International Standard 1780

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Cinematography — Motion-picture camera cartridge, 8 mm Type S Model I — Aperture, camera aperture profile, film position, pressure pad and pressure pad flatness — Dimensions and specifications

Cinématographie — Chargeur, modèle I, pour caméra, 8 mm type S — Fenêtre du chargeur, configuration de la fenêtre de la caméra, position du film, presseur du chargeur et planéité du presseur — Dimensions et 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 1780-1984 is a combination of the first edition of ISO 1780-1975, of ISO 5760-1980, and of ISO 5761-1980, which it cancels and replaces. It was prepared by Technical Committee ISO/TC 36, *Cinematography*.

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Cinematography — Motion-picture camera cartridge, 8 mm Type S Model I — Aperture, camera aperture profile, film position, pressure pad and pressure pad flatness — Dimensions and specifications

1 Scope and field of application

This International Standard specifies the dimensions and location of the cartridge aperture, pressure pad, and characteristics necessary for the appropriate flatness of the cartridge and location of film in the camera aperture, for any model of 8 mm Type S Model I motion-picture film camera cartridge [sound or silent, 15 m (50 ft) or 60 m (200 ft)].

2 References

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications.*

ISO 1787, *Cinematography — Camera usage of* 8 mm *motion-picture film perforated Type S.*

ISO 3654, *Cinematography — Motion-picture camera cartridge* 8 mm, *Type S Model I — Cartridge-camera interface and take-up core drive — Dimensions and specifications.*

ISO 5759, *Cinematography — Sound motion-picture camera cartridge,* 8 mm, *Type S Model I — Cartridge-camera interface and take-up core drive — Dimensions and specifications.*

ISO 6903, *Cinematography — Motion-picture camera cartridge,* 8 mm *Type S, Model I (capacity* 60 m*) — Cartridge-camera interface and sprocket drive — Dimensions and specifications.*

3 Dimensions

Measurements made at the time of manufacture shall be taken at 23 ± 2 °C as stated in ISO 554. A manufacturer may indicate other nominal temperatures under which dimensions apply.

3.1 The dimensions shall be as shown in the figures and given in the tables. The dimensions shown in figures 1 and 3 and given in tables 1 and 3 apply to a cartridge that is fully assembled, but does not contain film.

3.2 The dimensions shown in figure 2 and given in table 2 shall apply to an assembled cartridge with a film load at the time of manufacture.

3.3 The datum planes and features used for dimensions shall be defined in accordance with ISO 3654, ISO 5759 or ISO 6903.

3.4 Dimensions T and U denote the lateral location of the film in the cartridge before insertion in the camera. After insertion, dimension T becomes 1,52 mm (0.060 in) min., and dimension U becomes 1,27 mm (0.050 in) min.

3.5 All dimensions in table 1, except dimensions A and C, apply at the front surface of the pressure pad. A slope of 5° to the recess area is permitted as well as an inside or outside radius of 0,13 mm (0.005 in) at all corners to provide satisfactory mould release when the pressure pad is manufactured in a moulding process.

3.6 Dimension A denotes the space available from datum plane C, for penetration of the camera film alignment guide wings or the camera claw into the recessed area of the cartridge pressure pad.

3.7 Dimension B is measured from datum plane C and is the operating position of the cartridge pressure pad.

3.8 Dimensions relative to the surface of the pressure pad are measured from a plane established through surfaces 1, 2 and 3 as defined by 1,52 mm (0.060 in) diameter circles centred as shown in figure 3. The actual camera aperture bosses may deviate from this shape.

3.9 Dimension G_2 specifies the clearance for film in the camera aperture area, based on T_2, the thickness of the film in the centre of the picture area (see note 1).

3.10 Dimension G_2' specifies the extension of the camera aperture plate boss points (corresponding to 1, 2 and 3), beyond the aperture plate plane at the aperture opening.

3.11 The upper and lower pad areas extend from dimension C_2 to the top and bottom of the cartridge pressure pad within dimension K_2.

3.12 Dimension H_2 is intended to apply from a plane as described by 3.8.

Table 1 — Cartridge pressure pad dimensions

Dimensions	mm	in
A max.	3,81	0.150
B	1,96 ± 0,13	0.077 ± 0.005
C min.	2,29	0.090
D min.	13,72	0.540
E max.	6,60	0.260
F	9,14 ± 0,51	0.360 ± 0.020
G min.	11,56	0.455
H max.	9,27	0.365
J max.	7,62	0.300
K min.	0,0	0.0
L	13,72 ± 0,51	0.540 ± 0.20
M min.	7,62	0.300
N max.	3,56	0.140
O	1,47 ± 0,56	0.058 ± 0.022
P	0,97 ± 0,56	0.038 ± 0.022
Q min.	1,40	0.055
S min.	2,29	0.090

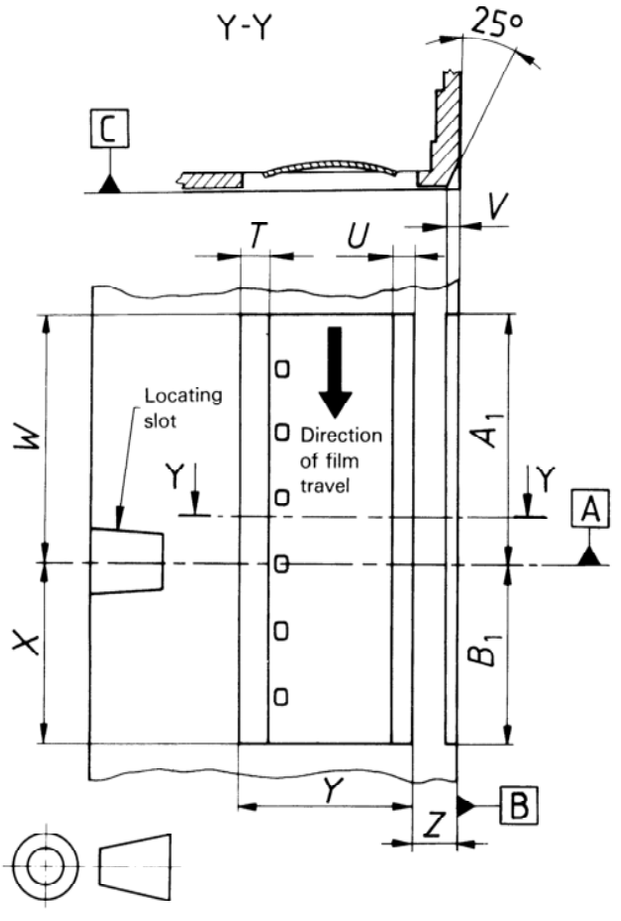

Figure 2 — Cartridge aperture opening and film position

Table 2 — Cartridge aperture opening and film position dimensions

Dimensions	mm	in
T min.	1,27	0.050
U min.	1,02	0.040
V	1,55 ± 0,15	0.061 ± 0.006
W	16,46 ± 0,15	0.648 ± 0.006
X	11,46 ± 0,15	0.451 ± 0.006
Y	11,46 ± 0,10	0.451 ± 0.004
Z	2,82 ± 0,08	0.111 ± 0.003
A_1 min.	16,31	0.642
B_1 min.	11,30	0.445

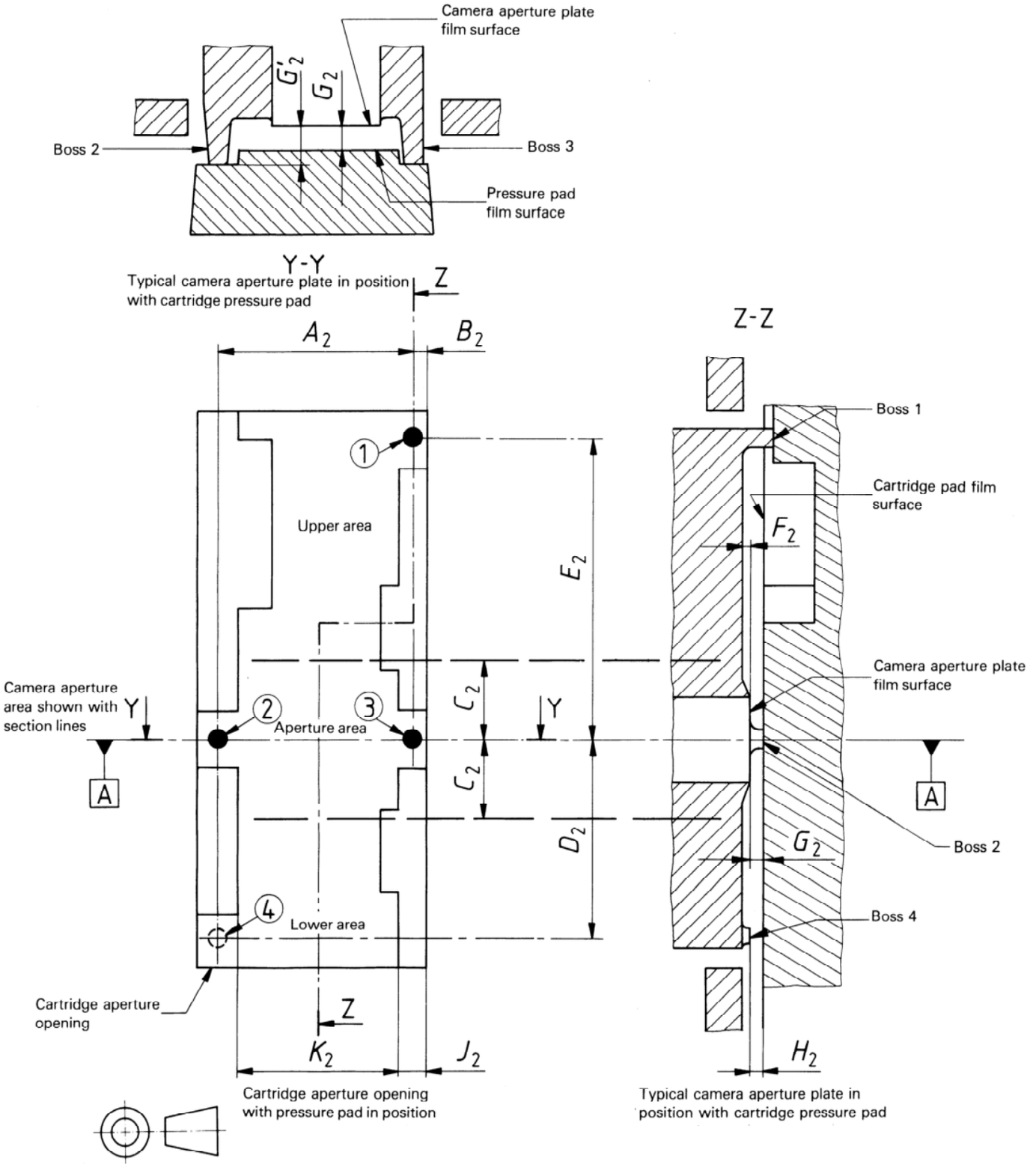

Figure 3 — Pressure pad flatness reference surfaces

Table 3 — Pressure pad dimensions

Dimensions	mm	in
A_2	9,60 ± 0,03	0.378 ± 0.001
B_2	0,76 $^{+0,05}_{0}$	0.030 $^{+0.002}_{0}$
C_2 nom.	3,89	0.153
D_2	9,98 ± 0,03	0.393 ± 0.001
E_2	14,99 ± 0,03	0.590 ± 0.001
F_2 min.	0,13	0.005
G_2 min.	T_2 + 0,018	T_2 + 0.000 7
max.	T_2 + 0,030	T_2 + 0.001 2
G'_2 min.	0,165	0.006 5
max.	0,178	0.007 0
H_2 min.	0,10	0.004
J_2 min.	1,40	0.055
K_2 max.	7,87	0.310

Table 4 — Flatness tolerances on pressure pad film surface

Areas	mm	in
Aperture area (within dimension C_2)	+0,147 − T_2 max. +0,122 − T_2 min.	+0.005 8 − T_2 max. +0.004 8 − T_2 min.
Upper area	+0,198 − T_2 max. +0,096 − T_2 min.	+0.007 8 − T_2 max. +0.003 8 − T_2 min.
Lower area	+0,198 − T_2 max. +0,046 − T_2 min.	+0.007 8 − T_2 max. +0.001 8 − T_2 min.

NOTE — Table dimensions are measured from the zero plane defined by surfaces 1, 2 and 3. (See 3.8; figure 3; note 2.)

Annex

Additional data

(This annex forms part of the standard.)

A.1 A force of 2,2 to 3,9 N (8 to 14 ozf) shall be exerted on the pressure pad for proper seating against the camera aperture plate.

A.2 The two cut-out areas in the pressure pad permit the use of fingers for side-guiding. A force of 0,42 to 0,70 N (1.5 to 2.5 ozf) per finger is adequate to ensure picture steadiness.

A.3 Other portions of the pressure pad front surface may be recessed in addition to the required recesses, defined by dimension C in 3.6 for camera claw and camera aperture guide finger penetration.

A.4 The cartridge pressure pad recess, defined by dimensions D, E and J, is available for camera claw film transport engagement. The perforation used for the film vertical registration at its stopping position is specified in ISO 1787 as -2 from the perforation adjacent to the image formed by the camera aperture. The horizontal centreline of the camera aperture should nominally coincide with datum plane A.

A.5 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. For pressure pad measurements, a second fixture, incorporating three 1,52 mm (0.060 in) diameter bosses and means for exerting the appropriate pressure pad seating force, is recommended.

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