International Standard 2707

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

Micrographics — Transparent A6 size microfiche of uniform division — Image arrangements No. 1 and No. 2

Micrographie — Microfiche transparente de format A6 à partition uniforme — Dispositions d'images nº 1 et nº 2

Third edition — 1980-11-01

UDC 778.142 **Ref. No. ISO 2707-1980 (E)**

Descriptors : documentation, reproduction (copying), microcopies, microfiches, photographic images, specifications, positioning, dimensions, layout, legibility.

Price based on 8 pages

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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 2707 was developed by Technical Committee ISO/TC 171, *Micrographics*.

This third edition was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the second edition (i.e. ISO 2707-1976), which had been approved by the member bodies of the following countries :

Australia	Germany, F. R.	Spain
Belgium	Hungary	Switzerland
Bulgaria	India	Thailand
Canada	Israel	Turkey
Czechoslovakia	Italy	United Kingdom
Denmark	New Zealand	USA
Egypt, Arab Rep. of	Poland	USSR
Finland	Romania	Yugoslavia
France	South Africa, Rep. of	

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Japan
Netherlands

Printed in Switzerland

Micrographics — Transparent A6 size microfiche of uniform division — Image arrangements No. 1 and No. 2

1 Scope and field of application

This International Standard specifies the physical characteristics of a transparent A6 size microfiche, with image arrangements "No. 1" and "No. 2", intended for international interchange of information and for micropublishing. Depending on requirements, this microfiche may be negative or positive.

Alternative image arrangements, obtained by variable division of a microfiche, are specified in ISO 2708. ISO 2707 and ISO 2708 do not apply to computer output microfiche.[1)]

2 References

ISO 446, *Microcopying — ISO No. 1 Mire — Description and use in photographic documentary reproduction.*

ISO 543, *Cinematography — Motion-picture safety film — Definition, testing and marking.*

ISO 2708, *Microcopying — Transparent A6 size microfiche of variable division — Image arrangements A and B.*

ISO 3334, *Microcopying — ISO Test Chart No. 2 — Description and use in photographic documentary reproduction.*

ISO 6200, *Micrographics — Density of silver-gelatin type films.*

1) See ISO 5126, *Micrographics — Computer output microfiche (COM) — Microfiche A6.*

Micrographics — Transparent A6 size microfiche of uniform division — Image arrangements No. 1 and No. 2

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ISO 3334, *Microcopying — ISO Test Chart No. 2 — Description and use in photographic documentary reproduction.*

ISO 6200, *Micrographics — Density of silver-gelatin type films.*

1) See ISO 5126, *Micrographics — Computer output microfiche (COM) — Microfiche A6.*

3 Physical characteristics

3.1 Dimensions (See figures 1 and 2)

3.1.1 Overall size

The external dimensions of the microfiche shall be a rectangle of 105 mm × 148 mm.[1)]

When tolerances are specified for the distribution microfiche they will apply immediately after processing. The measurements shall be made when the film has come to equilibrium at 23 ± 2 °C and 50 ± 5 % relative humidity. Size variations due to raw stock slitting and processing should be considered in determining the tolerances. Additional size changes may occur during ageing, especially for films on cellulose ester supports. (See annex A, clause A.2.) Temporary size changes due to temperature and humidity changes are described in annex A, clause A.3.

3.1.2 Frame sizes

The dimensions of the frames shall be as follows :

Image arrangement No. 1

— single frame : 11,75 mm × 16,5 mm (figure 1);

— double frame : 16,5 mm × 23,5 mm (figure 1).

Image arrangement No. 2

— single frame : 10 mm × 12,5 mm (figure 2);

— double frame : 12,5 mm × 20 mm (figure 2).

3.1.3 Margins

The left and lower margins shall have a width of 4 mm.

3.2 Thickness

The thickness of the film used for the microfiche shall be not greater than 0,22 mm.

3.3 Corner rounding

The corners of the microfiche may be rounded, with the exception of those corners which have been subjected to a corner cut. When corners are rounded, the process shall not remove more than 3 mm of either of the two edges forming the corner.

3.4 Measurements involving cut-off corners

Where segments of an edge have been removed by corner rounding or corner cuts, a straight line extending the remainder of the edge in the relevant direction shall constitute the basis for measuring dimensions and spacing.

3.5 Identification of sensitized side

To facilitate microfiche-to-microfiche copying, a notch or a corner cut may be used to identify the sensitized layer of the microfiche, as follows : when a sheet of raw film or a microfiche is held with the long sides in a vertical position and the notch or corner cut is in the upper right-hand corner, the sensitized side shall be towards the observer.

When a notch is used, it shall be made in the shorter side of the sheet, near the appropriate corner. The notch may be of any shape, but it shall not penetrate more than 1,6 mm inward from the edge of the microfiche.

When a corner cut is used, it shall be made in the appropriate corner of the heading area only. The nominal dimensions of the cut are as follows : 6 mm along the longer side of the microfiche and 9 mm along the shorter side.

3.6 Heading area backing

An opaque or semi-opaque backing[2)] for the heading area is optional. If a heading area backing is used, it shall not increase the thickness of the fiche by more than 0,01 mm.

3.7 Safety film

The film used shall comply with ISO 543.

4 Reduction scale

The reduction scale shall be from 1 : 12 to 1 : 25,5 inclusive, and should be compatible with the size and graphic quality of the document.

5 Requirements for use

5.1 Heading area

The heading area above the image area of each microfiche shall be reserved for identification references to be legible without magnification.

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1) ISO 6148, *Photography — Film (silver-gelatin and non-silver gelatin types) for micrographic uses — Dimensions of sheet and roll material* (in preparation) will provide manufacturing tolerances for raw film. Until ISO 6148 is published, the manufacturing tolerances for raw film shall be $105\ ^{0}_{-0,25}$ mm × $148\ ^{0}_{-0,5}$ mm.

(See annex A for more information.)

2) The use of such backing restricts duplication.

5.2 Division of image areas

Each of the image areas (82,5 mm × 141 mm and 87,5 mm × 140 mm) corresponding to image arrangements No. 1 and No. 2 may be divided as follows :

Image arrangement No. 1

— single frame : 5 rows of 12 images, giving 60 images (figure 1);

— double frame : 5 rows of 6 images, giving 30 images (figure 1).

Image arrangement No. 2

— single frame : 7 rows of 14 images, giving 98 images (figure 2);

— double frame : 7 rows of 7 images, giving 49 images (figure 2).

5.3 Microimage placement and orientation

5.3.1 Microimages shall be positioned within one of the grid patterns specified in this International Standard and, for variable division, in ISO 2708 (an example is shown in figure 3). All measurements use the bottom edge and the bottom left-hand corner of the fiche as reference.

5.3.2 When the microfiche is held so that the heading is right-reading and upright, microimages shall always be right-reading and, whenever possible, upright.

5.3.3 If the text of a microimage is not upright on the microfiche, it shall appear on the fiche rotated 90° counterclockwise from the upright position.

5.3.4 A margin of at least 0,12 mm shall be left between the information area and the frame boundary.

5.3.5 A document whose information is too large to be accommodated in a single frame may be placed in a double frame.

5.4 Sectional filming

If a document is too large to be microfilmed in one exposure, it may be exposed in sections according to one of the two methods, I and II, as defined in 5.4.1 and 5.4.2.

5.4.1 Method I

The original is microfilmed in sections with not less than 25 mm overlap of original material, according to figure 4. If the document's image height can be accommodated in a single frame but its width cannot, the document shall be sectionalized in the manner shown in figure 4a). If the document's image width can be accommodated in a single frame but its height cannot, the document shall be sectionalized in the manner shown in figure 4b).

NOTE — The illustrations in figure 4 represent the original documents, and when method 1 of sectionalizing documents is used, the sections of the original will appear on the microfiche in normal sequence.

5.4.2 Method II

When method II [see figure 4 c)] is used, the document is filmed with not less than than 25 mm overlap of original material, in such a manner that the sections have the same geometrical array on the microfiche as they had in the original.

5.5 Double-page images

When two images are microfilmed in a single exposure to fall within a double frame area, the information area of each page shall appear within a single frame area.

5.6 Bound volumes

If a bound volume is small enough for a pair of facing pages to be accommodated upright and right-reading within a single frame at a standard reduction scale (see clause 4), then each pair of facing pages shall be placed in a single frame.

5.7 Pagination

When the microfiche is held so that the heading is upright and right-reading, the first microimage shall be placed in the upper left corner of the grid area, in the frame identified as A1. Succeeding frames shall appear in sequence from left to right and downward from row to row.

5.8 Trailer microfiche identification

When trailer microfiche are used, each microfiche in the set, including the first one, shall be identified sequentially, and the last microfiche in the set shall be identified as the last one.

5.9 Frame identification

Where co-ordinate identification is used for location of images, alphabetic characters shall be used to identify rows. Starting at the top row below the heading, the first row shall be A, the second B, and so on.

Columns shall be identified by numerals starting at the left. The first column shall be 1, the second 2 and so on.

The indication of co-ordinates on the microfiche is optional. If co-ordinates are shown on the microfiche, they shall be located in the margins (see figure 3) or in the lower portion of the heading area.[1)]

1) When co-ordinates are placed in the bottom margin, they may interfere with automatic cutters sensing the cutting mark.

5.2 Division of image areas

Each of the image areas (82,5 mm × 141 mm and 87,5 mm × 140 mm) corresponding to image arrangements No. 1 and No. 2 may be divided as follows :

Image arrangement No. 1

— single frame : 5 rows of 12 images, giving 60 images (figure 1);

— double frame : 5 rows of 6 images, giving 30 images (figure 1).

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5.3.3 If the text of a microimage is not upright on the microfiche, it shall appear on the fiche rotated 90° counterclockwise from the upright position.

5.3.4 A margin of at least 0,12 mm shall be left between the information area and the frame boundary.

5.3.5 A document whose information is too large to be accommodated in a single frame may be placed in a double frame.

5.4 Sectional filming

If a document is too large to be microfilmed in one exposure, it may be exposed in sections according to one of the two methods, I and II, as defined in 5.4.1 and 5.4.2.

5.4.1 Method I

The original is microfilmed in sections with not less than 25 mm overlap of original material, according to figure 4. If the document's image height can be accommodated in a single frame but its width cannot, the document shall be sectionalized in the manner shown in figure 4a). If the document's image width can be accommodated in a single frame but its height cannot, the document shall be sectionalized in the manner shown in figure 4b).

NOTE — The illustrations in figure 4 represent the original documents, and when method 1 of sectionalizing documents is used, the sections of the original will appear on the microfiche in normal sequence.

5.4.2 Method II

When method II [see figure 4 c)] is used, the document is filmed with not less than than 25 mm overlap of original material, in such a manner that the sections have the same geometrical array on the microfiche as they had in the original.

5.5 Double-page images

When two images are microfilmed in a single exposure to fall within a double frame area, the information area of each page shall appear within a single frame area.

5.6 Bound volumes

If a bound volume is small enough for a pair of facing pages to be accommodated upright and right-reading within a single frame at a standard reduction scale (see clause 4), then each pair of facing pages shall be placed in a single frame.

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When the microfiche is held so that the heading is upright and right-reading, the first microimage shall be placed in the upper left corner of the grid area, in the frame identified as A1. Succeeding frames shall appear in sequence from left to right and downward from row to row.

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Where co-ordinate identification is used for location of images, alphabetic characters shall be used to identify rows. Starting at the top row below the heading, the first row shall be A, the second B, and so on.

Columns shall be identified by numerals starting at the left. The first column shall be 1, the second 2 and so on.

The indication of co-ordinates on the microfiche is optional. If co-ordinates are shown on the microfiche, they shall be located in the margins (see figure 3) or in the lower portion of the heading area.[1)]

1) When co-ordinates are placed in the bottom margin, they may interfere with automatic cutters sensing the cutting mark.

5.10 Index frame

If an index to the microfiche is to be provided, the placement of the last microimage of the index shall be the bottom right corner of the grid area. Preceding index frames shall appear in reverse sequence subtracting from the allotted format.

5.11 Cutting mark

Each microfiche may carry a cutting mark to provide for automatic cutting of processed roll film into microfiche. This cutting mark shall be 3,0 mm × 3,0 mm square, and the centre of the square shall be located 32,0 ± 0,2 mm from the left edge of the microfiche, with the bottom edge of the square within 0,2 mm of the bottom edge of the microfiche.

6 Curl and bow

A fully processed microfiche cut to distribution size shall be placed convex side down on a flat surface for at least 6 h in an atmosphere in which the temperature is 23 ± 2 °C and the relative humidity 50 ± 5 %, after which no part of the microfiche shall be more than 6,5 mm above the surface.[1)]

7 Legibility or quality of microfiches

When a microfiche is examined as described in ISO 446 or ISO 3334, the characters or the patterns from a mire or test chart are to be legible on the microfiche if they have the sizes or the pattern numbers indicated in the table below for first and second generation or distribution copies; the latter is a microfiche from which a copy satisfying the quality requirements can be obtained.

8 Optical density

Specifications for optical density of images are covered in ISO 6200.

Table — Legibility or quality of microfiches

Reduction scale	ISO No. 1 Mire character size			ISO Test chart No. 2 Pattern number		
	1st generation	2nd generation	Distribution copy	1st generation	2nd generation	Distribution copy
1:24; 1:25,5	80	90	100	5,0	4,5	4,0
1:21,2	70	80	90	5,6	5,0	4,5
1:16; 1:15	56	63	70	7,1	6,3	5,6
1:12	45	50	56	9,0	8,0	7,1

1) For automatic retrieval, less curl and bow may be necessary.