

Motion-Picture Standards

Titles of Standards on Film Dimensions

Active work on developing a consistent set of descriptive titles for all film dimension standards was initiated in the fall of 1955. The subcommittee working on this project met during the 80th Convention in Los Angeles and devised the following system for titling these standards: Each title is to provide an indication of film width, pitch and perforation shape or number of rows of perforations, depending on which is the significant factor. This system was then applied to the existing standards and proposals in process resulting in the following titles:

- PH22.34 Dimensions for 35mm Motion Picture Film, BH-1870
- PH22.93 Dimensions for 35mm Motion Picture Film, BH-1866
- PH22.36 Dimensions for 35mm Motion Picture Film, KS-1870
- PH22.1 Dimensions for 35mm Motion Picture Film, DH-1870
- PH22.102 Dimensions for 35mm Motion Picture Film, CS-1870
- PH22.73 Dimensions for 35mm Motion Picture Film, Perforated 32mm, 2R-2994
- PH22.71 Dimensions for 32mm Motion Picture Film, 2R-3000
- PH22.72 Dimensions for 32mm Motion Picture Film, 4R-3000
- PH22.12 Dimensions for 16mm Motion Picture Film, 1R-3000
- PH22.5 Dimensions for 16mm Motion Picture Film, 2R-3000
- PH22.110 Dimensions for 16mm Motion Picture Film, 2R-2994
- PH22.109 Dimensions for 16mm Motion Picture Film, 1R-2994

The letter symbols denoting perforation shape have significance for workers in the field and stand for those who developed the particular perforation: BH = Bell & Howell, KS = Kodak Standard, DH = Dubray-Howell, CS = CinemaScope. The symbols 1R, 2R and 4R indicate the number of rows of perforations.

Subsequent to the meeting, the parent Film Dimensions committee, by letter ballot, voted approval of this nomenclature system and the above titles. They, therefore, will be the titles which will be used with the standards as they come up for future review. Two standard, Ph22.-34-1956 and PH22.102-1956, have already been approved as American Standards with these new titles.—*Henry Kogel*, Staff Engineer.

Revisions of American Standards

A proposed revision of American Standard PH22.87-1953 is published

here for a three-month period of trial and criticism.

This proposal differs from the 1953 standard in several ways but in only one essential: the deletion of the specification of the picture-sound separation. The basis for this modification was twofold: Firstly, developments in the field of magnetic recording and the growing applications of this recording medium led to divergence in national practice from the 26 frame separation established initially in 1950. Secondly, international opinion was not receptive to the 26 frame specification. In reviewing this situation, the Sound Committee decided that it would be preferable to convert PH22.87 into solely a magnetic coating standard and to establish a separate standard for the sound record specifications. This has now been done and a new proposal containing a 28 frame picture-sound separation specification is being processed.

The additional modifications include a change in format and an indication of the optional use of a balance stripe on the perforated edge.

A proposed revision of American Standard PH22.73-1951 is also published for a three-month period of trial and comment.

This proposal differs substantially from the 1951 standard:

1. A new format is employed which provides a scope and numbered specifications.
2. The scope now limits the application of this standard to low-shrinkage safety film.
3. The perforation pitch is reduced from 0.3000 in. to 0.2994 in.
4. The method of indicating the permissible angular misalignment of the perforations (dimension G) is brought into conformity with the more recent film dimension standards.
5. The new title is part of the consistent set of titles for all dimension standards just developed and approved by the Film Dimensions Committee.
6. Changes in the notes and appendix are designed to add clarity to this proposal.

It should be noted that this proposal still specifies negative-type film. A similar positive-type film with a 0.3000 in. pitch was and still is being manufactured. However, this positive film was not and still is not covered by an American Standard. All such negative film is now being manufactured with the smaller pitch specified in this proposal.

All comments should be sent to Henry Kogel, SMPTE Staff Engineer, prior to May 15, 1957. If no adverse comments are received, these proposals will then be submitted to ASA Sectional Committee PH22 for further processing as American Standards.—*H.K.*

Proposed American Standard 100 Mil Magnetic Coating on 16mm Film, Perforated One Edge	PH22.87 Rev. PH22.87-1953
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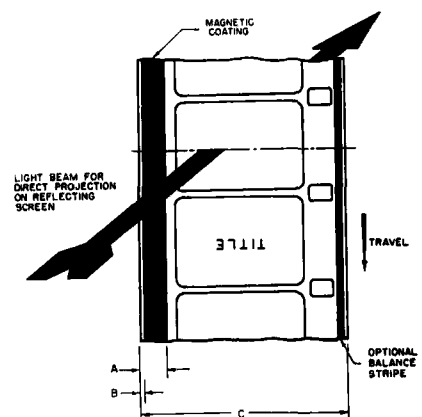
1. Scope

1.1 This standard specifies the location and dimensions of the magnetic coating applied to 16mm motion-picture film with perforations along one edge. This film is used for both picture and sound.

2. Dimensions and Location

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

2.2 The magnetic coating shall be on the side of the film toward the lamp on a projector arranged for direct projection on a reflection-type screen.



NOTE: The balance stripe is optional and may be a magnetic coating or another material of the same thickness.

Dimension	Inches	Millimeters
A	0.100 ^{+ 0.005} — 0.000	2.54 ^{+ 0.13} — 0.00
B	0.005 max	0.13 max
C	0.628 nom	16 nom

NOT APPROVED

Proposed American Standard
**Dimensions for
 35mm Motion-Picture Film,
 Perforated 32mm, 2R-2994**

PH22.73

Rev. PH22.73-1951

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1. Scope

1.1 This standard specifies the dimensions of 35mm negative motion-picture film perforated for eventual use as 32mm motion-picture film.

1.2 These dimensions pertain to a safety film with low-shrinkage characteristics as defined in Appendix 1.

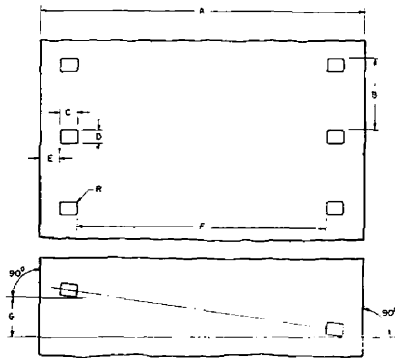
2. Dimensions

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

2.2 These dimensions apply to negative raw stock immediately after cutting and perforating.

2.3 In any group of four consecutive perforations, the maximum deviations from aim pitch shall be held to a value as much smaller than 0.001 in. as can be obtained. This is desirable because of the beneficial effect on steadiness thus realized.

2.4 Dimension L represents the length of any 100 consecutive perforation intervals.



Dimension	Inches	Millimeters
A	1.377 ± 0.001	34.98 ± 0.03
B	0.2994 ± 0.0005	7.605 ± 0.013
C	0.0720 ± 0.0004	1.829 ± 0.010
D	0.0500 ± 0.0004	1.270 ± 0.010
E	0.096 ± 0.002	2.44 ± 0.05
F	1.041 ± 0.002	26.44 ± 0.05
G	0.001 max	0.025 max
L	29.94 ± 0.03	760.5 ± 0.8
R	0.010	0.25

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 (BH, KS, DH or CS) or number of rows of perforations (1R, 2R or 4R), depending on which is the significant factor.

3. The fundamental difference between this standard and its 1951 predecessor is in the decrease in the values for dimensions B and L, which were specified respectively as 0.3000 ± 0.0005 in. and 30.00 ± 0.03 in.

APPENDIX 1

For the purpose of this specification, low-shrink film base is film base which, when coated with emulsion and any other normal coating treatment, perforated, kept in the manufacturer's sealed container for six months, exposed, processed and stored exposed to air having a temperature of 65 F to 75 F, 18 C to

24 C, and a relative humidity of 50% to 60%, for not more than 30 days, and measured under like conditions of temperature and humidity, shall have shrunk not more than 0.2% from its original dimension at the time of perforating.

APPENDIX 2

This kind of 32mm film is made on 35mm stock so that it may be processed on 35mm sprocketless develop-

ing machines.

APPENDIX 3

To comply with §1.2, this film is made on safety base complying with American Standard PH1.25-1956, Safety Photographic Film. Nitrate film should not be

used because this film may be slit to the 16mm width and used on 16mm projectors with subsequent danger of fire.

APPENDIX 4

Films which after processing are intended to pass through a continuous contact printer in which the exposure is made over a cylindrical surface do not yield prints of maximum steadiness unless the actual pitch of the film curved to the smaller radius (the "negative") is slightly less than that of the film curved to the larger radius (the "print stock"). Since positive films in general are perforated to a nominal 0.3000

in. pitch and since negative-type films with low-shrinkage characteristics do not shrink enough for optimum pitch relationship with such positive films, the nominal 0.2994 in. pitch was developed for films to be used primarily as negatives for the subsequent production of prints. They also find other specialized uses.