International Standard 2966

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

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

Cinématographie — Film cinématographique 16 mm perforé 8 mm type S (1-3) et (1-4) — Dimensions de coupe et de perforation

Second edition — 1982-12-15

UDC 778.5 : 771.531.352 : 77.021.17 **Ref. No. ISO 2966-1982 (E)**

Descriptors : cinematography, motion picture film 16 mm, motion picture film 8 mm, perforating, cutting, dimensions.

Price based on 3 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2966 was developed by Technical Committee ISO/TC 36, *Cinematography*.

This second edition was submitted directly to the ISO Council, in accordance with clause 6.11.2 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 2966-1976), which had been approved by the member bodies of the following countries:

Belgium	Italy	Switzerland
Canada	Japan	Turkey
Czechoslovakia	Mexico	United Kingdom
Denmark	Netherlands	USA
France	South Africa, Rep. of	USSR
Germany, F. R.	Spain	
India	Sweden	

No member body had expressed disapproval of the document.

Printed in Switzerland

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.

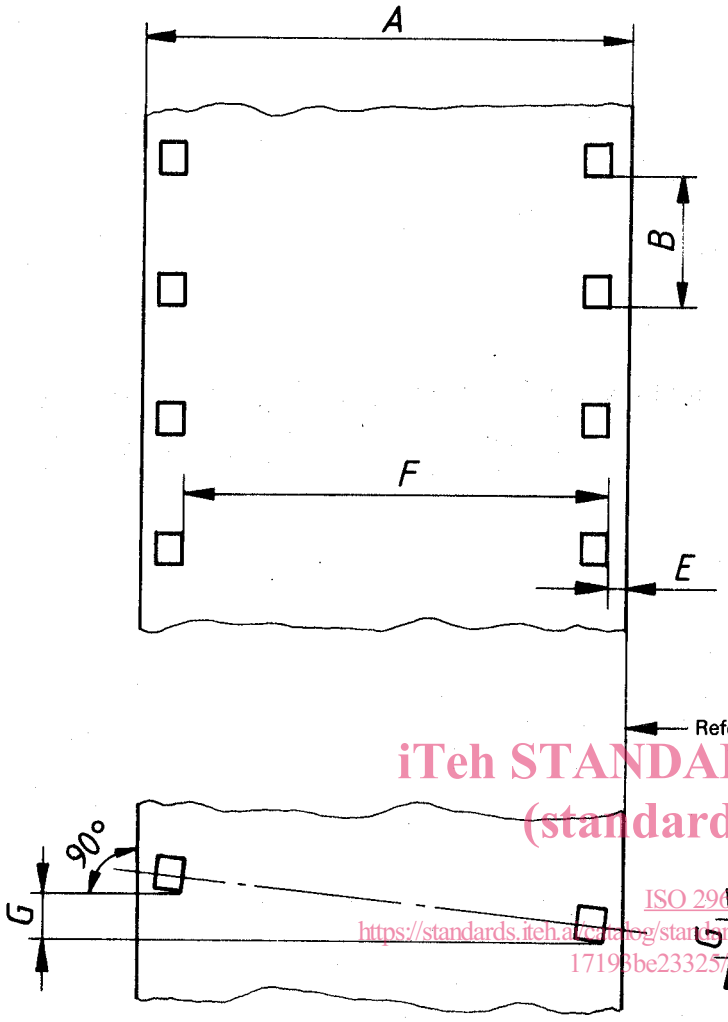

Figure 1 — Film perforated 1-4

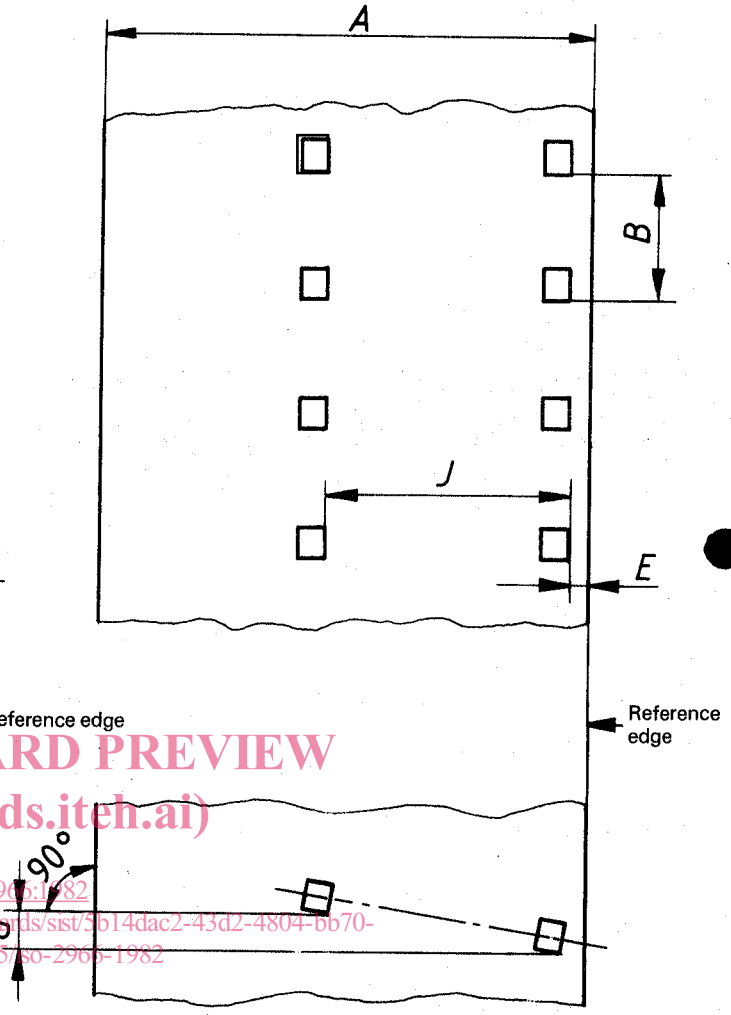

Figure 2 — Film perforated 1-3

Table

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′ *)	4,227 ± 0,010	0.166 4 ± 0.000 4
C	0,914 ± 0,010	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 **)	423,4 ± 0,4	16.670 ± 0.017
L′ *) **)	422,7 ± 0,4	16.640 ± 0.017

*) Dimensions B' and L' (short perforation pitch) are provided to fulfil the requirements of continuous sprocket contact printing.

**) Dimensions L and L' represent the length of any 100 consecutive perforation intervals.

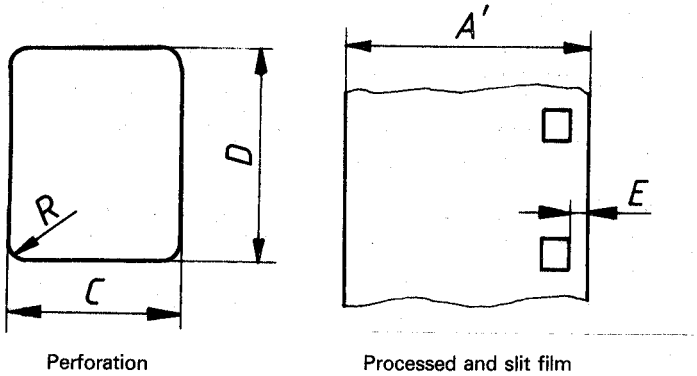

Figure 3 — Detail of perforation and width of processed and slit film

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.