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# INTERNATIONAL STANDARD



# 490

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

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## **Cinematography — Magnetic stripes and magnetic recording head gaps for sound record on 16 mm motion-picture film perforated along one edge (Type 1) — Positions and width dimensions**

*Cinématographie — Pistes magnétiques et entrefers de têtes magnétiques d'enregistrement pour l'enregistrement du son sur film cinématographique 16 mm perforé sur un bord (Type 1) — Emplacement et largeurs*

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**Descriptors** : cinematography, motion picture film, motion picture film 16 mm, sound recording, magnetic recording, recording tracks, magnetic heads, magnetic gaps, position (location), dimensions.

## 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 490 was developed by Technical Committee ISO/TC 36, *Cinematography*, and was circulated to the member bodies in September 1977.

It has been approved by the member bodies of the following countries :

Australia	India	Sweden
Austria	Italy	Switzerland
Belgium	Japan	Turkey
Canada	Mexico	United Kingdom
Czechoslovakia	Netherlands	U.S.A.
Denmark	Poland	U.S.S.R.
France	South Africa, Rep. of	
Germany	Spain	

No member body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 490-1966, of which it constitutes a technical revision.

# Cinematography — Magnetic stripes and magnetic recording head gaps for sound record on 16 mm motion-picture film perforated along one edge (Type 1) — Positions and width dimensions

## 1 SCOPE AND FIELD OF APPLICATION

1.1 This International Standard specifies the location and width of the magnetic striping on 16 mm motion-picture film perforated along one edge (Type 1) with picture, slit and perforated in accordance with ISO 69.

1.2 This International Standard also specifies the location and width of the magnetic recording head gaps in systems using a magnetic stripe on 16 mm motion-picture film.

## 2 REFERENCES

ISO 69, *Cinematography — 16 mm motion-picture raw stock film — Cutting and perforating dimensions.*

ISO 359, *Cinematography — Projectable image area on 16 mm motion-picture prints — Dimensions and location.*

ISO 1188, *Cinematography — Recording characteristic for magnetic sound record on 16 mm motion-picture film — Specifications.*

ISO 4243, *Cinematography — Picture image area and photographic sound record on 16 mm motion-picture release prints — Positions and dimensions.*<sup>1)</sup>

## 3 LOCATION AND WIDTH OF MAGNETIC STRIPING

3.1 The location and width of the magnetic striping shall be as shown in the figure and table 2.

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

3.3 If the magnetic sound stripe increases the thickness of the film by more than 0,005 mm, a balance stripe shall be applied to equalize effectively the thickness of the two edges of the film. The balance stripe should have essentially the same thickness and shall have the same composition as the sound record stripe.

3.4 The thickness of the magnetic sound stripe and of the balance stripe shall not exceed 0,020 mm (0.000 8 in).

## 4 LOCATION AND WIDTH OF GAPS OF MAGNETIC HEADS

4.1 The location and width of gaps of the recording magnetic heads shall be as shown in the figure and table 2.

4.2 The effective gaps in the magnetic heads shall be at an angle of  $90^\circ \pm 10'$  to the longitudinal axis of the film travel.

## 5 FILM PROJECTION SPEED

The recording should be made in accordance with ISO 1188 so that the sound record will reproduce properly at the projection speeds indicated for the applications specified in table 1.

## 6 LONGITUDINAL PICTURE-SOUND DISPLACEMENT

The magnetic sound record on the film shall precede the centre of the corresponding picture by a distance of  $28 \pm 1$  frames, and preferably  $28 \pm 1/2$  frames.

TABLE 1

Application	cm/s	ft/min	Frames or perforations per second
<b>A Primary standards</b>			
1) Cinematography	18,3	36	24
2) Television			
— for 50 Hz supplies	19,05	37.5	25
— for 60 Hz supplies	18,3	36	24
<b>B Secondary standards</b>			
(non-professional use)	13,716	27	18*

\* It is recognized that some equipment is available and in use which operates at 16 frames per second.

1) At present at the stage of draft.