

International Standard



26

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Cinematography — Projector usage of 16 mm motion-picture films for direct front projection — Specifications

Cinématographie — Utilisation du film 16 mm dans le projecteur pour projection frontale directe — Spécifications

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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 26 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

ISO 26 was first published in 1977. This second edition cancels and replaces the first edition, of which it constitutes a technical revision.

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Cinematography — Projector usage of 16 mm motion-picture films for direct front projection — Specifications

1 Scope and field of application

This International Standard specifies the emulsion orientation, the rate of projection, the position of the projected image area and the relationship between picture and sound in the projector, intended for direct front projection of 16 mm motion-picture films with photographic and magnetic sound records, and 16 mm silent motion-picture films.

2 References

ISO 490, *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*.

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

3 Emulsion orientation

For 16 mm film the emulsion position is dependent on the process of preparation, and either emulsion-to-light source or emulsion-to-objective lens orientation may be encountered. The actual emulsion position should be indicated by a clear statement or diagram on the leader and on the label of the film container.

4 Rate of projection

The rate of projection shall be $16 \pm \begin{smallmatrix} 2,0 \\ -0,5 \end{smallmatrix}$ and/or 18 ± 1 frames per second for silent motion-picture films and 24 ± 1 frames per second for sound motion-picture films.

NOTES

- 1 Silent projectors having manually adjustable speed should be capable of reaching projection rates of 16 and 18 frames per second.
- 2 When a sound film is used in television in areas where the mains electricity supply is a.c. at 50 Hz, a rate of projection of 25 frames per second applies.

5 Position of projected image area

The projected image area shall be located in the vertical direction so that the horizontal axis of the projected area passes through the middle of the distance between the film perforations, as shown in the figure (dimension *A*).

It is recommended that projectors be provided with a framing adjustment of 0,5 mm (0.020 in) minimum above and below the nominal position.

6 Relationship between picture and sound record in the projector

The sound record as located in the film path of the projector shall precede the centre of the corresponding picture by the distances specified in ISO 490 and ISO 4243.

NOTES

- 1 Picture/sound displacement for prints with photographic sound is specified in ISO 4243 as 26 ± 1 frame, and preferably $26 \pm 0,5$ frames.
- 2 Picture/sound displacement for prints with magnetic sound is specified in ISO 490 as 28 ± 1 frame, and preferably $28 \pm 0,5$ frames.