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(JIIMA/JSA)

**Microfilming of documents on 16 mm
and 35 mm silver-gelatin type micro-
film — Operating procedures**

ICS 37.080

Reference number : JIS B 7187 : 2007 (E)

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Image and Information Management Association (JIIMA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS B 7187 : 1997** is replaced with this Standard. This Standard has been made based on **ISO 3272-1 : 2003** *Microfilming of technical drawings and other drawing office documents—Part 1 : Operating procedures*, **ISO 3272-2 : 1994** *Microfilming of technical drawings and other drawing office documents—Part 2 : Quality criteria and control of 35 mm silver gelatin microfilms*, **ISO 3272-4 : 1994** *Microfilming of technical drawings and other drawing office documents—Part 4 : Microfilming of drawings of special and exceptional elongated sizes* and **ISO 6199 : 2005** *Micrographics—Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm—Operating procedures* for the purpose of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm — Operating procedures

Introduction This Japanese Industrial Standard has been prepared based on the second edition of **ISO 3272-1** *Microfilming of technical drawings and other drawing office documents—Part 1 : Operating procedures* published in 2003, the second edition of **ISO 3272-2** *Microfilming of technical drawings and other drawing office documents—Part 2 : Quality criteria and control of 35 mm silver gelatin microfilms* published in 1994, the first edition of **ISO 3272-4** *Microfilming of technical drawings and other drawing office documents—Part 4 : Microfilming of drawings of special and exceptional elongated sizes* published in 1994 and the second edition of **ISO 6199** *Micrographics—Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm—Operating procedures* published in 2005. Annex 1 contains the requirements related to the quality index value for Chinese characters (kanji), that are unique to the Japanese Industrial Standard.

The portions underlined with dots are the matters in which the contents of the original International Standard have been modified. A list of modifications with explanations is given in Annex 3 (informative).

1 Scope

1.1 This Standard specifies the microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm (hereafter referred to as “film”) used for the purpose of delivering, exchanging and storing the documents ⁽¹⁾.

1.2 This Standard establishes general principles for document filming including orientation of images on film and area for retrieval codes, use of test chart in identification, classification, testing, etc. and quality of images.

Note ⁽¹⁾ Document is used as generic term including writing, drawing, etc. (see **01.04** of **JIS Z 6000**).

NOTE : The International Standards corresponding to this Standard is as follows.

In addition, the symbols which denote the degree of correspondence in the contents between **JIS** and the relevant International Standard are IDT (identical), MOD (modified) and NEQ (not equivalent) according to **ISO/IEC Guide 21**.

ISO 3272-1 : 2003 *Microfilming of technical drawings and other drawing office documents—Part 1 : Operating procedures* (MOD)

ISO 3272-2 : 1994 *Microfilming of technical drawings and other drawing office documents—Part 2 : Quality criteria and control of 35 mm silver gelatin microfilms* (MOD)

ISO 3272-4 : 1994 *Microfilming of technical drawings and other drawing office documents—Part 4 : Microfilming of drawings of special and exceptional elongated sizes* (MOD)

ISO 6199 : 2005 *Micrographics—Microfilming of documents on 16 mm and 35 mm silver-gelatin type microfilm—Operating procedures (MOD)*

2 Normative references The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent edition of the standards (including amendments) indicated below shall be applied.

JIS Z 6000 *Micrographics—Vocabulary*

NOTE : **ISO 6196-1** : 1993 *Micrographics—Vocabulary—Part 1 : General terms*, **ISO/DIS 6196-3** *Micrographics—Vocabulary—Part 3 Film processing*, **ISO 6196-4** : 1987 *Micrographics—Vocabulary—Part 4 : Materials and packaging*, **ISO 6196-5** : 1987 *Micrographics—Vocabulary—Part 5 : Quality of images, legibility, inspection*, **ISO 6196-6** : 1992 *Micrographics—Vocabulary—Part 6 : Equipment*, **ISO 6196-7** : 1992 *Micrographics—Vocabulary—Part 7 : Computer micrographics* and **ISO/DIS 6196-8** *Micrographics—Vocabulary—Part 8 : Use* are equivalent to the said standard.

JIS Z 6008 *Resolution test chart for microfilming—description and use in photographic documentary reproduction*

NOTE : **ISO 3334** *Micrographics—ISO resolution test chart No.2—Description and use in photographic documentary reproduction* is equivalent to the said standard.

JIS Z 6009 *Silver-gelatin type microfilms—Processing and storage*

JIS Z 8310 *Technical drawing—General code of drawing practice*

JIS Z 8311 *Technical drawings—Sizes and layout of drawing sheets*

ISO 446 *Micrographics—ISO character and ISO test chart No.1—Description and use*

ISO 6148 *Photography—Micrographic films, spools and cores—Dimensions*

ISO 6200 *Micrographics—First generation silver-gelatin microforms of source documents—Density specifications and method of measurement*

ISO 10594 *Micrographics—Rotary camera systems—Test target for checking performance*

ISO 18906 *Imaging materials—Photographic films—Specifications for safety film*

3 Definitions For the purpose of this Standard, the definitions given in **JIS Z 6000** and the following definition apply.

a) **reversed side reading** a state of reading letters, documents and drawings from the reverse side [see Annex 2 figure 2 b)]

NOTE : Including their orientation of transverse or inversion.

4 Preparation of documents to be microfilmed The preparation shall be as follows :

- a) The document file shall be examined for filing, condition of damage, legibility, order, targets and foreign objects, and appropriate action should be taken.
- b) The drawings shall be arranged in the order of filming, extending wrinkles, folds, etc., and prepared in accordance with clause 2 of Annex 2.

5 Filming

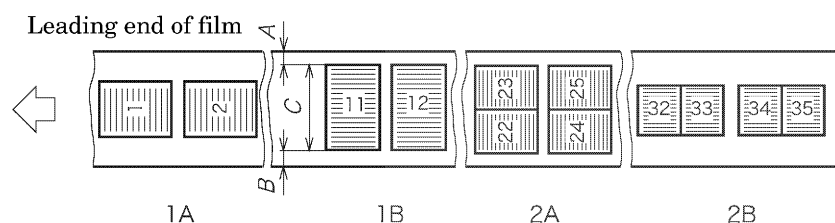
5.1 Films to be used The films to be used shall conform to **ISO 6148** and **ISO 18906**.

5.2 Simplex format and retrieval code of micro-images

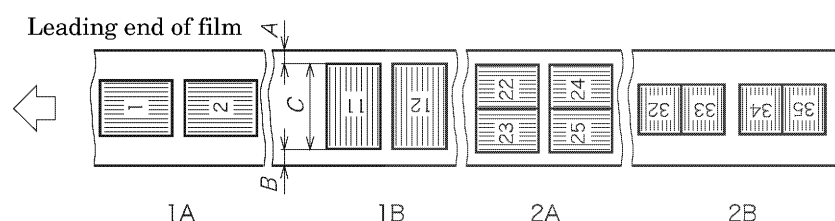
5.2.1 Simplex format of micro-images The simplex format of micro-images shall be placed in regular ordering and orientations in any of the following simplex, duo or duplex (see figures 1 to 3). The dimensions relating to the arrangement of micro-images in figures 1 to 3 are shown in table 1.

The simplex format can be filmed either planetary camera or rotary camera, but duo or duplex format shall be filmed with 16 mm rotary camera.

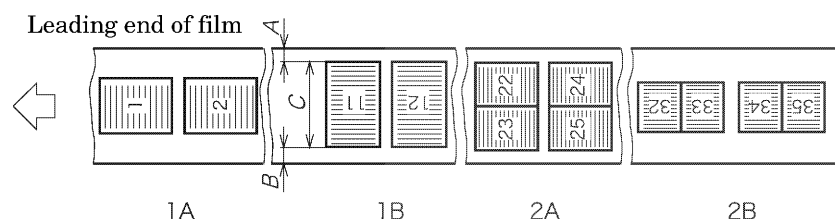
The formats of the micro-images of drawings on the 35 mm film shall be as shown in 3.3 of Annex 2. The arrangement of the micro-images of drawings on the 16 mm film should be as shown figure 1 a).



a) Left to right scripts



b) Vertical and right to left scripts



c) Horizontal and right to left scripts

Figure 1 Micro-image formats—Examples of simplex formats

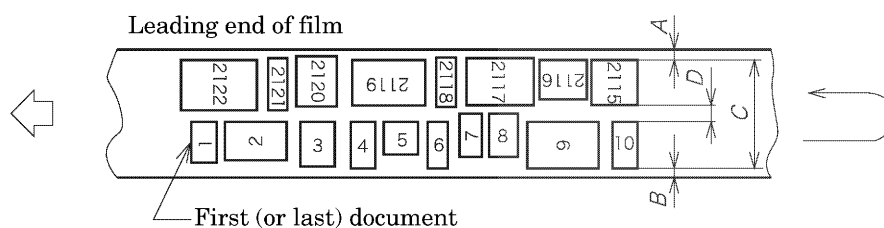


Figure 2 Micro-image formats—Examples of duo

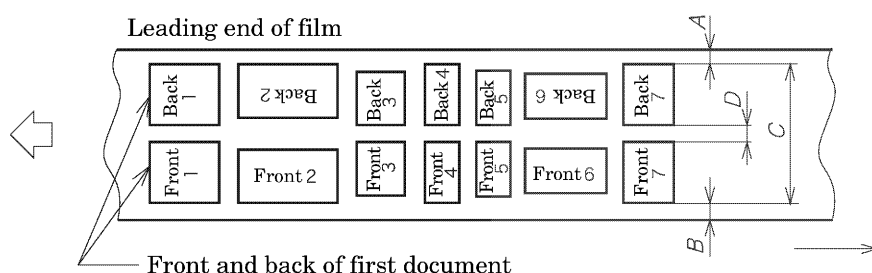


Figure 3 Micro-image formats—Examples of duplex

Table 1 Dimensions of micro-image formats (see figures 1 to 3)

Unit : mm

	16 mm film	35 mm film
A min.	0.5	0.97
B min.	0.5	0.97
C max.	14.92	33
D min. ⁽²⁾	0.5	0.97

Note ⁽²⁾ For all formats except simplex.

5.2.2 Orientations of micro-images The orientations of micro-images should be filmed in the comic mode (1B and 2B in figure 1).

5.2.3 Retrieval coding of film The retrieval code should be given to the film so that the document is easily identified (see figure 4).

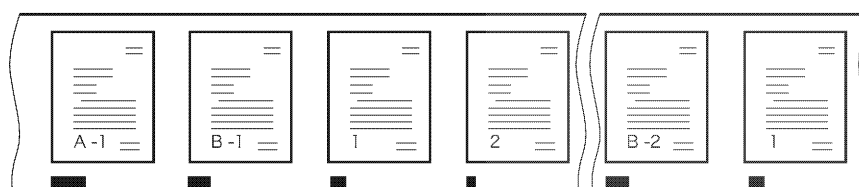


Figure 4 Example of document mark (blip) on 16 mm film

5.3 Reduction ratio The reduction ratio shall be determined by the size of the characters, the quality of the original documents, the performance of the camera and film, and the size of the documents to be microfilmed.

The film size, either 16 mm or 35 mm, and the micro-image format to be adopted should be determined in relation to the reduction ratio so that the legibility of the characters and the recoverability of the documents become good. In this case, the size of the micro-image shall be selected in such a way that when magnifying the third generation (distribution copy) film by means of reader or reader-printer, the smallest characters are legible.

NOTES 1 The quality index value expressing the legibility of the characters of the micro-images is as given in Annex 1.

2 For the filming resolution used for the quality index value, see table 7.

5.4 Maximum dimensions of the documents The maximum dimensions of the documents to be filmed depend on the film dimension, reduction ratio and camera type, either rotary or planetary. The film without retrieval code shall be as shown in figures 1 to 3 and table 1. When using the 16 mm film with retrieval codes, it shall be as shown in figure 5.

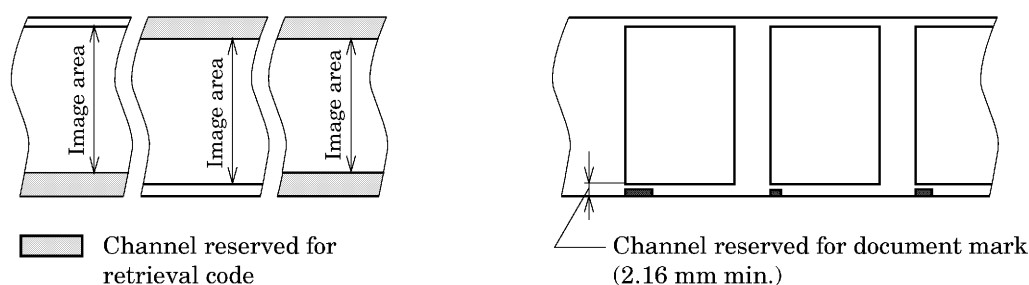


Figure 5 Places and dimensions of channels reserved for coding

5.4.1 Simplex format in rotary cameras without retrieval code The side of the document parallel to the length of the film may be any length. Table 2 lists the maximum dimension of the documents at the commonly used reduction ratios. The higher reduction ratio should be used to avoid the possibility of image loss caused by the skewing of the documents while being photographed.

Table 2 Maximum dimension of document

Unit : mm

Nominal reduction ratio	Maximum dimension of document corresponding to width of film
1 : 20	298
1 : 24	357

5.4.2 Simplex format in planetary cameras without retrieval code The simplex format in planetary cameras should be as follows.

- Table 3 lists the maximum dimensions of documents for the maximum dimensions of the aperture in the planetary cameras which can have variable reductions and variable frame pitch.
- The maximum dimensions of the aperture in the fixed frame-pitch cameras are shown in table 4.
- For a 35 mm film for drawings, the maximum dimensions of drawings shall be as shown in Annex 2 table 1 and Annex 2 table 2.
- The reduction ratio of the documents should be selected allowing for positioning errors.

Table 3 Maximum dimensions of documents to be filmed

Unit : mm

Nominal reduction ratio	Approximate maximum dimensions of documents (subject to 3 % variation)			
	16 mm film camera aperture size		35 mm film camera aperture size	
	38 ⁽³⁾ Length	15 Width	45 ⁰ _{-0.5} Length	32 ⁰ _{-0.5} Width
1 : 6	229	90	267	190
1 : 8	305	120	356	254
1 : 10	381	150	444	318
1 : 12	457	180	533	381
1 : 14	533	210	622	444
1 : 15	572	225	667	476
1 : 16	610	240	711	508
1 : 18	686	270	800	572
1 : 20	762	300	889	635
1 : 21	800	315	933	667
1 : 22	838	330	978	698
1 : 24	914	360	1 067	762
1 : 26	991	390	1 156	826
1 : 27	1 029	405	1 200	857
1 : 28	1 067	420	1 245	889
1 : 29	1 105	435	1 289	921
1 : 30	1 143	450	1 334	952
1 : 32	1 219	480	1 422	1 016
1 : 34	1 295	510	1 511	1 080
1 : 36	1 372	540	1 600	1 143

Note ⁽³⁾ 38 mm in the column of 16 mm film camera aperture size is not used in Japan.