International Standard 5759

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

Cinematography — Sound motion-picture camera cartridge, 8 mm Type S, Model 1 — Cartridge-camera interface and take-up core drive — Dimensions and specifications

Cinématographie — Chargeur, modèle 1, pour caméra sonore 8 mm type S — Ajustement du chargeur dans la caméra et entraînement du noyau récepteur — Dimensions et spécifications

First edition — 1980-10-15

UDC 778.533.4 **Ref. No. ISO 5759-1980 (E)**

Descriptors : cinematography, motion picture film, motion picture film 8 mm, cameras, cores, drives, dimensions, specifications.

Price based on 5 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 5759 was developed by Technical Committee ISO/TC 36, *Cinematography*, and was circulated to the member bodies in October 1979.

It has been approved by the member bodies of the following countries :

Austria	Germany, F. R.	Switzerland
Belgium	Italy	United Kingdom
Canada	Japan	USA
Czechoslovakia	Mexico	USSR
Denmark	South Africa, Rep. of	Yugoslavia
Egypt, Arab Rep. of	Spain	
France	Sweden	

No member body expressed disapproval of the document.

Cinematography — Sound motion-picture camera cartridge, 8 mm Type S, Model 1 — Cartridge-camera interface and take-up core drive — Dimensions and specifications

1 Scope and field of application

This International Standard lays down the dimensions of the 8 mm Type S sound motion-picture film camera cartridge, Model 1, and gives cartridge-camera interface specifications.

This International Standard also lays down the dimensions of the take-up core drive opening and critical dimensions of the take-up core. In addition, the driving force, direction of drive and recommended drive ratio of the take-up core are specified.

An optional means of retaining the film supply scroll configuration until the cartridge is placed in the camera is described.

2 References

ISO 3067, *Cinematography — Motion-picture camera cartridge,* 8 mm *Type S, Model 1 — Notches for film speed, film identification and colour-balancing filter — Dimensions and positions.*

ISO 5760, *Cinematography — Sound motion-picture camera cartridge,* 8 mm *Type S, Model 1 — Aperture opening, pressure pad and film position — Dimensions and specifications.*

ISO 5761, *Cinematography — Sound motion-picture camera cartridge,* 8 mm *Type S, Model 1 — Pressure pad flatness and camera aperture profile — Dimensions and characteristics.*

ISO 5762, *Cinematography — Sound motion-picture camera cartridge,* 8 mm *Type S, Model 1 — Camera run length, perforation cut-out and end-of-run notch in film — Specifications.*

3 Dimensions

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

3.2 The dimensions apply to a cartridge assembled with a film load at the time of manufacture.

3.3 Datum planes B, C, and A are referred to as first, second and third respectively. These planes, which are used for dimensioning, are mutually perpendicular and jointly called a datum reference frame.

3.3.1 Datum plane A is coincident with the centre of a circle, located by basic dimension T. The circle is in contact with edges of the locating slot defined by dimensions A, O, P, and Q. The diameter of this circle is such that it applies regardless of feature size (RFS) of the locating slot. (See the annex, clause A.3.)

3.4 Datum features B, C and A are primary, secondary and tertiary respectively.

3.4.1 Datum feature B is the unnotched, unlabelled surface of the cartridge. It is the primary datum feature and relates the cartridge to the datum reference frame by having a minimum of three points in contact with the first datum plane B.

3.4.2 Datum feature C is the front seating surface of the cartridge. It is the secondary datum feature and relates the cartridge to the datum reference frame by having a minimum of two points in contact with the second datum plane C.

3.5 Dimensions L, N, U, A_m, V, M, W, and R_3, measured from datum planes A and C, describe the extent of both triangular recessed areas having a depth controlled by dimension E, as shown in the view of the label side. The inboard wall of the recessed area, defined by dimensions L and N, shall be a smooth surface and may be tilted from the perpendicular to the datum plane B sufficiently to allow proper release from a mould when the cartridge is manufactured in a moulding process.

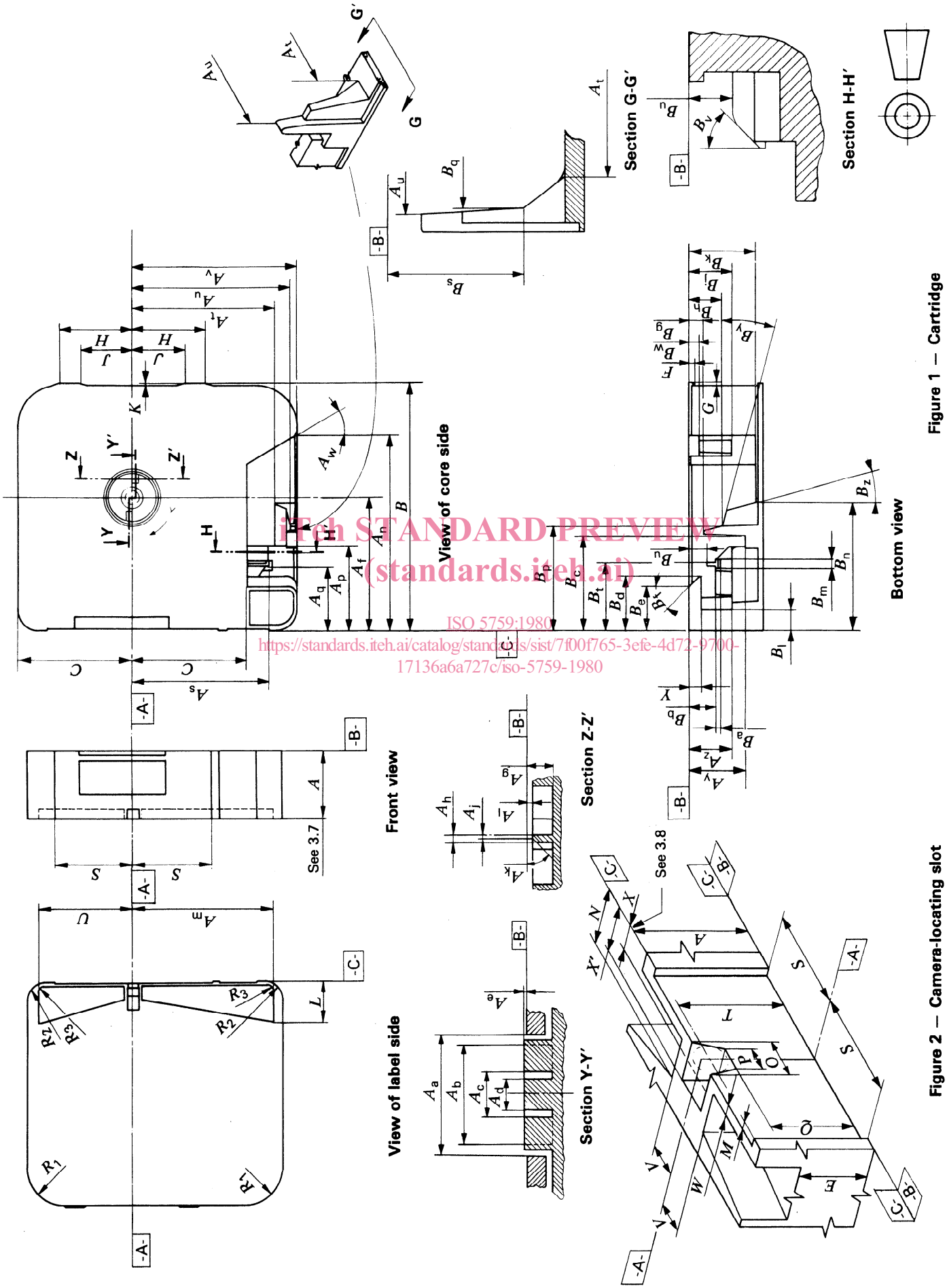

Figure 1 — Cartridge

Figure 2 — Camera-locating slot

Table 1

Dimension	mm	in
A	23,98 min.	0.944 min.
	24,89 max.	0.980 max.
B	75,9 ± 0,3	2.99 ± 0.01
C	35,31 ± 0,25	1.390 ± 0.010
E	19,81 max.	0.780 max.
F	2,3 ± 0,3	0.09 ± 0.01
G	1,5 ± 0,3	0.06 ± 0.01
H	22,4 ± 0,8	0.88 ± 0.03
J	15,5 ± 0,8	0.61 ± 0.03
K	0,38 ± 0,25	0.015 ± 0.010
L	11,94 min.	0.470 min.
M	0,178 ± 0,13	0.007 ± 0.005
N	4,50 min.	0.177 min.
O	3,91 ± 0,10	0.154 ± 0.004
P	3,61 ± 0,10	0.142 ± 0.004
Q	19,56 ± 0,25	0.770 ± 0.010
R_1	12,7 ± 2,5	0.50 ± 0.10
R_2	6,4 ± 1,3	0.25 ± 0.05
R_3	4,06 max.	0.160 max.
S	25,9 ± 0,3	1.02 ± 0.01
T*	22,10	0.870
U	31,12 min.	1.225 min.
V	3,18 max.	0.125 max.
W	See 3.6	
X	1,78 min.	0.070 min.
X'	4,01 min.	0.158 min.
Y	3,84 ± 0,30	0.151 ± 0.012

* Basic dimension — No tolerance intended.(See 3.3.1.)

** Basic dimension — No tolerance intended. (See 3.10.)

Table 2

Dimension	mm	in
A_a	17,27 max.	0.680 max.
A_b	14,60 min.	0.575 min.
A_c	8,31 max.	0.327 max.
A_d	6,71 max.	0.264 max.
A_e	0,76 max.	0.030 max.
A_f**	40,84	1.608
A_g	2,54 min.	0.100 min.
A_h	1,02 ± 0,13	0.040 ± 0.005
A_j	0,51 max.	0.020 max.
A_k	45° nom.	45° nom.
A_l	0,76 max.	0.030 max.
A_m	46,61 min.	1.835 min.
A_n	59,44 min.	2.340 min.
A_p	26,21 max.	1.032 max.
A_q	18,62 ± 0,20	0.733 ± 0.008
A_s	43,43 ± 0,30	1.710 ± 0.012
A_t	43,94 min.	1.730 min.
A_u	48,01 min.	1.890 min.
A_v	50,80 ± 0,25	2.000 ± 0.010
A_w	$30° \begin{smallmatrix}+1°\\-5°\end{smallmatrix}$	$30° \begin{smallmatrix}+1°\\-5°\end{smallmatrix}$
A_y	15,75 min	0.620 min.
A_z	12,75 min.	0.502 min.

Table 3

Dimension	mm	in
B_a	1,52 ± 0,20	0.060 ± 0.008
B_b	8,10 ± 0,20	0.319 ± 0.008
B_c	29,26 min.	1.152 min.
B_d	16,76 max.	0.660 max.
B_e	13,54 max.	0.533 max.
B_f	45° nom.	45° nom.
B_g	4,11 ± 0,38	0.162 ± 0.015
B_h	8,81 min.	0.347 min.
B_j	12,75 min.	0.502 min.
B_k	21,34 min.	0.840 min.
B_l	6,60 max.	0.260 max.
B_m	2,36 ± 0,38	0.093 ± 0.015
B_n	39,37 max.	1.550 max.
B_p	32,51 max.	1.280 max.
B_q	47,96 min.	1.888 min.
B_s	16,71 min.	0.658 min.
B_t	19,99 max.	0.787 max.
B_u	5,08 min.	0.200 min.
B_v	45° nom.	45° nom.
B_w	3,84 ± 0,30	0.151 ± 0.012
B_y	15° ± 2°	15° ± 2°
B_z	15° ± 2°	15° ± 2°

3.6 The thickness of the wall of the cartridge used for notching, dimension W, shall be sufficient to withstand a force of at least 10 N (2.2 lbf), while deflecting no more than 1 mm (0.04 in).

NOTE — For the purpose of measurement, the force is applied by the end of a solid cylindrical pin of diameter nominally 1,27 mm (0.05 in), applied at a point nominally 0,8 mm (0.03 in) below the film speed notch or above the filter notch. The axis of the pin shall be situated within a plane parallel to datum plane B and at the distance T. Force is to be exerted in a direction away from and normal to datum plane C.

3.7 Dimension A specifies the normal overall thickness of the cartridge.

3.8 Some cartridge manufacturers may desire to provide a means of retaining the film supply scroll configuration until the cartridge is placed in the camera. One method uses a film locking slide which is actuated by the camera locating pin and releases the film when the cartridge is inserted in the camera. Dimension X specifies the minimum depth of the camera locating slot in the cartridge as provided by the manufacturer, i.e. the distance from datum plane C to the end of the slide. Dimension X' is the minimum distance from datum plane C to the end of the slide after the cartridge is positioned in the camera. A camera locating pin having a maximum diameter of 3,56 mm (0.140 in) and a length of 3,94 ± 0,08 mm (0.155 ± 0.003 in) from datum plane C shall be sufficient to actuate the film locking slide. (See the annex, clause A.4.)

Allowance shall be provided within the camera to accommodate a bowing of the notched, labelled side, of the cartridge cover of up to a maximum of 25,63 mm (1.009 in) from datum plane B. The labelled side of the cartridge is shown in figure 1.

3.9 Dimensions B and M are measured from datum plane C. Dimensions C, J, H, and S are measured from datum plane A.

3.10 The take-up core axis shall be located within 0,25 mm (0.010 in) of the true centre formed by datum plane A and basic dimension A_f.

3.11 Dimensions A_a, A_b, A_c, and A_d are diameters.

3.12 Dimensions B_t, B_u, and B_v define an optional guide provided to facilitate film loading at the time of cartridge manufacture.

4 Take-up core drive

4.1 The normal direction of drive for the core shall be "clockwise" (right-hand drive) when viewed from the core side of the cartridge. (See the annex, clause A.5.)

4.2 After disengagement of any core anti-backup device, the core shall be driven with a nominal torque of $6{,}0 \times 10^{-3}$ N·m with a permissible range of $3{,}5 \times 10^{-3}$ N·m to $10{,}6 \times 10^{-3}$ N·m (0.85 ozf·in with a permissible range of 0.5 to 1.5 ozf·in). (See the annex, clause A.2.)

Annex

A.1 In designing the camera driver, consideration should be given to the fact that tooth-on-tooth engagement of the core lug on the camera driver pin is a possibility.

A.2 It is recommended that the core be tendency driven (by some form of slip-drive mechanism) with a drive ratio of at least one turn of the core for every fifteen strokes of the pull-down claw.

A.3 To provide a consistent method of measurement, it is recommended that a cartridge gauging fixture be used which incorporates datum surfaces, a locating pin, and means of exerting locating forces on appropriate surfaces of the cartridge.

A.4 The camera locating pin should be capable of withstanding a maximum force of 18 N (4 lbf) to actuate the film locking slide.

A.5 If a take-up core anti-backup mechanism is used, the mechanism should be capable of disengagement when the cartridge is placed in the camera permitting the core to turn silently.

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