INTERNATIONAL STANDARD ISO 3647

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

Cinematography — Spindles for 16 mm motion-picture camera spools and projector reels — Dimensions

Cinématographie — Axes pour bobines de caméra et de projecteur 16 mm — Dimensions

First edition — 1976-05-01

UDC 771.531.352 : 778.533 **Ref. No. ISO 3647-1976 (E)**

Descriptors : cinematography, motion-picture cameras, motion-picture projectors, motion-picture film-16 mm, bobbins, spindles, dimensions.

Price based on 3 pages

FOREWORD

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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 3647 was drawn up by Technical Committee ISO/TC 36, *Cinematography*, and circulated to the Member Bodies in March 1975.

It has been approved by the Member Bodies of the following countries:

Austria	Italy	Switzerland
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No Member Body expressed disapproval of the document.

Printed in Switzerland

Cinematography — Spindles for 16 mm motion-picture camera spools and projector reels — Dimensions

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the dimensions and characteristics of 16 mm camera and projector reel spindles.

2 REFERENCES

ISO 1019, *Cinematography — Spools, daylight loading type for 16 mm motion-picture cameras — Dimensions.*

ISO 1793, *Cinematography — Reels for 16 mm motion-picture projectors (up to and including 120 m capacity : 18 cm size) — Dimensions.*

3 DIMENSIONS

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

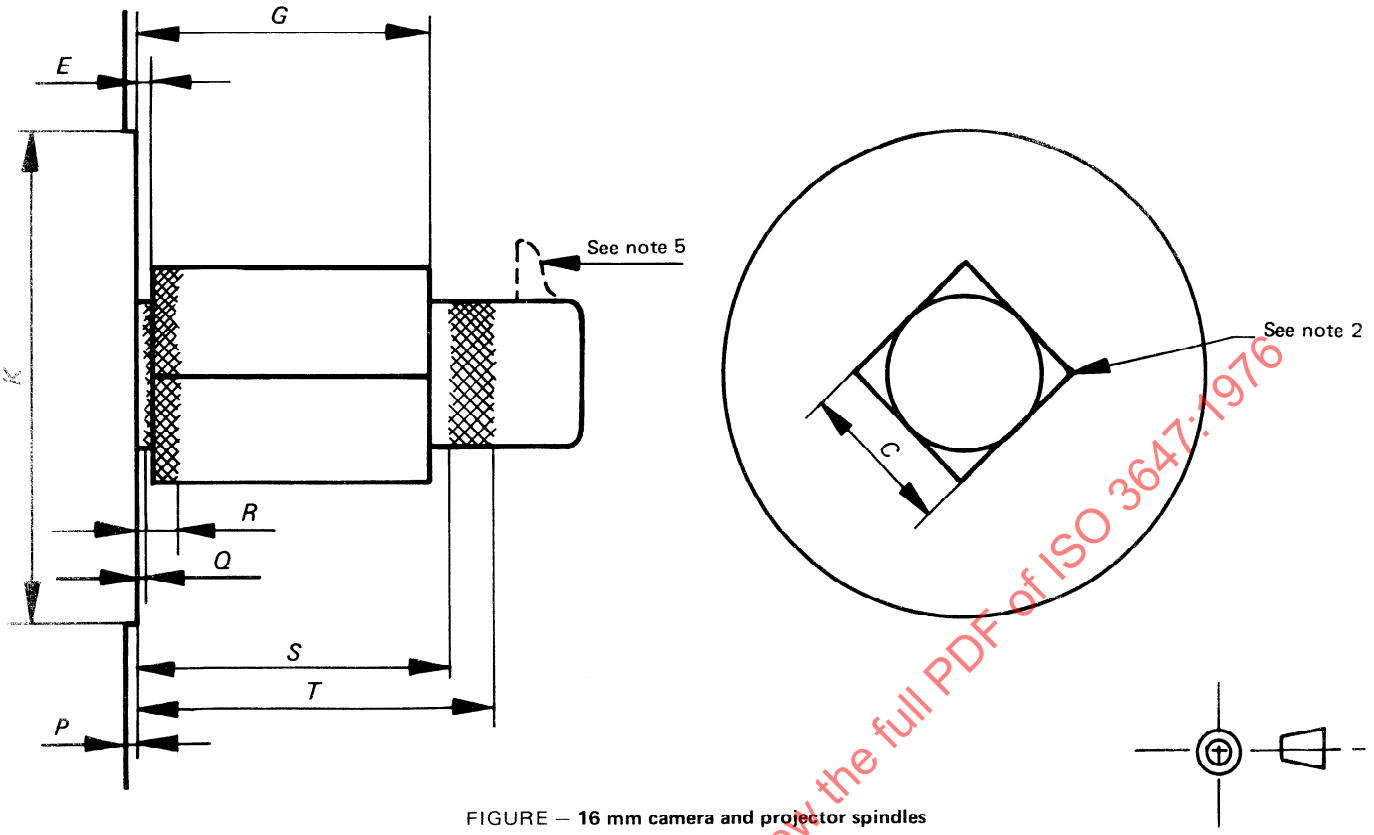

FIGURE – **16 mm camera and projector spindles**

TABLE – **Dimensions**

Dimension	Camera spindles				Projector spindles			
	minimum		maximum		minimum		maximum	
	mm	in	mm	in	mm	in	mm	in
*C** (see note 1)	7,87**	0.310**	8,00	0.315	7,87**	0.310**	8,00	0.315
E (see A.1)	–	–	0,25	0.010	–	–	0,25	0.010
G	2,5	0.10	15,5	0.61	2,5	0.10	16,8	0.66
*K** (see note 3)	16,0	0.63	24,5	0.96	16,0	0.63	24,5	0.96
P (see A.1)	0,65	0.026	–	–	4,0	0.16	–	–
Q (see note 4 and A.1)	–	–	0,15	0.006	–	–	0,13	0.005
R (see note 4 and A.1)	2,0	0.08	–	–	2,0	0.08	–	–
S (see note 4 and A.1)	–	–	16,00	0.630	–	–	18,03	0.710
T (see note 4 and A.1)	19,0	0.75	–	–	22,0	0.87	–	–

* Dimensions *C* and *K* are diameters; however, dimension *C* is also the side of the square portion.

** Applies only to zones defined by dimensions *Q*, *R*, *S* and *T*.

NOTES

1 Dimension *C* represents the diameter of the round portion of the shaft excluding the locking means. This dimension also specifies the length of the sides of the square portion of the spindle. The maximum value in each case applies to any point along the length of the shaft while the minimum value only applies to the areas limited by dimensions *Q*, *R*, *S* and *T*.

2 The edges of the square portion of the spindle should be rounded with a radius of 0,25 mm (0.010 in) minimum to 0,50 mm (0.020 in) maximum to prevent difficulty in reel positioning.

3 Some projector spindle reel supports and possibly some camera spindle spool supports have been as large as $K = 25{,}4$ mm (1.00 in). This figure corresponds exactly with the minimum diameter of the spool and reel flange "clear area" assigned in ISO 1019 and ISO 1793.

4 The zones dimensioned by *Q*, *R*, *S* and *T* illustrated by cross-hatching on the figure represent the spindle shaft areas on which the spool or reel flange rest (see A.2).

5 The shape and action of the device for locking reels on spindles is optional, but it should be located outside the area where spools or reels are located on the spindles. Overall thickness of spools or reels in the vicinity of the spindle hole is given in ISO 1019, and ISO 1793, as dimensions *J* and $J_1 = 18{,}5\ ^{0}_{-0{,}4}$ mm ($0.73\ ^{0}_{-0.02}$ in) for spools, and 20,0 ± 0,5 mm (0.79 ± 0.02 in) for reels.

ANNEX

A.1 Where only maximum or minimum values for a dimension are given, it is because the particular dimension is used to specify a function and to achieve interchangeability, and not to dictate design. While dimensions given only as a maximum can obviously go to zero, and while dimensions given only as a minimum can obviously become very large, it is understood that designers will utilize established engineering practice in the dimensioning of equipment covered by this International Standard.

A.2 A minimum shaft diameter has been specified for the *Q*, *R*, *S* and *T* dimensioned areas to help prevent loose fit of the spool on the spindle and resultant tilt of, or noise from, the spool.

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