



## **Cinematography — Head gaps and sound records for three-, four-, or six-track magnetic sound records on 35 mm and single-track on 17,5 mm motion-picture film containing no picture — Positions and width dimensions**

*Cinématographie — Entrefers et enregistrements sonores sur trois, quatre ou six pistes magnétiques sonores sur film cinématographique de 35 mm et sur une seule piste sur film cinématographique de 17,5 mm sans image — Emplacements et largeurs*

**Second edition — 1985-08-15**

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**UDC 778.534.425 : 771.531.351**

**Ref. No. ISO 162-1985 (E)**

**Descriptors:** cinematography, motion-picture film, sound recording, sound reproduction, magnetic recording, recording instrument, magnetic heads, position (location), dimensions.

Price based on 2 pages

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ISO 162:1985

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 162 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

ISO 162 was first published in 1975. This second edition cancels and replaces the first edition together with ISO 360 and ISO 1753, of which it constitutes a technical revision.

# Cinematography — Head gaps and sound records for three-, four-, or six-track magnetic sound records on 35 mm and single-track on 17,5 mm motion-picture film containing no picture — Positions and width dimensions

## 1 Scope and field of application

This International Standard specifies the location and dimensions of head gaps for recording three-, four-, or six-track magnetic sound records on 35 mm (perforated in accordance with ISO 491), and one single-track record on 17,5 mm motion-picture film. It also specifies the assignment of records to the various tracks on the magnetic coating on the film in relation to the direction of film travel.

## 2 Reference

ISO 491, *Cinematography — 35 mm motion-picture film and magnetic film — Cutting and perforating dimensions*.

## 3 Location and dimensions

The location and dimensions of the recording and reproducing head gaps shall be as shown in the figures and given in the tables.

Magnetic head No. 1 as specified in figure 1 shall be used for recording a single record on 35 mm or 17,5 mm film.

## 4 Magnetic coating

With the direction of film travel as shown in the figures, the magnetic coating shall be on the upper face of the film base.

## 5 Alignment of heads

The recording or reproducing gaps in the magnetic head assemblies shall be in line at an angle of  $90^\circ \pm 3'$  to the direction of film travel.

## 6 Assignment of records

**6.1** Formats of 17,5 mm usually result in slitting of 35 mm film into two equal strips; in this case, the record adjacent to the perforation shall be the No. 1 record as specified in figure 1 and table 1. This shall also be the No. 1 record if it is a single recording made for 35 mm film.

**6.2** For monophonic recordings, the prime sound record shall be placed on track No. 1 for all formats.

**6.3** For stereophonic recording, the track assignment shall be as follows:

Three-track format		
1	2	3
Left	Centre	Right

Four-track format			
1	2	3	4
Left	Centre	Right	(Surround)

NOTE — For two-track stereo records containing phase related material, it is essential to use two adjacent tracks, preferably in the three-track format.

**6.4** Due to the diversity of practices in the use of the six-track format, track assignment shall be clearly identified with each film.

NOTE — All reels and containers should show the number and assignment of the tracks.

**Table 1 – Dimensions for three magnetic sound records**  
(as shown in figure 1)

Dimensions	mm	in
A	5,0 <sup>+0,1</sup> <sub>0</sub>	0.200 <sup>+0.004</sup> <sub>0</sub>
B	8,6 ± 0,05	0.339 ± 0.002
C	8,9 ± 0,05	0.350 ± 0.002
D	17,8 ± 0,05	0.700 ± 0.002
H ref.	34,97	1.377

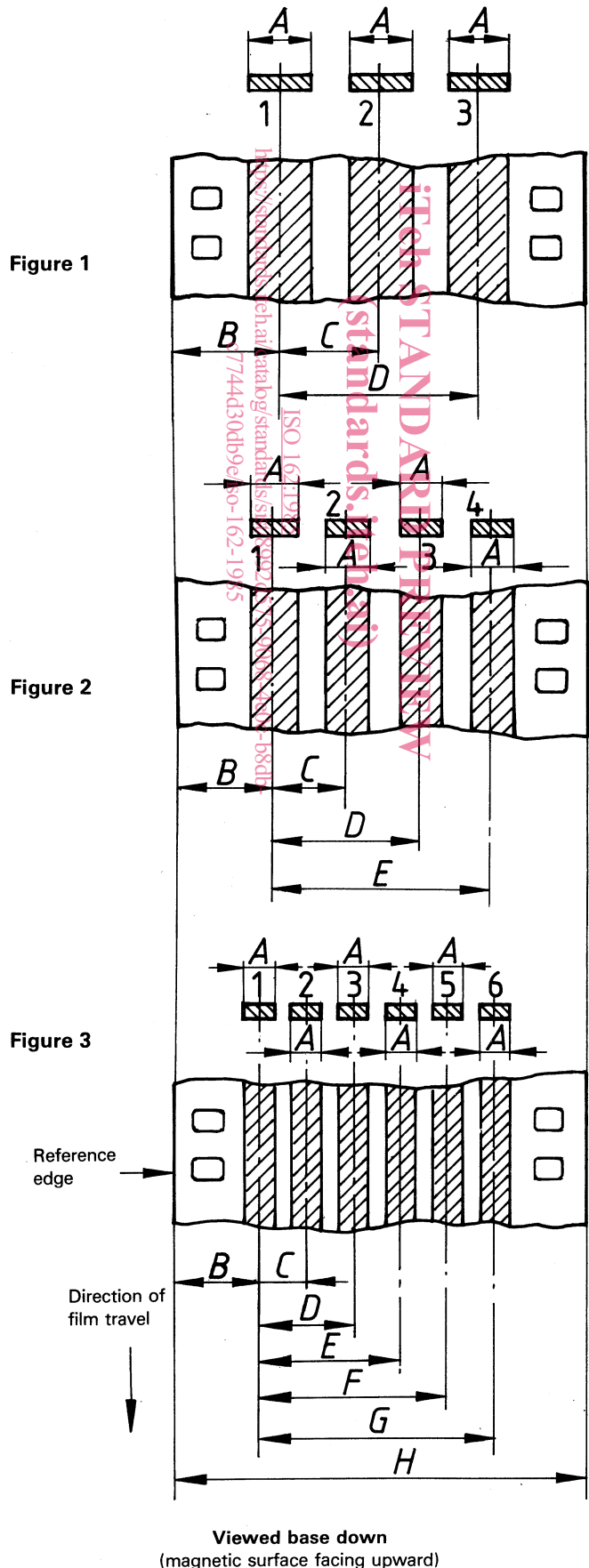
**Table 2 – Dimensions for four magnetic sound records**  
(as shown in figure 2)

Dimensions	mm	in
A	3,8 <sup>+0,1</sup> <sub>0</sub>	0.150 <sup>+0.004</sup> <sub>0</sub>
B	7,9 ± 0,05	0.314 ± 0.002
C	6,4 ± 0,05	0.250 ± 0.002
D	12,8 ± 0,05	0.500 ± 0.002
E	19,2 ± 0,05	0.750 ± 0.002
H ref.	34,97	1.377

**Table 3 – Dimensions for six magnetic sound records**  
(as shown in figure 3)

Dimensions	mm	in
A	2,40 ± 0,10	0.100 ± 0.002
B	7,34 ± 0,05	0.289 ± 0.002
C	4,06 ± 0,05	0.160 ± 0.002
D	8,12 ± 0,05	0.320 ± 0.002
E	12,18 ± 0,05	0.480 ± 0.002
F	16,24 ± 0,05	0.640 ± 0.002
G	20,30 ± 0,05	0.800 ± 0.002
H ref.	34,97	1.377

NOTE – The metric values listed in the tables are not exact conversions, and deviate from accepted conversion practices. They are based upon the practice of those countries using the metric system; head assemblies made to either system of dimensions will, for all practical purposes, be interchangeable.



**Viewed base down**  
(magnetic surface facing upward)