

Appendix

(The Appendix is not a part of this SMPTE Recommended Practice, but is included for information purposes only.)

A1. The transverse cut to provide the mated pairs of film for the tape splice may be made in numerous configurations. Detail X shows only some typical configurations. It is desirable, however, to make the splice as inconspicuous as possible; therefore, the transverse cuts would usually be on the frameline or occur in only one frame.

A2. Dimension B controls the longitudinal registration of the two films being spliced. It is measured to the perforations that are most commonly used for registration on splicing blocks, and to the nearer edges of these perforations, because they are the edges generally used.

A3. If tape splices are made with films to which magnetic oxide has been applied or may be applied, it will be necessary to exclude the splicing material from the magnetic record stripe area.

A4. Visual disruption of the projected image caused by the splice will be minimized if the length of the splicing tape, Dimension F, is kept as short as possible within the re-

quirements of dimensional stability. It is anticipated that, as adhesives are improved, the length of the splicing tape may be reduced to one or two frames. Ideally, the ends of the tape should fall on the framelines to minimize visual disruption.

A5. When the tape splice is used for special applications such as the repair or joining of the ends in a continuous-loop cartridge, the cut configuration should be made wider, as shown on the right side in Detail X, to promote better performance in the projection mechanism. To minimize malfunctions caused by splices in continuous-loop cartridges, tape should always be applied to both sides of the film. In certain types of cartridges, when two separate pieces of splicing tapes are used, a more reliable splice is produced when the tapes are offset by one frame.

A6. When bent into an arc of approximately 50-mm (2-in) diameter, the spliced film should flex smoothly, with no excessive stiffness or tendency to fold. Tape should always be applied to both sides of the film.

Cinematography — 16 mm motion-picture film perforated 8 mm Type S (1-3) and (1-4) — Cutting and perforating dimensions

1 Scope and field of application

This International Standard specifies the cutting and perforating dimensions for 16 mm motion-picture raw stock perforated 8 mm Type S in positions 1-3 and 1-4, as well as the width of motion-picture film after processing and slitting.

2 References

ISO 543, *Cinematography — Motion-picture safety film — Definition, testing and marking*.

ISO 1700, *Cinematography — 8 mm Type S motion-picture raw stock film — Cutting and perforating dimensions*.

NOTE — ISO 1700 is included as a reference guide as 8 mm Type S film is more commonly encountered in that format.

3 Dimensions

The dimensions and tolerances shall be as shown in the figures and given in the table; they apply to safety raw stock film as described in ISO 543, immediately after cutting and perforating.

The dimensions apply at the time of cutting and perforating for film adjusted to a temperature of 23 ± 1 °C, and a relative humidity of 50 ± 2 %. The manufacturer may indicate other nominal temperature and humidity conditions under which the dimensions apply.

Annex

(This annex does not form a part of the standard.)

- A.1** 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.
- A.2** The uniformity of pitch, hole size and margin (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 perforation to the next. Actually, it is the maximum variation from one perforation to the next within any small group of consecutive perforations that is important.
- A.3** The width for 16 mm films is controlled by the shrinkage characteristics of the films involved. Thus, there have been standards for the width of 16 mm stock of the "usual" shrinkage and for stock of "low-shrinkage" characteristics. The purpose was to obtain films of approximately the same width regardless of the type of film base during their useful life. This International Standard is based on the values adapted to "low-shrinkage" film base since nearly all films now manufactured meet the definition given below:

For the purpose of choice of width, low-shrinkage film base is film base which:

- when coated with emulsion and any other normal coating treatment;
- perforated;
- kept in the manufacturer's normal commercial packing for 6 months at 18 to 24 °C (64 to 75 °F);
- exposed;
- processed;
- stored exposed to air for a period not to exceed 30 days at 18 to 24 °C (64 to 75 °F) and 50 to 60 % relative humidity;
- measured under like conditions of temperature and humidity.

has shrunk not more than 0.2 % from its original dimensions at the time of perforating.

This definition of low-shrinkage film stock has been found by experience to be useful as a guide to film manufacturers in slitting their stock. Departure from this definition should not be cause for rejection of the stock. Note that this definition of shrinkage differs from the criterion applying to choice of longitudinal pitch, where greater periods of time are involved and where short-time tests can be deceptive.

Allowance has been made in arriving at these values for the common tendency of film to expand when exposed to high relative humidity. Allowance should be made for this factor in equipment design and in no case should the equipment design fail to accommodate a film of 16.00 mm (0.630 in) width.

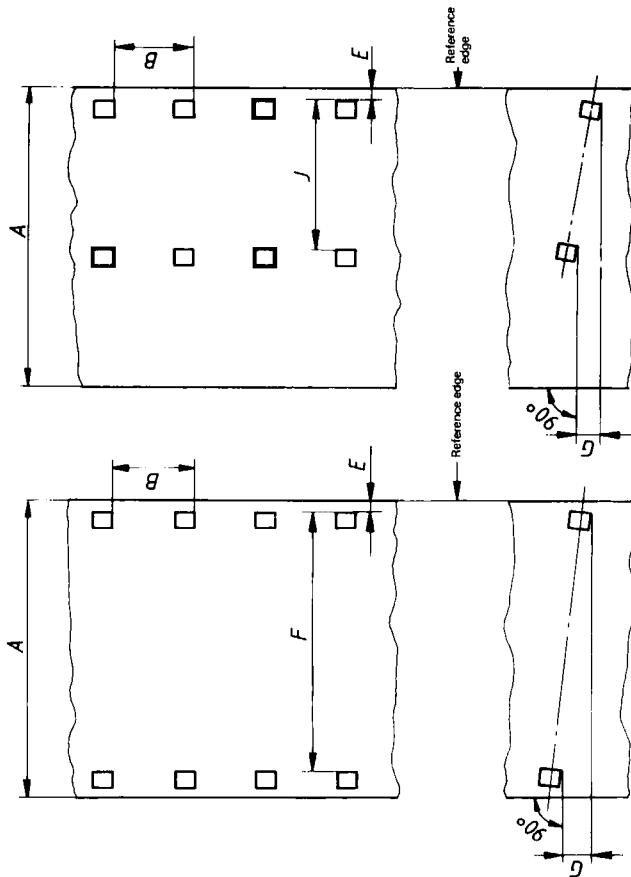


Figure 1 - Film perforated 1.4

Figure 2 - Film perforated 1.3

Dimension	mm	in
A	15.95 ± 0.03	0.628 ± 0.001 0
A'	7.975 ± 0.050	0.314 0 ± 0.002 0
B	4.234 ± 0.010	0.166 7 ± 0.000 4
B ^{**1}	4.227 ± 0.010	0.166 4 ± 0.000 4
C	0.914 ± 0.030	0.036 0 ± 0.000 4
D	1.143 ± 0.010	0.045 0 ± 0.000 4
R	0.13 ± 0.03	0.005 ± 0.001
E	0.51 ± 0.05	0.020 ± 0.002
F	14.02 ± 0.03	0.552 ± 0.001
G	0.025 max.	0.001 0 max.
J	7.975 ± 0.025	0.314 0 ± 0.001 0
L ^{**1}	423.4 ± 0.4	16.670 ± 0.017
L ^{(*)**1}	422.7 ± 0.4	16.640 ± 0.017

*1) Dimensions B' and L' (short perforation pitch) are provided to fulfil the requirements of continuous sprocket contact printing.
 **1) Dimensions L and L' represent the length of any 100 consecutive perforation intervals.

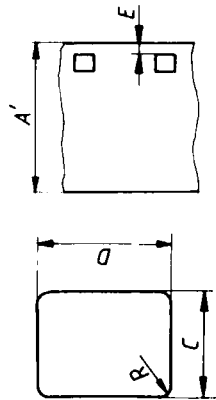


Figure 3 - Detail of perforation and width of processed and slit film