U. S. Pat. Off.
Z22.5-1947
Revision of
Z22.5-1941

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Appendix

The dimensions given in this standard represent the practice of film manufacturers in that the dimensions and tolerances are for film immediately after perforation. The punches and dies themselves are made to tolerances considerably smaller than those given, but owing to the fact that film is a plastic material, the dimensions of the slit and perforated film never agree exactly with the dimensions of the punches and dies. Shrinkage of the film, due to change in moisture content or loss of residual solvents, invariably results in a change in these dimensions during the life of the film. This change is generally uniform throughout the roll.

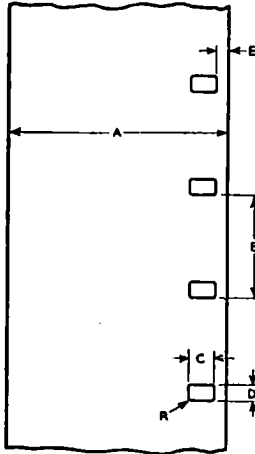
The uniformity of perforation is one of the most important of the variables affecting steadiness of projection.

Variations in pitch from roll to roll are of little significance compared to variations from one sprocket hole to the next. Actually, it is the maximum variation from one sprocket hole to the next within any small group that is important. This is one of the reasons for the method of specifying uniformity in dimension B.

American Standard
Cutting and Perforating Dimensions for
16-Millimeter Sound Motion Picture
Negative and Positive Raw Stock

ASA
Reg. U. S. Pat. Off.
Z22.12-1947
Revision of
Z22.12-1941

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Dimensions	Inches	Millimeters
A	0.629 ± 0.001	15.98 ± 0.03
†B*	0.3000 ± 0.0005	7.620 ± 0.013
C	0.0720 ± 0.0004	1.83 ± 0.01
D	0.0500 ± 0.0004	1.27 ± 0.01
†E	0.036 ± 0.002	0.91 ± 0.05
‡	30.00 ± 0.03	762.00 ± 0.76
R	0.010	0.25


These dimensions and tolerances apply to the material immediately after cutting and perforating.

*In any group of four consecutive perforations, the maximum difference of pitch shall not exceed 0.001 inch and should be as much smaller as possible. (This requirement has been added to the previous standard Z22.12-1941.)

†This dimension and tolerance was given in respect to the center line of the perforations in the previous standard Z22.12-1941.

‡This dimension represents the length of any 100 consecutive perforation intervals.

American Standard
Cutting and Perforating Dimensions for
16-Millimeter Sound Motion Picture
Negative and Positive Raw Stock


Reg. U. S. Pat. Off.
Z22.12-1947
Revision of
Z22.12-1941

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Appendix

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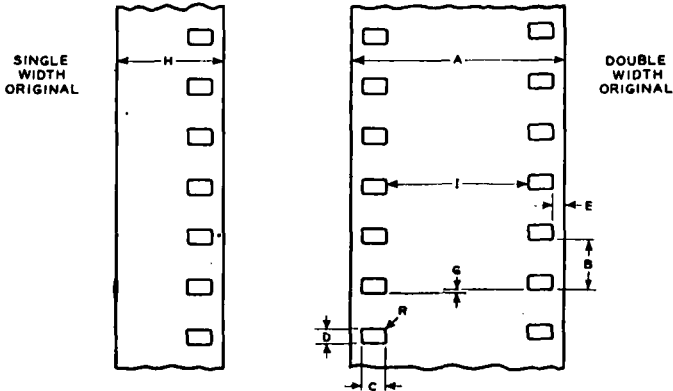
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American Standard
Cutting and Perforating Dimensions for
8-Millimeter Motion Picture
Negative and Positive Raw Stock

ASA
Reg. U. S. Pat. Off.
Z22.17-1947
Revision of
Z22.17-1941

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Dimensions	Inches	Millimeters
A	0.629 ± 0.001	15.98 ± 0.03
†B*	0.150 ± 0.0005	3.810 ± 0.013
C	0.072 ± 0.0004	1.83 ± 0.01
D	0.050 ± 0.0004	1.27 ± 0.01
†E	0.036 ± 0.002	0.91 ± 0.05
†G	Not > 0.001	Not > 0.025
H‡	0.314 ± 0.0015	7.98 ± 0.04
†I	0.413 ± 0.001	10.490 ± 0.025
L§	15.000 ± 0.015	381.00 ± 0.38
R	0.010	0.25

These dimensions and tolerances apply to the material immediately after cutting and perforating.


*In any group of four consecutive perforations, the maximum difference of pitch shall not exceed 0.001 inch and should be as much smaller as possible. (This requirement has been added to the previous standard Z22.17-1941.)

†This dimension and tolerance was given in respect to the center line of the perforations in the previous standard Z22.17-1941.

‡In the slitting of double-width film after processing, the cut shall be made within 0.002 inch of the center line.

§This dimension represents the length of any 100 consecutive perforation intervals.

American Standard
Cutting and Perforating Dimensions for
8-Millimeter Motion Picture
Negative and Positive Raw Stock


Rev. U. S. Pat. Off.
Z22.17-1947
Revision of
Z22.17-1941

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Appendix

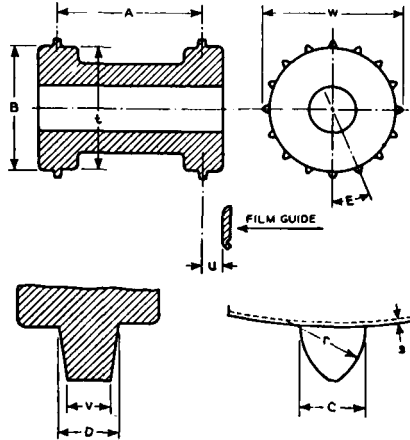
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The uniformity of perforation is one of the most important of the variables affecting steadiness of projection.

Variations in pitch from roll to roll are of little significance compared to variations from one sprocket hole to the next. Actually, it is the maximum variation from one sprocket hole to the next within any small group that is important. This is one of the reasons for the method of specifying uniformity in dimension B.

American Standard Dimensions for
16-Tooth 35-Millimeter
 Motion Picture Projector Sprockets

ASA.
 Reg. U. S. Pat. Off.
Z22.35-1947
 Revision of
Z22.35-1930



	Feed Sprocket		Intermittent Sprocket		Take-up (Hold Back) Sprocket	
	Inches	Millimeters	Inches	Millimeters	Inches	Millimeters
A	1.097 ± 0.001	27.86 ± 0.03	1.097 ± 0.001	27.86 ± 0.03	1.097 ± 0.001	27.86 ± 0.03
†B	0.943 ± 0.001	23.95 ± 0.03	0.943 ± 0.001	23.95 ± 0.03	0.932 ± 0.001	23.67 ± 0.03
C	$0.055 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$	$1.40 \begin{smallmatrix} +0.00 \\ -0.05 \end{smallmatrix}$	$0.055 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$	$1.40 \begin{smallmatrix} +0.00 \\ -0.05 \end{smallmatrix}$	$0.055 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$	$1.40 \begin{smallmatrix} +0.00 \\ -0.05 \end{smallmatrix}$
D	$0.055 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$	$1.40 \begin{smallmatrix} +0.00 \\ -0.05 \end{smallmatrix}$	$0.055 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$	$1.40 \begin{smallmatrix} +0.00 \\ -0.05 \end{smallmatrix}$	$0.055 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$	$1.40 \begin{smallmatrix} +0.00 \\ -0.05 \end{smallmatrix}$
E	22 Degrees 30 Min \pm 1.5 Min		22 Degrees 30 Min \pm 0.75 Min*		22 Degrees 30 Min \pm 1.5 Min	
Suggested Dimensions						
r	0.077	1.96	0.077	1.96	0.077	1.96
s	0.004	0.10	0.004	0.10	0.004	0.10
t	0.935	23.75	0.935	23.75	0.922	23.42
u	0.139	3.53	0.139	3.53	0.139	3.53
v	0.040	1.02	0.040	1.02	0.040	1.02
w	1.045	26.54	1.045	26.54	1.032	26.21

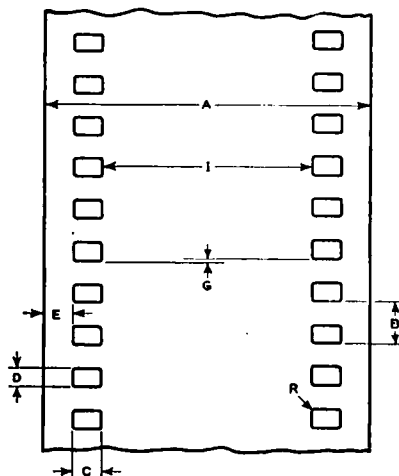
*The accumulated error between any 2 teeth not to exceed 4 minutes.

†This dimension is the only change from the 1930 edition.

American Standard
Cutting and Perforating Dimensions for
35-Millimeter Motion Picture
Positive Raw Stock*

ASA
Rev. U. S. Pat. Off.
Z22.36-1947
Revision of
Z22.36-1944

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Dimensions	Inches	Millimeters
A	1.377 ± 0.001	34.98 ± 0.03
†B	0.1870 ± 0.0005	4.750 ± 0.013
C	0.1100 ± 0.0004	2.794 ± 0.01
D	0.0780 ± 0.0004	1.98 ± 0.01
†E	0.079 ± 0.002	2.01 ± 0.05
†G	Not > 0.001	Not > 0.025
†I	0.999 ± 0.002	25.37 ± 0.05
L‡	18.70 ± 0.015	474.98 ± 0.38
R	0.020	0.51

These dimensions and tolerances apply to the material immediately after cutting and perforating.

*This film is used for motion picture prints and sound recording.

†This dimension and tolerance was given in respect to the center line of the perforations in the previous standard Z22.36-1944.

‡This dimension represents the length of any 100 consecutive perforation intervals.

American Standard
Cutting and Perforating Dimensions for
35-Millimeter Motion Picture
Positive Raw Stock


ASA
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Z22.36-1947
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Z22.36-1944

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