International Standard 6896

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

Cinematography — Intermittent sprockets for 35 mm motion-picture projectors — Dimensions

Cinématographie — Débiteur intermittent pour projecteur cinématographique 35 mm — Dimensions

First edition — 1984-12-15

UDC 778.553.1 **Ref. No. ISO 6896-1984 (E)**

Descriptors : cinematography, motion-picture film 35 mm, motion-picture projector, intermittent sprockets, dimensions, definitions.

Price based on 4 pages

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 6896 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

Printed in Switzerland

Cinematography — Intermittent sprockets for 35 mm motion-picture projectors — Dimensions

1 Scope and field of application

This International Standard specifies the dimensions of two types of 16-tooth intermittent sprockets for 35 mm motion-picture projectors. This International Standard is applicable to sprockets used in conjunction with film perforated in accordance with ISO 491.

2 Reference

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

3 Definition

For the purpose of this International Standard the following definition applies.

intermittent sprocket: A feed sprocket used to advance the film periodically (frame-by-frame).

NOTE — The sprocket is usually completely at rest during the intervals between advances. It is normally heavily loaded during a portion of its motion since it has to accelerate the film from zero velocity and achieve an average rate of film advance. The root diameter is usually larger than that of a feed sprocket because of greater perforation distortion.

4 Sprocket tooth types

4.1 Type S is the standard square tooth that is used internationally and known as Type AC sprocket tooth, specified in ISO 491.

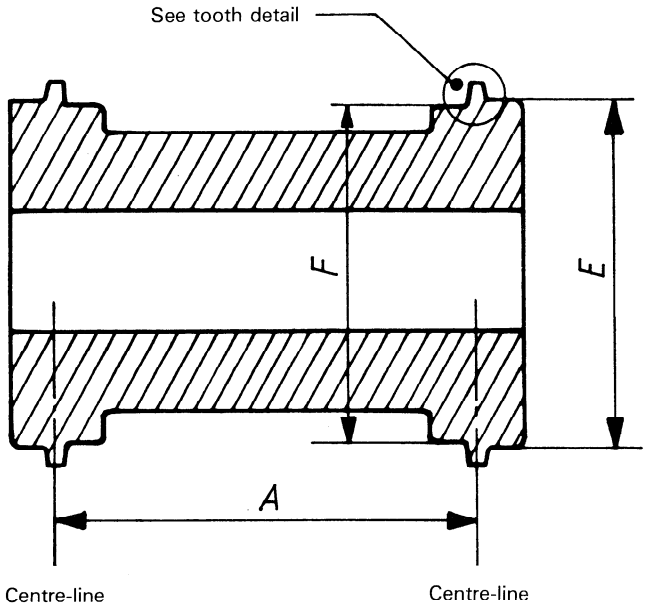
4.2 Type R is the round tooth that eliminates sharp corners on film contacting surfaces.

5 Dimensions

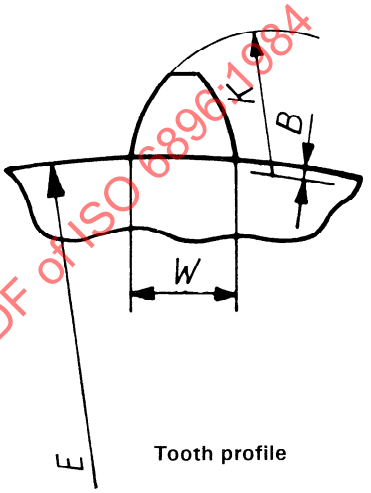
5.1 The dimensions shall be as shown in the figure and given in the table.

5.2 The sprocket tooth pitch is measured at the midpoint of 0,15 mm film thickness:

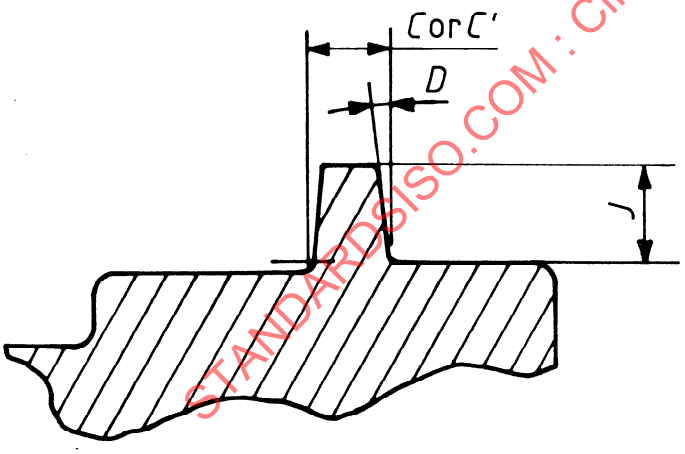
$$\frac{(\text{diameter } E + 0{,}15 \text{ mm})\ \pi}{\text{number of teeth}}$$



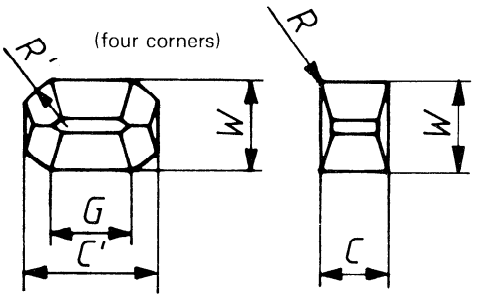
Cross-section of sprocket



Tooth profile



Cross-section of tooth



Type R Type S

Top view of tooth

Figure

Table — Dimensions

Dimension	Millimetres	Inches
A: Tooth centre-line to centre-line	28,58 ± 0,03	1.125 ± 0.001
B: Centre point of tooth arc	$0{,}10\ ^{0}_{-0{,}03}$	$0.004\ ^{0}_{-0.001}$
C: Square tooth lateral width	$1{,}02\ ^{+0{,}03}_{-0{,}05}$	$0.040\ ^{+0.001}_{-0.002}$
C': Round tooth lateral width	$1{,}83\ ^{0}_{-0{,}05}$	$0.072\ ^{0}_{-0.002}$
D: Lead angle of tooth sides	7° 30′ max.	7° 30′ max.
E: Root (film supporting) diameter	24,13 ± 0,03	0.950 ± 0.001
F: Inner diameter	0,25 less than E	0.010 less than E
G: Bearing surface	$1{,}17\ ^{0}_{-0{,}05}$	$0.046\ ^{0}_{-0.002}$
J: Tooth height above E	1,27	0.050
K: Tooth arc	$1{,}96\ ^{+0{,}05}_{0}$	$0.077\ ^{+0.002}_{0}$
R: Square tooth corner radius	0,13 max.	0.005 max.
R': Round tooth corner radius	1,09 ± 0,03	0.043 ± 0.001
W: Tooth width	$1{,}40\ ^{0}_{-0{,}05}$	0.055 ± 0.002

Annex

Explanatory notes

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

A.1 In current practice, the upper sprocket and the lower sprocket have dimensional values identical to those shown in the tables except for root diameter E. Diameter E is nominally 23,95 mm (0.943 in) on a 16-tooth feed sprocket or 23,88 mm (0.940 in) on those serving as holdback sprockets. The E diameter of 24-tooth feed sprockets is 35,89 to 36,17 mm (1.413 to 1.424 in), and holdback sprockets are nominally 35,89 mm (1.413 in) with some variation from manufacturer to manufacturer.

A.2 This International Standard specifies sprockets designed to accommodate films with either P or AC perforations which have different specifications insofar as perforation size and positioning are concerned. This requirement affects the centre-line to centre-line dimension (A) and the tooth width (C). The value specified for C' (round tooth) is an alternative design permitting a greater tooth width and a relatively large break at each tooth corner which avoids contact of the tooth corner with the fillet radii in the perforation corners, thus limiting the possibility of the tooth damaging the film. Elimination of square tooth corners also minimizes abrasion of the perforation edge.

A.3 Definitions

A.3.1 **feed sprocket**: A sprocket used to advance the film against a restraining force. Also known as an advancing or drive sprocket and usually lightly loaded.

NOTE — The force is applied to the leading edge of the film perforation (viewed in the direction of film motion). The sprocket rotates at a nominally constant velocity and tends to keep the film in motion.

A.3.2 **holdback sprocket**: A sprocket used to restrain the film against a tension force. Also known as a retarding or restraining sprocket.

NOTE — The force is applied to the trailing edge of the film perforation (viewed in the direction of film motion), and the sprocket rotates at a nominally constant velocity.