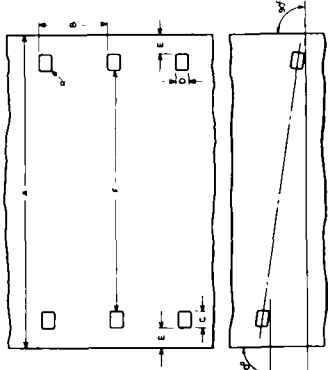


American Standard  
**Dimensions for  
32mm Motion-Picture Film, 2R-3000**

ASA  
Rev. U.S. Pat. Off.  
**PH22.71-1957**  
Rev. Z22.71-1950  
\*UDC 778.534.771.531.3

Page 1 of 2 pages



Dimensions	Inches	Millimeters
A	1.257 ± 0.001	31.93 ± 0.03
B	0.3000 ± 0.0005	7.620 ± 0.013
C	0.0720 ± 0.0004	1.829 ± 0.010
D	0.0500 ± 0.0004	1.270 ± 0.010
E	0.036 ± 0.002	0.91 ± 0.05
F	1.041 ± 0.002	26.44 ± 0.05
G	0.001 max.	0.025 max.
R	0.010 ± 0.001	0.25 ± 0.03

**1. Scope**

1.1 This standard specifies the cutting and perforating dimensions of 32mm motion-picture negative and positive raw stock film.

1.2 This film is slit to become 16mm motion-picture film with perforations along one edge.

**2. Dimensions**

2.1 The dimensions shall be as specified in the diagram and table.

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

2.3 In any group of four consecutive perforations, the maximum difference of pitch (dimension B) shall not exceed 0.001 in. and should be as much smaller as possible.

2.4 The length of any 100 consecutive perforation intervals shall be 30.00 ± 0.03 in., 762.00 ± 0.76 mm.

**NOTES:**

1. The dimensions in the inch system are the fundamental standard. The dimensions in the metric system are practical approximations based on American Standard B48.1-1933 reaffirmed in 1947 providing a conversion factor of 1 inch = 25.4 millimeters.

2. 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, the perforation pitch (without the decimal point) and the perforation shape (8H, KS, DH or CS) or number of rows of perforations (1R, 2R or 4R), depending on which is the significant factor.

**APPENDIX**

(This Appendix is not a part of American Standard PH22.71-1957, but is included to facilitate its use.)

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 since film is a plastic material, the dimensions of the slits and perforated film never agree exactly with the dimensions of the slitters, punches and dies. Film can shrink or swell due to loss or gain in moisture content or can shrink due to loss of solvent. These

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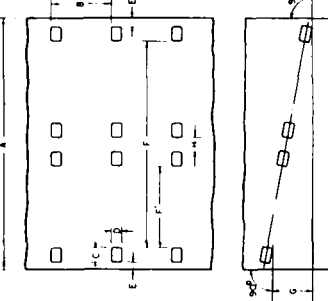
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American Standard  
**Dimensions for  
32mm Motion-Picture Film, 4R-3000**

ASA  
Rev. U.S. Pat. Off.  
**PH22.72-1957**  
Rev. Z22.72-1950  
\*UDC 778.534.771.531.3

Page 1 of 2 pages



Dimensions	Inches	Millimeters
A	1.257 ± 0.001	31.93 ± 0.03
B	0.3000 ± 0.0005	7.620 ± 0.013
C	0.0720 ± 0.0004	1.829 ± 0.010
D	0.0500 ± 0.0004	1.270 ± 0.010
E	0.036 ± 0.002	0.91 ± 0.05
F	1.041 ± 0.002	26.44 ± 0.05
F'	0.413 max.	10.49 ± 0.03
G	0.001 max.	0.025 max.
H	0.071 ± 0.001	1.80 ± 0.03

**1. Scope**

1.1 This standard specifies the cutting and perforating dimensions of 32mm motion-picture negative and positive raw stock film.

1.2 This film is slit to become 16mm motion-picture film with perforations along both edges.

**2. Dimensions**

2.1 The dimensions shall be as specified in the diagram and table.

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

2.3 In any group of four consecutive perforations, the maximum difference of pitch (dimension B) shall not exceed 0.001 in. and should be as much smaller as possible.

2.4 The length of any 100 consecutive perforation intervals shall be 30.00 ± 0.03 in., 762.00 ± 0.76 mm.

**NOTES:**

1. The dimensions in the inch system are the fundamental standard. The dimensions in the metric system are practical approximations based on American Standard B48.1-1933 reaffirmed in 1947 providing a conversion factor of 1 inch = 25.4 millimeters.

2. 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, the perforation pitch (without the decimal point) and the perforation shape (8H, KS, DH or CS) or number of rows of perforations (1R, 2R or 4R), depending on which is the significant factor.

**APPENDIX**

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Film can shrink or swell due to loss or gain in moisture content or can shrink due to loss of solvent. These changes invariably result in changes in the dimensions during the life of the film. The change is generally uniform throughout a roll.

The uniformity of pitch, margin and hole size (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 sprocket hole to the next. Actually, it is the maximum variation from one sprocket hole to the next within any small distance that is important. Thirty-two-millimeter release-print stock is slit, after

possible error is involved in this slitting, the width of 32mm film is made 0.001 in. narrower than twice the width of standard 16mm film. This narrowing gives a tolerance of 0.001 in. in this secondary slitting operation. If the error of slitting exceeds this tolerance, one of the 16mm halves may exceed the width allowed for 16mm film and cause interference in the gate of a projector. In addition to errors of centering, there are errors caused by recurring variations in width. These errors will cause weave on the screen even though the maximum width of the film may not be great enough to cause interference in the projector gate.

changes invariably result in changes in the dimensions during the life of the film. The change is generally uniform throughout a roll.

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printing and developing, to 16mm width. Since a possible error is involved in this slitting, the width of 32mm film is made 0.001 in. narrower than twice the width of standard 16mm film. This narrowing gives a tolerance of 0.001 in. in this secondary slitting operation. If the error of slitting exceeds this tolerance, one of the 16mm halves may exceed the width allowed for 16mm film and cause interference in the gate of a projector. In addition to errors of centering, there are errors caused by recurring variations in width. These errors will cause weave on the screen even though the maximum width of the film may not be great enough to cause interference in the projector gate.

PH22.72-1957

## Four American Standards

Published here are American Standards PH22.71-, PH22.72-, PH22.103- and PH22.104-1957 which were approved by the American Standards Association on February 19, 1957.

PH22.71, Dimensions for 32mm Motion-Picture Film, 2R-3000, and PH22.72, Dimensions for 32mm Motion-Picture Film, 4R-3000, are revisions of the 1950 standards Z22.71 and Z22.72. Subsequent to their trial publication in the January 1956 Journal, several modifications of both standards were proposed and approved and are incorporated in these final versions. These include a new title, a minor change in method of diagramming dimension G, addition of two explanatory notes and a slight revision of that section of the appendix concerning steadiness.

PH22.103, 35mm Anamorphic Prints with Magnetic Sound Records, Usage in Projector, and PH22.104, Projector Aperture for 35mm, Anamorphic, 2.55:1 Prints with Squeeze Ratio of 2:1, had their trial publication in the December 1955 Journal and with the exception of new titles are unchanged. — *Henry Kogel, Staff Engineer*

## Proposed SMPTE Recommended Practice

### Lens Mount Surface


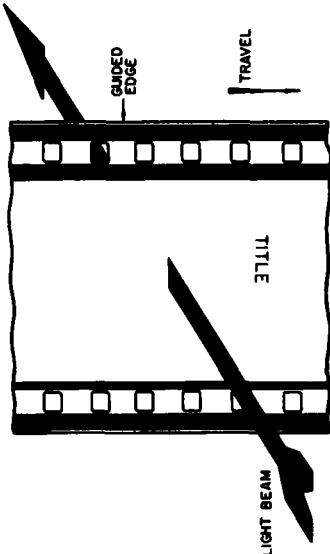
### High-Speed Motion-Picture Cameras

Proposed SMPTE Recommended Practice, Lens Mount Surface, High-Speed Motion-Picture Cameras, is published here for a three-month period of trial and criticism. This proposal was initiated by the High-Speed Photography Committee in December 1955, was approved in October 1956 and has since been approved by the Standards Committee in February 1957.


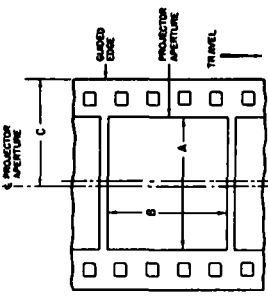
All comments should be sent to Henry Kogel, Staff Engineer, prior to June 15, 1957. If no adverse comments are received, the proposal will then be submitted to the Society's Board of Governors for approval as an SMPTE Recommended Practice. — *H.K.*

1. *Scope*
  - 1.1 This recommendation specifies for high-speed motion-picture cameras the surface for mounting lens adapters.
2. *Lens Mount Surface*
  - 2.1 High-speed motion-picture cameras shall have a machined plane surface for mounting lens adapters.
  - 2.2 Data shall be supplied with each camera locating the mechanical and optical distance from this machined surface to the plane of the film.
  - 2.3 Data shall also be supplied for locating the lens mount radially and for attaching the lens adapter.

PH22.71-1957

<p style="text-align: center;"><b>American Standard</b></p> <p style="text-align: center;"><b>35mm Anamorphic Prints with Magnetic Sound Records Usage in Projector</b></p>	<div style="text-align: right; font-size: small;">  <p>Reg. U.S. Pat. Off. PH22.103-1957 *UDC 778.584.45:771.531.551.2</p> </div> <p><b>1. Scope</b></p> <p>1.1 This standard specifies the location of 35mm sound motion-picture film having a photographic emulsion and of the magnetic striping relative to the projector light source and lens, the rate of projection and the relationship between sound and picture of</p> <div style="text-align: center;">  <p style="text-align: center;">Film As Seen From The Light-Source In The Projector</p> </div> <p><b>2. Position of the Photographic Emulsion and Magnetic Striping</b></p> <p>2.1 The photographic emulsion shall be on the side of the film which faces toward the light-source of the projector.</p> <p>2.2 The magnetic striping shall be on the side of the film which faces toward the lens of the projector.</p> <p><b>3. Rate of Projection</b></p> <p>3.1 The rate of projection shall be 24 frames/sec.</p> <p><b>4. Relationship Between Sound and Picture</b></p> <p>4.1 The apparatus and the film shall be so arranged that when the film is threaded normally, the soundtrack is scanned for reproduction at a point 28 frames behind the center line through the picture being projected. Thus, a given point on the film shall pass the picture aperture after it has passed the magnetic soundtrack.</p>
<p style="text-align: center;">Approved February 19, 1957 by the American Standards Association, Incorporated Sponsor: Society of Motion Picture and Television Engineers</p> <p style="text-align: right;">Copyright 1957 by the American Standards Association, Incorporated 30 East Forty-fifth Street, New York 17, N.Y. Printed in U.S.A. ASA QM25</p>	

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<p style="text-align: center;"><b>American Standard</b></p> <p style="text-align: center;"><b>Projector Aperture for 35mm, Anamorphic, 2.55:1 Prints with Squeeze Ratio of 2:1</b></p>	<div style="text-align: right; font-size: small;">  <p>Reg. U.S. Pat. Off. PH22.104-1957 *UDC 778.553.2:771.531.551.2</p> </div> <p>as specified in the diagram and table.</p> <p><b>2.1</b> This standard specifies the dimensions and location of the aperture of projectors used in the projection of 35mm, anamorphic prints having a squeeze ratio of 2:1 and a screen aspect ratio of 2.55:1.</p> <p><b>2.2</b> Dimensions A and B are specified for an aspect ratio of 2.55:1 and for a projection angle of zero degrees.</p> <p><b>2.3</b> Undersized apertures are required when the projection angle is greater than zero degrees, so that they may be filed to correct for keystone effect (see Appendix).</p> <div style="text-align: center;">  <p style="text-align: center;">AS SEEN FROM THE PROJECTOR LAMP</p> </div> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 2px;">Dimensions</th> <th style="padding: 2px;">Inches</th> <th style="padding: 2px;">Millimeters</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">A</td> <td style="padding: 2px;">0.912</td> <td style="padding: 2px;">23.16</td> </tr> <tr> <td style="padding: 2px;">B</td> <td style="padding: 2px;">max 0.715</td> <td style="padding: 2px;">max 18.16</td> </tr> <tr> <td style="padding: 2px;">C</td> <td style="padding: 2px;">max 0.708 ± 0.002</td> <td style="padding: 2px;">max 17.98 ± 0.05</td> </tr> <tr> <td style="padding: 2px;">D</td> <td style="padding: 2px;">0.019</td> <td style="padding: 2px;">0.48</td> </tr> </tbody> </table> <p><b>2.1</b> The dimensions of the aperture shall be</p> <p><b>1. Scope</b></p> <p>1.1 This standard specifies the dimensions and location of the aperture of projectors used in the projection of 35mm, anamorphic prints having a squeeze ratio of 2:1 and a screen aspect ratio of 2.55:1.</p> <p><b>2. Dimensions</b></p> <p>2.1 The dimensions of the aperture shall be</p> <p><b>APPENDIX</b></p> <p>(This Appendix is not a part of American Standard Projector Aperture for 35mm, Anamorphic, 2.55:1 Prints with Squeeze Ratio of 2:1, PH22.104-1957, but is included to facilitate its use.)</p> <p>When the projection angle is greater than 0°, an undersized aperture must be used to make allowance for the keystone effect. This aperture would then be filed out to fit the particular projection angle. The bottom of this undersized aperture is filed out to the maximum width, 0.912 in., to obtain the necessary width at the top of the picture. The sides of the aperture are then filed to square off the picture. This results in dimension A being less than the maximum at all points other than at the bottom of the aperture.</p> <p>When the projection angle is less than 0°, an undersized aperture also must be used to make allowance for the keystone effect. This aperture would then be filed out to fit the particular projection angle. The top of this undersized aperture is filed out to the maximum width, 0.912 in., to obtain the necessary width at the bottom of the picture. The sides of the aperture are then filed to square off the picture. This results in dimension A being less than the maximum at all points other than at the top of the aperture.</p> <p>When a curved screen is used the aperture will also have to be undersized with respect to the B dimension to permit the filing of the top and bottom so that these edges of the picture will appear horizontal on the screen.</p>	Dimensions	Inches	Millimeters	A	0.912	23.16	B	max 0.715	max 18.16	C	max 0.708 ± 0.002	max 17.98 ± 0.05	D	0.019	0.48
Dimensions	Inches	Millimeters														
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<p style="text-align: center;">Approved February 19, 1957 by the American Standards Association, Incorporated Sponsor: Society of Motion Picture and Television Engineers</p> <p style="text-align: right;">Copyright 1957 by the American Standards Association, Incorporated 30 East Forty-fifth Street, New York 17, N.Y. Printed in U.S.A. ASA QM25</p>																

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# Proposed American Standard:

## PH22.111, Picture and Sound Apertures for Continuous Contact Printers for 35mm Release Prints with Photographic Sound Records

A proposed American Standard, PH22.111, Picture and Sound Apertures for Continuous Contact Printers for 35mm Release Prints with Photographic Sound, is published here for a three-month period of trial and comment. This proposal was initiated in October 1954 and was approved by the Laboratory Practice Committee in August 1956 and by the Standards Committee in February 1957.

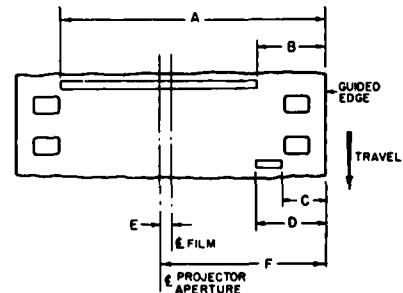
All comments should be sent to Henry Kogel, Staff Engineer, prior to June 15, 1957. If no adverse comments are received, this proposal will then be submitted to ASA Sectional Committee PH22 for further processing as an American Standard. — H.K.

<b>Proposed American Standard</b> <b>Picture and Sound Apertures for Continuous Contact Printers for 35mm Release Prints with Photographic Sound Records</b>	<b>PH22.111</b>
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### 1. Scope

**1.1** This standard specifies the location and width dimensions of the picture and the sound apertures of continuous contact printers for making 35mm. release prints with photographic sound records.

**1.2** This standard is applicable to the printing of motion-picture raw stock film which is cut and perforated in accordance with American Standard PH22.36-1954, Dimensions for 35mm Motion-Picture Positive Raw Stock.



AS SEEN FROM EMULSION SIDE OF PRINT

### 2. Dimensions

**2.1** The dimensions shall be as specified in the diagram and Table I.

**Note:** The centerline information given in Table II is not part of this standard and is provided as a convenient reference. These two dimensions are specified in American Standard PH22.58-1954, Aperture for 35mm Sound Motion-Picture Projectors.

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

Table I

Dimensions	Inches	Millimeters
E	0.049	1.24
F	0.738 ± 0.002	18.75 ± 0.05

Table II

NOT APPROVED