# INTERNATIONAL STANDARD ISO 3644

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# Cinematography — Spindles for 8 mm Type R motion-picture cameras and projectors — Dimensions

*Cinématographie — Axes pour caméras et projecteurs 8 mm type R — Dimensions*

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## FOREWORD

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International Standard ISO 3644 was drawn up by Technical Committee ISO/TC 36, *Cinematography*, and circulated to the Member Bodies in February 1975.

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

| | | |
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| Australia | India | Sweden |
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No Member Body expressed disapproval of the document.





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# Cinematography — Spindles for 8 mm Type R motion-picture cameras and projectors — Dimensions



## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the dimensions and characteristics of 8 mm Type R camera and projector spindles.

## 2 REFERENCE

ISO 1020, *Cinematography — Spools, daylight loading type for double-8 mm motion-picture cameras — Dimensions.*

## 3 DIMENSIONS

The dimensions shall be as shown in the figures and given in the tables.

NOTES

1 Angle $\gamma$ represents the minimum effective angle between sides of two neighbouring lugs, but is not intended to limit the shape of the lug sides.

2 Dimension $D$ represents profile limits for the tops of lugs, but is not intended to limit their shape to an arc. However, the radial height of the lug beyond the main shaft, diameter $C$, must not exceed the mating cut-out in the spool flange. The height of any spindle lug is therefore limited to 1,25 mm (0.050 in), in accordance with the spool flange cut-out shown in ISO 1020.

3 Dimension $C$ represents the diameter of the spindle shaft, excluding key, drive lugs, and locking means. The maximum applies to all portions of the shaft but the minimum applies only to zones dimensioned by $Q$, $R$, $S$ and $T$ (see note 4 and A.3).

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 flanges rest or rotate.

5 The shape and action of the device for locking spools on spindles is optional but it should be located outside the area where spools are located on the spindle. Overall thickness of spools in the vicinity of the spindle hole is given as dimension

$J$ and $J_1 = 18{,}5\ ^{0}_{-0{,}4}$ mm ($0.73\ ^{0}_{-0.02}$ in) in ISO 1020.

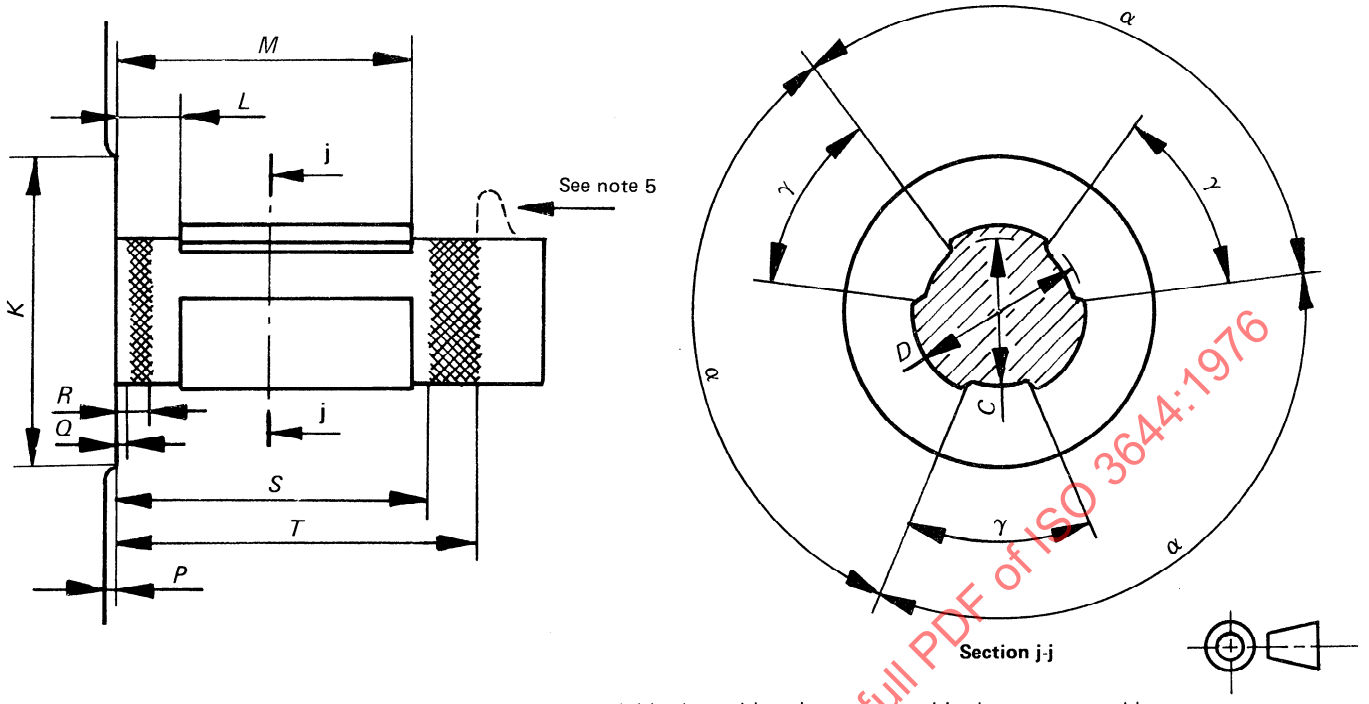
6 Some cameras are designed so that both the take-up and supply spools are driven during film exposure. For those cameras, the dimension $L$ of the supply spindle should be 0,25 mm (0.01 in) maximum.

7 The dimension $D$ maximum does not apply to 8 mm Type R camera take-up spindles manufactured with spring-loaded drive lugs which bear against the circumference as well as the sides of the corresponding slots in the spool spindle hole.

8 Dimension $A$ maximum does not apply to projector spindles manufactured with spring-loaded reel-locking keys.

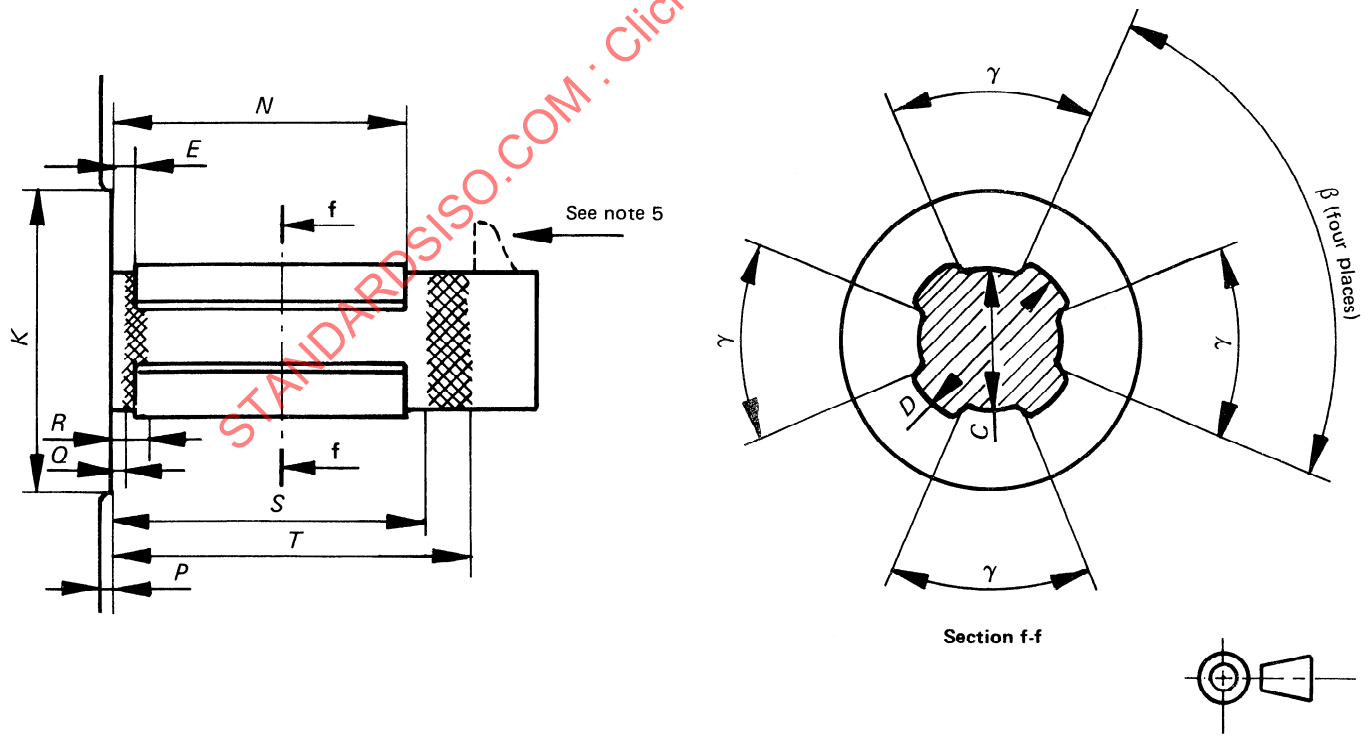
9 The shape and action of the device for locking reels on spindles is optional, but it should be located outside the area where reels are located on the spindle. Overall thickness of reels in the vicinity of the spindle hole is given as dimension

$J$ and $J_1 = 12{,}5\ ^{0}_{-1{,}5}$ mm ($0.49\ ^{0}_{-0.06}$ in).




The figure illustrates three evenly spaced drive lugs, although one or two drive lugs are acceptable.

FIGURE 1 — **Camera supply spindle**




The figure illustrates four evenly spaced drive lugs, although two lugs, preferably opposite each other, are acceptable (see A.2).

FIGURE 2 — **Camera take-up spindle**

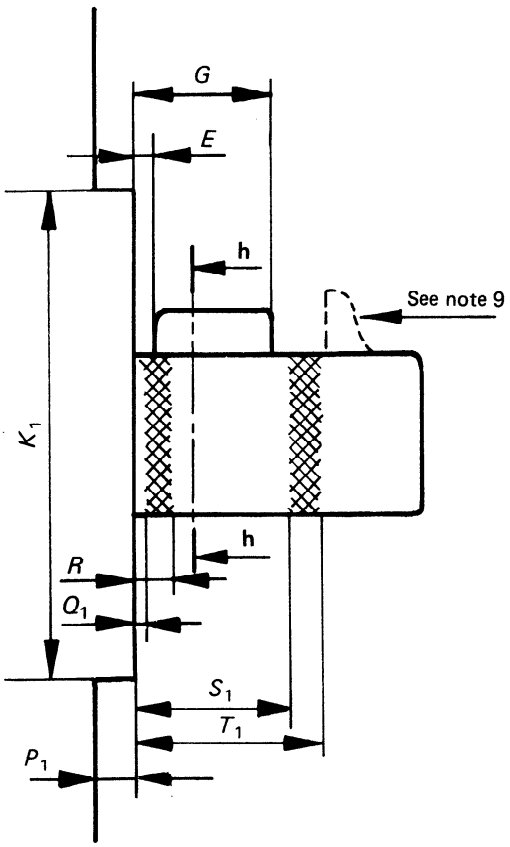
TABLE 1 — **Dimensions of 8 mm Type R camera supply and take-up spindles**

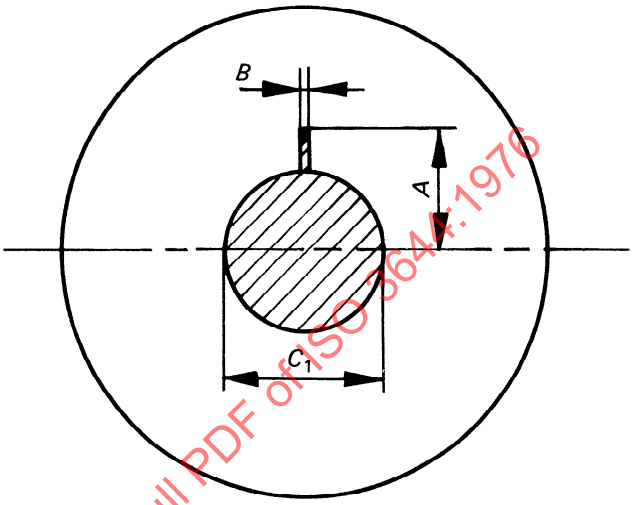
| Dimension | Minimum | | Maximum | |
|---|---|---|---|---|
| | mm | in | mm | in |
| *C** (see note 3) | 7,11** | 0.280** | 7,24*** | 0.285*** |
| *D** (see note 7) | 9,0 | 0.35 | 9,5 | 0.37 |
| *E* (see A.1) | – | – | 0,25 | 0.010 |
| *K** (see A.3) | 12,0 | 0.47 | 15,0 | 0.59 |
| *L* | 2,5 | 0.10 | (see note 6) | |
| *M* (see A.1) | – | – | 15,0 | 0.59 |
| *N* | 2,5 | 0.10 | 15,0 | 0.59 |
| *P* — If camera accommodates only 7,5 m (25 ft) spool | 0,50 | 0.020 | – | – |
| *P* — If camera accommodates 15 m (50 ft) or 30 m (100 ft) spool | 0,65 | 0.026 | – | – |
| *Q* (see note 4, A.1 and A.3) | – | – | 0,15 | 0.006 |
| *R* (see note 4, A.1 and A.3) | 2,0 | 0.08 | – | – |
| *S* (see note 4, A.1 and A.3) | – | – | 16,00 | 0.630 |
| *T* (see note 4, A.1 and A.3) | 19,0 | 0.75 | – | – |
| $\alpha$ | 120° basic | | | |
| $\beta$ | 90° basic | | | |
| $\gamma$ (see A.1) | 46° | | | |

* Dimensions *C*, *D* and *K* are diameters.

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

*** Some existing spools may have a minimum spindle hole at or near a diameter of 7,21 mm (0.284 in), but it is expected that the quantity at this value is not large, and for future spool construction, ISO 1020 specifies 7,30 mm (0.287 in) minimum.




**Section h-h**

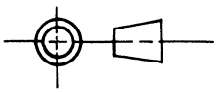


FIGURE 3 — **Projector spindle**



TABLE 2 — **Dimensions of projector spindles**

| Dimension | Minimum | | Maximum | |
|---|---|---|---|---|
| | mm | in | mm | in |
| *A* (see note 8) | 5,59 | 0.220 | 7,0 | 0.28 |
| *B* (see A.1) | – | – | 1,3 | 0.05 |
| $C_1$* (see note 3) | 7,9** | 0.31** | 8,00 | 0.315 |
| *E* (see A.1) | – | – | 0,25 | 0.010 |
| *G* | 2,5 | 0.10 | 8,0 | 0.31 |
| $K_1$* | 16,0 | 0.63 | 24,5 | 0.96 |
| $P_1$ (see A.1) | 2,4 | 0.09 | – | – |
| $Q_1$ (see note 4, A.1 and A.3) | – | – | 0,13 | 0.005 |
| *R* (see note 4, A.1 and A.3) | 2,0 | 0.08 | – | – |
| $S_1$ (see note 4, A.1 and A.3) | – | – | 8,89 | 0.350 |
| $T_1$ (see note 4, A.1 and A.3) | 12,95 | 0.510 | – | – |

* Dimensions $C_1$ and $K_1$ are diameters.

** Applies only to zones defined by dimensions $Q_1$, $R$, $S_1$ and $T_1$.