
INTERNATIONAL STANDARD



1780

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Cinematography — Motion-picture camera cartridge, 8 mm Type S, Model I — Aperture opening, pressure pad and film load — Positions and dimensions

*Cinématographie — Chargeur modèle I pour caméra 8 mm type S — Fenêtre, presseur et chargement
du film — Positions et dimensions*

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

International Standard ISO 1780 was drawn up by Technical Committee ISO/TC 36, *Cinematography*, and circulated to the Member Bodies in February 1975.

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

Austria	Italy	Turkey
Belgium	Japan	United Kingdom
Canada	Romania	U.S.A.
Czechoslovakia	South Africa, Rep. of	U.S.S.R.
Denmark	Spain	Yugoslavia
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No Member Body expressed disapproval of the document.

Cinematography — Motion-picture camera cartridge, 8 mm Type S, Model I — Aperture opening, pressure pad and film load — Positions and dimensions

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the dimension of the aperture opening, dimensions and flatness tolerances for the film surface of the pressure pad, and the location of the film in the aperture of the 8 mm Type S Model I camera film cartridge. In addition, the zero plane used to measure the flatness characteristics of the pressure pad and recommendations pertaining to the camera aperture plate film surface dimensional profile, as well as the clearances for the film in the aperture area, are specified.

2 REFERENCES

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

ISO 3024, *Cinematography — Motion-picture camera cartridge, 8 mm Type S, Model I — Camera run length, perforation cut-out and end-of-run notch in film — Specifications.*

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

ISO 3654, *Cinematography — Motion-picture camera cartridge, 8 mm Type S, Model I — Camera fit and take-up core drive — Dimensions and specifications.*¹⁾

3 DIMENSIONS AND CHARACTERISTICS

3.1 The dimensions shown in figure 2 apply to a cartridge freshly loaded with film prior to insertion in a camera. The dimensions shown in figures 1 and 3 apply to a cartridge that has been fully assembled, but does not contain film in the aperture area.

3.2 Many dimensions are given with respect to datum planes A, B and C. The datum planes are mutually perpendicular and are coincident with the surfaces that engage mating camera parts in such a way as to ensure proper alignment of the cartridge in the camera.

3.3 Dimensions T and U denote the lateral location of the film in the cartridge before insertion in the camera. It is expected that the camera aperture plate or film edge guides will be positioned so that dimension T will become 1,52 mm (0.060 in) minimum and dimension U will become 1,27 mm (0.050 in) minimum.

3.4 All dimensions in table 1, except dimension A , apply at the front surface of the pressure pad. The pressure pad need not be a cut-out to conform to these dimensions, provided there is sufficient recess from the front surface of the pressure pad as shown by dimension C to allow for camera claw and camera aperture guide finger penetration as defined in 3.5. A draft 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.

3.5 Dimension A denotes the maximum space available, from datum plane C, for penetration of the camera film alignment guides and the camera claw into the recessed area of the cartridge pressure pad.

3.6 Dimension B defines the operating position of the cartridge pressure pad when seated by the camera aperture plate to provide proper positioning of the film emulsion plane and unrestricted film transport.

3.7 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 the minus 2 perforation from the perforation adjacent to the image formed by the camera aperture. The horizontal centre line of the camera aperture should nominally coincide with datum plane A.

3.8 The zero plane, referenced in table 4, is established by surfaces 1, 2 and 3 as defined by 1,52 mm (0.060 in) circles, centred as shown in figure 3.

1) At present at the stage of draft.

3.9 It is intended that the film surface of the cartridge pressure pad be flat. Pits or depressions, however, which do not interfere with the film flatness, are acceptable. Bumps or protrusions are not acceptable. The tolerances established for the flatness on the 8 mm Type S film cartridge pressure-pad film surface are specified to allow for slight warpage in moulding if the pressure pad is made from a plastic material.

3.10 The plus values given for the pressure-pad film surface flatness tolerances should be directed towards the lens.

3.11 Dimension G_2 of figure 3 and table 3 specifies the clearance for film in the picture aperture area. To prevent a mis-match of the cartridge pressure pad seating area and the camera aperture boss, the minimum value of G_2 should be established by taking the maximum film thickness to be used by a manufacturer and adding 0,013 mm (0.000 5 in). This change will allow a manufacturer the opportunity to vary dimension G_2 according to the thickness of his film product.

3.12 The upper and lower aperture areas shown in figure 3 extend from dimension C_2 to the top and bottom of the cartridge aperture opening.

3.13 Surface 4 of the cartridge pressure pad and surface 4 of the camera aperture are established to aid in seating the cartridge pressure pad to the camera aperture plate. They serve no function once the pressure pad is in the operating position. They do, however, aid in seating the pressure pad and ensure that the film will not be pinched at the bottom of the cartridge aperture opening.

NOTES

1 Three surfaces, Nos. 1, 2 and 3, on the pressure pad provide areas to touch the camera aperture plate and thereby determine the film plane alignment and the clearance allowed for the thickness of the film. The required clearance is defined in 3.11. Surface No. 4 does not touch the camera aperture plate, but has a clearance of 0,10 to 0,20 mm (0.004 to 0.008 in). (See figure 3.)

2 The camera aperture plate surfaces may deviate from the shape and size of surfaces 1, 2 and 3 shown in figure 3 and specified in 3.8.

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ANNEX

A.1 The pressure pad spring exerts a force of 2,23 to 3,9 N (8 to 14 ozf) to seat the pressure pad on the camera aperture plate.

A.2 There are two cut-out areas in the pressure pad to permit the use of guides for side-guiding, designated by dimensions M , N and S of figure 1. It is suggested that consideration be given to the use of two side guides bearing against the edge of the film. The force exerted by each side guide is suggested to be 0,42 to 0,7 N (1.5 to 2.5 ozf). Experience has shown that the best steadiness of pictures is obtained by this procedure.

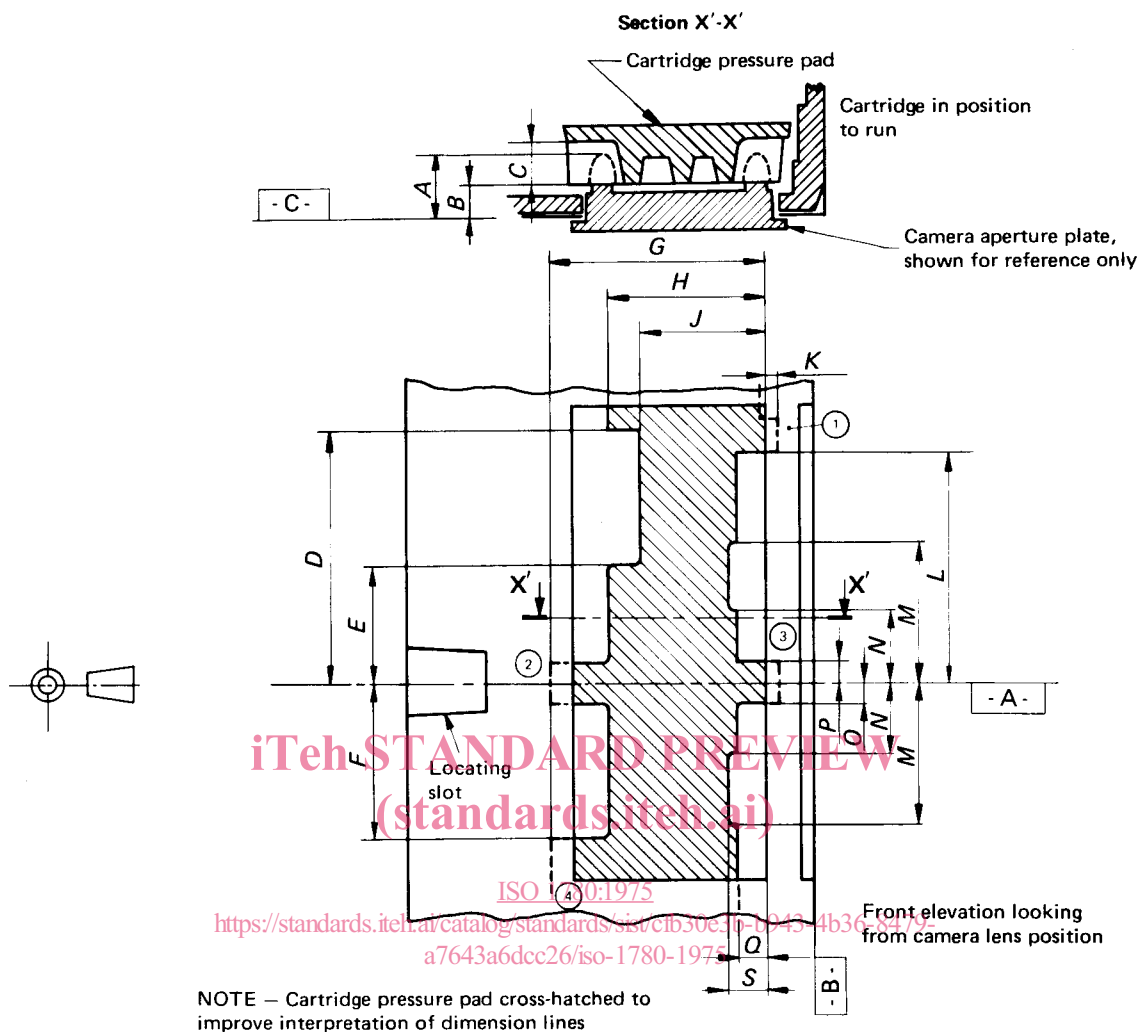


FIGURE 1 – Cartridge pressure pad

TABLE 1 – Cartridge pressure pad

Dimension	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 ± 0.020
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

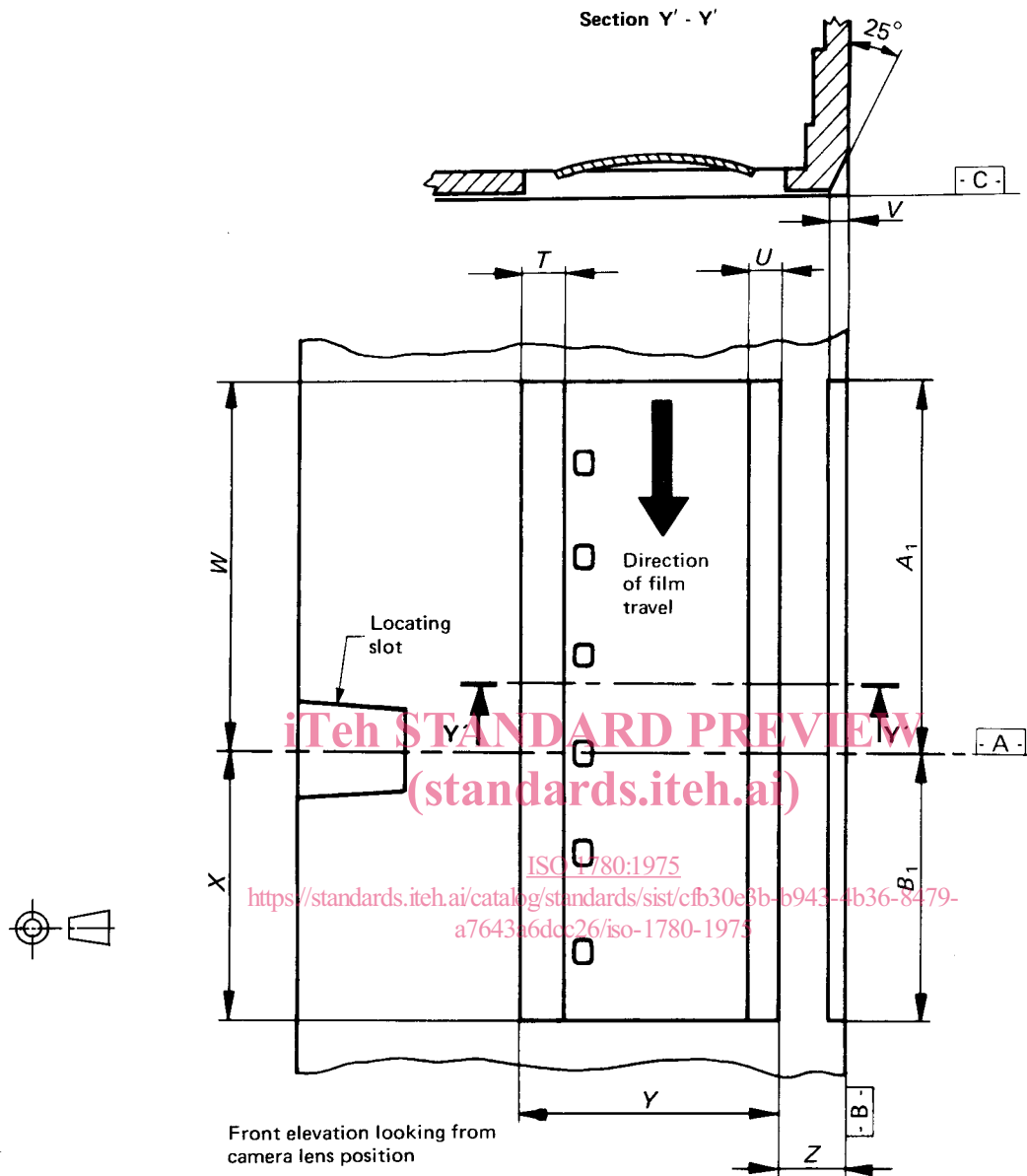
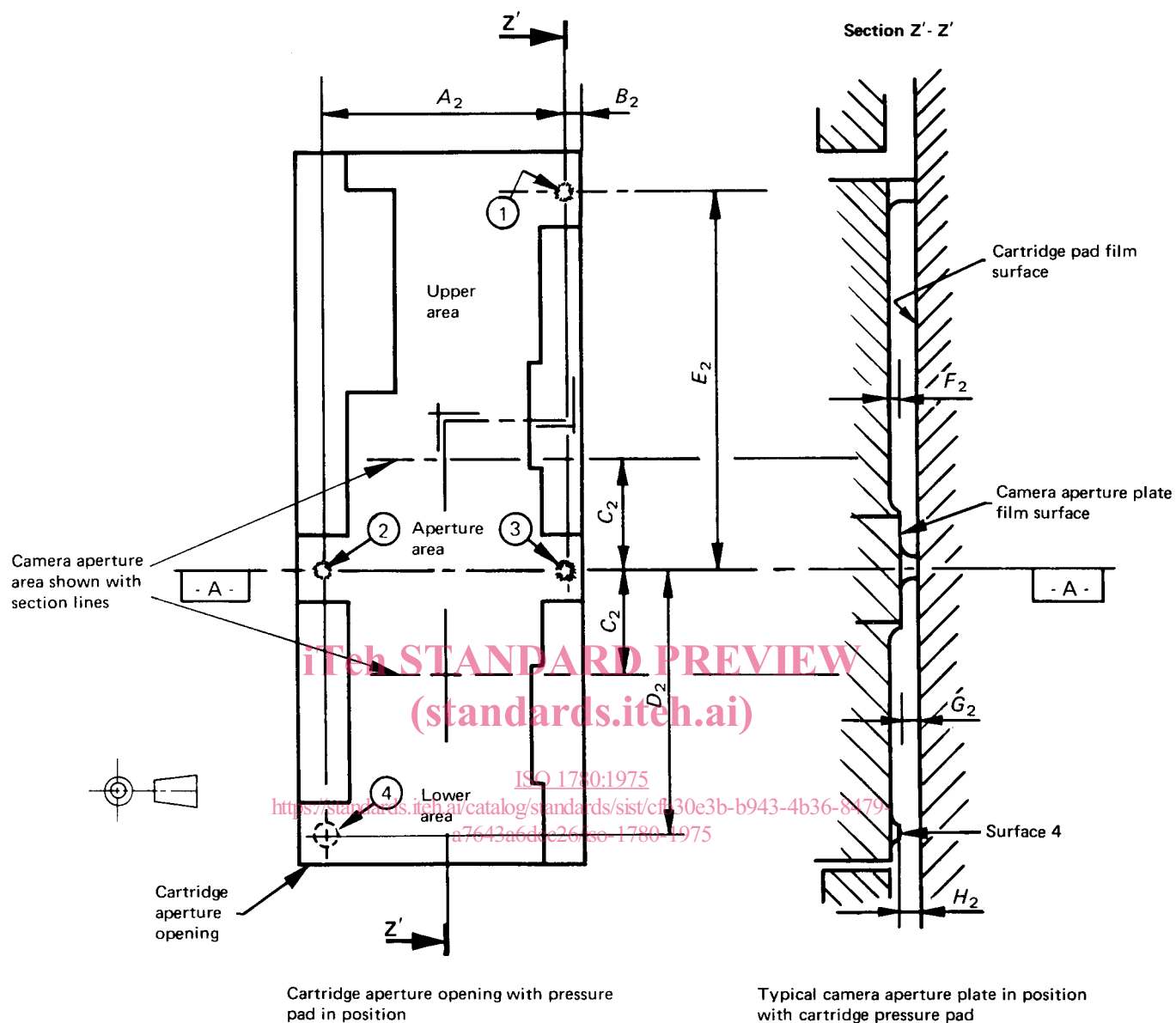


FIGURE 2 – Cartridge aperture opening and film position

TABLE 2 – Cartridge aperture opening and film position

Dimension	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



NOTE – It is considered good practice to relieve the camera aperture plate above and below the picture area to allow a clearance for film transport and minimize the possibility of “film pinching”. Dimension F_2 specifies the amount of clearance for this purpose.

FIGURE 3 – Pressure pad flatness reference surfaces

TABLE 3 – Pressure pad flatness reference surfaces

Dimension	mm	in
A_2	$9,60 \pm 0,03$	0.378 ± 0.001
B_2	$0,76 + 0,05 / 0$	$0.030 + 0.002 / 0$
C_2 min.	3,86	0.152
D_2	$9,98 \pm 0,03$	0.393 ± 0.001
E_2	$14,99 \pm 0,03$	0.590 ± 0.001
F_2 min.	0,13	0.005
G_2	See 3.11	See 3.11
H_2 min.	See 3.11 and 3.13	See 3.11 and 3.13
max.	0,20	0.008

TABLE 4 – Flatness tolerances

	mm	in
Aperture area	0	0
(within dimension C_2 figure 3)	- 0,025	- 0.001 0
Upper area	+ 0,05 - 0,05	+ 0.002 - 0.002
Lower area	+ 0,05 - 0,10	+ 0.002 - 0.004

NOTE – The zero plane is determined by points 1, 2 and 3 (figure 3) or a distance away from these points equivalent to the thickness of the material needed to compensate for thinner films as established in 3.11. (See 3.9, 3.10 and note 1.)

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